June 13, 2014

Scott Wilson, Acting Regional Manager
Bay Delta Region
Department of Fish and Wildlife
7329 Silverado Trail
Napa, California 94558

Subject: 2013 Annual Summary Report on Environmental Permit Compliance for the Temporary Barriers Project

Dear Mr. Wilson:

Please find the enclosed 2013 Annual Summary Report on Environmental Permit Compliance for the South Delta Temporary Barriers Project (TBP). In 2013, the Department of Water Resources (DWR) constructed and operated the TBP under Clean Water Act Section 404 Permit SPK-2001-00121, Clean Water Act Section 401 Water Quality Certification 5B39CR00191, Fish and Wildlife Streambed Alteration Agreement 1600-2010-0375-R3, Fish and Wildlife Incidental Take Permit 2081-2011-019-03, National Marine Fisheries Service Biological Opinion 2012/9347, and Fish and Wildlife Service Biological Opinion 81420-2008-F-0522. This document is intended to fulfill the annual reporting requirements in each of these permits.

The principal purpose of the TBP is to protect San Joaquin salmon migrating through the Delta and provide an adequate agricultural water supply in terms of quantity, quality, and channel water levels to meet the reasonable and beneficial needs of water users in the South Delta Water Agency. Temporary barriers will also help DWR to better understand the complex engineering, operational, and biological considerations for improving both temporary barrier designs and potential future permanent solutions.

The TBP was initiated in 1991, and involves the seasonal installation of four rock barriers: three flow-control or agricultural barriers and one fish-control barrier. The flow-control barriers are installed at Middle River near Victoria Canal, Old River near Tracy, and Grant Line Canal near Tracy Boulevard Bridge. The fish-control barrier may be installed at the head of Old River at the divergence from the San Joaquin River (HORB). In the fall, the HORB may be installed to serve as a flow-control barrier by keeping water in the San Joaquin River to improve downstream dissolved oxygen conditions. The HORB was not installed in the spring or fall of 2013.

The TBP was initiated with the intention that it would be a temporary program implemented only until permanent operable gates could be installed. However, the timing of implementation of permanent operable gates is uncertain and the TBP is proposed to continue until the permanent operable gates are implemented.

The agricultural barriers were installed and operated in 2013. The terms and conditions of the environmental permits were met during the construction and operation of the agricultural barriers. Also, in addition to the minimization and avoidance measures, Swainson's Hawk and shallow water disturbances have been compensated for through the purchase of mitigation credits at approved mitigation banks.

If you need additional information regarding this Annual Summary Report, please contact Jacob McQuirk, Chief of Temporary Barriers Project and Lower San Joaquin Section, at (916) 653-9883.

Sincerely,

Mark Holderman, Chief
South Delta Branch

Enclosure:

2013 Annual Summary Report on Environmental Permit Compliance for the Temporary Barriers Project

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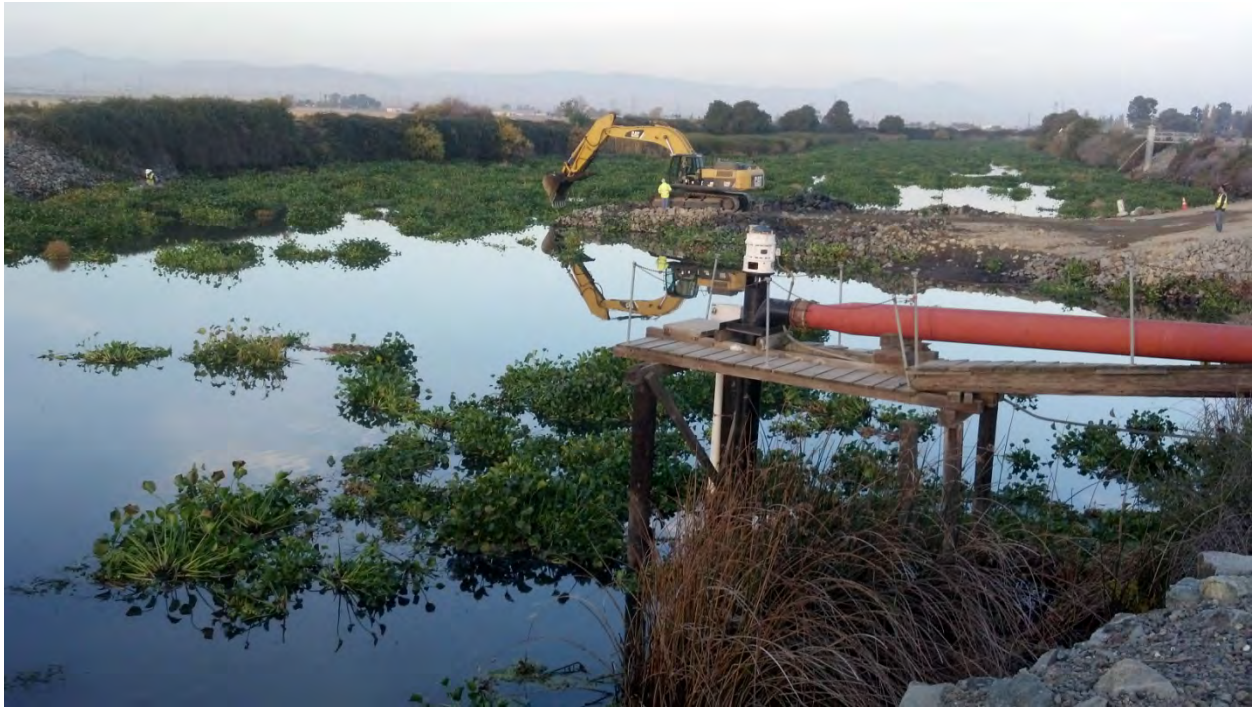
The Temporary Barriers Project 2013

Environmental Permit Compliance Report

Department of Water Resources

Bay Delta Office



January 2014

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Introduction

The purpose of this report is to fulfill the annual reporting requirements of the following permits:

- The Department of Fish and Wildlife 2081 Incidental Take Permit and Streambed Alteration Agreement,
- The Central Valley Regional Water Quality Control Board 401 Water Quality Certification,
- The Army Corps of Engineers 404 Permit,
- The National Marine Fisheries Service Biological Opinion, and
- The United States Fish and Wildlife Service Biological Opinion.

The South Delta Temporary Barriers Project (TBP) is an ongoing project which installs up to four rock barriers in channels located in the southern portion of the Sacramento - San Joaquin Delta near the cities of Tracy and Lathrop in San Joaquin County, California. The South Delta TBP was initiated in 1991 in response to a 1982 lawsuit filed by the South Delta Water Agency (SDWA) against the Department of Water Resources (DWR). DWR agreed to install these barriers to ensure that local agricultural diverters within the SDWA do not experience adverse water level and circulation impacts caused by the State Water Project (SWP) and Central Valley Project (CVP) Delta export operations.

The project consists of agricultural rock barriers in Old River near Tracy (ORT), Middle River (MR), and Grant Line Canal (GLC) near the Tracy Boulevard Bridge which are designed to act as flow control structures, “trapping” tidal waters behind them following a high tide. These barriers improve water levels and circulation for local south Delta farmers. A fourth barrier, installed at the Head of Old River (HOR), is designed to improve migration conditions for Central Valley fall-run Chinook salmon and Central Valley DPS steelhead in the San Joaquin River watershed during adult and juvenile migrations.

All of the barriers are typically installed during the period between March and November. The three agricultural barriers (ORT, MR and GLC) help control water levels upstream of the barriers so that agricultural pumps will have sufficient head to operate efficiently during each tidal cycle. The channel sections upstream of the barriers will fill with water when the flood tide moves into the south Delta and overtops the barrier weirs. On the falling ebb tide, the water will be retained behind the barriers, maintaining sufficient depth to continue agricultural pumping without loss of service. Water quantities are not increased for the south Delta farmers; however, the availability of adequate pump draft and pumping efficiency is improved with the barriers in place.

At the HOR, a fourth barrier is installed in the spring in order to reduce the loss of out-migrating San Joaquin River basin Central Valley fall-run Chinook salmon and Central Valley DPS steelhead smolts by significantly decreasing their diversions down Old River, consequently reducing their entrainment at the SWP and CVP pumps. The HOR may remain in place yearly from April 1 through May 31 at the discretion of the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW). In 2009 and 2010 a Non-Physical Barrier (NPB) at the HOR was installed as an alternative to the rock

barrier because of a court order issued in 2008 mandating not to install the rock barrier citing a concern for the Delta smelt. The studies conducted using the NPB tested its efficiency in keeping the out-migrating salmon smolts in the San Joaquin River (SJR) and deterring them from going into Old River which may increase their chance of being lost in the interior Delta or entrained at the SWP and the CVP export pumps. In 2011, high flows on the SJR and safety concerns prevented the installation of the already planned NPB; nevertheless, DWR implemented the 2011 head of Old River fish study and data was collected on fish behavior at the divergence with no barrier in place. In 2012, a physical rock barrier was placed at the HOR and DWR implemented the 2012 head of Old River fish study for which data was collected on fish behavior at the HOR with a rock barrier in place and in 2013 no barrier was placed at the head of old River.

The HOR rock barrier may also be reinstalled in the fall in an effort to improve dissolved oxygen (DO) levels in the San Joaquin River between its confluence with Old River and Medford Island, 25.5 miles downstream. The fall installation is a physical rock barrier at the HOR and is intended to increase the volume of San Joaquin River flow passing downstream through the Port of Stockton in order to raise the low DO sag that can occur there and thereby aid the adult salmon upstream migration in the San Joaquin River basin.

Table 1: 2013 Temporary Barriers Project Installation and Removal Schedule

	Installation			Notched	Removal		
Barrier	Started	Closed	Completed		Started	Breached	Completed
Old River near Tracy	05/08/13	05/30/13	06/03/13	09/13/13	10/30/13	11/02/13	11/18/13
Middle River	05/08/13	05/14/13	05/15/13	09/13/13	10/28/13	10/29/13	11/01/13
Grant Line Canal	05/20/13	06/19/13	06/19/13	09/13/13	10/29/13	11/01/13	11/08/13
Head of Old River	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Project Location:

The South Delta Temporary Barriers (Project) is located in four distinct locations (Figure 1):

- Middle River (MR) near Victoria Canal, San Joaquin County. Latitude 37.8857 N, Longitude 121.4822 W, Section 36, Township 1N, Range 4E, U.S. Geological Survey (USGS) map Holt, Assessor's Parcel Number 189-250-22 and 131-120-04

- Old River (ORT) near the city of Tracy, San Joaquin County. Latitude 37.8103 N, Longitude 121.5428 W, Section 28, Township 1S, Range 4E, U.S. Geological Survey (USGS) map Clifton Court Forebay, Assessor's Parcel Number 258-041-01 and 189-050-43
- Grant Line Canal (GLC) near the Tracy Boulevard Bridge in San Joaquin County. Latitude 37.8199 N, Longitude 121.4483 W, Section29, Township 1S, Range 5E, U.S. Geological Survey (USGS) map Union Island, Assessor's Parcel Number 189-240-20 and 189-170-07

- Head of Old River (HOR) near the Sacramento-San Joaquin River Delta in San Joaquin County. Latitude 37.8078 N, Longitude 121.3307 W, Section 32, Township 1S, Range 6E, U.S. Geological Survey (USGS) map Lathrop, Assessor's Parcel Number 191-180-02 and 213-240-01.

Figure 1: Project Location and Water Quality Sampling Stations

Agricultural Barriers

1 **Middle River Barrier**

2 **Old River Near Tracy Barrier**

3 **Grant Line Canal Barrier**

Fish Barrier

4 **Head of Old River Barrier**

Location of the water quality measurement

Project Description:

The 2013 TBP consisted of installing the three temporary agricultural rock barriers at Middle River near Victoria Canal, Old River near Tracy, and Grant Line Canal near Tracy Boulevard Bridge. No installation of the spring or fall rock barrier at the head of Old River occurred in 2013. The 2013 HOR Fish Monitoring Study was implemented to study predatory fish distribution and abundance in the vicinity of the HOR. This study evaluated smolts and predator behavior in the vicinity of the head of Old River with the intent of improving salmon smolts survival past the HOR during spring outmigration.

Additionally, in 2013 the option of raising by one foot the MR barrier to increase water level and improve circulation was exercised on July 21, 2013.

Middle River Barrier (MR)

Approximately 2,300 cubic yards of rock formed a 270 foot long berm, 50 feet wide at the base (0.31 acre). Six 48-inch diameter culverts with tidally-operated flap gates were embedded in the abutments of the barrier. The barrier abutments and culverts remained in place throughout the year. The center section of the barrier had a 140-foot long, 18-foot wide weir. The weir crest elevation was 3.3 feet based on the North American Vertical Datum of 1988 (NAVD88) until July 3 when the weir crest was raised by one foot to 4.3 feet (NAVD88).

On September 13, 2013, a notch that was 10 feet wide allowing a minimum depth of 6 inches of water to pass over the barrier during low-high tide was excavated to permit adult migrating Chinook salmon to pass the barrier.

Old River near Tracy Barrier (ORT)

Approximately 5,000 cubic yards of rock formed a 250-foot long barrier that is 60 feet wide at the base (0.34 acre). The center section of the barrier is equipped with nine 48-inch diameter culverts with flap-gates. A ramped boat portage facility is located at this site.

On September 13, 2013, a notch that was 10 feet wide allowing a minimum depth of 6 inches of water to pass over the barrier during low-high tide was excavated to permit adult migrating Chinook salmon to pass the barrier.

Grant Line Canal Barrier (GLC)

Approximately 12,600 cubic yards of rock formed a 300-foot long barrier that is 50 feet wide at its base (0.68 acres). The south end of the barrier is equipped with six 48-inch diameter culverts, 60 feet long, with flap-gates built into the barrier abutment. The culverts and barrier abutment remained in place throughout the year. A ramped boat portage facility is also located at this site at the north levee.

The existing flashboard structure had reached its service life and was replaced in 2012. The area of disturbance associated with the culvert replacement was approximately 100 square feet (<0.01 acre) within the existing project footprint. On September 13, 2013, enough flashboards were removed to

allow a minimum depth of 6 inches of water to pass over the barrier during low-high tide was excavated to permit adult migrating Chinook salmon to pass the barrier.

Head of Old River Barrier (HOR)

The HOR Barrier was not installed in either the spring or fall 2013.

Pre-Construction

Biological surveys were performed by qualified biologists in the staging areas and access roads within 24 hours of the start of construction. These surveys focused on special status plants and animals and occurred prior to the start of construction. For complete details of preconstruction environmental monitoring, see Appendix 1: Swainson's Hawk Survey and Monitoring Report, Appendix 2: Botanical Survey of the Temporary Barriers Project Sites and Appendix 3: Biological Monitoring Data Sheets.

Worker Environmental Awareness Program (WEAP) training was held for all construction and DWR staff by an approved biologist. Topics covered included the biology and listing status of winter and spring run Chinook salmon, steelhead, green sturgeon, delta smelt, longfin smelt, Swainson's hawk, and western pond turtle. Additionally, best management practices were discussed that would protect the species and their habitats. Additional training was performed for new workers entering the site for the duration of the project. For complete details on the WEAP, see Appendix 4.

Construction

Biological Monitoring

On-site biological monitoring was performed by agency approved biologists as required. Field Reports were completed periodically during the project see Appendix 3: Biological Monitoring Data Sheets. Site conditions were recorded periodically during the installation and removal of the barriers using photographs (photos 1 through 4 are representative). Biologists were on site every day during construction to monitor and observe the construction activities.

Based on the on-site biological monitoring of the construction activities, there was no indication that construction activities had any significant detrimental effects to the environment.

Swainson's Hawk Monitoring

Swainson's Hawk surveys in 2013 were initiated on April 3 at all temporary barriers construction sites and their corresponding storage facilities. Surveys, construction monitoring and post-construction monitoring continued through June 26, 2013. For complete details, see Appendix 1: (Swainson's Hawk Survey and Monitoring Report).

Although 2013 was a difficult year for nesting raptors, there was no indication that construction activities at the barrier sites had any detrimental effects on the nesting raptors.

Water Quality Monitoring

Eight water quality monitoring stations were established for this project; one upstream and one downstream of each barrier (See Figure 1: Project Location and Water Quality Sampling Stations). Water quality measurements including turbidity and settleable solids were taken, at a minimum, every 4 hours during in-water work. The water quality objectives, as outlined in the Water Quality Certification number (WDID#5B39CR00191) issued May 6, 2011, were met on most occasions; however, there were several occasions when turbidity increased more than 15 NTU above background levels. This occurred on 5/13/2013, 5/15/2013, 5/16/2013, 5/17/2013, 5/20/2013, 5/28 /2013 and 11/7/2013 at ORT, on 6/5/2013 at GLC and on 4/14/2013 at MR. At no point during the construction of the barriers did the turbidity reach the 150 NTU agreed upon background turbidity threshold for the Delta. The highest recorded turbidity measurement of 79.4 NTU occurred during the construction of the ORT barrier on 11/1/2013. This measurement was 11.2 NTU above the background measurement of 68.2 NTU. For complete water quality data see Appendix 5 (Water Quality Monitoring Data) which includes data collected during the installation and removal of the 2013 Temporary Barriers.

Overall, water quality measured during construction was well below the thresholds set by the CVRWQCB, however, there were several instances when measured turbidity increases were greater than 15 NTU. These turbidity exceedances were likely in part due to the unusually low turbidity experienced in the south Delta during installation and removal of the barriers. During these instances, in-water work was slowed or stopped until water quality levels returned to levels below thresholds set in the Water Quality Certification. When acceptable turbidity levels were reached, in-water construction resumed.

Dissolved Oxygen

In 2013, DWR continued its South Delta water quality sampling program, which consisted of continuous monitoring. Continuous water quality monitoring includes dissolved oxygen and other parameters.

DWR started discrete sampling two weeks before the barriers were installed and concluded sampling two weeks after all the barriers were removed. Staff conducted sampling every Tuesday morning to target the time when dissolved oxygen concentrations tend to be lowest.

The information collected by this program is required for compliance with a 401 Water Quality Certification (5B39CR00191) issued by the Central Valley Regional Water Quality Control Board. For complete detailed information see Appendix 6.

Sound Monitoring

The analysis of the effects of the TBP anticipated that the construction and removal of each barrier would result in acoustic noise generated in the aquatic environment that exceeds typical ambient background conditions for the action area. Based on the types of vehicles and equipment to be used, the methods described for the construction and removal of the barriers and the effects analysis

conducted for consultation, the amount of sound generated in the aquatic environment associated with the construction and removal of each barrier was monitored to ensure that these noise levels did not exceed threshold set by the National Marine Fisheries Service. For complete detailed information on the sound monitoring see Appendix 7.

Based on the underwater noise levels measured and observed during the monitoring, the ecological surrogate threshold was not exceeded and it was determined that the monitoring adequately characterizes the noise level trends attributable to the construction of the TBP. Based on these observations, it is anticipated that further monitoring of sound levels should not be necessary for the placement of rock barriers.

Post Construction

Upon completion of the project, all materials installed in the water were removed and sites were restored to their pre-project conditions. All reusable barrier materials were relocated to their staging area and stored for next season.

MMRP Table

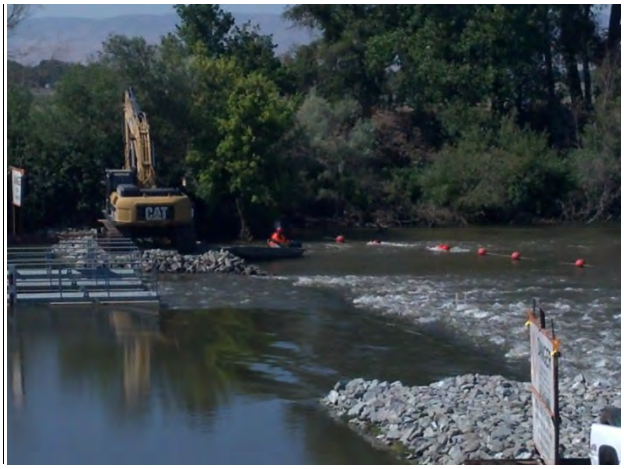
Appendix 8 contains the Mitigation, Monitoring and Reporting Program (MMRP) table specifying the mitigation measures, their source, the implementation schedule, the responsible party and the status of each task.

Conclusions

The terms and conditions of the environmental permits were met during the construction and operation of the agricultural barriers. On-site environmental disturbance of the surroundings were minimal due to the small foot print of the barriers. Also, in addition to the minimization and avoidance measures, Swainson's Hawk and shallow water disturbances have been compensated for through the purchase of mitigation credits at approved mitigation banks (Appendix 9). All sites were successfully restored to pre-project conditions after the removal of the barriers took place.

Representative Site Photographs

Middle River Barrier

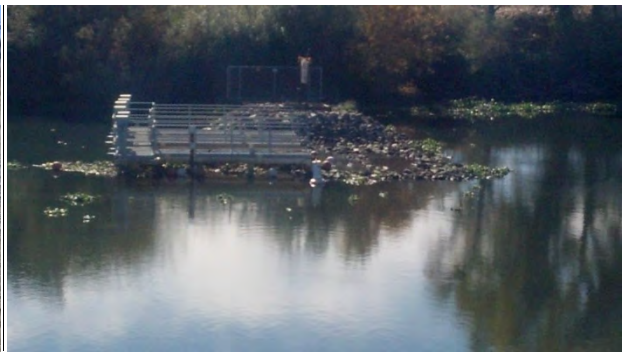


Grant Line Canal Barrier

Old River near Tracy Barrier

Post Construction Photos

Middle River



Grant Line Canal

Old River Tracy

Appendix 1: Swainsons Hawk Survey and Monitoring Report

Swainson's Hawk Survey and Monitoring Report
Temporary Barriers Project, 2013 Construction Season

The following is the compliance report for Swainson's Hawk surveys and monitoring for the Temporary Barriers Project construction activities in the 2013 nesting season. All surveys, monitoring, observations and conclusions were made by Michael Bradbury, Staff Environmental Scientist for DWR, unless otherwise noted.

Raptor surveys and monitoring were conducted from April 3 to June 26 at all active construction sites. Swainson's Hawks typically return to traditional nest sites in late March, and begin to lay eggs around the April 20. Great Horned Owls and Red-tailed Hawks typically nest two months and one month earlier, respectively. Observations and impact assessments are included for all three species.

Head of Old River Barrier (Spring)
The barrier at the Head of Old River was not constructed in Spring of 2013. No impacts to nesting raptors were expected.

Middle River Barrier
Construction on the Middle River (MR) barrier was begun on May 8 and was completed on May 14. The barrier site was surveyed and monitored beginning on April 3. A pair of Swainson's Hawks constructed a nest in a willow on the in-stream island west of the barrier in their traditional nest territory. Throughout the beginning of nesting season, late April to early May,

Figure 1. Raptor nests at Middle River barrier site in 2013.

the pair was on and off the nest, and the status was unknown. The pair continued to mate, demonstrate affinity to the nest, but then began constructing a nest in another tree. It is unclear if the female laid eggs, but probably not; by late May it was obvious the pair was not going to successfully nest, though one or both of the adults were seen on the nest through June 11. Their behavior was not noticeably different before and after the initiation of construction, and no effects from construction were noted.

A pair of Red-tailed Hawks appeared to construct or update a nest in the eucalyptus tree just east of the project site prior to the first raptor surveys for the year. By early April, the nest was no longer active, though the hawks remained in the immediate area, often perching in the group of trees with the nest during construction.

Old River at Tracy Barrier

The Old River at Tracy (ORT) barrier was constructed from May 8 to May 30. Raptor surveys and monitoring were conducted from April 3 to June 26. No Swainson's Hawks nested near the barrier site prior to the completion of the construction activities. A Red-tailed Hawk pair and Great Horned Owl pair each nested across the river from the ORT barrier rock storage area (Figure 2). On April 3, the Red-tailed Hawks were on eggs; two chicks hatched around April 26 and both fledged about June 7. On April 3, the Great Horned Owls had at least two chicks, 2 to 3 weeks old, which were observed until April 19. On April 26, the nest was empty and adults were observed in adjacent trees. The young were not developed enough to fledge, and weren't seen

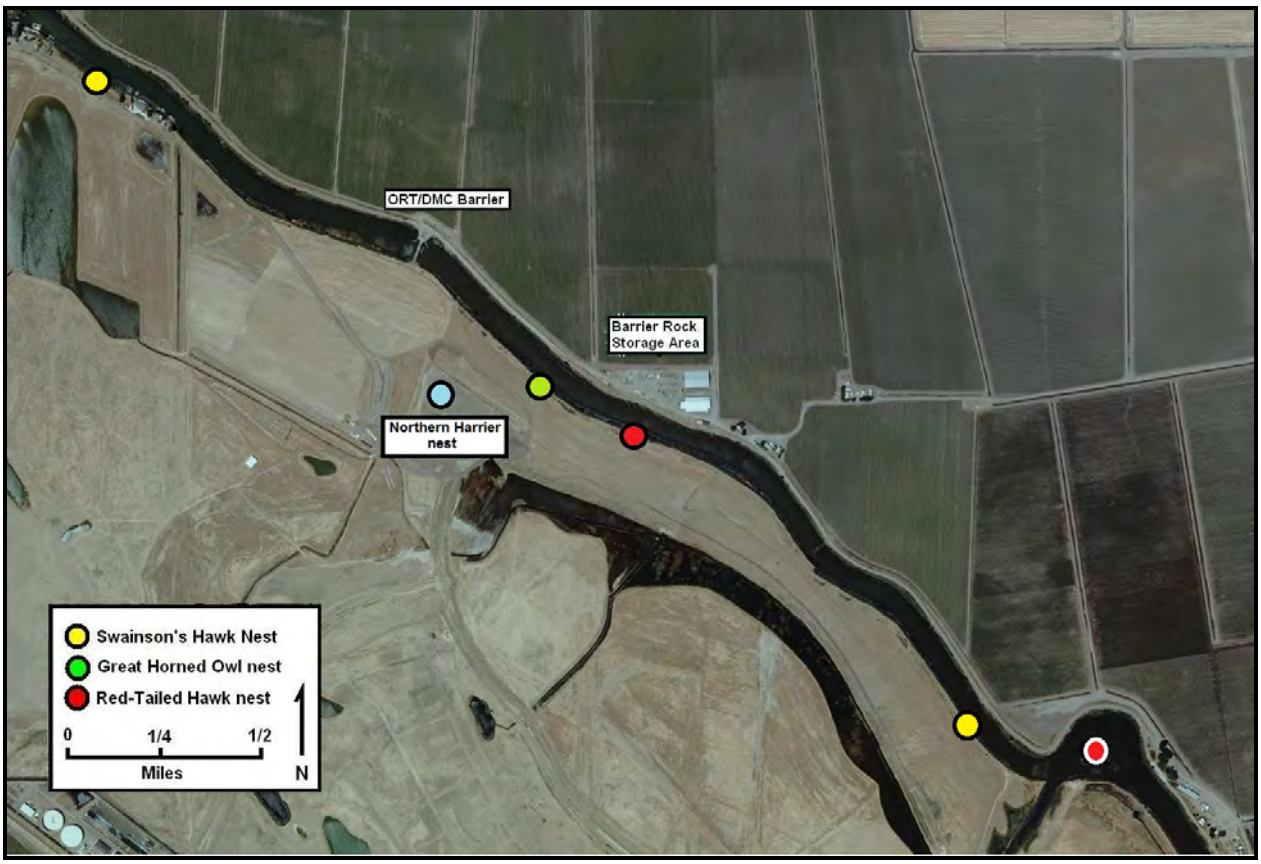


Figure 2. Raptor nests at Old River, Tracy barrier site in 2013.

anywhere around the nest site and probably did not survive.

Two pairs of Swainson's Hawks nested near the project site, although both nests were greater than ½ mile from construction activities. One pair nested upstream (east) of the project site in a large alder, and hatched two young; only one young was observed on June 6, was observed through June 26 and was presumed to have fledged. The Swainson's Hawks downstream (west) constructed a nest in a pine tree above a house, were observed in the nest periodically but not consistently and by May 24 the nest was empty and presumed failed.

A Red-Tailed Hawk nested on the island to the east of the project site, but failed. A Northern Harrier nested in the tall grass and weeds south of the barrier about 200 yards from the barrier site. They were observed periodically throughout the construction period, but because they are ground nesters and were in an inaccessible location, it is not known if the birds fledged young. There was no evidence that construction activities affected any of the nesting raptors in the area.

Grant Line Canal Barrier and Accessory Areas

Construction of the Grant Line Canal (GLC) barrier began on May 17 and was completed on June 19. Swainson's Hawk surveys were initiated on April 3 and surveys and monitoring were completed on June 26.

Three pairs of Swainson's Hawks nested in the project area (Figure 3). Nest one (1) was in a willow tree along the north portion of the haul road closer to Tracy Blvd. The pair was on eggs by April 19. Two young hatched by May 24. Both chicks and adults were observed at the nest through June 11. On June 19, there were no chicks on the nest and remains of one of the adults, probably the female, was found next to Tracy Blvd and likely had been hit by a car.

Nest two (2) was constructed in a walnut tree at the south end of the haul road. The pair was on eggs by April 26. Two chicks had hatched by May 31 and were observed through June 11. By June 19, no birds were observed in the nest, and it is presumed to have failed.

Nest three (3) was built at the top of an oak tree on Grant Line Canal, 250 meters east of the barrier. The Swainson's Hawks were on eggs by April 26 and one young hatched sometime before May 28. The young and adults were observed post-project on June 26. The young is presumed to have fledged.

Conclusions and Additional Information

The 2013 nesting season was another bad year for Swainson's Hawks, as well as Red-tailed Hawks and Great Horned Owls. The high nest failure rate for the three species is a continued concern. This is the first year that there were no Red-Tailed Hawks or Great Horned Owls nesting near the Grant Line Canal construction sites, indicating that prey resources may be lacking. The failure of most of the Swainson's Hawk nests observed and the Great Horned Owl nest is an additional indicator. All nest failures near the barriers occurred pre- or post-construction; it is unlikely those activities affected the nesting efforts.

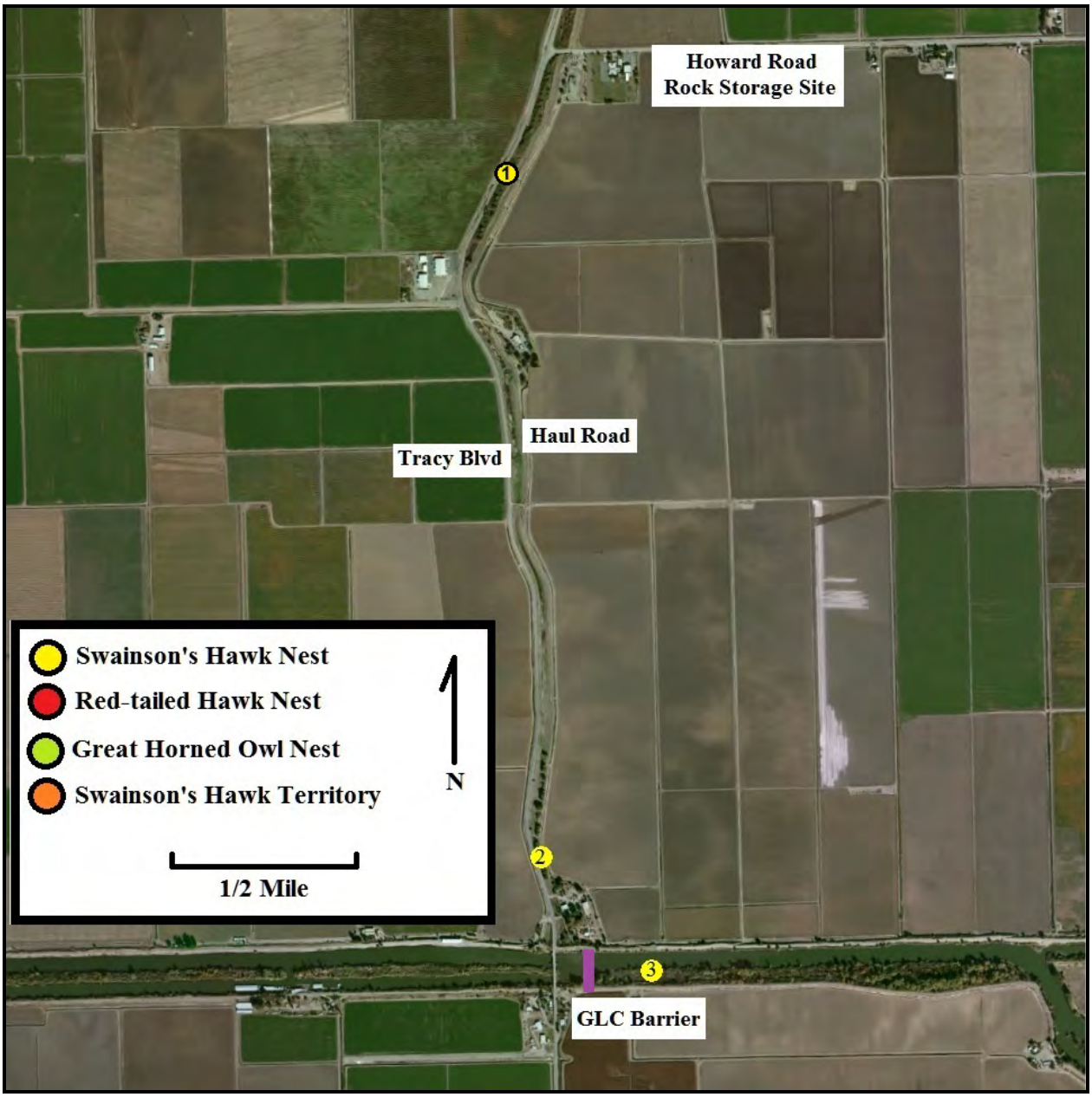


Figure 3. Raptor nests near the Grant Line Canal construction facilities in 2013.

Appendix 2: Botanical Survey Report

Botanical Survey of the Temporary Barrier Project Sites (May 2011)

Botanical surveys were conducted on May 23, 2011 by DWR botanists, Lesley Hamamoto and Jean Witzman, at the Temporary Barrier sites at Old River at Tracy, Grant Line Canal, and Middle River. A CNDDB search lists six sensitive riparian plant species potentially occurring in the project area: Mason's lilaeopsis, rose-mallow (California hibiscus), delta mudwort, delta tule pea, marsh skullcap, and Suisun aster. The Streambed Alteration Agreement for this project also protects willows, oaks, cottonwood, box elder and other native plants.

Rock barriers have been installed annually since the 1990's and the work area at each site is well defined by the rock that remains on the banks from the year before. Therefore, the work area is heavily disturbed and mostly unvegetated, except for scattered weedy species and one box elder seedling that have sprouted between the rocks. Mitigation has compensated for the loss of riparian vegetation at these sites and for the loss of Mason's lilaeopsis upstream of the Old River barrier.

Although the work area is not expected to expand beyond the already disturbed area, the adjacent areas were surveyed. The species observed at each site are listed below. No sensitive species were found at the sites. Mason's lilaeopsis and delta mudwort are species with habitat in the intertidal zone, so surveys for them should be done at low tide. Because this survey had to be scheduled during a high tide, the survey for those species is not conclusive. However, based on years of experience with Mason's lilaeopsis and delta mudwort in the South Delta, the habitat conditions at and adjacent to the barrier sites are unlikely to support either species due to the rock substrate and/or shading by dense vegetation.

In conclusion, no sensitive plants or other native plants will be affected by the seasonal construction activities at the Temporary Barrier sites as long as the work is confined to the established work area.

<u>Old River at Tracy</u>:

Himalayan blackberry (*Rubus discolor*)
Ripgut brome (*Bromus diandrus*)
Box elder (*Acer negundo*)
California wild rose (*Rosa californica*)
Coyote brush (*Baccharis pilularis*)
Sandbar willow (*Salix exigua*)
Hardstem bulrush (*Schoenoplectus acutus*)
Water Iris (*Iris pseudacorus*)
Indian hemp *(Apocynum cannabinum*)
Wild mustard (*Brassica* sp.)

<u>Grant Line</u>

White alder (*Alnus rhombifolia*)
Himalayan blackberry (*Rubus discolor*)

Box elder (*Acer negundo*)
Sandbar willow (*Salix exigua*)
Arroyo willow (*Salix lasiocarpus*)
Milk thistle (*Silybum marianum*)
Ripgut brome (*Bromus diandrus*)
Buttonbush (*Cephalanthus occidentalis*)

<u>Middle River</u>
Buttonbush (*Cephalanthus occidentalis*)
Hardstem bulrush (*Schoenoplectus acutus*)
Water iris (*Iris pseudacorus*)
Marsh pennywort (*Hydrocotyle umbellata*)

Appendix 3: Biological Monitoring Data Sheets

	Department of Water Resources **Biological Monitoring Field Report** **Project: Temporary Barriers Project**			
Biologist Name	Michael Cane		**Date**	4-26-13
	Start Time	8:54	**End Time**	

Comments for all Concerns Noted Above/Species Observed/ General Comments:

MR- Two SWHA's seen on island sitting in snags.
- at 8:56 a copulation event was seen
- 9:05 Both SWHA's take off flew to South.
- 9:30 One SWHA landed back on island
- No Western Pond Turtles seen.
- RTHA nest seen with new material, but no hawks observed on nest
- 9:38 Moved from barrier site to levy Rd West of levy. SWHA calling actively and second SWHA flys over and copulates. Third SWHA flys over as well and chases other two off. They did not Return.
- Left at 9:54.

Construction Activities Performed:

- None Preconstruction surveys

GLC- 10:05 RTHA seen on telephone pole along haul road across from asparagus processing center.

10:31 - No Hawks seen at Farmhouse along haul Road

10:47- SWHA seen soaring above levy near barrier and another was heard calling south of the barrier site but was not observed.

10:59 - Two SWHA's seen soaring over levy across Tracy Blvd (West) of Barrier site

- No WPT's seen along banks.

12:40 - SWHA seen on nest along Tracy Blvd near staging area.

ORT- 12:00 - GHOW pair nesting in nest on S. side of Old River.

12:17 - RTHA pair seen across river from staging area.

- No SWHAs seen.

- No WPT's Seen.

Department of Water Resources
Biological Monitoring Field Report

MR

Temporary Barriers Project

Biologist Name	M Bradbury	**Date**	8 May 2013
	Start Time 0810	**End Time**	1730

Yes	No		Yes	No	
✓		Safety Signage per Plans	✓		Swainson's Hawk monitoring complete
✓		All Construction Activities within Work Boundaries		✓	Dead or Injured Animals on or Adjacent to Work Area
✓		Inspection for Equipment Leaks	✓		Other Wildlife search completed
✓		Hazardous Materials Properly Stored	✓		Trash Properly Handled
NA		Fugitive Dust Measures Functioning	At	ART	HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

No pond turtles observed at construction site

* Barn Swallows nesting in two of the culvert wench boxes. May need some netting to go over them after birds are gone. Can open the culverts manually if necessary

Construction Activities Performed:

Excavator moving rock

In-water work started at 0915

Dozer pushing rock into water

Department of Water Resources
Biological Monitoring Field Report

Temporary Barriers Project ORT

Biologist Name	M Bradbury	**Date**	8 May 2013
	Start Time 0705	**End Time**	1705

Yes	No		Yes	No	
✓		Safety Signage per Plans	✓		Swainson's Hawk monitoring complete
✓		All Construction Activities within Work Boundaries		✓	Dead or Injured Animals on or Adjacent to Work Area
		Inspection for Equipment Leaks	✓		Other Wildlife search completed
✓		Hazardous Materials Properly Stored	✓		Trash Properly Handled
✓		Fugitive Dust Measures Functioning	✓		HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

No pond turtles observed at construction site

Construction Activities Performed:

Excavator filling Volvos @ rock storage area

Volvos dumping rock at barrier

~~Excav~~ Grader working on rock storage area

Water truck working on all haul routes

Department of Water Resources
Biological Monitoring Field Report

M.R

Temporary Barriers Project

Biologist Name	Mike Bradbury	**Date**	9 May 2013
	Start Time 0700	**End Time**	

Yes	No		Yes	No	
✓		Safety Signage per Plans	✓		Swainson's Hawk monitoring complete
✓		All Construction Activities within Work Boundaries		✓	Dead or Injured Animals on or Adjacent to Work Area
✓		Inspection for Equipment Leaks	✓		Other Wildlife search completed
✓		Hazardous Materials Properly Stored	✓		Trash Properly Handled
N/A		Fugitive Dust Measures Functioning	AT	DRT	HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

No turtles found at site

Construction Activities Performed:

Excavator moving rock

Dozer forming barrier

Department of Water Resources
Biological Monitoring Field Report

ORT

Temporary Barriers Project

Biologist Name	Mike Bradbury	**Date**	9 May 2013
	Start Time 1930	**End Time**	

Yes	No		Yes	No	
✓		Safety Signage per Plans	✓		Swainson's Hawk monitoring complete
✓		All Construction Activities within Work Boundaries		✓	Dead or Injured Animals on or Adjacent to Work Area
✓		Inspection for Equipment Leaks	✓		Other Wildlife search completed
✓		Hazardous Materials Properly Stored	✓		Trash Properly Handled
See	notes	Fugitive Dust Measures Functioning	✓		HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

No turtles at construction site

Dust control measures not available for about 2 hours because fill-pump was down. Pump replaced, + dust control restored

Construction Activities Performed:

Excavator filling Valves @ Rock pile

Volvos dumping material @ barrier

Surveyors @ barrier

Dozer working intermittently @ barrier

Water truck working

Department of Water Resources
Biological Monitoring Field Report

Temporary Barriers Project

Biologist Name	Mike Bradbury		**Date**	10 May 2013
	Start Time	0915	**End Time**	1530

Yes	No		Yes	No	
✓		Safety Signage per Plans	✓		Swainson's Hawk monitoring complete
✓		All Construction Activities within Work Boundaries		✓	Dead or Injured Animals on or Adjacent to Work Area
✓		Inspection for Equipment Leaks	✓		Other Wildlife search completed
✓		Hazardous Materials Properly Stored	✓		Trash Properly Handled
✓		Fugitive Dust Measures Functioning	✓		HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

No concerns, no wildlife in work areas, no dead animals seen or reported

Construction Activities Performed:

Filling Voloos at Rock Storage area w/ excavator
Dumping rock at barrier, dozer shaping ramp
Placing warning buoys on both sides of barrier
Moved 2nd excavator to barrier
Water truck wetting road + work areas

Department of Water Resources
Biological Monitoring Field Report

Temporary Barriers Project

Biologist Name	Mike Bradbury		**Date**	10 May 2013
	Start Time	0700	**End Time**	1600

Yes	No		Yes	No	
✓		Safety Signage per Plans	✓		Swainson's Hawk monitoring complete
✓		All Construction Activities within Work Boundaries		✓	Dead or Injured Animals on or Adjacent to Work Area
✓		Inspection for Equipment Leaks	✓		Other Wildlife search completed
✓		Hazardous Materials Properly Stored	✓		Trash Properly Handled
~~✓~~	NA	Fugitive Dust Measures Functioning	✓		HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

No concerns.

Construction Activities Performed:

Excavator + dozer/loader moving rock at barrier

Department of Water Resources
Biological Monitoring Field Report

Temporary Barriers Project

Biologist Name	Mike Bradbury		**Date**	14 May 2013
	Start Time	0800	**End Time**	

Yes	No		Yes	No	
✓		Safety Signage per Plans	✓		Swainson's Hawk monitoring complete
✓		All Construction Activities within Work Boundaries		✓	Dead or Injured Animals on or Adjacent to Work Area
✓		Inspection for Equipment Leaks	✓		Other Wildlife search completed
✓		Hazardous Materials Properly Stored	✓		Trash Properly Handled
N/A		Fugitive Dust Measures Functioning	✓		HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

Swallows almost fledged in winch boxes.

No dead or other live animals found in work zone

Construction Activities Performed:

Excavator moving rock

dozer/Loader placing rock on barrier

Department of Water Resources
Biological Monitoring Field Report

ORT

Temporary Barriers Project

Biologist Name	Mike Bradbury	**Date**	14 May 2013
	Start Time 0845	**End Time**	1545

Yes	No		Yes	No	
✓		Safety Signage per Plans	✓		Swainson's Hawk monitoring complete
✓		All Construction Activities within Work Boundaries		✓	Dead or Injured Animals on or Adjacent to Work Area
✓		Inspection for Equipment Leaks	✓		Other Wildlife search completed
✓		Hazardous Materials Properly Stored	✓		Trash Properly Handled
✓		Fugitive Dust Measures Functioning	✓		HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

No spills or leaks noted or reported
No dead or live animals observed in work areas
Clean work area

Construction Activities Performed:

Excavator filling valves, valves dumping @ barrier,
dozer pushing rocks in place at barrier,
water truck watering roads and work areas

	Department of Water Resources **Biological Monitoring Field Report** **Project: Temporary Barriers Project**			
Biologist Name	Michael Cane		**Date**	4-15-13
	Start Time	0830	**End Time**	

Comments for all Concerns Noted Above/Species Observed/ General Comments:

MR- Construction complete. SWHA seen in neot tree. Nest was not observed.

OLC- No construction.

ORT- Rock placement. Pair of ~~SWHA~~ Northern Harriers seen in field South of Old River. Dust measures in place. Signage placed.

- GHOW nest observed, but nothing was in the nest
- RTHA nest was seen with 1 adult and juveniles. They appeared normal.

Construction Activities Performed:

Rock placement from off road haulers. Excavator on barge with Tug is moving rocks into position.

Grant Line Canal SWHA nest on Haul Road.

10:18 - Female in nest sitting on eggs.

10:33 - Tractor drove down Tracy Blvd and female perked up and watched it drive by

10:50 - Cars seem to not disturb the SWHA, while she tends to look up at big rigs.

11:28 - Female is still sitting in the nest. She appears alert and continuously looks in all directions.

11:40 - Female began calling as male flew over car. Male circled around several times and left

12:18 - Female sitting in nest. Monitoring stopped

	Department of Water Resources **Biological Monitoring Field Report** **Project: Temporary Barriers Project**			
Biologist Name	Michael Cane		**Date**	5-16-13
	Start Time	0700	**End Time**	

Comments for all Concerns Noted Above/Species Observed/ General Comments:

Howard Yard - Opening of gate and loading of rocks.

GLC - Began monitoring SWHA nest along levy on South side of GLC @ 8:00. Overcast/Windy

8:00 AM - Female sitting on nest

8:16 - Female began calling two times. There is a high level of sound from a crop duster taking off south of GLC. Hawk does not seem too disturbed.

8:20 - Female watched Hauler use turn around and she watched truck dump rock, but did not seem disturbed.

8:23 - Very loud siphon pump and crop duster still making noise Hawk appears very comfortable w/ human disturbance.

8:28 Water truck came to refill and a helicopter flew over

Construction Activities Performed:

Female stood up and appeared to roll eggs. Light rain began.

8:37 - Water truck came and used the turn around, then sprayed the area from the turn around to the construction site. The female looked only once for a second and was not disturbed.

8:47 - Male SWHA calls and Female responds several times

8:49 - Hauler used turn around and dumped rock. Female watched but seemed un disturbed and immediatly began preening

8:59 - Male called several times.

9:03 - Female stood up and looked at eggs.

9:11 - Hauler came and turned around then dumped rock. Female just watched.

9:15 - Water truck came and sprayed. Female did not even turn to watch.

9:31 - Hauler used turn around and dumped rock. Female watched but was not too disturbed

9:40 - Fast moving fishing boats came down the canal. Female watched.

9:44 - Female began calling loudly. A van drove on the N levy but she continued to call.

9:55 - Female continued calling periodically since last entry even when a hauler came an dumped rock. She was not disturbed by the activity.

10:00 - Stopped Monitoring

No WPT's seen in construction area

[redacted] ORT

- GHOW nest empty
- RTHA nest has two chicks and no adults. chicks are alive and appear well. Wing feathers developing
- No WPT's seen
- Dust measures in place

	Department of Water Resources **Biological Monitoring Field Report** **Project: Temporary Barriers Project**			
Biologist Name	Rachel August		**Date**	5/17/13
	Start Time	0800	**End Time**	~~0~~ 1400

Comments for all Concerns Noted Above/Species Observed/ General Comments:

GLC - water truck spraying road periodically
Dump truck dumping rock
Swainson's hawk west of barrier sitting on nest
Swainson's hawk nests on haul road appear fine

ORT - Barge w/equipment moving rock in river
Did not see red-tailed hawk pair

Construction Activities Performed: ↑ excavate

Department of Water Resources
Biological Monitoring Field Report

ORT

Temporary Barriers Project

Biologist Name	Mike Bradbury	**Date**	21 May 2013
	Start Time 0730	**End Time**	

Yes	No		Yes	No	
✓		Safety Signage per Plans	✓		Swainson's Hawk monitoring complete
✓		All Construction Activities within Work Boundaries		✓	Dead or Injured Animals on or Adjacent to Work Area
		Inspection for Equipment Leaks	✓		Other Wildlife search completed
✓		Hazardous Materials Properly Stored	✓		Trash Properly Handled
✓		Fugitive Dust Measures Functioning	✓		HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

Pre-start survey - no live, injured or dead wildlife observed in the project area. One spot (another), potential oil leak under excavator on new ramp. Need drip pans (ITP requirement?). No pan under water truck pump.

Construction Activities Performed:

Excavator working from barge, tug moving the barge around, some material being transported to the site in Volvos, dumping new material a storage area (double dumpers)

- adult SWHA on nest on island downstream of barrier
- placed bird bags over culvert control boxes on N culverts
- 5 culverts already have bird bags installed

MR

Department of Water Resources
Biological Monitoring Field Report

GLC

Temporary Barriers Project

Biologist Name	Mike Bradbury	**Date**	21 May 2013
	Start Time 0705	**End Time**	

Yes	No		Yes	No	
✓		Safety Signage per Plans			Swainson's Hawk monitoring complete
		All Construction Activities within Work Boundaries			Dead or Injured Animals on or Adjacent to Work Area
		Inspection for Equipment Leaks			Other Wildlife search completed
		Hazardous Materials Properly Stored			Trash Properly Handled
		Fugitive Dust Measures Functioning			HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

Pre-start survey - no wildlife found in immediate project area (injured, dead, live). Possible small leaks under excavator, could be water spot?

Construction Activities Performed:

Excavator filling Volvos at Mowad Rd, Volvos dumping rock at barrier, water truck putting water on all work areas. Taking water samples. Dozer pushing rock at barrier

	Department of Water Resources **Biological Monitoring Field Report** **Project: Temporary Barriers Project**			
Biologist Name	Rachel August		**Date**	5/22/13
	Start Time	0830	**End Time**	1400

Comments for all Concerns Noted Above/Species Observed/ General Comments:
GLC - Water Truck spraying road periodically
Dump truck dumping rock
Bulldozer moving rocks around
Swainson's Hawk nest west of barrier site. - (ok)
Swainson's Hawk nest on haul road appear fine
CRT - Barge in river with excavator moving rock in river
A lot of activity in staging area with crane +
culverts.

Construction Activities Performed:

Department of Water Resources
Biological Monitoring Field Report

Temporary Barriers Project

ORT

Biologist Name	Mike Bradbury	**Date**	23 May 2013
	Start Time 0725	**End Time**	1615

Yes	No		Yes	No	
✓		Safety Signage per Plans	✓		Swainson's Hawk monitoring complete
✓		All Construction Activities within Work Boundaries		✓	Dead or Injured Animals on or Adjacent to Work Area
*		Inspection for Equipment Leaks	✓		Other Wildlife search completed
✓		Hazardous Materials Properly Stored	✓		Trash Properly Handled
✓		Fugitive Dust Measures Functioning	✓		HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

* Drips under one of the Valves. No drip pan under water truck's pump & gas can

Otherwise, very clean work areas

Construction Activities Performed:

Crane moving culverts into place at barrier; culverts being transported to barrier from rock site; boats & barge. Water truck watering all work zones + roads. Noise levels being taken from rubber raft?

Department of Water Resources
Biological Monitoring Field Report

GLC

Temporary Barriers Project

Biologist Name	Mike Bradbury	**Date**	23 May 2013
	Start Time 0705	**End Time**	1645

Yes	No		Yes	No	
✓		Safety Signage per Plans	✓		Swainson's Hawk monitoring complete
✓		All Construction Activities within Work Boundaries		✓	Dead or Injured Animals on or Adjacent to Work Area
✓		Inspection for Equipment Leaks	✓		Other Wildlife search completed
*		Hazardous Materials Properly Stored	✓		Trash Properly Handled
✓		Fugitive Dust Measures Functioning	ORT?		HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

* Two large containers of petroleum product not in proper storage (on ground in Howard Rd site)

Site is otherwise very clean, no problems noted

Construction Activities Performed:

3 volvos transporting rock; excavator loading rock at Howard Rd; dozer moving rock into place at barrier; Water truck watering all work sites & roads

Department of Water Resources
Biological Monitoring Field Report

GLC

Temporary Barriers Project

Biologist Name	Mike Bradbury		**Date**	24 May 2013
	Start Time	1120	**End Time**	

Yes	No		Yes	No	
* ✓		Safety Signage per Plans			Swainson's Hawk monitoring complete
✓		All Construction Activities within Work Boundaries			Dead or Injured Animals on or Adjacent to Work Area
		Inspection for Equipment Leaks			Other Wildlife search completed
		Hazardous Materials Properly Stored			Trash Properly Handled
		Fugitive Dust Measures Functioning			HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

* One caution/no wake buoy came loose, upstream

Construction Activities Performed:

3 volvos moving rock to barrier

Excavator loading volvos

water truck watering all work zones + roads

Dozer moving rock + constructing barrier ramp

Department of Water Resources
Biological Monitoring Field Report

GLC

Temporary Barriers Project

Biologist Name	Mike Broadbury	**Date**	24 May 2013
	Start Time 1215	**End Time**	

Yes	No		Yes	No	
✓		Safety Signage per Plans	✓		Swainson's Hawk monitoring complete
✓		All Construction Activities within Work Boundaries		✓	Dead or Injured Animals on or Adjacent to Work Area
✗		Inspection for Equipment Leaks	✓		Other Wildlife search completed
✓		Hazardous Materials Properly Stored	✓		Trash Properly Handled
✓		Fugitive Dust Measures Functioning	✓		HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

Drops of petroleum products under volvos still not cleaned up and no drip pans in place.

Construction Activities Performed:

Two excavators working on barrier, forming boat ramps & covering the newly laid culverts; Moving small amount of gravel & dirt to barrier w/ volvos. Loader working at rock site periodically

Department of Water Resources
Biological Monitoring Field Report

Temporary Barriers Project

ORT

Biologist Name	Mike Bradbury	**Date**	28 May 2013
	Start Time 0735	**End Time**	1615

Yes	No		Yes	No	
✓		Safety Signage per Plans	✓		Swainson's Hawk monitoring complete
✓		All Construction Activities within Work Boundaries		✓	Dead or Injured Animals on or Adjacent to Work Area
*		Inspection for Equipment Leaks	✓		Other Wildlife search completed
✓		Hazardous Materials Properly Stored	✓		Trash Properly Handled
✓		Fugitive Dust Measures Functioning	✓		HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

* Still need clean-up of petroleum products under heavy equipment. Possible spill of fuel on the ground next to storage containers.
* Still need drip pan/diaper under water pump

Construction Activities Performed:

Two excavators working on barrier & ramp

Water truck working

Department of Water Resources
Biological Monitoring Field Report

GLC

Temporary Barriers Project

Biologist Name	Mike Bradbury	**Date**	28 May 2013
	Start Time 0705	**End Time**	1645

Yes	No		Yes	No	
✓		Safety Signage per Plans	✓		Swainson's Hawk monitoring complete
✓		All Construction Activities within Work Boundaries		✓	Dead or Injured Animals on or Adjacent to Work Area
*		Inspection for Equipment Leaks	✓		Other Wildlife search completed
*		Hazardous Materials Properly Stored	✓		Trash Properly Handled
✓		Fugitive Dust Measures Functioning	*		HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

Howard Road - oil filter laying on ground, oil from it drained out on ground. need disposed can

* Two oil containers sitting out on ground (properly stored?)

HazMat containment kit - How close to need?

Construction Activities Performed:

3 volvos moving rock, excavator loading trucks

Dozer placing rock at barrier

water truck working

Grader working on work areas.

Department of Water Resources
Biological Monitoring Field Report

GLC

Temporary Barriers Project

Biologist Name	Mike Bradbury		**Date**	29 May 2013
	Start Time	0705	**End Time**	1600

Yes	No		Yes	No	
✓		Safety Signage per Plans	✓		Swainson's Hawk monitoring complete
✓		All Construction Activities within Work Boundaries		✓	Dead or Injured Animals on or Adjacent to Work Area
✗		Inspection for Equipment Leaks	✓		Other Wildlife search completed
✗		Hazardous Materials Properly Stored	✓		Trash Properly Handled
✓		Fugitive Dust Measures Functioning		✓	HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

Need HazMat Containment kit @ Howard for GLC
Several areas with equipment drips, and one
area of oil spilled. Reported to Tom Calberson
Two containers of oil (large rings) still sitting on
ground

Construction Activities Performed:

3 volvos hauling rock, excavator loading trucks
dozer getting some sort of service
water truck watering roads, work area

0915- 0935
1000, 1015, 1030

Department of Water Resources
Biological Monitoring Field Report

ORT

Temporary Barriers Project

Biologist Name	Mike Bradbury	**Date**	29 May 2013
	Start Time 0720	**End Time**	

Yes	No		Yes	No	
✓		Safety Signage per Plans	✓		Swainson's Hawk monitoring complete
✓		All Construction Activities within Work Boundaries		✓	Dead or Injured Animals on or Adjacent to Work Area
*		Inspection for Equipment Leaks	✓		Other Wildlife search completed
✓		Hazardous Materials Properly Stored	✓		Trash Properly Handled
✓		Fugitive Dust Measures Functioning			HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

A few drips under equipment storage area

No drip pan under water pump yet

Construction Activities Performed:

Excavator working ramp, building barrier

Crane placing matts

Water truck working dust control

Loader filling one volvo, volvo moving rock & gravel

	Department of Water Resources **Biological Monitoring Field Report** **Project: Temporary Barriers Project**			
Biologist Name	Michael Cerne		**Date**	5-30-13
	Start Time	8:45	**End Time**	12:53

Comments for all Concerns Noted Above/Species Observed/ General Comments:

ORT- Fugitive dust measures in place
- No large water quality plumes
- No Western Pond Turtles seen
- Both Red-tailed hawk and Great Horned Owl nests where empty.
- One Adult RTHA seen near construction.

GLC- Dust Measures in place
- No stopping zones in place
- Sound Monitoring continuing
- SWHA nest along Haul Rd near Howard Yard appeared empty other nest where still occupied. (See SWHA nest monitoring on Reverse)

Construction Activities Performed:

Old River Tracy- Rock placement

GLC- Rock Placement, three off-road Haulers, one water truck driving on levy

SWHA near construction on S side of GLC

10:08 - Monitoring began. One Hawk in nest

10:16 - Second SWHA flew in nest with rodent, one young seen in nest being fed

10:31 - Adult left nest. seen soaring around Sky

10:42 - ~~Ha~~ Hatchling seen with head out of nest. Activity level is low, dozer is pushing rock into GLC.

10:46 - Dumptruck arrived. Dumped rock and Hatchling did not appear disturbed at all.

10:49 - Hatchling may be hot as it is sitting with mouth open continuously and the nest is in full sun.

10:52 - Dumptruck arrived. Hatchling is actively moving around in nest.

10:54 - Second Dumptruck arrived. Does not disturb Hatchling.

11:02 - Dumptruck arrived.

11:03 - Water Truck arrived and sprayed

11:06 - Dumptruck arrived

11:10 - Dumptruck arrived

11:15 - Adult SWHA flew lighter into nest calling. Did not have food.

11:18 - Adult left nest and flew east along levy. Dump truck arrived as well.

11:25 Dumptruck arrived.

11:26 Dumptruck arrived. Hatchling sitting out of view

11:35 Dumptruck arrived

11:36 Adult SWHA flew darker into nest w/ ~~rodent~~ Blackbird as truck was dumping rock
Began feeding chick

11:38 Water truck arrived and sprayed. Did not appear to disturb feeding.

11:41 Dumptruck arrived, feeding continued.

11:43 Dumptruck arrived.

	Department of Water Resources **Biological Monitoring Field Report** **Project: Temporary Barriers Project**		
Biologist Name	Mike Cane	**Date**	5-30-13
	Start Time	**End Time**	

Comments for all Concerns Noted Above/Species Observed/ General Comments:
Continued...
11:51 - Dumptruck arrived
11:59 - Dumptruck arrived
12:08 - Construction vehicle arrived, SWHA
still actively eating and feeding the
Chick. Lunchtime begins for crew.
12:29 - Water Truck arrived and sprayed
12:31 - SWHA still on nest eating/feeding
Monitoring ended.

Construction Activities Performed:

Department of Water Resources
Biological Monitoring Field Report

GLC

Temporary Barriers Project

Biologist Name	Mike Bradbury	**Date**	31 May 2013
	Start Time 0705	**End Time**	

Yes	No		Yes	No	
✓		Safety Signage per Plans	✓		Swainson's Hawk monitoring complete
✓		All Construction Activities within Work Boundaries		✓	Dead or Injured Animals on or Adjacent to Work Area
*		Inspection for Equipment Leaks	✓		Other Wildlife search completed
*		Hazardous Materials Properly Stored	*		Trash Properly Handled
✓		Fugitive Dust Measures Functioning		*	HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

* Oil spill from large oil filter is uncleanable, soil is too hard & rocky
* Oil containers left on ground
* Bio Monitor picking up trash (some)
* No HazMat containment kit at this location

Construction Activities Performed:

Excavator loading 2 Volvos, Volvos dumping rock at barrier
Dozer pushing rocks into place at barrier
Water truck doing dust control

Department of Water Resources
Biological Monitoring Field Report

ORT

Temporary Barriers Project

Biologist Name	Mike Bradbury	**Date**	31 May 2013
	Start Time 0725	**End Time**	

Yes	No		Yes	No	
✓		Safety Signage per Plans	✓		Swainson's Hawk monitoring complete
✓		All Construction Activities within Work Boundaries		✓	Dead or Injured Animals on or Adjacent to Work Area
*		Inspection for Equipment Leaks	✓		Other Wildlife search completed
✓		Hazardous Materials Properly Stored	✓		Trash Properly Handled
✓		Fugitive Dust Measures Functioning	✓		HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

* Lots of drips and one large spot under old volvo, cleaned some of it up but not able to get all.

Construction Activities Performed:

1 Volvo moving rock, excavator loading, excavator moving rock at barrier, grader working on the ramp, water truck keeping dust down Crane laying mats on

	Department of Water Resources **Biological Monitoring Field Report** **Project: Temporary Barriers Project** FORT			
Biologist Name			**Date**	6/3/13
Danielle	**Start Time**	8:35	**End Time**	3:00

Comments for all Concerns Noted Above/Species Observed/ General Comments:

water truck followed protocol no dust observed.

young hawk observed on levee, flew across river landed in Black willow.

observed Swainson Soaring in agfield did not apear to be distrubed

Construction Activities Performed:

Concrete mat placement

	Department of Water Resources **Biological Monitoring Field Report** **Project: Temporary Barriers Project** GLC			
Biologist Name	Danielle Ingrassia		**Date**	6/3/13
Danielle Ingrassia	**Start Time**	8:00	**End Time**	2:30

Comments for all Concerns Noted Above/Species Observed/ General Comments:
- water truck Ran on a constant basis.
Keeping dust down to acceptable level.
- there was no visable dust observed during
monitoring
- a Swainson flew over no staging zone
twice. one time making an
audible call.
- Swainson observed flying over
staging area battling two smaler
Birds (attacked by). did not apear to
affect nesting activites along haul Route.

Construction Activities Performed:
Rock Place ment.

	Department of Water Resources **Biological Monitoring Field Report** **Project: Temporary Barriers Project**			
Biologist Name	Michael Cane		**Date**	6-4-13
	Start Time	8:30	**End Time**	1:00

Comments for all Concerns Noted Above/Species Observed/ General Comments:

MR- Killdeer nest found along levy rd in between west gate and barrier site. 4 eggs.
- Female SWHA sitting on eggs.
- No WPT's seen

ORT- Single RTHA observed in Alder west of nest tree across from staging area. No others seen in nest tree.
- Killdeer nest found on top of levy between staging area and ramp up to levy used by construction equipment. 4 eggs.

GLC - Dust measures in place
- SWHA monitored (see reverse)

Construction Activities Performed:

MR- No Construction

ORT- Construction complete, no construction.

GLC- Rock Placement, Road grading

9:30 - ~~Flew~~ Chick in nest alone, adult SWHA seen flying.
9:32 - Water truck came and sprayed. Dozer moving rock
Chick appears undisturbed. Chick is growing quickly
9:39 - Dump truck arrived.
9:40 - Dump truck arrived.
9:47 - Grader arrived on levy. Chick appeared undisturbed.
9:52 - Fishing boat came by quickly and shouted.
9:56 - Dump truck arrived
9:58 - Dump truck arrived. Chick actively moving in nest.
10:03 - Water truck arrived and sprayed. Chick is out of view.
10:12 - Dump truck arrived
10:13 - Dump truck arrived. Chick is mostly out of view
10:15 - Adult SWHA seen flying overhead. Chick moved into view when the Adult called but went out of view quickly again.
10:16 - Adult landed in nest but did not appear to have food. Chick came into view and adult left nest to nearby branch. (Lighter adult)
10:30 - Dump truck arrived
10:31 - Dump truck arrived. Hawks appear undisturbed.
10:32 - Adult took off from nest and flew away
10:38 - Adult landed on branch again, chick sitting still.
10:40 - Water truck came and sprayed levy.
10:45 - Adult took off and flew over the construction area, a second SWHA is now soaring over site, flew to East.
10:47 - Two Dump trucks came onto levy
10:59 - Chick is preening and appears undisturbed by construction.
11:04 - Dump truck arrived.
11:07 - Adult SWHA vocalizing and soaring east of nest site. Fishing boat came by.
11:15 - Dump truck arrived
11:18 - Adult SWHA flew over nest. Juvenile actively moving and preening.
11:24 - Water Truck arrived and sprayed, adult soaring over nest left towards the East
11:28 - Several trucks came by on ~~levy~~ Levy Rd. Chick sitting still.
11:30 - Chick sitting still. Observation ended.

	Department of Water Resources **Biological Monitoring Field Report** **Project: Temporary Barriers Project**			
Biologist Name	Michael Cane		**Date**	6-5-13
	Start Time	9:00	**End Time**	

Comments for all Concerns Noted Above/Species Observed/ General Comments:
GLC - Excavator working on ramp.
- Water truck ~~activity~~ watering haul road.
- No WPT's seen.

Construction Activities Performed:
GLC - Rock placement and AB placement on ramp.

Department of Water Resources
Biological Monitoring Field Report

GLC

Temporary Barriers Project

Biologist Name	Mike Bradbury		**Date**	6 June 2013
	Start Time	0710	**End Time**	

Yes	No		Yes	No	
✓		Safety Signage per Plans	✓		Swainson's Hawk monitoring complete
✓		All Construction Activities within Work Boundaries	*		Dead or Injured Animals on or Adjacent to Work Area
✓		Inspection for Equipment Leaks	✓		Other Wildlife search completed
✓		Hazardous Materials Properly Stored	✓		Trash Properly Handled
✓		Fugitive Dust Measures Functioning	*		HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

* Dead catfish next to barrier
* No HazMat containment kit at this worksite - would have to come from ORT

Construction Activities Performed:

Excavators at barrier + Howard Rd
Two Volvos hauling rock + gravel
water truck working
Grader working on haul rd

	Department of Water Resources **Biological Monitoring Field Report** **Project: Temporary Barriers Project**			
Biologist Name	Michael Cane		**Date**	June 18th 2013
	Start Time	9:20	**End Time**	

Comments for all Concerns Noted Above/Species Observed/ General Comments:

GLC - Fugitive Dust Measures in place

- Juvenile SWHA in nest preening
- Windy, Sunny, Cool
- Chick developing feathers on back and wings

9:20 - Chick preening
9:40 - Truck came and dumped rock
9:43 - Two adult SWHA's flew over construction site
9:48 - Chick sitting low in nest moving periodically.
9:53 - Dump truck came, chick undisturbed
9:57 - Chick stood up and walked around nest, truck arrived
10:00 - water truck arrived and sprayed
10:02 - Adult flew over nest and called but then flew away.
10:03 - ~~Juvenile~~ Chick called several times, then sat low in nest
10:09 - Chick stood up and stretched legs
10:12 - Dump truck arrived on levy
10:15 - Chick called several times, truck came on to levy, chick did not pay attention to the noise
10:25 - Chick sitting in nest, adult flying S. of levy
10:30 - Dump truck and water truck came on levy
10:33 - Dump truck came on levy and adult SWHA flew over nest vocalizing loudly, chick became alert and started calling back.
10:35 - water truck came on levy and sprayed (Continued on Reverse

Construction Activities Performed:

GLC

- Rock placement, Barrier closure.

MR

- No Construction, Pre con survey

10:48 - chick sitting in nest, dump truck arrived on levy
10:51 - Thunder came onto levy. Chick undisturbed
10:55 - Chick walking and calling in nest, adult calling back out of view
11:00 - Both adults flew into nest, one had large meadow vole.
11:01 - One adult left nest, the other, and the Chick began feeding
11:02 - The second adult came back into the nest, while the other fed the chick
11:03 - A boat went by and the one adult continued to feed the chick, the other adult again left the nest and came back then left.
11:10 - Adult still feeding chick, dump truck and water truck came on levy. Feeding was undisturbed by activity
11:14 - Dump truck came on levy. Feeding continued undisturbed.
11:18 - Adult seems to be tugging food from chick to make it work a little harder.
11:27 - Dumptruck came on to levy, feeding continues. Second adult is nearby calling periodically
11:35 - Dumptruck came on levy, feeding continued undisturbed.
11:41 - Second adult came into nest and left quickly but returned again. Chick still being fed.
11:42 - Pickup truck used turn around, feeding continued
11:45 - Dumptruck came onto levy, chick still being fed.
Monitoring ended.

MR 1:24 - Nothing seen in SWHA nest, difficult to see in nest
1:45 - Adult SWHA seen flying in field North of MR.
1:53 - Adult SWHA seen flying NW of barrier site
2:20 - Nothing seen in SWHA nest.
2:24 - Monitoring ended, nest may have failed

	Department of Water Resources **Biological Monitoring Field Report** **Project: Temporary Barriers Project**			
Biologist Name	Mike Cane		**Date**	6-19-13
	Start Time	9:00	**End Time**	

Comments for all Concerns Noted Above/Species Observed/ General Comments:

MR- Two SWHA's soaring over island when I arrived.
9:15 - Adult SWHA flew over island and then went South.
9:18 - White observed in nest moving, very difficult to ID or see
9:40 - Three Adult SWHA's flew over island. One was vocalizing, they all flew South.
9:58 - Adult SWHA seen flying over field North of MR
10:07 - RTHA seen flying over field North of barrier.
10:43 - Nest looked at from a different angle, appears empty
10:56 - A RTHA and a SWHA flew near island. SWHA flew south and RTHA landed on power pole.
11:00 - Monitoring ended.

GLC- Barrier being closed, Rock placement
- Dust Measures in place
- Several Trucks using turn around. SWHA chick undisturbed.
11:50 - Single Chick in nest, moving and active.
11:57 - Dump truck came onto levy, chick stood up and watched
12:01 - Dump truck came onto levy
12:23 - Juvenile still sitting in nest, not being active.
12:29 - Water truck came onto levy and sprayed, chick undisturbed.
12:37 - Porti-poti truck came onto levy. chick undisturbed.
Excavator working on barrier dumping rock into the water.
Chick moving around in nest, adult SWHA flying South of nest
12:49 - Truck came onto levy, excavator placing rock in channel and a dump truck came onto levy. Chick is alert but does not appear to be disturbed.
12:50 - Adult flew into nest and began feeding chick (continued)

Construction Activities Performed:

MR- None

GLC - Barrier Closure, rock dumping and placement

12:54. Boat came by, but feeding continued
12:55 - Second boat came by and water truck came and sprayed. Feeding continued undisturbed.
12:58 - Boat came by. Feeding continued undisturbed
1:09 - Dump truck came onto levy. Feeding continued uninterrupted.
1:11 - Dumptruck came onto levy. Feeding continued.
1:26 - Dump truck came onto levy. Feeding continued.
1:30 - Water truck came onto levy and sprayed. Feeding continued.
1:33 - Pickup came onto levy. Feeding continued.
1:36 - Second adult SWHA flying and calling over nest
1:43 - Dump truck came on levy. Feeding continues.
1:43. Feeding stopped
1:50 - Adult SWHA still in nest with chick. Feeding ended. Montioring stopped.

	Department of Water Resources Biological Monitoring Field Report Project: Temporary Barriers Project			
Biologist Name	Mike Cam		Date	6-20-13
	Start Time	9:00	End Time	3:00

Comments for all Concerns Noted Above/Species Observed/ General Comments:

MR- No SWHA's on or near nest
- NO WPT's seen near site.

GLC- Checked nests along haul Road. They were both empty
- A truck was parked in the no stopping zone on the levy and I told him to move.
- SWHA monitoring began.

Construction Activities Performed:

MR- No construction @ 9AM

GLC- Rock placement w/ dump trucks and excavators, crane being dropped of for mat placement.

10:03 - Chick in nest active and was watching truck move. Chick was not disturbed

10:06 - Adult SWHA flew into nest and started feeding chick. Second Adult SWHA flew into nest and then left to soar around barrier.

10:09 - Adult flew out of nest and chick began feeding on its own

10:10 - Dump truck came onto levy and the chick stopped feeding until it went by.

10:12 - Truck carrying mats came onto levy and dump truck came onto levy. Chick still trying to feed.

10:15 - Crane came onto levy and water truck came onto levy. Chick still attempting to feed but does not seem to be able to tear up prey.

10:17 - Period of high activity ended. Chick not trying to eat.

10:22 - Flat bed truck left site. Chick undisturbed. Boat went by slowly.

10:25 - Adult SWHA soaring above nest. Dump truck came onto levy. Adult left. Chick preening

10:34 - Adult SWHA heard calling. Chick stood up. Adult seen far south of nest

10:39 - Dump truck came onto levy. Chick undisturbed.

10:49 - Two pickup trucks, a crane, a dump truck and a flat bed carrying mats all came on the levy. One truck stopped in no stopping zone and I told him to move. Chick appeared undisturbed

10:57 - Pick up truck came onto levy.

11:01 - Water truck came onto levy. Chick undisturbed. Asked water truck to water levy away from barrier to keep dust down near nest. Spraying ceased and chick appeared undisturbed.

	Department of Water Resources Biological Monitoring Field Report Project: Temporary Barriers Project			
Biologist Name	Mike Cane		Date	6-20-13
	Start Time	Continued	End Time	

Comments for all Concerns Noted Above/Species Observed/ General Comments:

11:09 - Chick appears hot and is in full sun panting.
11:11 - Pick up truck came onto levy
11:12 - Pick up truck came onto levy and stopped in no stopping zone. I asked him to move. Chick undisturbed.
11:18 - Crane starting to get set up by barrier. Pick up truck came onto levy.
11:19 - Adult SWHA heard calling
11:23 - Water truck came and sprayed. Chick undisturbed.
11:30 - Flat bed truck w/ articulated mats came onto levy. Chick undisturbed.
Second flat bed came by, chick watched as truck came.
11:36 - two Adult SWHA's ~~seen~~ flew over nest. They both flew off to the South
11:47 - Adult SWHA flew low over nest calling. Chick active
11:51 - Adult SWHA flew into nest w/out food. Left nest when a second Adult flew over, also w/out food.
11:55 - Water truck came onto levy and sprayed.
12:10 - Adult SWHA flying high over nest. Crane set up continuing.
12:13 - Crane placing mats.
12:17 - Adult SWHA flew into nest with a small mouse and began feeding chick. Adult seemed a little nervous during feeding but continues feeding.
12:25 - Adult still feeding chick, but eating much of the mouse too.
12:26 - Feeding stopped. Adult left nest and flew over construction side.
12:39 - Boat came by slowly and an Adult SWHA flew over nest.
12:44 - Water truck came and sprayed. Private truck drove quickly down levy.

Construction Activities Performed:

12:52 - Adult SWHA seen flying over nest, second adult showed up and they circled high above the nest. Crane still setting mats.

1:14 - Adult SWHA seen flying over nest. Crane still placing mats

1:17 - Flat bed truck moved by nesting site. Chick sitting un active in nest. Temperatures are rising and there is little wind.

1:22 - Chick stood up and appears hot. Panting.

1:37 - Chick standing and calling in nest.

1:39 - Water truck sprayed levy road and continued to spray haul Road.

1:48 - Flatbed moving mats to crane. Adult SWHA flew low over nest. Chick found some shade in the nest.

2:08 - Water Truck came by and sprayed.

2:17 - Flat bed truck came through no stopping zone and parked past it on the levy. Chick undisturbed.

2:23 - Adult SWHA flew into nest and began feeding chick.

2:26 - Flatbed moved trailer w/ mats through no stopping zone to construction site. Feeding continued.

2:30 - Water truck came and sprayed. Feeding continued.

2:33 - Adult SWHA left nest. Chick appears hot but moved into shade.

2:39 - Adult SWHA flew into nest with what appeared to be a starling chick. Feeding of chick began.

2:45 - Feeding still occuring. Monitoring ended.

Department of Water Resources
Biological Monitoring Field Report

Temporary Barriers Project

GLC

Biologist Name	M Bradbury	**Date**	21 June 2013
	Start Time 0830	**End Time**	

Yes	No		Yes	No	
✓		Safety Signage per Plans	✓		Swainson's Hawk monitoring complete
✓		All Construction Activities within Work Boundaries			Dead or Injured Animals on or Adjacent to Work Area
✓		Inspection for Equipment Leaks			Other Wildlife search completed
		Hazardous Materials Properly Stored			Trash Properly Handled
✓		Fugitive Dust Measures Functioning			HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

Short steps in no stopping zone

Construction Activities Performed:

Watering + grading road, filling holes in ramp, moving dirt from Howard Road to barrier, repairing levee road, filling ramp block mats w/ dirt & gravel

Department of Water Resources
Biological Monitoring Field Report

Temporary Barriers Project

MR

Biologist Name	M Bradbury	**Date**	21 June 2013
	Start Time 0710	**End Time**	

Yes	No		Yes	No	
✓		Safety Signage per Plans	✓		Swainson's Hawk monitoring complete
✓		All Construction Activities within Work Boundaries		✓	Dead or Injured Animals on or Adjacent to Work Area
✓		Inspection for Equipment Leaks	✓		Other Wildlife search completed
N/A		Hazardous Materials Properly Stored	✓		Trash Properly Handled
N/A		Fugitive Dust Measures Functioning	✓	X	HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

X No hazardous materials containment kit at this site.

Construction Activities Performed:

Excavator & tracked loader mobilizing, setting up to raise barrier. Excavator staging rock for loader, loader moving rock to barrier notch

	Department of Water Resources **Biological Monitoring Field Report** **Project: Temporary Barriers Project**			
Biologist Name	Michael Cane		**Date**	6/25/13
	Start Time	9:00	**End Time**	11:00

Comments for all Concerns Noted Above/Species Observed/ General Comments:

MR - Construction complete
GLC - Construction complete. SWHA juvenile feathering out. Appears healthy.
ORT - Construction complete. SWHA's along levy still in nest maturing normally.

Construction Activities Performed:

No construction at any site Post construction observations and photos only

Department of Water Resources
Biological Monitoring Field Report

Temporary Barriers Project

Biologist Name	Mike Cane		**Date**	10-28-13
	Start Time	9:00	**End Time**	12:00

Yes	No		Yes	No	
X		Safety Signage per Plans		X	Swainson's Hawk monitoring complete
X		All Construction Activities within Work Boundaries		X	Dead or Injured Animals on or Adjacent to Work Area
X		Inspection for Equipment Leaks	X		Other Wildlife search completed
X		Hazardous Materials Properly Stored	X		Trash Properly Handled
X		Fugitive Dust Measures Functioning	X		HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

Environmental Awareness Training held

MR Contractor changed schedule. Work had begun before I arrived at Middle River Barrier. Excavator and Front loader were removing rock from River.

- No Water Quality Monitor was present
- Called Water Quality Monitors and got them to the site. Wayne Jenson conducted monitoring
- Chris Sanford (Construction Supervisor)
- No WRT's seen. Many egrets/herons in the vicinity

Construction Activities Performed:

MR- Rock Removal.

- Water truck came and sprayed roadway.

GLC - Pre Construction Surveys

- Lots of Salmon, Black bass and bluegill heading up stream over the barrier.
- Striper fishermen catching several 5-10 lb fish below barrier.
- No WPT's seen

Department of Water Resources
Biological Monitoring Field Report

Temporary Barriers Project

Biologist Name	Mike Carr		**Date**	10-30-13
	Start Time	7:00	**End Time**	17:00

Yes	No		Yes	No	
	X	Safety Signage per Plans		X	Swainson's Hawk monitoring complete
X		All Construction Activities within Work Boundaries		X	Dead or Injured Animals on or Adjacent to Work Area
X		Inspection for Equipment Leaks	X		Other Wildlife search completed
X		Hazardous Materials Properly Stored	X		Trash Properly Handled
X		Fugitive Dust Measures Functioning	X		HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

Environmental Awareness Training Conducted @ Howard Yard

ORT - Articulated Mat Removal

- No WPT's seen
- No Rock Removal

GLC - Several Hawks seen

- No WPT's seen
- Much fish activity near construction

Fish did not appear to be disturbed by construction

MR - No Concerns

Construction Activities Performed:

ORT - Articulated Mat Removal

GLC - Rock Removal, boom replacement

MR - Rock Removal

Department of Water Resources
Biological Monitoring Field Report

Temporary Barriers Project

Biologist Name	Mike Cane		**Date**	10-31-13
	Start Time	7:00	**End Time**	5:00

Yes	No	Hyacinth Broke Bouy line	Yes	No	
~~X~~	X	Safety Signage per Plans Barrier Breach		X	Swainson's Hawk monitoring complete
X		All Construction Activities within Work Boundaries		X	Dead or Injured Animals on or Adjacent to Work Area
X		Inspection for Equipment Leaks	X		Other Wildlife search completed
X		Hazardous Materials Properly Stored	X		Trash Properly Handled
X		Fugitive Dust Measures Functioning	X		HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

MR- Many Egrets/herons in area. Lots of Hyacinth
- No WPT's seen

GLC- Lots of Hyacinth broke bouy line again
- Several small fish seen near construction work and they were not affected by the excavation

ORT- A few small fish seen
- No WPT's seen

Construction Activities Performed:

MR. Rock Removal

GLC. Rock Removal and Hauling to Howard Yard

ORT - Rock Removal

Department of Water Resources
Biological Monitoring Field Report

Temporary Barriers Project

Biologist Name	Analisa Martinez		**Date**	November 1, 2013
	Start Time	08:30	**End Time**	15:30

Yes	No		Yes	No	
X		Safety Signage per Plans		X	Swainson's Hawk monitoring complete
X		All Construction Activities within Work Boundaries		X	Dead or Injured Animals on or Adjacent to Work Area
X		Inspection for Equipment Leaks	X		Other Wildlife search completed
X		Hazardous Materials Properly Stored	X		Trash Properly Handled
X		Fugitive Dust Measures Functioning	X		HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

Finished MR rock barrier removal today (mid-day)
GLC - removed metal ramps in afternoon
- Fishermen on land and boats fishing nearby

Construction Activities Performed:

GLC - Rock removal (barrier removal), water truck
MR - Rock removal from water
ORT - Rock barrier removal, water truck

Department of Water Resources
Biological Monitoring Field Report

Temporary Barriers Project

Biologist Name	Jeffrey Tkach		**Date**	11/2/2013
	Start Time	0830	**End Time**	1530

Yes	No		Yes	No	
✓		Safety Signage per Plans	✓		Swainson's Hawk monitoring complete
✓		All Construction Activities within Work Boundaries		✓	Dead or Injured Animals on or Adjacent to Work Area
✓		Inspection for Equipment Leaks	✓		Other Wildlife search completed
✓		Hazardous Materials Properly Stored	✓		Trash Properly Handled
✓		Fugitive Dust Measures Functioning	✓		HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

Arrived @ Grant Line ~ 0830 after surveying to staging area on Howard Road. Stayed til about 12 then went to Old River site. Observed activities and left approximately 1530 hrs.

Construction Activities Performed:

Excavator was in the water pulling rocks and loading trucks at both sites. Water truck was making its rounds for dust mitigation. Water quality was being sampled as well

Department of Water Resources
Biological Monitoring Field Report

Temporary Barriers Project

Biologist Name	Michael Cane		**Date**	11-4-13
	Start Time	0700	**End Time**	1700

Yes	No		Yes	No	
X		Safety Signage per Plans		X	Swainson's Hawk monitoring complete
X		All Construction Activities within Work Boundaries		X	Dead or Injured Animals on or Adjacent to Work Area
X		Inspection for Equipment Leaks	X		Other Wildlife search completed
X		Hazardous Materials Properly Stored	X		Trash Properly Handled
X		Fugitive Dust Measures Functioning	X		HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

- MR - Post construction photos taken
- GLC - Water truck operating
  Several Egrets / Herons feeding in area
- ORT - Frame Removal, No Concerns.

Construction Activities Performed:

MR - None
GLC - Rock Removal
ORT - Frame Removal

Department of Water Resources
Biological Monitoring Field Report

Temporary Barriers Project

Biologist Name	Mike Cam	**Date**	11/5/13
	Start Time 7:00	**End Time**	5:00

Yes	No		Yes	No	
X		Safety Signage per Plans		X	Swainson's Hawk monitoring complete
X		All Construction Activities within Work Boundaries		X	Dead or Injured Animals on or Adjacent to Work Area
X		Inspection for Equipment Leaks	X		Other Wildlife search completed
X		Hazardous Materials Properly Stored	X		Trash Properly Handled
X		Fugitive Dust Measures Functioning	X		HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

ORT - No WPT's seen
No Concerns
GLC - No Concerns

Construction Activities Performed:

ORT - Articulated Mat Removal

GLC - Rock Removal.

Department of Water Resources
Biological Monitoring Field Report

Temporary Barriers Project

Biologist Name	Mike Cen		**Date**	11-7-13
	Start Time	0700	**End Time**	0500

Yes	No		Yes	No	
	X	Safety Signage per Plans		X	Swainson's Hawk monitoring complete
X		All Construction Activities within Work Boundaries		X	Dead or Injured Animals on or Adjacent to Work Area
X		Inspection for Equipment Leaks	X		Other Wildlife search completed
X		Hazardous Materials Properly Stored		X	Trash Properly Handled
X		Fugitive Dust Measures Functioning	X		HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

- ORT - Safty signage was destroyed by hyacinth
  - CalNeva working to fix it.
  - Some trash on ground, made contractor pick it up.

GLC - No Concerns

ORT - Water Quality Exceedances occured. Construction stopped for 1 hour and restarted without any in-water work. LVRWQCB contacted. Extra monitoring done.

Construction Activities Performed:

- ORT - Rock Removal, Signage maintenance

GLC - Rock Removal.

Department of Water Resources
Biological Monitoring Field Report

Temporary Barriers Project

Biologist Name	Michael Cerne		**Date**	11-8-13
	Start Time	0640	**End Time**	1700

Yes	No		Yes	No	
X		Safety Signage per Plans		X	Swainson's Hawk monitoring complete
X		All Construction Activities within Work Boundaries		X	Dead or Injured Animals on or Adjacent to Work Area
X		Inspection for Equipment Leaks	X		Other Wildlife search completed
X		Hazardous Materials Properly Stored	X		Trash Properly Handled
X		Fugitive Dust Measures Functioning	X		HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

GLC- No Concerns

ORT- No Concerns

Construction Activities Performed:

GLC- Rock Removal

ORT- Rock Removal

Department of Water Resources
Biological Monitoring Field Report

Temporary Barriers Project

Biologist Name	Michael Cane		**Date**	11-11-13
	Start Time	0640	**End Time**	1700

Yes	No		Yes	No	
X		Safety Signage per Plans		X	Swainson's Hawk monitoring complete
X		All Construction Activities within Work Boundaries		X	Dead or Injured Animals on or Adjacent to Work Area
X		Inspection for Equipment Leaks	X		Other Wildlife search completed
X		Hazardous Materials Properly Stored	X		Trash Properly Handled
X		Fugitive Dust Measures Functioning	X		HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

GLC - No Concerns
ORT - No Concerns

Construction Activities Performed:

GLC - Rock Removal
ORT - Rock Removal

Department of Water Resources
Biological Monitoring Field Report

Temporary Barriers Project

Biologist Name	Michael Cane		**Date**	11-12-13
	Start Time	0700	**End Time**	1700

Yes	No		Yes	No	
X		Safety Signage per Plans		X	Swainson's Hawk monitoring complete
X		All Construction Activities within Work Boundaries		X	Dead or Injured Animals on or Adjacent to Work Area
X		Inspection for Equipment Leaks	X		Other Wildlife search completed
X		Hazardous Materials Properly Stored	X		Trash Properly Handled
X		Fugitive Dust Measures Functioning	X		HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

- No Concerns

Construction Activities Performed:

GLC - Rock Removal / Finished Work

ORT - Rock Removal

Department of Water Resources
Biological Monitoring Field Report

Temporary Barriers Project

Biologist Name	Michael Cane	**Date**	11-13-13
	Start Time 0700	**End Time**	1700

Yes	No		Yes	No	
X		Safety Signage per Plans		X	Swainson's Hawk monitoring complete
X		All Construction Activities within Work Boundaries		X	Dead or Injured Animals on or Adjacent to Work Area
X		Inspection for Equipment Leaks	X		Other Wildlife search completed
X		Hazardous Materials Properly Stored	X		Trash Properly Handled
X		Fugitive Dust Measures Functioning	X		HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

No Concerns

Construction Activities Performed:

ORT- Rock Removal

Department of Water Resources
Biological Monitoring Field Report

Temporary Barriers Project

Biologist Name	Jeffrey Tkach	**Date**	11/14/2013
	Start Time 0930	**End Time**	1330

Yes	No		Yes	No	
✓		Safety Signage per Plans	✓		Swainson's Hawk monitoring complete
✓		All Construction Activities within Work Boundaries		✓	Dead or Injured Animals on or Adjacent to Work Area
	✓	Inspection for Equipment Leaks	✓		Other Wildlife search completed
✓		Hazardous Materials Properly Stored	✓		Trash Properly Handled
✓		Fugitive Dust Measures Functioning	✓		HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

Arrived @ Old River ~ 0930 conducted a visual observation of the work site and surrounding areas with binoculars stayed til approximately 1330 hrs.

Construction Activities Performed: Excavator was in the water removing rocks while second excavator was loading trucks. Water truck was making its round for dust mitigation. Water Quality was being sampled as well.

Department of Water Resources
Biological Monitoring Field Report

Temporary Barriers Project

Biologist Name	Michael Cane		**Date**	11-15-13
	Start Time	0700	**End Time**	

Yes	No		Yes	No	
X		Safety Signage per Plans		X	Swainson's Hawk monitoring complete
X		All Construction Activities within Work Boundaries		X	Dead or Injured Animals on or Adjacent to Work Area
X		Inspection for Equipment Leaks	X		Other Wildlife search completed
X		Hazardous Materials Properly Stored	X		Trash Properly Handled
X		Fugitive Dust Measures Functioning	X		HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

No Concerns.

Construction Activities Performed:

ORT - Rock Removal

Department of Water Resources
Biological Monitoring Field Report

Temporary Barriers Project

Biologist Name	Michael Cane		**Date**	11-18-13
	Start Time	0700	**End Time**	1600

Yes	No		Yes	No	
X		Safety Signage per Plans		X	Swainson's Hawk monitoring complete
X		All Construction Activities within Work Boundaries		X	Dead or Injured Animals on or Adjacent to Work Area
X		Inspection for Equipment Leaks	X		Other Wildlife search completed
X		Hazardous Materials Properly Stored	X		Trash Properly Handled
X		Fugitive Dust Measures Functioning	X		HazMat containment kit present

Comments for all Concerns Noted Above/Species Observed/ General Comments:

No Concerns

Construction Activities Performed:

- ORT Rock Removal In-water work completed.

Appendix 4: Worker Environmental Awareness Program Outline and Handouts

Worker Environmental Awareness Program

Training will be done by a qualified biologist for all workers at the job site.

Species List for WEAP Training – Handout attachment 1

Winter and Spring Run Chinook Salmon

Central Valley Steelhead

North American Green Sturgeon

Delta Smelt

Longfin Smelt

Swainson's Hawk

Western Pond Turtle

Best Management Practices

1. No pets, camping, firearms, or any other use of the right of way area will be allowed. The Contractor's employees will not be allowed at the work site during nonworking hours.
2. Any sightings, trappings, injuries, or fatalities to animals that occur as a result of project-related activities shall be reported immediately to the Engineer.
3. Food-related trash, such as wrappers, cans, bottles, scraps, shall be placed in closed containers and removed daily from work sites. Trash or garbage shall be removed to a county approved disposal site at least weekly by the Contractor. The right of way shall be policed daily by the Contractor's personnel.
4. Review of the potential penalties for taking a listed wildlife species will be described.
5. Protocol to follow if sensitive species are encountered, including appropriate contact points, such as the Engineer or designated representative, inspectors, and environmental personnel.
6. Fact sheets or cards will be available to the Contractor's employees.
7. Traffic shall be restricted to existing roads and flagged right of way or temporary construction easement.

Follow-up meetings to present additional topics pertaining to the above subjects as they occur or are brought to the attention of the Engineer or the Contractor during construction.

WEAP Handout

Georgiana Slough
Non-Physical Barrier

Worker Environmental
Awareness Training

Delta Smelt

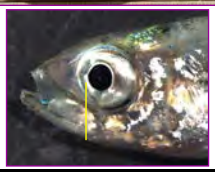
Hypomesus transpacificus

Threatened – State and Federal

Migrate from SF Bay to Delta

Spawn from Jan. to Jul. mostly in the Delta.

Eat microscopic crustaceans



Longfin Smelt

Spirinchus thaleichthys

Species of Concern

Migrate from SF Bay through Delta

Spawn in late winter to Spring in the Delta

Eat microscopic crustaceans

Rainbow Trout (Steelhead)

Oncorhynchus gairdneri

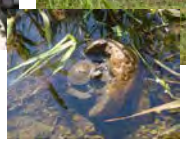
Endangered – Federal

Migrate from fresh to salt water and back

Spawn in fresh water from Dec. to Apr.

Western Pond Turtle

State-Species of Concern



Nests Mar. to Aug. along waterways

Basks on logs and beaches

Chinook Salmon

Oncorhynchus tshawytscha

Federal
Spring = Threatened
Winter = Endangered

Migrate from fresh to salt water

Spawn in fresh water

Delta is a migratory path

Juveniles migrate through the Delta year round

Migration route affects survival

Green Sturgeon

Acipenser medirostris

Threatened - Federal

Long-lived, slow growing fish

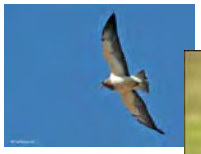
Adults are mostly marine

Spawn in fresh water

Young migrate to salt water

Swainson's Hawk

State-Threatened



Nest from Mar to May

Protected from construction impacts within a ¼ mile of nests

Appendix 5: Water Quality Monitoring Data

Site: Old River at DMC

Date	Barrier Sample Location	Time (PST)	Turbidity (NTU @ 300ft)		Settleable Solids (mL/L)		Observations	Observer
			Threshold	Measured	Threshold	Measured		
5/6/12	Above							
	Below							
Mon	Above							
	Below							
5/7/12	Above							
	Below							
Tues	Above							
	Below							
5/8/12	Above	0915		16.2	0.1	< 0.1		
	Below	0930	150	14.2	0.1	< 0.1	Placing rock into water	Jason La Deaux
Wed	Above	1240		14.4	0.1	< 0.1		
	Below	1245	150	22.2	0.1	< 0.1	Placing rock into water	Jason La Deaux
5/9/12	Above	0903		12.2	0.1	< 0.1		
	Below	0908	150	15.6	0.1	< 0.1	Placing rock into water	Jason La Deaux
Thur	Above	1208		18.4	0.1	< 0.1		
	Below	1200	150	24.2	0.1	< 0.1	Placing rock into water	Jason La Deaux
5/10/12	Above	1027		18.2	0.1	< 0.1		
	Below	1035	150	22.7	0.1	< 0.1	Placing rock into water	Jason La Deaux
Fri	Above	1230		18.3	0.1	< 0.1		
	Below	1235	150	12.2	0.1	< 0.1	Placing rock into water	Jason La Deaux
5/11/12	Above							
	Below							
Sat	Above							
	Below							
5/12/12	Above							
	Below							
Sun	Above							
	Below							

Site: Old River at DMC

Date	Barrier Sample Location	Time (PST)	Turbidity (NTU @ 300ft) Threshold	Turbidity (NTU @ 300ft) Measured	Settleable Solids (mL/L) Threshold	Settleable Solids (mL/L) Measured	Observations	Observer
	Above	0947		13.7	0.1	< 0.1		
5/13/12	Below	0953	150	36.6	0.1	< 0.1	Placing rodk into water	Joaquin Garza
	Above	1221		12.6	0.1	< 0.1		
Mon	Below	1214	150	27.2	0.1	< 0.1	Placing rodk into water	Joaquin Garza
	Above	1000		23.4	0.1	< 0.1		
5/14/12	Below	1005	150	12.5	0.1	< 0.1	Placing rodk into water	Jason La Deaux
	Above	1204		14.0	0.1	< 0.1		
Tues	Below	1200	150	25.7	0.1	< 0.1	Placing rock into water	Jason La Deaux
	Above	1020		34.2	0.1	< 0.1		
5/15/12	Below	1025	150	14.7	0.1	< 0.1	Placing rock into water	Jason La Deaux
	Above	1210		28.2	0.1	< 0.1		
Wed	Below	1205	150	48.8	0.1	< 0.1	Placing rock into water	Jason La Deaux
	Above	1000		43.3	0.1	< 0.1		
5/16/12	Below	1005	150	21.1	0.1	< 0.1	Placing rock into water	Wayne Jensen
	Above	1210		32.6	0.1	< 0.1		
Thur	Below	1200	150	12.2	0.1	< 0.1	Placing rock into water	Wayne Jensen
	Above	1030		48.7	0.1	< 0.1		
5/17/12	Below	1035	150	17.1	0.1	< 0.1	Placing rock into water	Jason La Deaux
	Above	1205		21.0	0.1	< 0.1		
Fri	Below	1200	150	12.1	0.1	< 0.1	Placing rock into water	Jason La Deaux
	Above							
5/18/12	Below							
	Above							
Sat	Below							
	Above							
5/19/12	Below							
	Above							
Sun	Below							

Site: Old River at DMC

Date	Barrier Sample Location	Time (PST)	Turbidity (NTU @ 300ft) Threshold	Turbidity (NTU @ 300ft) Measured	Settleable Solids (mL/L) Threshold	Settleable Solids (mL/L) Measured	Observations	Observer
5/20/12	Above	0840		14.2	0.1	< 0.1		
	Below	0850	150	44.8	0.1	< 0.1	Placing rodk into water	Wayne Jensen
	Above	1200		19.8	0.1	< 0.1		
Mon	Below	1205	150	16.7	0.1	< 0.1	Placing rodk into water	Wayne Jensen
5/21/12	Above	0947		12.8	0.1	< 0.1		
	Below	0940	150	17.7	0.1	< 0.1	Placing rodk into water	Joaquin Garza
	Above	1216		20.5	0.1	< 0.1		
Tues	Below	1156	150	17.4	0.1	< 0.1	Placing rock into water	Joaquin Garza
5/22/12	Above	0837		11.2	0.1	< 0.1		
	Below	0847	150	17.2	0.1	< 0.1	Placing rock into water	Wayne Jensen
	Above	1210		14.7	0.1	< 0.1		
Wed	Below	1200	150	23.3	0.1	< 0.1	Placing rock into water	Wayne Jensen
5/23/12	Above	0900						
	Below	0900					No water work at this time	Wayne Jensen
	Above	1205		15.3	0.1	< 0.1		
Thur	Below	1155	150	16.9	0.1	< 0.1	Placing rock into water	Wayne Jensen
5/24/12	Above	0950		16.1	0.1	< 0.1		
	Below	0955	150	24.8	0.1	< 0.1	Placing rock into water	Jason La Deaux
	Above	1200		22.7	0.1	< 0.1		
Fri	Below	1205	150	24.3	0.1	< 0.1	Placing rock into water	Jason La Deaux
5/25/12	Above							
	Below							
	Above							
Sat	Below							
5/26/12	Above							
	Below							
	Above							
Sun	Below							

Site: Old River at DMC

Date	Barrier Sample Location	Time (PST)	Turbidity (NTU @ 300ft)		Settleable Solids (mL/L)		Observations	Observer
			Threshold	Measured	Threshold	Measured		
5/27/12	Above							
	Below						Memorial Day	
	Above							
Mon	Below							
5/28/12	Above	1025		37.3	0.1	< 0.1		
	Below	1020	150	18.8	0.1	< 0.1	Placing rock into water	Jason La Deaux
	Above	1205		35.2	0.1	< 0.1		
Tues	Below	1200	150	32.1	0.1	< 0.1	Placing rock into water	Jason La Deaux
5/29/12	Above							
	Below							
	Above							
Wed	Below							
5/30/12	Above							
	Below							
	Above							
Thur	Below							
5/31/12	Above							
	Below							
	Above							
Fri	Below							
6/1/12	Above							
	Below							
	Above							
Sat	Below							
6/2/12	Above							
	Below							
	Above							
Sun	Below							

Site: Old River at DMC

Date	Barrier Sample Location	Time (PST)	Turbidity (NTU @ 300ft)		Settleable Solids (mL/L)		Observations	Observer
			Threshold	Measured	Threshold	Measured		
10/28/13	Above							
	Below							
Mon	Above							
	Below							
10/29/13	Above							
	Below							
Tues	Above							
	Below							
10/30/13	Above							
	Below							
Wed	Above							
	Below							
10/31/13	Above	0930		12.4	0.1	< 0.1		
	Below	0940	15 NTU diff.	3.8	0.1	< 0.1	Removing rock from water	Jason La Deaux
Thur	Above	1210		19.9	0.1	< 0.1		
	Below	1200	15 NTU diff.	33.7	0.1	< 0.1	Removing rock from water	Jason La Deaux
11/1/13	Above	0950		59.8	0.1	< 0.1		
	Below	0955	15 NTU diff.	71.0	0.1	< 0.1	Removing rock from water	Jason La Deaux
Fri	Above	1200		68.2	0.1	< 0.1		
	Below	1205	15 NTU diff.	79.4	0.1	< 0.1	Removing rock from water	Jason La Deaux
11/2/13	Above	0830		13.5	0.1	< 0.1		
	Below	0840	15 NTU diff.	22.1	0.1	< 0.1	Removing rock from water	Joaquin Garza
Sat	Above	1235		13.8	0.1	< 0.1		
	Below	1240	15 NTU diff.	17.5	0.1	< 0.1	Removing rock from water	Joaquin Garza
11/3/13	Above	0830		68.4	0.1	< 0.1		
	Below	0840	15 NTU diff.	67.6	0.1	< 0.1	Removing rock from water	Jason La Deaux
Sun	Above	1245		62.7	0.1	< 0.1		
	Below	1250	15 NTU diff.	65.8	0.1	< 0.1	Removing rock from water	Jason La Deaux

Site: Old River at DMC

Date	Barrier Sample Location	Time (PST)	Turbidity (NTU @ 300ft)		Settleable Solids (mL/L)		Observations	Observer
			Threshold	Measured	Threshold	Measured		
	Above	1100		13.9	0.1	< 0.1		
11/4/13	Below	1105	15 NTU diff.	23.3	0.1	< 0.1	Removing rock from water	Tom Coleman
	Above	1200		13.6	0.1	< 0.1		
Mon	Below	1205	15 NTU diff.	21.1	0.1	< 0.1	Removing rock from water	Tom Coleman
	Above	0945		26.3	0.1	< 0.1		
11/5/13	Below	0955	15 NTU diff.	29.0	0.1	< 0.1	Removing rock from water	Wayne Jensen
	Above	1200		-	0.1	< 0.1		
Tues	Below	1205	15 NTU diff.	-	0.1	< 0.1	No water work	Wayne Jensen
	Above	1050		16.4	0.1	< 0.1		
11/6/13	Below	1040	15 NTU diff.	4.2	0.1	< 0.1	Removing rock from water	Joaquin Garza
	Above	1300		22.2	0.1	< 0.1		
Wed	Below	1310	15 NTU diff.	20.2	0.1	< 0.1	Removing rock from water	Joaquin Garza
	Above	0920		26.0	0.1	< 0.1	Removing rock from water	
11/7/13	Below	0930	15 NTU diff.	5.6	0.1	< 0.1	Exceedance observed; work slow-down	Joaquin Garza
	Above	1055		16.4	0.1	< 0.1		
	Below	1035	15 NTU diff.	4.2	0.1	< 0.1	Removing rock from water	Joaquin Garza
	Above	1310		9.5	0.1	< 0.1	Removing rock from water	
	Below	1305	15 NTU diff.	30.1	0.1	< 0.1	Exceedance observed; work slow-down	Joaquin Garza
	Above	1400		9.2	0.1	< 0.1		
Thur	Below	1410	15 NTU diff.	17.8	0.1	< 0.1	Removing rock from water	Joaquin Garza
	Above	0950		16.1	0.1	< 0.1		
11/8/13	Below	0955	15 NTU diff.	9.4	0.1	< 0.1	Removing rock from water	Jason La Deaux
	Above	1200		12.1	0.1	< 0.1		
Fri	Below	1205	15 NTU diff.	5.0	0.1	< 0.1	Removing rock from water	Jason La Deaux

Site: Old River at DMC

Date	Barrier Sample Location	Time (PST)	Turbidity (NTU @ 300ft) Threshold	Turbidity (NTU @ 300ft) Measured	Settleable Solids (mL/L) Threshold	Settleable Solids (mL/L) Measured	Observations	Observer
11/11/13	Above	0950	15 NTU diff.	63.8	0.1	< 0.1	Removing rock from water	Jason La Deaux
	Below	0955		59.2	0.1	< 0.1		
Mon	Above	1205	15 NTU diff.	34.6	0.1	< 0.1	Removing rock from water	Jason La Deaux
	Below	1210		48.8	0.1	< 0.1		
11/12/13	Above	1040	15 NTU diff.	52.8	0.1	< 0.1	Removing rock from water	Jason La Deaux
	Below	1050		43.1	0.1	< 0.1		
Tues	Above	1210	15 NTU diff.	53.2	0.1	< 0.1	Removing rock from water	Jason La Deaux
	Below	1205		49.9	0.1	< 0.1		
11/13/13	Above	0915	15 NTU diff.	34.7	0.1	< 0.1	Removing rock from water	Wayne Jensen
	Below	0925		46.2	0.1	< 0.1		
Wed	Above	1200	15 NTU diff.	39.1	0.1	< 0.1	Removing rock from water	Wayne Jensen
	Below	1205		29.6	0.1	< 0.1		
11/14/13	Above	0840	15 NTU diff.	13.3	0.1	< 0.1	Removing rock from water	Wayne Jensen
	Below	0845		23.3	0.1	< 0.1		
Thur	Above	1205	15 NTU diff.	30.2	0.1	< 0.1	Removing rock from water	Wayne Jensen
	Below	1200		43.3	0.1	< 0.1		
11/15/13	Above	0900	15 NTU diff.	16.1	0.1	< 0.1	Removing rock from water	Wayne Jensen
	Below	0910		26.8	0.1	< 0.1		
Fri	Above	1200	15 NTU diff.	29.5	0.1	< 0.1	Removing rock from water	Wayne Jensen
	Below	1205		42.5	0.1	< 0.1		
11/16/13	Above							
	Below							
Sat	Above							
	Below							
11/17/13	Above							
	Below							
Sun	Above							
	Below							

Site: Old River at DMC

Date	Barrier Sample Location	Time (PST)	Turbidity (NTU @ 300ft)		Settleable Solids (mL/L)		Observations	Observer
			Threshold	Measured	Threshold	Measured		
11/18/13	Above	0830		26.7	0.1	< 0.1		
	Below	0845	15 NTU diff.	12.7	0.1	< 0.1	Removing rock from water	Wayne Jensen
Mon	Above	1205		43.0	0.1	< 0.1		
	Below	1215	15 NTU diff.	34.5	0.1	< 0.1	Removing rock from water	Wayne Jensen
11/19/13	Above							
	Below							
Tues	Above							
	Below							
11/20/13	Above							
	Below							
Wed	Above							
	Below							
11/21/13	Above							
	Below							
Thur	Above							
	Below							
11/22/13	Above							
	Below							
Fri	Above							
	Below							
11/23/13	Above							
	Below							
Sat	Above							
	Below							
11/24/13	Above							
	Below							
Sun	Above							
	Below							

Monitoring Results for Turbidity and Settleable Solids
Spring 2013

State of California Department of Water Resources

Site: Middle River

Date	Barrier Sample Location	Time (PST)	Turbidity (NTU @ 300ft)		Settleable Solids (mL/L)		Observations	Observer
			Threshold	Measured	Threshold	Measured		
5/13/13	Above	1025	150	17.3	0.1	< 0.1	Placing rock into water	Joaquin Garza
	Below	1032		27.9	0.1	< 0.1		
Mon	Above	1140	150	15.4	0.1	< 0.1	Placing rock into water	Joaquin Garza
	Below	1145		26.6	0.1	< 0.1		
5/14/13	Above	0910	150	15.7	0.1	< 0.1	Placing rock into water	Jason La Deaux
	Below	0915		31.8	0.1	< 0.1		
Tues	Above	1247	150	38.6	0.1	< 0.1	Placing rock into water	Jason La Deaux
	Below	1237		19.4	0.1	< 0.1		
5/15/13	Above						All work is complete 5/14/13	Jason La Deaux
	Below							
Wed	Above							
	Below							
5/16/13	Above							
	Below							
Thur	Above							
	Below							
5/17/13	Above							
	Below							
Fri	Above							
	Below							
5/18/13	Above							
	Below							
Sat	Above							
	Below							
5/19/13	Above							
	Below							
Sun	Above							
	Below							

Monitoring Results for
Turbidity and Settleable Solids
Spring 2013

State of California Department of Water Resources

Site: Middle River

Abbreviations Key

A or Above	Above the Barrier
B or Below	Below the Barrier
1	Initial Sample
2	2nd Sample (if nec.)
3	3rd Sample (if nec.)

Turbidity Criteria

Ebb	B - A < 15 ntu
Flood	A - B < 15 ntu
Slack	B - A < 15 ntu -and- A - B < 15 ntu

Settleable Solids (S.S.)
Threshold = 0.1 ml/L

S.S. < 0.1 ml/L

CONDITIONS	LOCATION	TIME	TURB.	S.S.	OBSERVATIONS
DATE: Friday, June 21, 2013					**TECH:** Jason La Deaux
	Above 1	1025	24.6	< 0.1	
	Below 1	1030	15.4	< 0.1	Excavator raising barrier;
x Ebb	Above 2				Placing rock in water
Flood	Below 2				
Slack	Above 3				
	Below 3				
	Above 1	1200	10.3	< 0.1	
x Ebb	Below 1	1205	17.4	< 0.1	Excavator raising barrier;
Flood	Above 2				Placing rock in water
Slack	Below 2				
	Above 3				
	Below 3				

DATE:					**TECH:**

Monitoring Results for Turbidity and Settleable Solids
Fall 2013

State of California Department of Water Resources

Site: Middle River

Date	Barrier Sample Location	Time (PST)	Turbidity (NTU @ 300ft)		Settleable Solids (mL/L)		Observations	Observer
			Threshold	Measured	Threshold	Measured		
10/28/13	Above	1030	15 NTU diff.	24.8	0.1	< 0.1	Removing rock from water	Wayne Jensen
	Below	1040		23.5	0.1	< 0.1		
Mon	Above	1200	15 NTU diff.	13.7	0.1	< 0.1	Removing rock from water	Wayne Jensen
	Below	1210		11.0	0.1	< 0.1		
10/29/13	Above	0850	15 NTU diff.	13.0	0.1	< 0.1	Removing rock from water	Wayne Jensen
	Below	0900		8.9	0.1	< 0.1		
Tues	Above	1200	15 NTU diff.	14.2	0.1	< 0.1	Removing rock from water	Wayne Jensen
	Below	1205		22.2	0.1	< 0.1		
10/30/13	Above	0920	15 NTU diff.	4.2	0.1	< 0.1	Removing rock from water	Joaquin Garza
	Below	0934		6.6	0.1	< 0.1		
Wed	Above	1205	15 NTU diff.	7.5	0.1	< 0.1	Removing rock from water	Joaquin Garza
	Below	1200		5.7	0.1	< 0.1		
10/31/13	Above	0815	15 NTU diff.	7.4	0.1	< 0.1	Removing rock from water	Jason La Deaux
	Below	0810		19.3	0.1	< 0.1		
Thur	Above	1250	15 NTU diff.	22.7	0.1	< 0.1	Removing rock from water	Jason La Deaux
	Below	1300		10.9	0.1	< 0.1		
11/1/13	Above	0905	15 NTU diff.	22.4	0.1	< 0.1	Removing rock from water	Jason La Deaux
	Below	0900		36.6	0.1	< 0.1		
Fri	Above	1315	15 NTU diff.	16.9	0.1	< 0.1	Removing rock from water	Jason La Deaux
	Below	1310		29.1	0.1	< 0.1		
11/2/13	Above							
	Below							
Sat	Above							
	Below							
11/3/13	Above							
	Below							
Sun	Above							
	Below							

Monitoring Results for Turbidity and Settleable Solids
Spring 2013

State of California Department of Water Resources

Site: Grantline Canal

Date	Barrier Sample Location	Time (PST)	Turbidity (NTU @ 300ft)		Settleable Solids (mL/L)		Observations	Observer
			Threshold	Measured	Threshold	Measured		
5/13/13	Above							
	Below							
	Above							
Mon	Below							
5/14/13	Above							
	Below							
	Above							
Tues	Below							
5/15/13	Above							
	Below							
	Above							
Wed	Below							
5/16/13	Above							
	Below							
	Above							
Thur	Below							
5/17/13	Above	0940		12.0	0.1	< 0.1		
	Below	0945	150	12.2	0.1	< 0.1	Placing rock into water	Jason La Deaux
	Above	1330		12.2	0.1	< 0.1		
Fri	Below	1345	150	12.7	0.1	< 0.1	Placing rock into water	Jason La Deaux
5/18/13	Above							
	Below							
	Above							
Sat	Below							
5/19/13	Above							
	Below							
	Above							
Sun	Below							

Site: Grantline Canal

Date	Barrier Sample Location	Time (PST)	Turbidity (NTU @ 300ft) Threshold	Turbidity (NTU @ 300ft) Measured	Settleable Solids (mL/L) Threshold	Settleable Solids (mL/L) Measured	Observations	Observer
5/20/13	Above	0805	150	16.7	0.1	< 0.1	Placing rock in water	Wayne Jensen
	Below	0815		15.7	0.1	< 0.1		
Mon	Above	1236					No workers at site	Wayne Jensen
	Below	1226						
5/21/13	Above	1020	150	15.6	0.1	< 0.1	Placing rock in water	Joaquin Garza
	Below	1008		15.5	0.1	< 0.1		
Tues	Above	1244	150	10.8	0.1	< 0.1	Placing rock in water	Joaquin Garza
	Below	1235		13.7	0.1	< 0.1		
5/22/13	Above	0810	150	16.6	0.1	< 0.1	Placing rock in water	Wayne Jensen
	Below	0800		11.9	0.1	< 0.1		
Wed	Above	1237	150	21.3	0.1	< 0.1	Placing rock in water	Wayne Jensen
	Below	1227		12.4	0.1	< 0.1		
5/23/13	Above	0815	150	12.2	0.1	< 0.1	Placing rock in water	Wayne Jensen
	Below	0825		15.2	0.1	< 0.1		
Thur	Above	1245	150	12.7	0.1	< 0.1	Placing rock in water	Wayne Jensen
	Below	1255		17.0	0.1	< 0.1		
5/24/13	Above	0915	150	16.2	0.1	< 0.1	Placing rock in water	Jason La Deaux
	Below	0910		14.8	0.1	< 0.1		
Fri	Above	1235	150	19.8	0.1	< 0.1	Placing rock in water	Jason La Deaux
	Below	1230		25.7	0.1	< 0.1		
5/25/13	Above							
	Below							
Sat	Above							
	Below							
5/26/13	Above							
	Below							
Sun	Above							
	Below							

Site: Grantline Canal

Date	Barrier Sample Location	Time (PST)	Turbidity (NTU @ 300ft)		Settleable Solids (mL/L)		Observations	Observer
			Threshold	Measured	Threshold	Measured		
5/27/13	Above							
	Below						Memorial Day	
	Above							
Mon	Below							
5/28/13	Above	0945		26.7	0.1	< 0.1		
	Below	0950	150	15.0	0.1	< 0.1	Placing rock in water	Jason La Deaux
	Above	1235		25.2	0.1	< 0.1		
Tues	Below	1230	150	12.3	0.1	< 0.1	Placing rock in water	Jason La Deaux
5/29/13	Above							
	Below							
	Above							
Wed	Below							
5/30/13	Above							
	Below							
	Above							
Thur	Below							
5/31/13	Above							
	Below							
	Above							
Fri	Below							
6/1/13	Above							
	Below							
	Above							
Sat	Below							
6/2/13	Above							
	Below							
	Above							
Sun	Below							

Monitoring Results for
Turbidity and Settleable Solids
Spring 2013

State of California Department of Water Resources

Site: Grantline Canal

Abbreviations Key

A or Above	Above the Barrier
B or Below	Below the Barrier
1	Initial Sample
2	2nd Sample (if nec.)
3	3rd Sample (if nec.)

Turbidity Criteria

Ebb	A - B < 15 ntu
Flood	B - A < 15 ntu
Slack	A - B < 15 ntu -and- B - A < 15 ntu

Settleable Solids (S.S.)
Threshold = 0.1 ml/L

S.S. < 0.1 ml/L

CONDITIONS	LOCATION		TIME	TURB.	S.S.	OBSERVATIONS
DATE: Monday, June 03, 2013						**TECH:** Wayne Jensen
	Above	1	0745	30.0	< 0.1	
	Below	1	0755	35.4	< 0.1	Placing rock in water
x Ebb	Above	2				
Flood	Below	2				
Slack	Above	3				
	Below	3				
	Above	1	1200	14.3	< 0.1	
x Ebb	Below	1	1210	27.1	< 0.1	Placing rock in water
Flood	Above	2				
Slack	Below	2				
	Above	3				
	Below	3				

DATE: Tuesday, June 04, 2013						**TECH:** Jason La Deaux
	Above	1	0935	23.7	< 0.1	
	Below	1	0940	31.2	< 0.1	Placing rock in water
x Ebb	Above	2				
Flood	Below	2				
Slack	Above	3				
	Below	3				
	Above	1	1200	26.4	< 0.1	
x Ebb	Below	1	1212	40.1	< 0.1	Placing rock in water
Flood	Above	2				
Slack	Below	2				
	Above	3				
	Below	3				

Monitoring Results for
Turbidity and Settleable Solids
Spring 2013

State of California Department of Water Resources

Site: Grantline Canal

Abbreviations Key

A or Above	Above the Barrier
B or Below	Below the Barrier
1	Initial Sample
2	2nd Sample (if nec.)
3	3rd Sample (if nec.)

Turbidity Criteria

Ebb	A - B < 15 ntu
Flood	B - A < 15 ntu
Slack	A - B < 15 ntu -and- B - A < 15 ntu

Settleable Solids (S.S.)
Threshold = 0.1 ml/L

S.S. < 0.1 ml/L

CONDITIONS	LOCATION		TIME	TURB.	S.S.	OBSERVATIONS
DATE: Wednesday, June 05, 2013						**TECH:** Joaquin Garza
	Above	1	0950	21.5	< 0.1	
	Below	1	1000	31.9	< 0.1	Placing rock in water
x Ebb	Above	2				
Flood	Below	2				
Slack	Above	3				
	Below	3				
	Above	1	1200	56.1	< 0.1	
x Ebb	Below	1	1205	36.9	< 0.1	Placing rock in water.
Flood	Above	2	1235	33.5		
Slack	Below	2	1240	42.8		
	Above	3				
	Below	3				
DATE: Thursday, June 06, 2013						**TECH:** Jason La Deaux
	Above	1	0915	15.8	< 0.1	
	Below	1	0920	23.7	< 0.1	Placing rock in water
x Ebb	Above	2				
Flood	Below	2				
Slack	Above	3				
	Below	3				
	Above	1	1215	34.2	< 0.1	
x Ebb	Below	1	1225	32.2	< 0.1	Placing rock in water
Flood	Above	2				
Slack	Below	2				
	Above	3				
	Below	3				

Monitoring Results for
Turbidity and Settleable Solids
Spring 2013

State of California Department of Water Resources

Site: Grantline Canal

Abbreviations Key

A or Above	Above the Barrier
B or Below	Below the Barrier
1	Initial Sample
2	2nd Sample (if nec.)
3	3rd Sample (if nec.)

Turbidity Criteria

Ebb	A - B < 15 ntu
Flood	B - A < 15 ntu
Slack	A - B < 15 ntu -and- B - A < 15 ntu

Settleable Solids (S.S.)
Threshold = 0.1 ml/L

S.S. < 0.1 ml/L

DATE: Monday, June 10, 2013 **TECH:** Joaquin Garza

CONDITIONS	LOCATION	TIME	TURB.	S.S.	OBSERVATIONS
	Above 1	0930	14.6	< 0.1	
	Below 1	0915	20.9	< 0.1	Placing rock in water
x Ebb	Above 2				
Flood	Below 2				
Slack	Above 3				
	Below 3				
	Above 1	1400			
Ebb	Below 1	1400			No water work at this time
Flood	Above 2				
Slack	Below 2				
	Above 3				
	Below 3				

DATE: Tuesday, June 11, 2013 **TECH:** Jason La Deaux

					Construction postponed until further notice.
Ebb					
Flood					
Slack					
Ebb					
Flood					
Slack					

Monitoring Results for
Turbidity and Settleable Solids
Spring 2013

State of California Department of Water Resources

Site: Grantline Canal

Abbreviations Key

A or Above	Above the Barrier
B or Below	Below the Barrier
1	Initial Sample
2	2nd Sample (if nec.)
3	3rd Sample (if nec.)

Turbidity Criteria

Ebb	B - A < 15 ntu
Flood	A - B < 15 ntu
Slack	B - A < 15 ntu -and- A - B < 15 ntu

Settleable Solids (S.S.)
Threshold = 0.1 ml/L

S.S. < 0.1 ml/L

CONDITIONS	LOCATION		TIME	TURB.	S.S.	OBSERVATIONS
DATE: Tuesday, June 18, 2013						**TECH:** Jason La Deaux
	Above	1	0900	65.9	< 0.1	
	Below	1	0905	73.9	< 0.1	Closing off channel; Placing rock in water
x Ebb	Above	2				
Flood	Below	2				
Slack	Above	3				
	Below	3				
	Above	1	1215	49.3	< 0.1	
x Ebb	Below	1	1220	38.7	< 0.1	Closing off channel; Placing rock in water
Flood	Above	2				
Slack	Below	2				
	Above	3				
	Below	3				

DATE: Wednesday, June 19, 2013						**TECH:** Jason La Deaux
	Above	1	1045	17.0	< 0.1	
	Below	1	1030	24.3	< 0.1	Excavator working in water
x Ebb	Above	2				
Flood	Below	2				
Slack	Above	3				
	Below	3				
	Above	1	1220	10.4	< 0.1	
x Ebb	Below	1	1210	14.3	< 0.1	Excavator working in water
Flood	Above	2				
Slack	Below	2				
	Above	3				
	Below	3				

Monitoring Results for
Turbidity and Settleable Solids
Spring 2013

State of California Department of Water Resources

Site: Grantline Canal

Abbreviations Key

A or Above	Above the Barrier
B or Below	Below the Barrier
1	Initial Sample
2	2nd Sample (if nec.)
3	3rd Sample (if nec.)

Turbidity Criteria

Ebb	B - A < 15 ntu
Flood	A - B < 15 ntu
Slack	B - A < 15 ntu -and- A - B < 15 ntu

Settleable Solids (S.S.)
Threshold = 0.1 ml/L

S.S. < 0.1 ml/L

CONDITIONS	LOCATION		TIME	TURB.	S.S.	OBSERVATIONS
DATE: Thursday, June 20, 2013						**TECH:** Wayne Jensen
	Above	1	0830	21.5	< 0.1	
	Below	1	0840	31.9	< 0.1	Placing rock in water
x Ebb	Above	2				
Flood	Below	2				
Slack	Above	3				
	Below	3				
	Above	1	1200	33.6	< 0.1	
x Ebb	Below	1	1205	44.3	< 0.1	Excavator working in water
Flood	Above	2				
Slack	Below	2				
	Above	3				
	Below	3				

DATE:						**TECH:**
	Above	1				
	Below	1				
Ebb	Above	2				
Flood	Below	2				
Slack	Above	3				
	Below	3				
	Above	1				
Ebb	Below	1				
Flood	Above	2				
Slack	Below	2				
	Above	3				
	Below	3				

Site: Grantline Canal

Date	Barrier Sample Location	Time (PST)	Turbidity (NTU @ 300ft)		Settleable Solids (mL/L)		Observations	Observer
			Threshold	Measured	Threshold	Measured		
10/28/13	Above							
	Below							
Mon	Above							
	Below							
10/29/13	Above							
	Below							
Tues	Above							
	Below							
10/30/13	Above	0840		3.2	0.1	< 0.1		
	Below	0830	15 NTU diff.	6.4	0.1	< 0.1	Removing rock from water	Joaquin Garza
Wed	Above	1222		3.1	0.1	< 0.1		
	Below	1231	15 NTU diff.	5.5	0.1	< 0.1	Removing rock from water	Joaquin Garza
10/31/13	Above	0850		9.4	0.1	< 0.1		
	Below	0840	15 NTU diff.	7.2	0.1	< 0.1	Removing rock from water	Jason La Deaux
Thur	Above	1230		45.9	0.1	< 0.1		
	Below	1240	15 NTU diff.	31.7	0.1	< 0.1	Removing rock from water	Jason La Deaux
11/1/13	Above	0920		11.7	0.1	< 0.1		
	Below	0930	15 NTU diff.	13.0	0.1	< 0.1	Removing rock from water	Jason La Deaux
Fri	Above	1250		16.1	0.1	< 0.1		
	Below	1255	15 NTU diff.	8.9	0.1	< 0.1	Removing rock from water	Jason La Deaux
11/2/13	Above	0900		8.5	0.1	< 0.1		
	Below	0910	15 NTU diff.	15.2	0.1	< 0.1	Removing rock from water	Joaquin Garza
Sat	Above	1310		10.5	0.1	< 0.1		
	Below	1305	15 NTU diff.	14.1	0.1	< 0.1	Removing rock from water	Joaquin Garza
11/3/13	Above	0750		10.2	0.1	< 0.1		
	Below	0755	15 NTU diff.	8.1	0.1	< 0.1	Removing rock from water	Jason La Deaux
Sun	Above	1310		28.2	0.1	< 0.1		
	Below	1320	15 NTU diff.	15.2	0.1	< 0.1	Removing rock from water	Jason La Deaux

Site: Grantline Canal

Date	Barrier Sample Location	Time (PST)	Turbidity (NTU @ 300ft)		Settleable Solids (mL/L)		Observations	Observer
			Threshold	Measured	Threshold	Measured		
11/4/13	Above	1000	15 NTU diff.	17.6	0.1	< 0.1	Removing rock from water	Tom Coleman
	Below	1010		20.8	0.1	< 0.1		
Mon	Above	1230	15 NTU diff.	19.7	0.1	< 0.1	Removing rock from water	Tom Coleman
	Below	1240		23.5	0.1	< 0.1		
11/5/13	Above	0845	15 NTU diff.	10.0	0.1	< 0.1	Removing rock from water	Wayne Jensen
	Below	0855		7.5	0.1	< 0.1		
Tues	Above	1255	15 NTU diff.	14.0	0.1	< 0.1	Removing rock from water	Wayne Jensen
	Below	1245		21.3	0.1	< 0.1		
11/6/13	Above	0840	15 NTU diff.	8.8	0.1	< 0.1	Removing rock from water	Joaquin Garza
	Below	0850		10.0	0.1	< 0.1		
Wed	Above	1340	15 NTU diff.	6.8	0.1	< 0.1	Removing rock from water	Joaquin Garza
	Below	1330		11.2	0.1	< 0.1		
11/7/13	Above	1055	15 NTU diff.	7.3	0.1	< 0.1	Removing rock from water	Joaquin Garza
	Below	1050		6.2	0.1	< 0.1		
Thur	Above	1340	15 NTU diff.	7.0	0.1	< 0.1	Removing rock from water	Joaquin Garza
	Below	1330		9.5	0.1	< 0.1		
11/8/13	Above	1030	15 NTU diff.	12.8	0.1	< 0.1	Removing rock from water	Jason La Deaux
	Below	1035		12.1	0.1	< 0.1		
Fri	Above	1205	15 NTU diff.	18.3	0.1	< 0.1	Removing rock from water	Jason La Deaux
	Below	1210		11.1	0.1	< 0.1		
11/9/13	Above							
	Below							
Sat	Above							
	Below							
11/10/13	Above							
	Below							
Sun	Above							
	Below							

Site: Grantline Canal

Date	Barrier Sample Location	Time (PST)	Turbidity (NTU @ 300ft)		Settleable Solids (mL/L)		Observations	Observer
			Threshold	Measured	Threshold	Measured		
11/11/13	Above	0920		7.3	0.1	< 0.1		
	Below	0925	15 NTU diff.	16.8	0.1	< 0.1	Removing rock from water	Jason La Deaux
	Above	1235		8.8	0.1	< 0.1		
Mon	Below	1230	15 NTU diff.	17.4	0.1	< 0.1	Removing rock from water	Jason La Deaux
11/12/13	Above	0930		9.7	0.1	< 0.1		
	Below	0940	15 NTU diff.	17.4	0.1	< 0.1	Removing rock from water	Jason La Deaux
	Above	1230		31.8	0.1	< 0.1		
Tues	Below	1235	15 NTU diff.	18.8	0.1	< 0.1	Removing rock from water	Jason La Deaux
11/13/13	Above							
	Below							
	Above							
Wed	Below							
11/14/13	Above							
	Below							
	Above							
Thur	Below							
11/15/13	Above							
	Below							
	Above							
Fri	Below							
11/16/13	Above							
	Below							
	Above							
Sat	Below							
11/17/13	Above							
	Below							
	Above							
Sun	Below							

Appendix 6: Dissolved Oxygen Data

Monthly statistics for the Grant Line Canal continuous water quality monitoring stations

	Water Temperature (°C)				Dissolved Oxygen (mg/L)				pH			
Month	Doughty Cut	GLC abv Barrier	GLC @ Tracy Blvd	GLC East	Doughty Cut	GLC abv Barrier	GLC @ Tracy Blvd	GLC East	Doughty Cut	GLC abv Barrier	GLC @ Tracy Blvd	GLC East
	MAXIMUMS				MAXIMUMS				MAXIMUMS			
January	11.7	11.6	11.5	--	11.75	11.47	11.41	--	8.31	8.07	7.95	--
February	13.1	13.1	12.9	--	12.25	11.91	11.62	--	8.38	8.34	8.02	--
March	20.1	20.1	20.1	20.2	13.14	12.65	12.48	12.61	8.38	8.38	8.45	8.57
April	20.7	20.6	20.7	20.7	13.68	13.68	13.77	13.96	8.92	8.88	8.95	8.83
May	22.6	22.6	22.6	22.7	11.09	11.20	11.33	11.85	8.69	8.55	8.73	8.61
June	28.8	28.7	27.3	28.3	14.43	15.04	11.13	12.94	9.12	9.00	8.69	8.77
July	30.6	31.1	29.6	30.4	12.86	12.96	7.45	13.30	8.70	8.67	7.71	8.68
August	27.3	--	26.8	27.7	8.72	--	6.32	8.68	8.10	--	7.58	8.01
September	25.7	--	25.3	26.1	9.07	--	8.32	9.98	7.88	--	7.76	8.04
October	20.3	--	20.1	20.3	10.67	--	9.45	9.86	7.95	--	7.78	7.89
November	15.0	--	15.2	15.1	10.77	--	10.11	10.34	7.87	--	7.86	7.89
December	12.6	--	12.4	12.5	13.68	--	13.22	13.23	8.24	--	8.15	7.92
	AVERAGES				AVERAGES				AVERAGES			
January	8.5	8.5	8.6	--	10.43	10.45	10.38	--	7.96	7.75	7.76	--
February	11.2	11.0	11.2	--	10.67	10.66	10.56	--	7.94	7.98	7.84	--
March	16.0	16.0	16.0	16.0	9.51	9.41	9.32	9.62	7.77	7.72	7.78	7.77
April	18.5	18.5	18.6	18.5	7.49	7.92	7.78	8.01	7.45	7.45	7.43	7.44
May	19.1	19.2	19.1	19.1	6.96	7.89	7.85	7.91	7.38	7.30	7.36	7.34
June	23.8	23.9	23.7	24.1	6.66	6.47	6.06	7.01	7.65	7.60	7.57	7.63
July	26.5	26.7	26.4	26.7	4.04	4.10	3.38	5.10	7.34	7.30	7.26	7.45
August	24.8	--	24.6	24.9	4.49	--	3.60	4.84	7.32	--	7.26	7.38
September	22.6	--	22.6	22.7	6.70	--	5.90	6.70	7.48	--	7.45	7.52
October	17.6	--	17.6	17.6	8.55	--	8.08	8.36	7.55	--	7.55	7.56
November	13.3	--	13.3	13.3	9.12	--	8.99	9.23	7.61	--	7.64	7.57
December	8.4	--	8.4	8.4	11.54	--	11.35	11.43	7.88	--	7.85	7.70
	MEDIANS				MEDIANS				MEDIANS			
January	8.1	8.1	8.2	--	10.35	10.35	10.31	--	7.99	7.76	7.78	--
February	11.2	11.2	11.3	--	10.66	10.62	10.51	--	7.97	7.99	7.84	--
March	15.9	16.1	16.1	16.1	9.54	9.37	9.26	9.57	7.78	7.70	7.82	7.76
April	18.6	18.6	18.7	18.6	7.36	7.79	7.66	7.90	7.54	7.48	7.51	7.56
May	19.1	19.3	19.2	19.2	7.04	8.03	7.99	8.07	7.46	7.30	7.39	7.33
June	23.6	23.8	23.7	24.1	6.48	6.02	5.80	6.84	7.74	7.57	7.55	7.67
July	26.4	26.4	26.2	26.6	3.77	3.51	3.19	4.68	7.33	7.27	7.26	7.43
August	24.7	--	24.5	24.7	4.39	--	3.55	4.72	7.33	--	7.27	7.36
September	23.0	--	23.1	23.1	6.63	--	5.72	6.65	7.49	--	7.44	7.52
October	17.9	--	17.7	17.8	8.56	--	8.12	8.41	7.58	--	7.59	7.58
November	13.5	--	13.5	13.4	9.13	--	9.03	9.26	7.63	--	7.68	7.57
December	8.3	--	8.3	8.3	11.66	--	11.45	11.48	7.89	--	7.84	7.70
	MINIMUMS				MINIMUMS				MINIMUMS			
January	5.9	6.1	6.4	--	9.13	9.61	9.48	--	7.57	7.51	7.51	--
February	9.3	9.5	9.8	--	7.78	9.61	9.71	--	7.61	7.68	7.67	--
March	11.9	12.3	12.3	12.2	4.66	6.86	6.64	7.05	7.47	7.43	7.42	7.43
April	15.6	15.6	15.6	15.6	4.98	6.00	5.97	6.18	7.03	7.20	7.14	7.08
May	16.3	16.5	16.5	16.5	0.43	6.32	6.43	6.46	6.99	7.15	7.13	7.14
June	20.8	20.9	20.9	21.1	1.16	3.19	2.99	3.74	7.08	7.26	7.23	7.20
July	24.4	24.2	24.4	24.4	0.57	0.56	1.17	1.64	7.06	7.07	7.07	7.16
August	22.8	--	23.1	23.1	2.13	--	1.41	2.36	7.07	--	7.06	7.16
September	18.4	--	18.7	18.6	4.45	--	3.36	4.34	7.20	--	7.22	7.32
October	14.0	--	14.3	14.2	6.60	--	6.47	6.67	7.21	--	7.33	7.17
November	11.3	--	11.3	11.3	6.26	--	7.13	7.77	7.27	--	7.26	7.33
December	6.1	--	6.2	6.2	9.08	--	8.61	9.27	7.56	--	7.67	7.53
	STANDARD DEVIATIONS				STANDARD DEVIATIONS				STANDARD DEVIATIONS			
January	1.4	1.4	1.4	--	0.42	0.41	0.37	--	0.16	0.11	0.08	--
February	0.7	0.7	0.6	--	0.55	0.37	0.34	--	0.15	0.13	0.06	--
March	1.7	1.7	1.7	1.7	1.09	0.96	0.98	0.93	0.14	0.16	0.18	0.18
April	1.0	1.0	1.0	1.0	1.04	0.98	0.97	0.98	0.29	0.27	0.29	0.31
May	1.3	1.2	1.2	1.2	1.25	0.71	0.68	0.72	0.23	0.16	0.20	0.17
June	1.5	1.6	1.5	1.5	1.85	1.77	1.38	1.71	0.41	0.31	0.26	0.34
July	1.1	1.3	1.1	1.2	1.75	1.88	0.98	1.96	0.20	0.22	0.09	0.26
August	0.9	--	0.8	0.9	0.89	--	0.70	1.07	0.12	--	0.07	0.12
September	1.9	--	1.8	1.9	0.81	--	0.96	0.90	0.10	--	0.08	0.10
October	1.4	--	1.3	1.3	0.61	--	0.44	0.48	0.12	--	0.09	0.12
November	1.1	--	1.1	1.1	0.51	--	0.42	0.46	0.10	--	0.10	0.11
December	1.6	--	1.6	1.6	0.87	--	0.94	0.76	0.11	--	0.10	0.09
2013 - Max.	30.6	31.1	29.6	30.4	14.43	15.04	13.77	13.96	9.12	9.00	8.95	8.83
2013 - Avg.	17.5	18.5	17.5	19.0	8.04	7.66	7.75	7.85	7.56	7.48	7.52	7.56
2013 - Med.	18.0	24.4	18.0	19.0	8.40	10.18	8.12	8.10	7.62	7.81	7.59	7.54
2013 - Min.	5.9	6.1	6.2	6.2	0.43	0.56	1.17	1.64	6.99	7.07	7.06	7.08
2013 - S.D.	6.1	6.2	6.1	5.6	2.55	2.65	2.63	2.23	0.30	0.31	0.25	0.24

Monthly statistics for the Grant Line Canal continuous water quality monitoring stations – continued

Month	Specific Conductance (µS/cm)				Turbidity (NTU)			
	Doughty Cut	GLC abv Barrier	GLC @ Tracy Blvd	GLC East	Doughty Cut	GLC abv Barrier	GLC @ Tracy Blvd	GLC East
	MAXIMUMS				MAXIMUMS			
January	1070	1070	1070	--	44.1	52.9	38.0	--
February	1040	1070	1080	--	36.8	32.7	18.4	--
March	1200	1090	1090	1100	35.7	33.1	18.1	16.7
April	1070	1100	1100	1110	44.9	43.0	20.5	20.2
May	748	692	690	701	63.6	59.7	37.6	52.1
June	936	847	837	884	56.6	55.5	45.2	41.5
July	914	829	827	863	82.0	34.2	22.2	46.9
August	907	--	834	888	97.5	--	43.2	46.0
September	823	--	766	787	54.6	--	26.7	32.8
October	818	--	798	808	68.2	--	13.4	101.5
November	865	--	871	905	111.2	--	29.1	18.3
December	1050	--	1030	1050	104.6	--	9.5	23.9
	AVERAGES				AVERAGES			
January	887	889	886	--	14.1	10.1	9.6	--
February	688	710	710	--	7.9	5.3	5.3	--
March	848	860	862	865	10.4	5.6	5.8	6.4
April	685	692	688	691	10.7	8.0	8.3	9.2
May	427	410	408	415	15.0	11.2	11.8	13.1
June	778	766	762	759	16.2	13.7	14.9	17.5
July	738	740	739	728	9.0	8.7	8.4	10.5
August	722	--	737	728	15.9	--	10.1	12.1
September	660	--	668	667	10.0	--	6.9	7.6
October	620	--	613	619	5.4	--	2.4	4.1
November	736	--	735	746	7.6	--	3.6	3.5
December	953	--	936	940	6.4	--	3.9	4.0
	MEDIANS				MEDIANS			
January	954	955	944	--	14.0	8.4	8.1	--
February	639	643	643	--	7.5	5.0	5.3	--
March	841	869	879	881	10.0	5.1	5.6	6.1
April	857	874	869	871	10.1	6.8	7.7	8.6
May	343	315	318	324	13.6	9.7	10.0	11.0
June	776	761	757	757	15.3	12.6	12.8	16.7
July	741	742	744	725	8.3	8.2	8.1	9.8
August	717	--	740	725	14.7	--	9.8	11.7
September	698	--	702	705	8.7	--	6.5	7.0
October	687	--	676	684	4.2	--	2.2	2.5
November	790	--	801	807	5.9	--	2.9	3.0
December	957	--	940	943	5.4	--	4.0	4.0
	MINIMUMS				MINIMUMS			
January	460	463	462	--	5.3	2.6	2.2	--
February	522	558	559	--	3.2	2.6	2.0	--
March	620	614	615	619	5.1	2.0	2.5	3.0
April	226	216	218	216	5.0	3.4	4.1	4.2
May	191	176	177	180	4.8	4.9	5.0	5.4
June	689	670	666	669	5.3	4.8	4.7	7.9
July	661	665	653	611	2.4	2.0	3.8	5.0
August	609	--	641	624	5.2	--	3.7	5.3
September	371	--	387	383	3.1	--	1.5	1.5
October	290	--	298	302	2.0	--	0.9	0.6
November	343	--	344	339	2.6	--	0.3	0.7
December	855	--	863	861	3.4	--	1.0	1.5
	STANDARD DEVIATIONS				STANDARD DEVIATIONS			
January	136	152	154	--	6.3	5.9	5.4	--
February	128	131	131	--	2.8	1.8	1.3	--
March	137	136	133	131	3.0	2.6	1.5	1.8
April	277	295	291	291	3.3	3.6	2.4	2.9
May	191	190	188	187	5.9	5.3	5.6	6.0
June	40	42	41	38	5.2	5.0	6.6	5.3
July	37	36	37	39	4.7	3.3	1.9	3.4
August	41	--	40	43	6.4	--	2.7	3.3
September	108	--	104	105	5.5	--	3.0	3.7
October	147	--	148	149	4.3	--	1.1	6.8
November	130	--	142	140	6.7	--	2.7	2.1
December	37	--	30	29	7.4	--	0.9	1.0
2013 - Max.	1200	1100	1100	1110	111.2	59.7	45.2	101.5
2013 - Avg.	729	726	729	715	10.7	9.5	7.6	8.7
2013 - Med.	742	848	743	735	9.2	11.9	6.7	7.6
2013 - Min.	191	176	177	180	2.0	2.0	0.3	0.6
2013 - S.D.	189	207	193	195	6.5	5.6	4.9	5.8

Monthly statistics for the Victoria Canal and Grant Line Canal near Old River water quality monitoring stations

	Water Temperature (°C)		Dissolved Oxygen (mg/L)		pH	
Month	Victoria Canal	GLC nr Old River	Victoria Canal	GLC nr Old River	Victoria Canal	GLC nr Old River
	MAXIMUMS		MAXIMUMS		MAXIMUMS	
January	9.5	11.4	10.47	11.11	7.71	7.78
February	12.6	12.8	10.83	10.98	7.77	7.77
March	17.8	19.6	10.75	10.55	8.19	7.97
April	22.3	21.3	10.34	11.21	8.19	8.39
May	23.5	21.8	12.25	9.39	8.92	8.00
June	26.9	26.9	8.90	8.33	7.97	7.95
July	27.5	28.9	8.74	8.23	7.94	7.82
August	25.7	26.2	11.40	10.53	8.99	8.83
September	25.1	25.6	10.11	9.27	8.77	8.65
October	20.5	20.3	10.34	9.76	8.31	8.18
November	16.7	16.5	10.77	10.18	7.92	7.82
December	12.3	12.2	11.60	13.25	7.81	8.17
	AVERAGES		AVERAGES		AVERAGES	
January	7.8	8.2	9.95	10.17	7.46	7.50
February	10.4	11.0	10.05	10.25	7.53	7.58
March	14.9	15.5	9.97	9.17	7.87	7.71
April	18.2	18.5	8.97	7.93	7.72	7.48
May	20.7	19.4	8.56	8.17	7.87	7.33
June	23.2	23.2	7.44	6.82	7.57	7.57
July	25.2	25.5	7.40	6.48	7.63	7.48
August	23.9	23.9	8.40	7.27	7.76	7.61
September	22.5	22.3	8.18	7.65	7.78	7.67
October	18.1	17.8	8.72	8.54	7.68	7.67
November	14.1	13.6	9.35	9.10	7.72	7.64
December	8.7	8.5	10.87	11.26	7.62	7.79
	MEDIANS		MEDIANS		MEDIANS	
January	7.8	7.9	9.98	10.11	7.44	7.57
February	10.4	11	10.00	10.24	7.53	7.61
March	15.1	15.6	9.97	9.28	7.95	7.76
April	18.2	18.6	9.04	7.93	7.72	7.62
May	20.6	19.4	8.34	8.12	7.88	7.43
June	23.1	23.1	7.43	6.85	7.59	7.55
July	25.2	25.3	7.43	6.62	7.63	7.49
August	23.9	23.8	7.95	7.30	7.67	7.60
September	22.8	22.3	8.22	7.73	7.79	7.69
October	18.1	18	8.63	8.55	7.66	7.69
November	14.5	13.9	9.13	9.13	7.72	7.66
December	8.1	8.1	10.94	11.34	7.62	7.79
	MINIMUMS		MINIMUMS		MINIMUMS	
January	6.4	6.3	9.37	9.48	7.34	7.24
February	9.1	9.4	9.45	9.71	7.39	7.31
March	11.7	11.8	9.13	6.58	7.54	7.41
April	15.4	16.4	7.05	5.80	7.40	7.00
May	18.8	17.3	5.51	6.74	7.38	6.98
June	20.8	20.8	5.69	4.15	7.20	7.29
July	23.1	23.3	4.26	3.64	7.22	7.15
August	22.2	22.3	6.44	4.10	7.43	7.30
September	19.2	19.1	6.30	2.67	7.43	7.27
October	15.8	14.5	7.72	6.84	7.38	7.36
November	11.9	11.3	8.19	7.80	7.51	7.34
December	7.5	6.2	9.71	9.36	7.44	7.54
	STANDARD DEVIATIONS		STANDARD DEVIATIONS		STANDARD DEVIATIONS	
January	0.7	1.1	0.26	0.33	0.08	0.14
February	0.7	0.6	0.26	0.25	0.09	0.10
March	1.5	1.6	0.30	0.64	0.16	0.12
April	1.4	0.9	0.68	0.87	0.16	0.31
May	1.0	0.9	1.21	0.37	0.33	0.20
June	1.2	1.3	0.55	0.72	0.13	0.15
July	0.9	1.2	0.47	0.96	0.08	0.12
August	0.7	0.8	1.08	1.09	0.47	0.32
September	1.4	1.5	0.86	0.77	0.27	0.20
October	0.9	1.2	0.48	0.37	0.17	0.14
November	1.3	1.2	0.57	0.38	0.07	0.09
December	1.3	1.5	0.33	0.84	0.07	0.14
2013 - Max.	27.5	28.9	12.25	13.25	8.99	8.83
2013 - Avg.	17.3	17.3	8.98	8.56	7.67	7.57
2013 - Med.	18.2	18.2	9.04	8.50	7.66	7.63
2013 - Min.	6.4	6.2	4.26	2.67	7.20	6.98
2013 - S.D.	5.9	5.9	1.23	1.57	0.26	0.22

Monthly statistics for the Victoria Canal and Grant Line Canal near Old River water quality monitoring stations-continued

	Specific Conductance (µS/cm)		Turbidity (NTU)	
Month	Victoria Canal	GLC nr Old River	Victoria Canal	GLC nr Old River
	MAXIMUMS		MAXIMUMS	
January	488	1070	24.4	26.3
February	490	1080	16.1	19.8
March	500	1080	22.7	33.2
April	512	1070	26.5	41.8
May	476	685	29.1	45.5
June	440	830	21.5	39.0
July	342	830	33.0	33.5
August	470	811	45.3	30.2
September	453	780	43.8	27.1
October	481	786	56.5	17.0
November	517	870	47.7	27.8
December	589	999	49.7	29.4
	AVERAGES		AVERAGES	
January	410	721	8.6	9.6
February	429	628	4.7	5.8
March	401	638	4.4	6.4
April	405	670	5.4	10.1
May	404	365	9.0	10.3
June	340	503	6.6	9.5
July	293	491	6.6	7.2
August	336	597	6.4	5.2
September	399	618	4.9	4.8
October	433	531	3.9	2.8
November	475	630	2.4	3.7
December	538	788	2.1	3.2
	MEDIANS		MEDIANS	
January	407	758	8.4	9.2
February	428	621	4.6	5.4
March	397	638	4.0	6.1
April	404	731	5.1	9.9
May	409	336	8.1	9.8
June	329	455	6.3	9.1
July	293	453	5.9	6.7
August	333	583	5.8	4.8
September	404	606	4.1	4.3
October	431	495	2.2	2.5
November	478	603	1.5	3.1
December	537	835	1.5	2.9
	MINIMUMS		MINIMUMS	
January	353	381	5.4	2.6
February	380	396	2.8	2.8
March	329	333	2.0	2.6
April	332	224	2.5	3.1
May	349	187	4.7	5.3
June	294	307	3.8	3.3
July	252	256	1.9	2.3
August	303	373	2.0	2.0
September	343	418	1.3	1.4
October	412	321	1.0	1.0
November	435	325	0.7	0.1
December	484	566	0.6	0.0
	STANDARD DEVIATIONS		STANDARD DEVIATIONS	
January	23	232	1.4	3.6
February	22	164	1.2	1.7
March	42	218	1.7	2.2
April	30	266	1.6	3.3
May	23	131	3.1	2.8
June	30	151	1.7	3.1
July	14	166	2.7	2.8
August	16	121	3.4	2.1
September	23	80	3.1	2.3
October	11	107	5.1	1.2
November	15	142	3.4	2.0
December	22	142	3.1	1.8
2013 - Max.	589	1080	56.5	45.5
2013 - Avg.	411	598	5.5	6.6
2013 - Med.	413	587	5.0	5.9
2013 - Min.	252	187	0.6	0.0
2013 - S.D.	62	200	3.5	3.7

Monthly statistics for the Middle River continuous water quality monitoring stations

	Water Temperature (°C)				Dissolved Oxygen (mg/L)				pH			
Month	Undine	Howard	Tracy Blvd	Union Point	Undine	Howard	Tracy Blvd	Union Point	Undine	Howard	Tracy Blvd	Union Point
	MAXIMUMS				MAXIMUMS				MAXIMUMS			
January	12.2	10.4	10.6	9.9	15.28	10.82	10.63	10.47	8.63	7.91	7.68	7.75
February	14.9	13.4	13.6	12.5	16.60	13.01	13.08	11.50	9.02	8.33	8.37	8.05
March	21.4	20.1	19.2	18.3	18.64	14.97	13.13	11.51	9.12	8.65	8.40	8.03
April	22.9	22.6	23.6	22.4	16.70	10.83	10.00	10.33	8.96	8.03	8.10	8.23
May	24.6	24.0	25.4	23.9	14.54	8.40	11.88	12.60	9.36	7.62	8.73	9.12
June	30.3	29.6	27.6	26.5	16.17	11.12	8.26	8.67	9.48	8.39	7.96	7.94
July	32.6	30.4	28.7	27.7	12.49	8.76	8.08	9.24	8.62	7.61	7.66	8.05
August	29.3	26.5	26.3	26.6	14.38	5.93	9.23	11.71	8.92	8.24	8.59	8.97
September	27.7	27.1	25.3	25.1	13.97	5.73	9.04	10.07	8.72	8.40	8.20	8.81
October	21.3	20.4	20.9	20.4	13.94	10.63	8.96	10.04	8.68	7.68	7.65	8.11
November	15.9	14.3	16.6	16.7	15.75	9.89	11.26	10.70	8.77	7.73	8.04	7.78
December	12.8	11.0	12.5	12.4	15.05	11.46	11.85	11.57	8.57	8.00	8.01	7.81
	AVERAGES				AVERAGES				AVERAGES			
January	8.4	7.5	7.6	7.8	11.04	8.87	9.73	9.84	7.90	7.39	7.40	7.50
February	11.2	10.4	10.5	10.5	11.81	9.96	10.67	10.09	8.06	7.65	7.71	7.65
March	15.9	15.8	15.2	14.9	10.41	6.81	9.55	9.96	7.90	7.37	7.71	7.76
April	18.4	19.0	18.4	18.3	8.71	6.25	7.94	8.90	7.34	7.33	7.49	7.66
May	19.3	20.8	20.8	20.9	8.47	5.57	7.44	8.38	7.41	7.22	7.56	7.81
June	24.1	24.2	23.3	23.2	7.85	5.80	6.25	7.31	7.88	7.30	7.37	7.55
July	26.7	25.8	25.2	25.2	3.95	4.02	5.36	7.46	7.37	7.03	7.20	7.57
August	24.9	24.1	23.7	23.8	5.20	3.00	5.68	8.37	7.35	6.93	7.18	7.71
September	22.5	21.9	22.2	22.5	7.31	2.36	5.96	8.00	7.55	7.11	7.28	7.70
October	17.2	16.6	17.4	18.0	9.48	5.67	6.55	8.37	7.74	7.06	7.30	7.56
November	13.0	12.0	13.5	14.0	10.64	8.26	9.14	9.21	7.87	7.16	7.56	7.55
December	8.0	6.6	8.0	8.7	11.96	10.10	10.72	10.65	8.00	7.59	7.68	7.58
	MEDIANS				MEDIANS				MEDIANS			
January	8.2	7.2	7.4	7.8	10.73	8.87	9.76	9.82	7.88	7.38	7.40	7.53
February	11.1	10.3	10.4	10.5	11.60	9.92	10.56	10.00	8.11	7.65	7.77	7.64
March	15.8	15.7	15.2	15.2	10.06	6.47	9.47	9.97	7.94	7.36	7.72	7.78
April	18.3	19.2	18.4	18.3	8.24	6.25	8.18	8.95	7.50	7.38	7.57	7.68
May	19.2	20.8	20.7	20.8	8.37	5.74	7.53	8.19	7.40	7.24	7.58	7.77
June	24.0	24.1	23.1	23.1	7.54	5.58	6.24	7.34	8.21	7.28	7.37	7.55
July	26.6	25.6	25.1	25.1	3.19	3.84	5.37	7.48	7.33	7.02	7.22	7.58
August	24.8	24.1	23.7	23.8	4.98	3.00	5.71	8.02	7.35	6.91	7.18	7.65
September	22.6	22.3	22.5	22.9	7.01	2.15	6.03	7.99	7.54	7.21	7.29	7.71
October	17.3	16.5	17.4	18.0	9.05	5.34	6.53	8.32	7.76	7.06	7.32	7.55
November	13.1	12.2	13.7	14.4	10.31	8.24	9.16	9.06	7.89	7.06	7.56	7.55
December	7.8	6.2	7.7	8.2	11.93	10.19	10.74	10.75	8.01	7.56	7.67	7.59
	MINIMUMS				MINIMUMS				MINIMUMS			
January	5.3	5.2	5.4	6.2	9.30	7.29	8.81	9.22	7.67	7.18	7.22	7.33
February	8.7	9.0	8.6	9.0	8.59	7.23	9.06	9.30	7.62	7.33	7.30	7.42
March	11.1	12.1	11.7	11.6	5.53	2.74	7.00	8.53	7.43	7.06	7.40	7.48
April	14.2	14.2	14.3	15.6	4.31	2.50	4.72	6.48	6.85	6.97	7.07	7.34
May	15.7	17.1	18.4	19.4	4.62	2.06	2.91	5.74	6.93	6.91	7.15	7.39
June	19.2	20.0	20.5	21.0	0.55	1.27	2.38	5.70	7.21	7.08	6.80	7.31
July	22.9	22.8	23.1	23.2	0.55	1.06	2.31	5.00	7.07	6.81	6.82	7.26
August	20.8	21.6	21.7	22.2	1.34	0.74	1.72	3.98	7.02	6.75	6.84	7.23
September	17.4	17.6	17.9	19.1	3.37	0.67	2.58	5.78	7.20	6.78	7.00	7.30
October	13.3	13.4	14.2	15.4	5.43	2.23	3.97	7.01	7.23	6.79	7.04	7.31
November	10.4	9.8	10.4	11.5	6.62	4.33	7.08	7.90	7.36	6.88	7.28	7.39
December	4.5	4.4	5.3	7.0	7.68	7.52	9.33	9.30	7.61	7.35	7.51	7.42
	STANDARD DEVIATIONS				STANDARD DEVIATIONS				STANDARD DEVIATIONS			
January	1.5	1.3	1.0	0.7	1.10	0.58	0.37	0.25	0.17	0.13	0.06	0.11
February	1.1	0.8	0.9	0.7	1.47	1.21	0.86	0.47	0.29	0.19	0.25	0.11
March	2.0	1.7	1.6	1.5	2.17	1.99	0.88	0.37	0.35	0.24	0.15	0.09
April	1.5	1.6	1.7	1.3	1.99	1.29	1.10	0.63	0.46	0.18	0.21	0.16
May	1.8	1.4	1.3	0.9	1.39	1.05	1.35	1.29	0.47	0.12	0.24	0.45
June	2.1	2.0	1.4	1.0	3.12	1.40	0.77	0.47	0.61	0.17	0.11	0.10
July	1.9	1.5	1.0	0.9	2.47	1.01	0.81	0.52	0.29	0.12	0.11	0.11
August	1.6	1.0	0.8	0.6	2.00	1.00	1.29	1.20	0.28	0.15	0.26	0.48
September	2.2	2.0	1.7	1.4	1.67	1.04	1.24	0.81	0.27	0.19	0.16	0.28
October	1.5	1.2	1.2	0.9	1.52	1.59	0.97	0.49	0.30	0.17	0.13	0.15
November	1.2	1.1	1.3	1.3	1.63	0.59	0.76	0.53	0.29	0.30	0.15	0.07
December	1.6	1.6	1.5	1.3	1.17	0.69	0.44	0.46	0.18	0.18	0.11	0.06
2013 - Max.	32.6	30.4	28.7	27.7	18.64	14.97	13.13	12.60	9.48	8.65	8.73	9.12
2013 - Avg.	17.5	17.1	17.2	17.3	8.88	6.37	7.90	8.87	7.62	7.21	7.41	7.62
2013 - Med.	17.7	18.0	17.9	18.1	9.14	6.20	7.91	8.90	7.78	7.28	7.45	7.61
2013 - Min.	4.5	4.4	5.3	6.2	0.55	0.67	1.72	3.98	6.85	6.75	6.80	7.23
2013 - S.D.	6.4	6.6	6.1	5.9	3.07	2.70	2.12	1.25	0.45	0.28	0.26	0.27

Monthly statistics for the Middle River continuous water quality monitoring stations – continued

	Specific Conductance (µS/cm)				Turbidity (NTU)			
Month	Undine	Howard	Tracy Blvd	Union Point	Undine	Howard	Tracy Blvd	Union Point
	MAXIMUMS				MAXIMUMS			
January	1180	1880	1430	736	32.0	45.6	41.1	37.0
February	1070	1510	1380	724	28.8	40.4	24.5	22.3
March	1290	1340	685	518	118.9	73.2	43.7	25.6
April	1190	1320	705	475	26.6	188.5	40.1	29.3
May	933	1000	578	467	60.3	105.7	86.5	36.6
June	780	1020	406	388	87.3	91.9	51.3	20.3
July	779	713	363	324	68.6	83.8	32.6	81.0
August	802	725	422	355	83.4	83.8	36.6	100.0
September	717	993	583	428	84.5	48.0	35.9	56.4
October	787	872	863	578	32.6	39.9	34.7	148.1
November	874	948	710	530	32.2	29.1	40.4	34.7
December	1030	1210	738	612	26.0	47.7	29.2	43.3
	AVERAGES				AVERAGES			
January	890	1244	794	413	9.7	8.1	9.1	9.2
February	685	911	782	441	4.1	3.3	3.8	5.3
March	855	760	447	401	5.7	7.6	6.6	4.6
April	657	790	446	366	8.0	17.1	6.4	4.8
May	398	483	427	384	16.2	16.5	10.2	9.5
June	683	476	348	319	25.5	12.2	6.0	6.4
July	703	387	286	255	9.5	14.8	5.9	6.2
August	673	476	356	321	20.4	10.4	6.2	5.7
September	599	579	434	392	16.9	6.3	5.6	5.1
October	581	636	589	425	5.9	6.0	4.8	6.2
November	720	615	539	477	2.8	2.3	2.6	2.4
December	933	956	591	541	3.0	1.8	2.1	2.3
	MEDIANS				MEDIANS			
January	943	1210	812	395	9.0	6.5	8.6	9.0
February	620	823	762	431	3.7	2.9	3.5	5.1
March	863	735	434	393	4.5	6.5	6.3	4.2
April	827	908	426	359	7.0	14.1	5.9	4.5
May	351	509	423	386	11.7	12.8	7.6	8.4
June	680	459	342	311	24.4	9.2	5.6	6.1
July	706	377	285	250	6.5	12.5	5.4	5.5
August	673	465	354	319	19.2	8.1	5.7	4.9
September	644	545	431	398	15.5	3.6	5.3	4.2
October	651	695	554	421	5.0	5.1	4.5	2.9
November	783	620	536	479	1.8	1.8	2.1	2.1
December	936	977	588	541	2.9	1.4	1.7	1.9
	MINIMUMS				MINIMUMS			
January	455	588	411	333	2.5	2.1	2.9	5.7
February	540	644	413	366	2.0	1.3	1.3	2.9
March	603	477	345	329	2.1	1.2	1.6	1.4
April	202	268	341	324	2.3	4.3	2.6	2.0
May	163	233	358	340	3.4	2.8	4.0	4.3
June	610	360	309	284	5.7	2.7	3.5	2.9
July	610	297	249	223	0.8	3.7	3.2	2.6
August	548	357	317	295	1.7	1.5	2.3	2.1
September	341	420	363	337	2.3	1.1	1.7	1.7
October	266	313	445	406	0.9	1.2	2.1	1.4
November	295	313	460	428	0.9	0.1	1.0	1.2
December	859	774	499	488	1.0	0.4	1.0	1.3
	STANDARD DEVIATIONS				STANDARD DEVIATIONS			
January	160	312	204	56	5.4	5.9	3.4	1.9
February	131	222	222	53	1.6	2.2	1.6	1.3
March	131	183	62	44	5.6	4.7	2.9	2.0
April	295	281	73	27	3.7	11.7	2.5	1.6
May	190	126	34	21	10.9	11.8	7.3	3.5
June	29	78	22	23	10.6	9.4	2.2	1.7
July	32	57	22	23	7.9	8.2	1.7	3.6
August	37	58	17	13	10.7	8.2	2.6	3.9
September	112	104	41	23	8.3	6.5	2.2	3.5
October	154	139	100	17	3.5	3.7	1.9	10.9
November	149	175	42	18	2.4	2.3	2.1	1.8
December	30	69	43	23	1.0	2.2	1.6	2.8
2013 - Max.	1290	1880	1430	736	118.9	188.5	86.5	148.1
2013 - Avg.	698	692	502	394	10.7	8.9	5.8	5.7
2013 - Med.	698	608	459	391	6.8	6.7	5.2	4.8
2013 - Min.	163	233	249	223	0.8	0.1	1.0	1.2
2013 - S.D.	200	295	183	79	9.9	8.9	3.8	4.7

Monthly statistics for the Old River continuous water quality monitoring stations

	Water Temperature (°C)				Dissolved Oxygen (mg/L)				pH			
Month	Head	TWA	u/s ORT	d/s ORT	Head	TWA	u/s ORT	d/s ORT	Head	TWA	u/s ORT	d/s ORT
	MAXIMUMS				MAXIMUMS				MAXIMUMS			
January	11.7	11.2	10.9	11.0	11.46	11.80	10.49	10.88	8.20	7.95	7.80	7.87
February	12.6	13.0	12.9	12.9	11.76	12.06	10.68	10.71	8.18	8.20	7.80	7.86
March	20.5	19.4	18.9	19.1	13.19	11.09	9.93	10.63	8.53	7.96	7.86	8.05
April	21.4	21.3	22.3	22.3	14.61	10.13	9.85	10.44	8.94	8.01	8.25	8.54
May	23.3	24.2	22.4	22.5	15.35	11.35	9.27	9.10	9.30	8.05	7.95	8.15
June	29.1	28.9	26.3	26.6	16.64	19.53	7.98	8.20	9.33	8.94	7.75	7.95
July	30.3	31.5	27.4	27.8	13.05	22.62	7.81	8.08	9.21	9.46	7.73	7.94
August	28.3	26.2	25.1	25.5	16.40	17.45	9.23	9.56	9.33	8.63	8.55	8.61
September	26.6	25.2	24.3	24.5	13.66	5.68	8.08	8.63	8.90	7.33	8.07	8.33
October	20.9	19.9	19.8	20.0	12.15	6.86	8.21	9.00	8.33	7.39	7.86	7.99
November	15.2	14.5	16.2	16.2	10.40	7.18	9.83	10.09	8.01	7.36	7.89	7.65
December	12.6	11.4	12.2	12.0	12.59	10.22	12.48	12.95	8.08	7.65	8.10	8.09
	AVERAGES				AVERAGES				AVERAGES			
January	8.6	8.0	7.8	7.9	10.66	9.30	8.86	9.44	7.77	7.67	7.56	7.62
February	11.1	10.9	10.7	10.8	10.86	9.75	9.23	9.63	7.89	7.84	7.54	7.63
March	16.0	15.7	15.3	15.3	10.17	7.46	8.53	9.16	7.87	7.48	7.60	7.73
April	18.3	18.8	18.6	18.6	9.10	5.89	7.25	7.53	7.52	7.36	7.53	7.66
May	18.9	19.9	19.5	19.6	9.04	6.97	7.54	7.81	7.51	7.34	7.46	7.40
June	24.1	23.5	22.9	23.0	8.42	6.27	6.03	6.62	7.85	7.56	7.40	7.52
July	26.8	26.2	24.6	24.9	3.50	10.03	5.74	6.22	7.31	7.85	7.38	7.37
August	25.2	24.1	23.0	23.2	7.03	4.54	6.37	6.78	7.58	7.15	7.42	7.49
September	22.6	22.0	21.8	22.0	8.46	3.03	5.56	6.26	7.86	7.12	7.39	7.48
October	17.3	17.0	17.3	17.3	9.39	4.57	5.57	6.51	7.74	7.17	7.26	7.29
November	13.2	12.9	13.4	13.4	9.29	5.85	7.90	8.29	7.68	7.21	7.50	7.35
December	8.4	7.7	8.3	8.2	11.36	8.73	10.32	10.75	7.87	7.45	7.79	7.65
	MEDIANS				MEDIANS				MEDIANS			
January	8.2	7.6	7.7	7.8	10.58	9.19	9.07	9.71	7.76	7.68	7.57	7.64
February	11.2	10.9	10.7	10.8	10.84	9.77	9.55	9.93	7.89	7.85	7.56	7.64
March	16.0	16.0	15.5	15.5	10.14	7.40	8.58	9.23	7.90	7.48	7.64	7.76
April	18.2	18.9	18.7	18.7	8.92	6.34	7.36	7.58	7.57	7.38	7.58	7.68
May	19.0	19.7	19.4	19.5	8.86	7.01	7.76	7.94	7.44	7.45	7.56	7.48
June	23.9	23.4	22.7	22.8	8.57	5.72	6.08	6.65	8.45	7.55	7.41	7.60
July	26.6	25.9	24.5	24.7	3.00	9.40	5.77	6.33	7.28	7.96	7.38	7.45
August	25.1	24.2	23.0	23.2	6.08	4.07	6.49	6.84	7.58	7.14	7.43	7.55
September	23.1	22.4	22.0	22.2	8.51	2.93	5.81	6.45	7.86	7.12	7.43	7.56
October	17.6	16.8	17.5	17.6	9.27	4.48	5.46	6.42	7.80	7.17	7.28	7.33
November	13.3	13.2	13.6	13.6	9.29	5.94	8.17	8.58	7.70	7.21	7.56	7.42
December	8.4	7.4	7.9	7.9	11.55	9.18	10.49	10.98	7.88	7.51	7.82	7.67
	MINIMUMS				MINIMUMS				MINIMUMS			
January	6.3	5.8	5.7	6.2	9.83	5.37	6.03	6.78	7.55	7.42	7.35	7.40
February	9.7	9.4	9.3	9.4	10.15	7.84	6.25	7.01	7.74	7.63	7.12	7.39
March	12.6	12.1	11.8	11.8	6.01	2.18	4.30	6.78	7.26	7.27	7.18	7.48
April	15.3	15.8	16.0	16.0	6.49	0.48	2.10	4.44	7.05	6.93	7.07	7.34
May	15.7	18.0	17.4	17.4	4.26	3.92	1.46	4.83	7.24	6.94	7.08	6.95
June	21.2	20.7	20.8	20.8	1.27	1.07	1.88	4.22	6.93	7.23	7.07	7.06
July	24.5	23.8	22.8	23.0	0.90	2.04	3.11	3.15	6.90	7.19	7.15	6.98
August	22.9	22.3	21.2	21.5	2.81	1.31	3.17	3.38	7.07	6.98	7.12	6.99
September	17.5	18.8	18.6	18.7	4.61	0.28	2.06	3.64	7.44	6.99	7.11	7.00
October	14.1	14.4	14.7	14.6	7.67	2.49	2.69	4.34	7.14	7.00	6.99	6.96
November	11.1	11.0	11.4	11.2	7.69	3.36	2.99	4.95	7.36	7.02	7.10	6.97
December	5.9	5.7	6.4	6.3	9.45	5.78	7.72	6.83	7.73	7.14	7.43	7.29
	STANDARD DEVIATIONS				STANDARD DEVIATIONS				STANDARD DEVIATIONS			
January	1.4	1.3	1.0	1.0	0.37	0.95	0.85	0.82	0.11	0.10	0.10	0.10
February	0.6	0.6	0.6	0.6	0.32	0.67	0.96	0.84	0.06	0.09	0.10	0.10
March	1.8	1.6	1.5	1.5	1.04	1.01	0.65	0.61	0.21	0.12	0.11	0.09
April	1.2	1.1	1.1	1.1	1.20	1.67	1.11	1.08	0.37	0.24	0.25	0.23
May	1.6	1.0	0.9	0.9	1.44	0.65	0.98	0.68	0.48	0.25	0.22	0.20
June	1.6	1.6	1.2	1.1	3.19	2.47	1.03	0.81	0.61	0.25	0.14	0.20
July	1.2	1.3	0.9	0.9	1.85	3.08	0.89	0.91	0.52	0.44	0.11	0.21
August	0.9	0.8	0.7	0.7	2.79	2.00	1.06	1.00	0.65	0.17	0.23	0.29
September	2.2	1.7	1.6	1.5	1.35	1.05	1.33	1.17	0.29	0.06	0.19	0.25
October	1.5	1.1	1.1	1.2	0.69	0.90	1.09	1.15	0.21	0.08	0.18	0.21
November	1.1	1.0	1.2	1.2	0.49	0.64	1.19	1.01	0.13	0.07	0.19	0.16
December	1.5	1.6	1.5	1.5	0.65	1.09	0.94	0.97	0.07	0.12	0.14	0.14
2013 - Max.	30.3	31.5	27.4	27.8	16.64	22.62	12.48	12.95	9.33	9.46	8.55	8.61
2013 - Avg.	17.6	17.3	17.0	17.0	8.93	6.86	7.35	7.91	7.66	7.37	7.47	7.49
2013 - Med.	17.7	18.1	18.0	18.0	9.40	6.77	7.32	7.83	7.81	7.44	7.52	7.57
2013 - Min.	5.9	5.7	5.7	6.2	0.90	0.28	1.46	3.15	6.90	6.93	6.99	6.95
2013 - S.D.	6.2	6.2	5.7	5.8	2.55	2.65	1.88	1.74	0.42	0.34	0.21	0.23

Monthly statistics for the Old River continuous water quality monitoring stations – continued

	Specific Conductance (µS/cm)				Turbidity (NTU)			
Month	Head	TWA	u/s ORT	d/s ORT	Head	TWA	u/s ORT	d/s ORT
	MAXIMUMS				MAXIMUMS			
January	1060	1450	1540	1540	49.9	45.7	48.4	23.4
February	1080	1320	1450	1440	41.3	34.0	60.2	22.5
March	1110	1410	1200	1220	52.2	31.7	61.8	35.5
April	976	1330	1340	1360	41.8	112.1	74.6	22.0
May	679	886	720	709	67.5	66.2	101.5	47.7
June	758	1260	659	697	59.6	40.8	33.8	29.4
July	824	1100	470	469	68.5	44.6	81.4	19.5
August	853	1020	688	632	42.7	24.5	71.9	16.5
September	724	990	1130	1150	34.3	31.1	59.7	14.8
October	793	986	1170	1180	13.9	28.4	53.5	39.2
November	878	1030	1180	1170	53.1	31.8	72.0	91.3
December	1020	1180	1310	1310	16.8	31.6	51.3	26.1
	AVERAGES				AVERAGES			
January	886	1105	923	868	13.9	11.2	8.0	8.7
February	677	927	812	771	7.6	4.3	5.9	6.8
March	869	1004	673	659	9.2	10.4	8.3	6.2
April	638	884	829	822	13.2	19.4	11.3	8.9
May	404	507	396	393	18.7	16.4	13.1	14.0
June	678	877	458	451	23.9	15.5	6.4	5.9
July	696	877	349	344	15.8	19.2	7.0	4.7
August	685	847	492	488	13.8	11.0	6.6	4.4
September	595	830	689	679	6.3	7.2	6.4	3.7
October	587	782	895	834	3.5	6.7	5.3	3.0
November	741	839	757	731	5.3	6.5	6.7	5.9
December	926	1059	911	890	4.5	3.6	4.9	3.9
	MEDIANS				MEDIANS			
January	947	1160	950	900	12.0	10.5	7.3	8.3
February	623	878	778	698	7.1	4.0	5.1	6.4
March	881	982	648	620	8.3	10.2	6.4	6.1
April	826	1040	912	899	12.2	15.0	9.8	8.1
May	398	428	388	397	15.1	15.6	11.2	12.3
June	673	861	451	429	24.1	14.5	5.7	5.9
July	694	878	341	334	13.6	18.8	6.1	4.5
August	685	835	477	477	13.1	10.4	5.6	4.1
September	649	846	608	610	5.4	7.0	5.3	3.6
October	652	831	935	858	3.1	6.6	4.1	2.6
November	792	887	751	722	4.3	6.5	4.7	3.7
December	928	1070	895	881	4.3	2.8	4.0	3.3
	MINIMUMS				MINIMUMS			
January	499	568	396	381	3.1	3.2	2.4	2.9
February	541	655	391	384	3.2	2.5	2.5	3.4
March	609	731	335	324	2.6	4.0	1.9	2.8
April	199	270	270	258	4.6	3.1	3.1	3.1
May	169	236	215	212	5.2	5.9	4.8	5.7
June	613	669	328	326	7.0	6.5	3.2	2.8
July	582	731	258	256	4.4	11.1	2.8	2.1
August	537	744	402	391	3.6	3.2	1.8	1.6
September	337	563	512	474	1.7	1.4	1.0	1.2
October	261	410	505	414	1.5	3.1	1.2	1.1
November	339	542	456	373	1.6	2.8	1.2	0.9
December	849	922	584	587	2.2	0.7	1.4	0.9
	STANDARD DEVIATIONS				STANDARD DEVIATIONS			
January	142	175	318	320	7.5	4.8	4.1	3.2
February	117	172	307	303	2.8	1.4	3.5	1.8
March	126	153	252	264	4.1	2.0	6.0	2.2
April	299	320	299	302	4.9	12.3	6.9	3.1
May	187	215	116	112	10.0	4.5	6.7	5.7
June	29	140	89	92	6.8	5.1	2.7	1.4
July	43	68	53	54	8.1	3.9	4.6	1.3
August	50	54	48	40	4.7	3.6	4.2	1.4
September	125	85	179	174	3.1	2.4	4.6	1.3
October	153	148	147	172	1.3	1.5	4.6	2.0
November	128	125	178	177	4.8	1.7	6.9	6.3
December	29	65	199	195	1.1	2.2	3.7	2.2
2013 - Max.	1110	1450	1540	1540	68.5	112.1	101.5	91.3
2013 - Avg.	699	878	680	660	11.3	10.8	7.3	6.3
2013 - Med.	696	882	605	595	8.9	9.2	5.8	5.2
2013 - Min.	169	236	215	212	1.5	0.7	1.0	0.9
2013 - S.D.	198	217	287	277	8.2	6.9	5.4	4.3

Results for the Upstream-Downstream Analysis for the Grant Line Canal barrier

	Monthly Median DO Conc (mg/L) [a]		Mann-Whitney Test Results [b]		
Month	**Upstream Station - GLC above the barrier [d]**	**Downstream Station - GLC at Tracy Blvd**	**p-value**	**Difference between Monthly Medians (mg/L)**	**Station with significantly higher DO values [c]**
January	10.31	10.28	NS	0.03	NS
February	10.60	10.48	NS	0.12	NS
March	9.12	9.08	NS	0.04	NS
April	7.69	7.63	NS	0.05	NS
May	8.13	8.05	NS	0.07	NS
June	5.65	5.64	NS	0.01	NS
July	3.35	3.13	0.0335	0.22	GLAB
August	--	--	--	--	--
September	--	--	--	--	--
October	--	--	--	--	--
November	--	--	--	--	--
December	--	--	--	--	--

(a) The monthly medians are actually the medians of the daily medians for the month. For example, in this analysis the monthly median for January is the median of all of the daily medians for the month of January.

(b) "NS" stands for "no significant difference between the two stations".

(c) "GLTR" represents the Grant Line Canal at Tracy Blvd station. "GLAB" represents the Grant Line Canal above the GLC barrier station.

(d) "--" Means analysis was not done due to the removal of the Grant Line Canal above barrier which was replaced with the station called Grant Line Canal East

Results for the Upstream-Downstream Analysis for the Grant Line Canal barrier

	Monthly Median DO Conc (mg/L) [e]		Mann-Whitney Test Results [f]		
Month	**Upstream Station - GLC above the barrier EAST [h]**	**Downstream Station - GLC at Tracy Blvd**	**p-value**	**Difference between Monthly Medians (mg/L)**	**Station with significantly higher DO values [g]**
January	--	--	--	--	--
February	--	--	--	--	--
March	9.27	9.08	NS	0.20	NS
April	7.87	7.63	NS	0.24	NS
May	8.10	8.05	NS	0.05	NS
June	6.89	5.64	0.0122	1.25	GLCE
July	4.54	3.13	<0.0001	1.41	GLCE
August	4.67	3.47	<0.0001	1.20	GLCE
September	6.59	5.59	0.0004	1.00	GLCE
October	8.42	8.11	0.0046	0.31	GLCE
November	9.28	9.06	0.0119	0.23	GLCE
December	11.52	11.53	NS	0.01	NS

(e) The monthly medians are actually the medians of the daily medians for the month. For example, in this analysis the monthly median for January is the median of all of the daily medians for the month of January.

(f) "NS" stands for "no significant difference between the two stations".

(g) "GLTR" represents the Grant Line Canal at Tracy Blvd station. "GLCE" represents the Grant Line Canal above the GLC barrier station.

(h) "--" Means analysis was not done since the station called Grant Line Canal East was not established until March 2013

Results comparing Grant Line Canal above Barrier with Grant Line Canal East

	Monthly Median DO Conc (mg/L) [i]		Mann-Whitney Test Results [j]		
Month	**Upstream Station - GLC above the barrier [l]**	**Upstream Station - GLC above the barrier EAST**	**p-value**	**Difference between Monthly Medians (mg/L)**	**Station with significantly higher DO values [k]**
January	--	--	--	--	--
February	--	--	--	--	--
March	9.12	9.27	NS	0.15	NS
April	7.69	7.87	NS	0.19	NS
May	8.13	8.10	NS	0.03	NS
June	5.65	6.89	NS	1.24	NS
July	3.35	4.54	<0.0001	1.19	GLCE
August	--	--	--	--	--
September	--	--	--	--	--
October	--	--	--	--	--
November	--	--	--	--	--
December	--	--	--	--	--

(i) The monthly medians are actually the medians of the daily medians for the month. For example, in this analysis the monthly median for January is the median of all of the daily medians for the month of January.

(j) "NS" stands for "no significant difference between the two stations".

(k) "GLCE" represents the Grant Line Canal above the GLC barrier station which is further east of "GLAB" station. "GLAB" represents the Grant Line Canal above the GLC barrier station.

(l) "--" Means analysis was not done due to the removal of the Grant Line Canal above barrier which was replaced with the station called Grant Line Canal East

Results for the Upstream-Downstream Analysis for the Middle River barrier

	Monthly Median DO Conc (mg/L) [m]		1-Sample Wilcoxon [n]		
Month	**Upstream Station - MR near Tracy Blvd**	**Downstream Station - MR at Union Point**	**p-value**	**Difference between Monthly Medians (mg/L)**	**Station with significantly higher DO values [o]**
January	9.76	9.82	0.004	0.06	MRUP
February	10.69	9.96	<0.001	0.73	MRNT
March	9.42	10.00	<0.001	0.58	MRUP
April	8.08	9.01	<0.001	0.93	MRUP
May	7.59	8.10	<0.001	0.52	MRUP
June	6.16	7.43	<0.001	1.27	MRUP
July	5.39	7.50	<0.001	2.11	MRUP
August	5.74	7.93	<0.001	2.19	MRUP
September	5.98	8.04	<0.001	2.06	MRUP
October	6.40	8.18	<0.001	1.78	MRUP
November	9.10	9.01	NS	0.09	NS
December	10.80	10.76	0.001	0.04	MRNT

[m] The monthly medians are actually the medians of the daily medians for the month. For example, in this analysis the monthly median for January is the median of all of the daily medians for the month of January.

[n] "NS" stands for "no significant difference between the two stations".

[o] "MRNT" represents the Middle River near Tracy Blvd station. "MRUP" represents the Middle River at Union Point station.

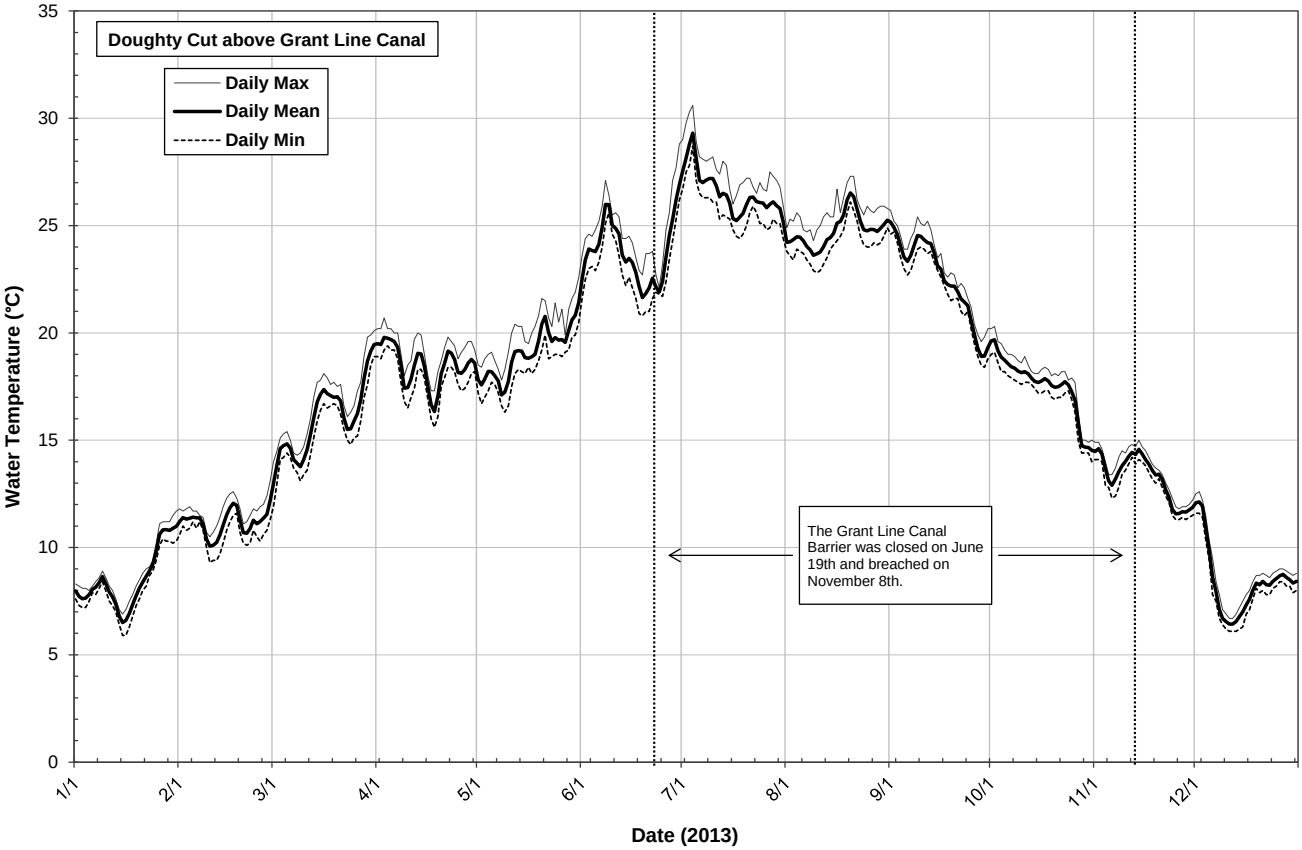
Results for the Upstream-Downstream Analysis for the Old River at Tracy barrier

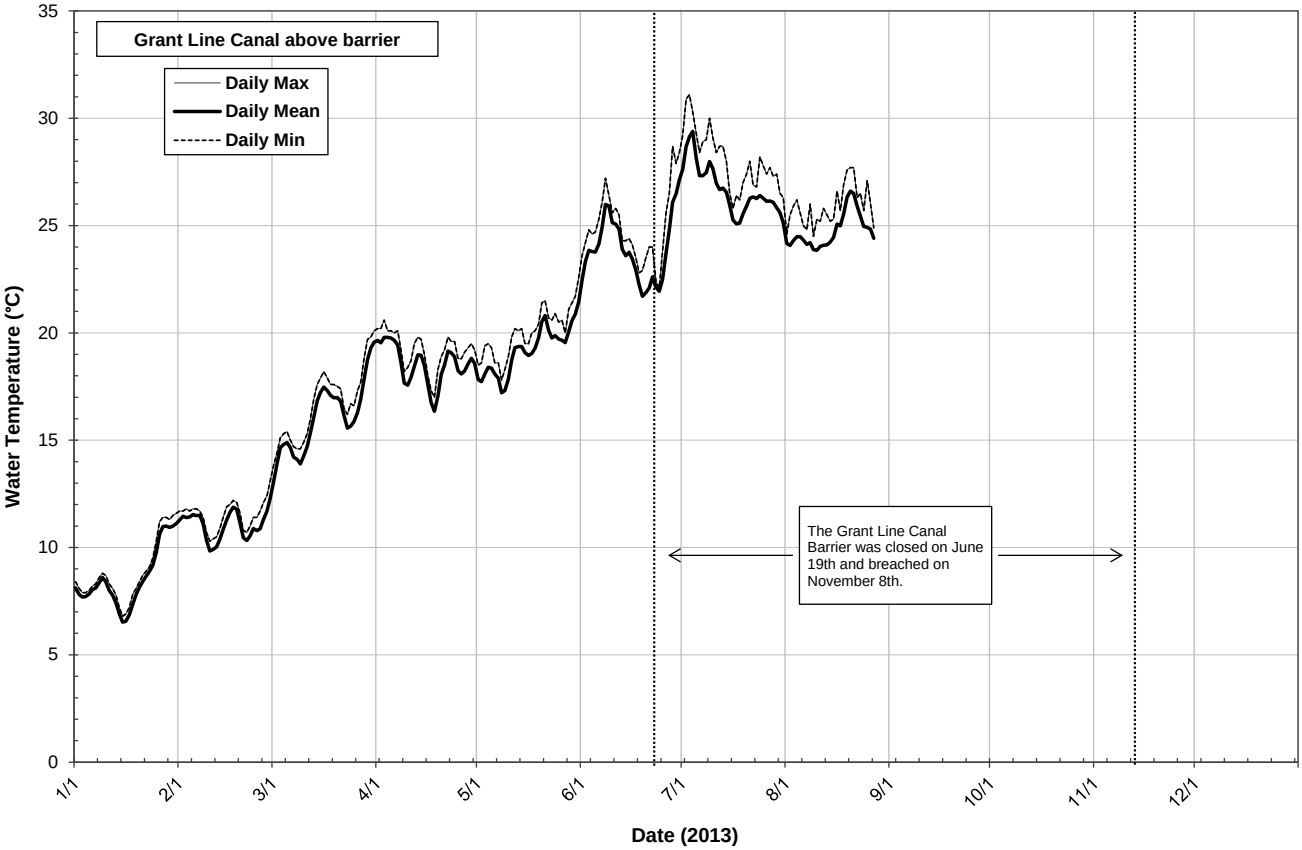
	Monthly Median DO Conc (mg/L) [p]		Mann-Whitney Test Results [q]		
Month	**Upstream Station - OR u/s ORT barrier**	**Downstream Station - OR d/s ORT barrier**	**p-value**	**Difference between Monthly Medians (mg/L)**	**Station with significantly higher DO values [r]**
January	8.89	9.74	<0.0000	0.85	ORDB
February	9.59	9.93	<0.0000	0.34	ORDB
March	8.60	9.19	<0.0000	0.59	ORDB
April	7.30	7.50	NS	0.20	NS
May	7.79	7.87	NS	0.09	NS
June	5.92	6.70	0.0166	0.78	ORDB
July	5.62	6.44	0.0033	0.82	ORDB
August	6.42	6.63	0.0266	0.22	ORDB
September	5.68	6.32	0.0467	0.65	ORDB
October	5.31	6.14	<0.0001	0.82	ORDB
November	8.43	8.62	0.008	0.19	ORDB
December	10.73	11.24	0.0017	0.50	ORDB

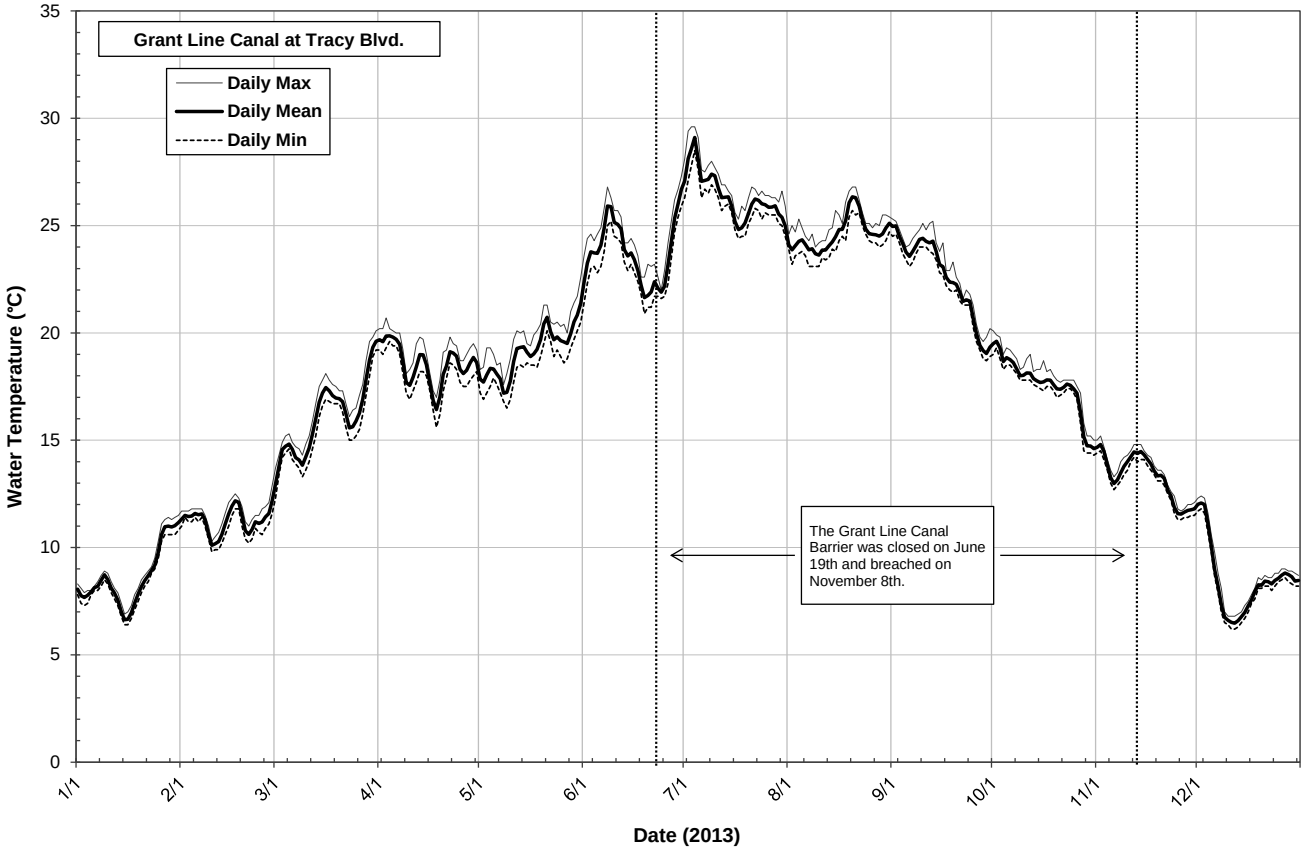
[p] The monthly medians are actually the medians of the daily medians for the month. For example, in this analysis the monthly median for January is the median of all of the daily medians for the month of January.

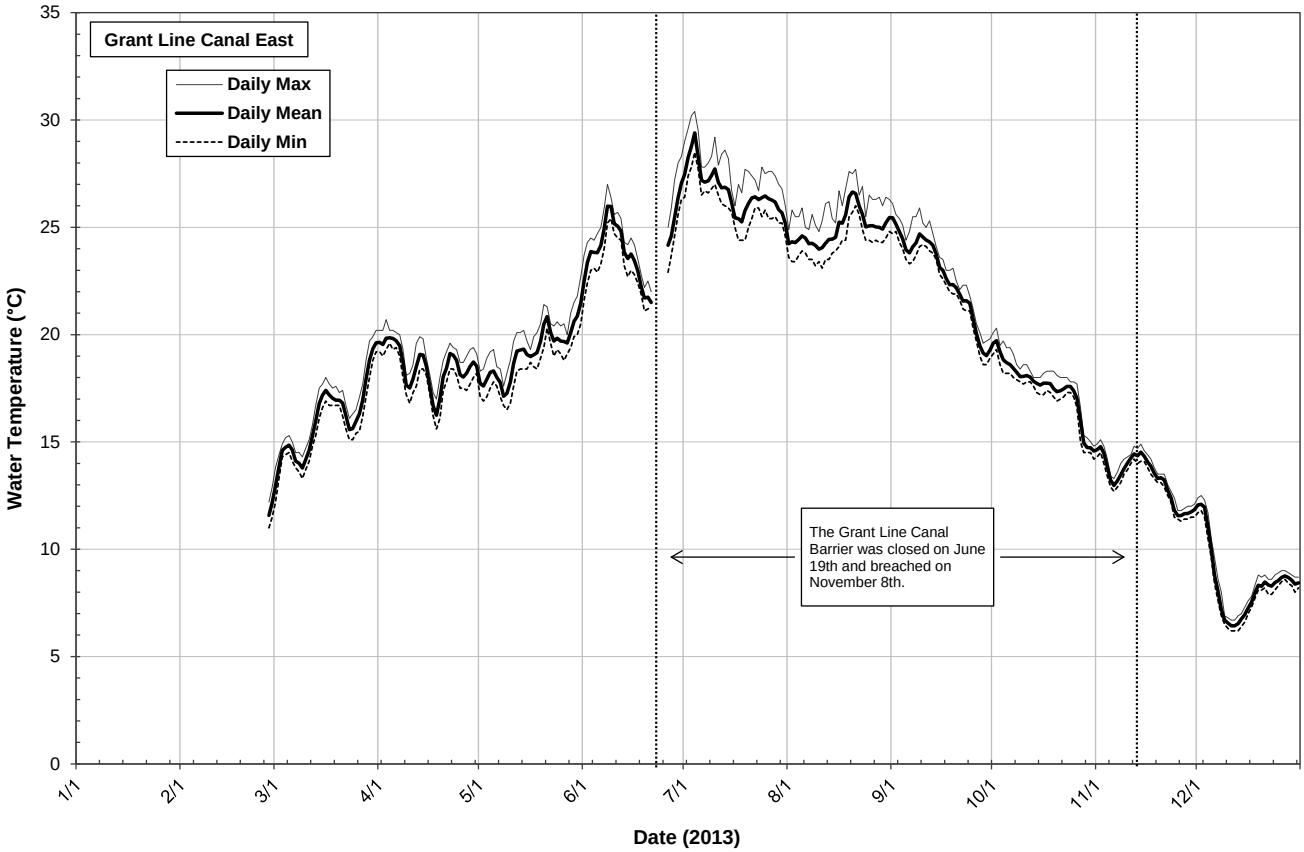
[q] "NS" stands for "no significant difference between the two stations".

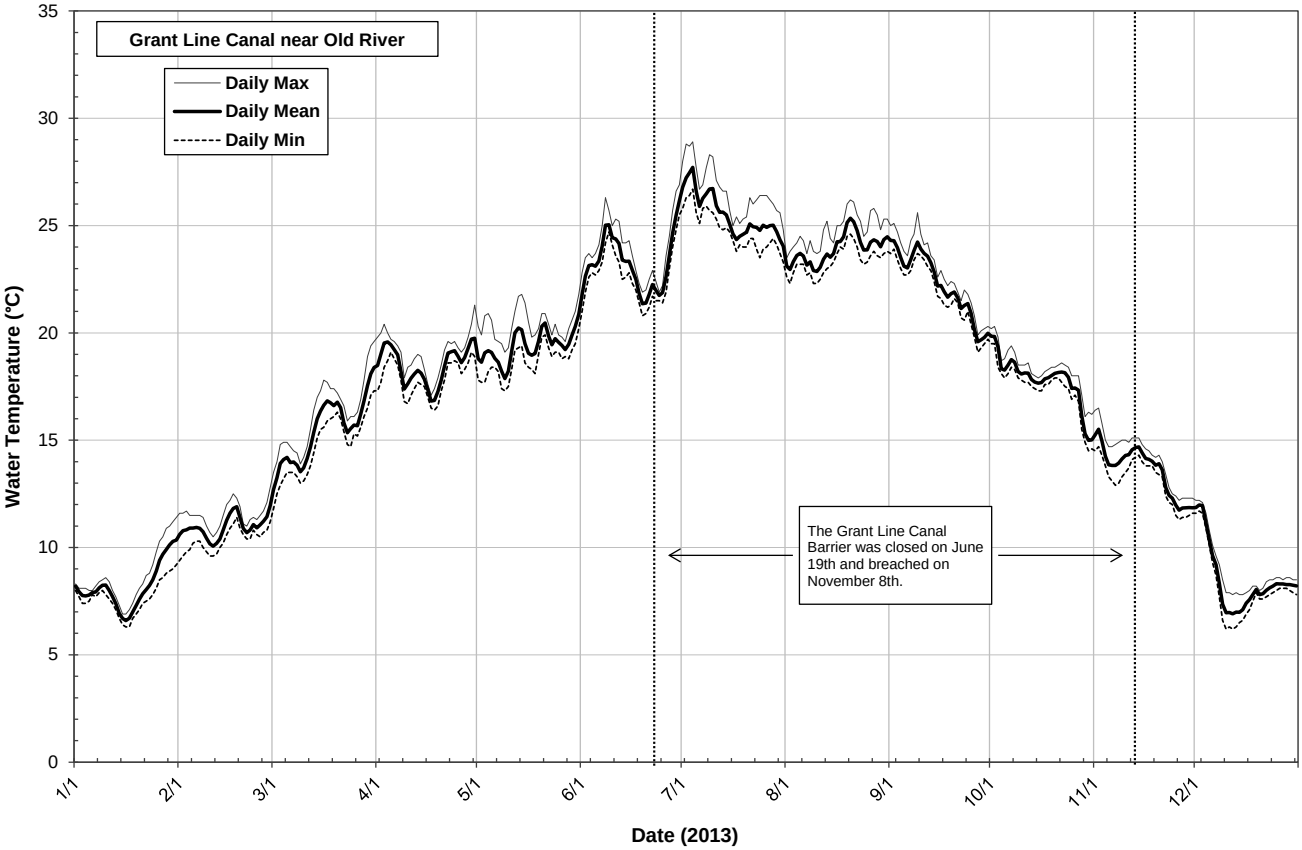
[r] "ORDB" represents the Old River downstream of the ORT barrier station.

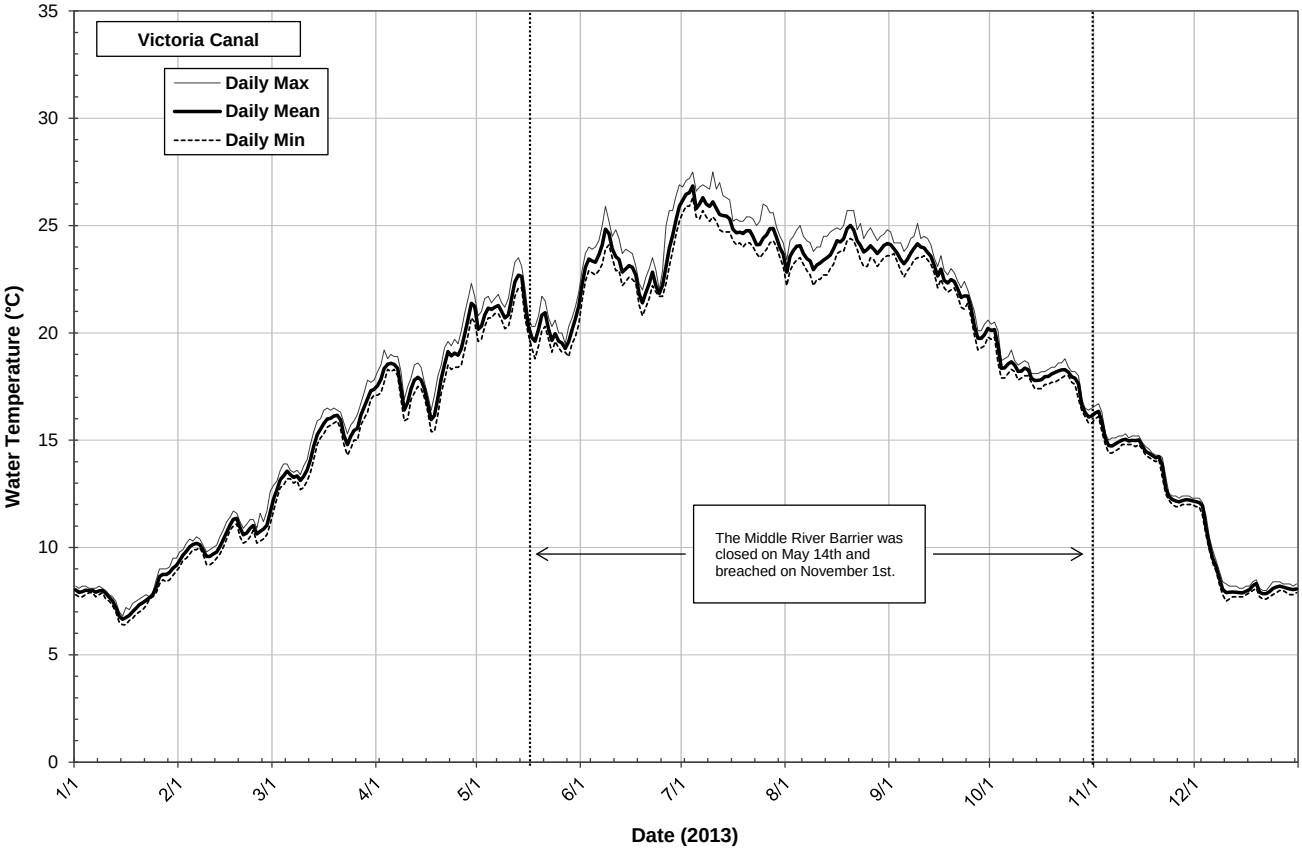

Doughty Cut above Grant Line Canal
Daily Max
Daily Mean
Daily Min
Water Temperature (°C)
35
30
25
20
15
10
5
0
The Grant Line Canal Barrier was closed on June 19th and breached on November 8th.
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Date (2013)

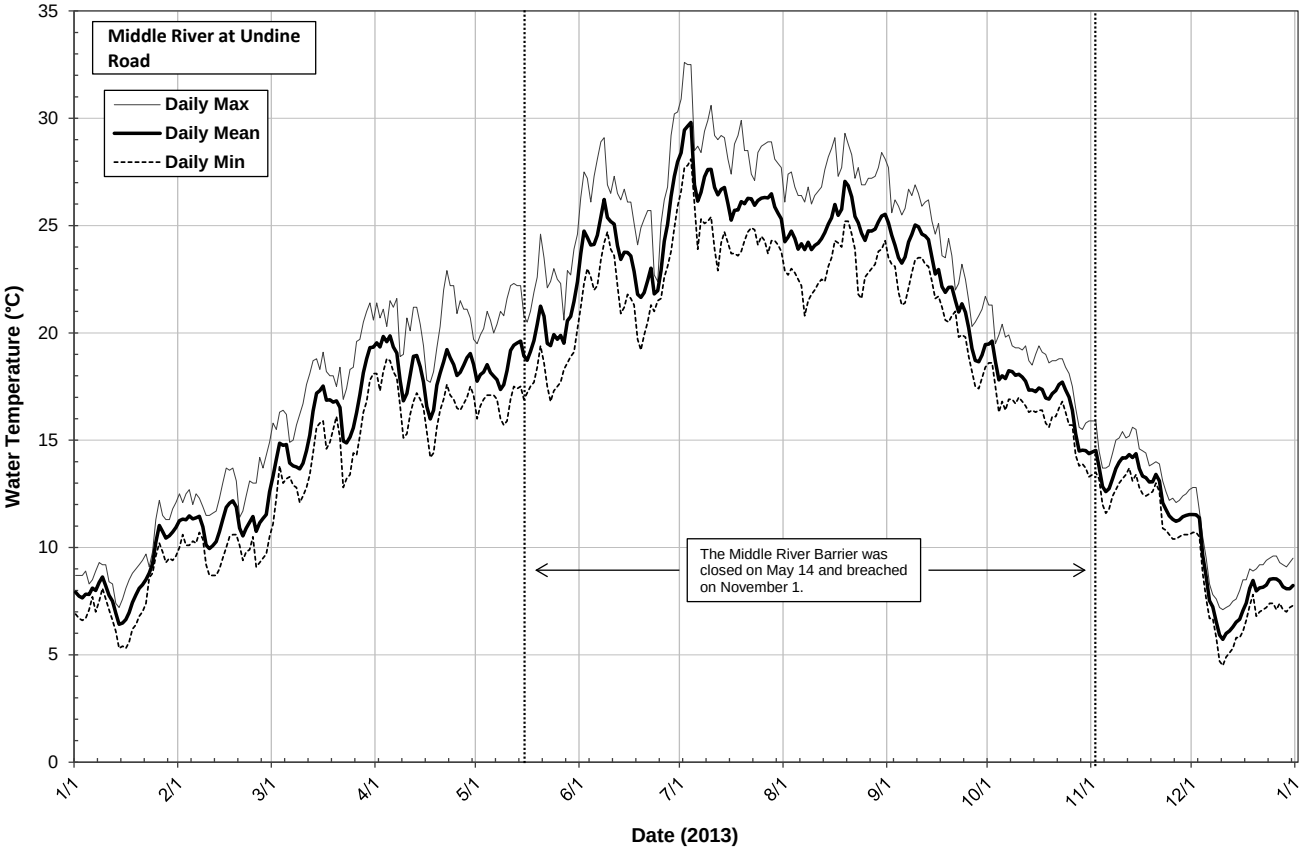

Grant Line Canal above barrier
Daily Max
Daily Mean
Daily Min
Water Temperature (°C)
35
30
25
20
15
10
5
0
The Grant Line Canal Barrier was closed on June 19th and breached on November 8th.
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Date (2013)

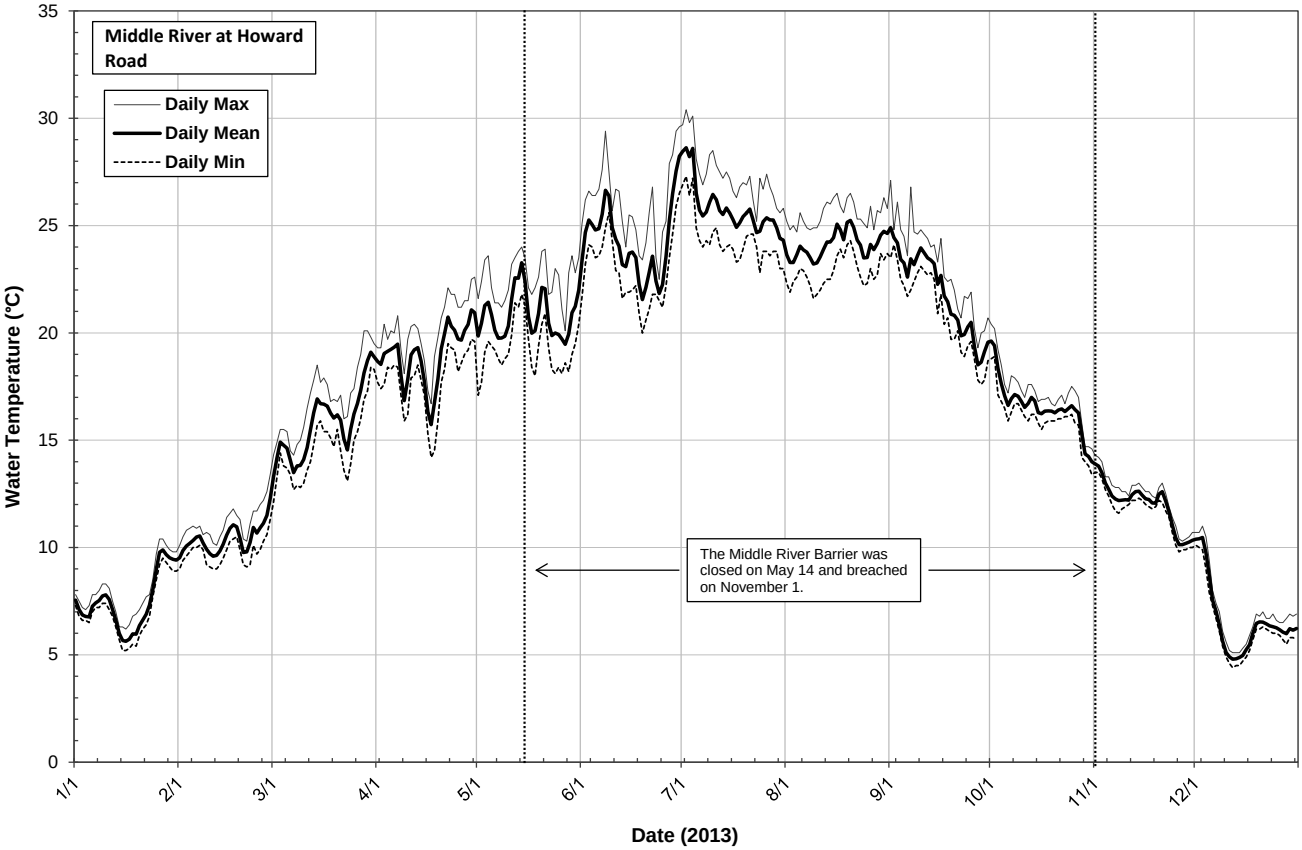

Grant Line Canal at Tracy Blvd.
Daily Max
Daily Mean
Daily Min
Water Temperature (°C)
35
30
25
20
15
10
5
0
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Date (2013)
The Grant Line Canal Barrier was closed on June 19th and breached on November 8th.

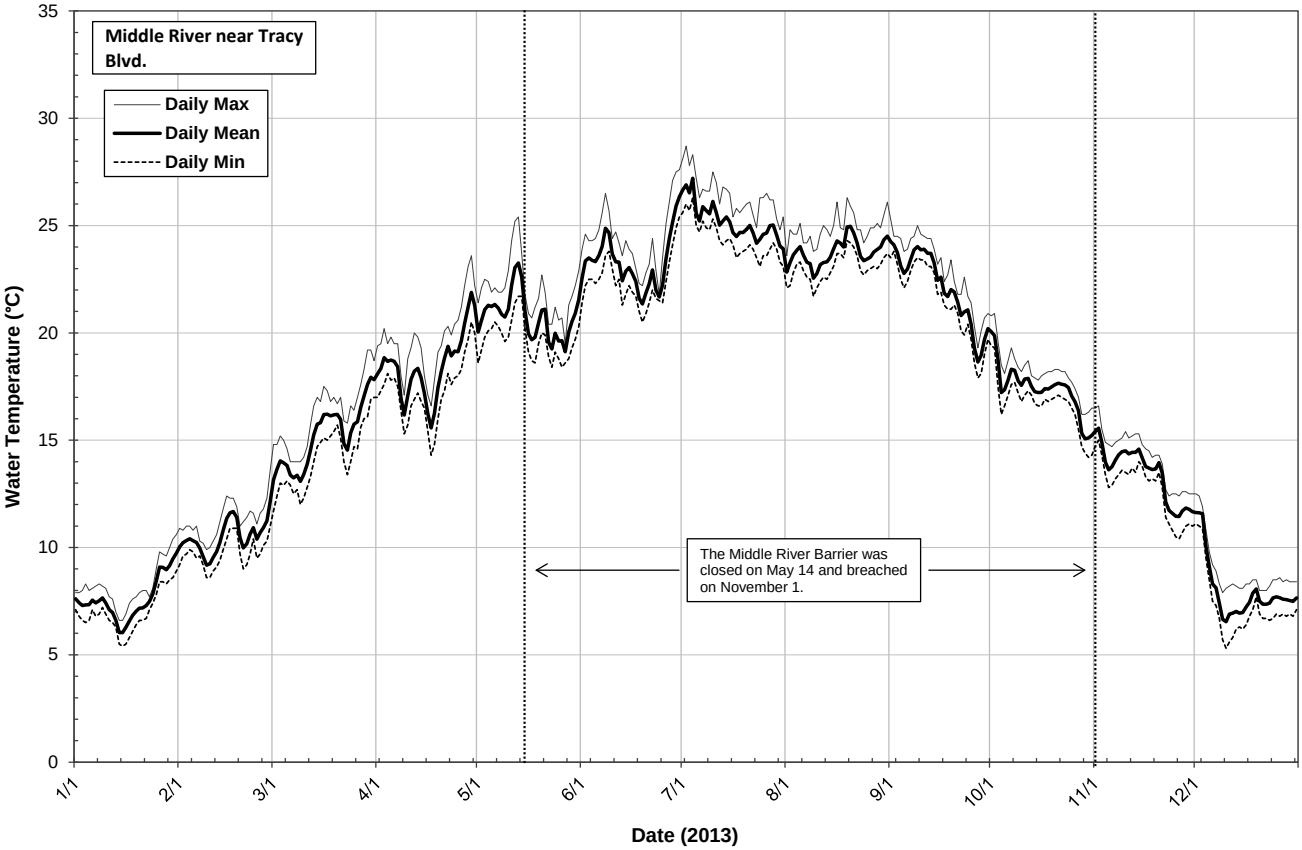

Grant Line Canal East
Daily Max
Daily Mean
Daily Min
Water Temperature (°C)
35
30
25
20
15
10
5
0
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Date (2013)
The Grant Line Canal Barrier was closed on June 19th and breached on November 8th.

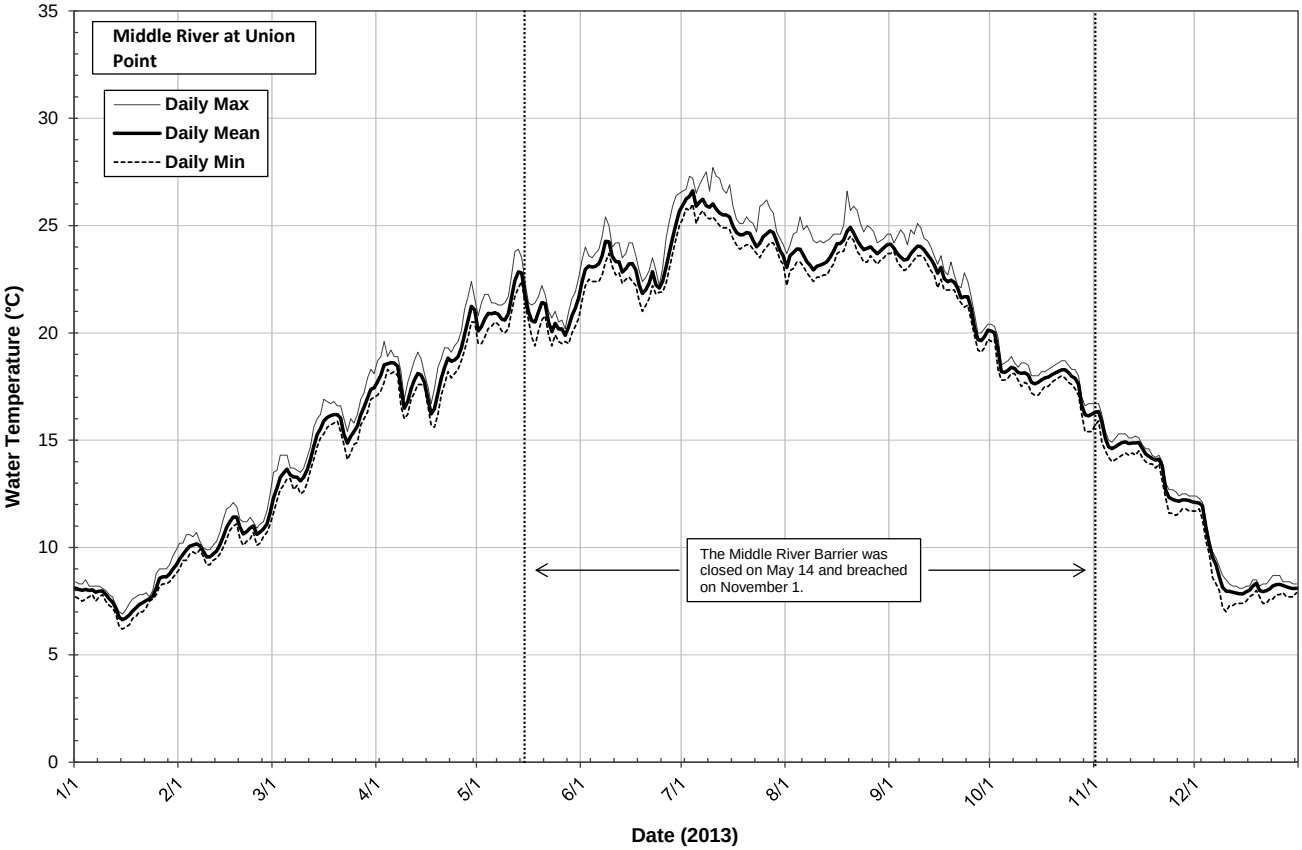

Grant Line Canal near Old River
Daily Max
Daily Mean
Daily Min
The Grant Line Canal Barrier was closed on June 19th and breached on November 8th.
Water Temperature (°C)
Date (2013)
0
5
10
15
20
25
30
35
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

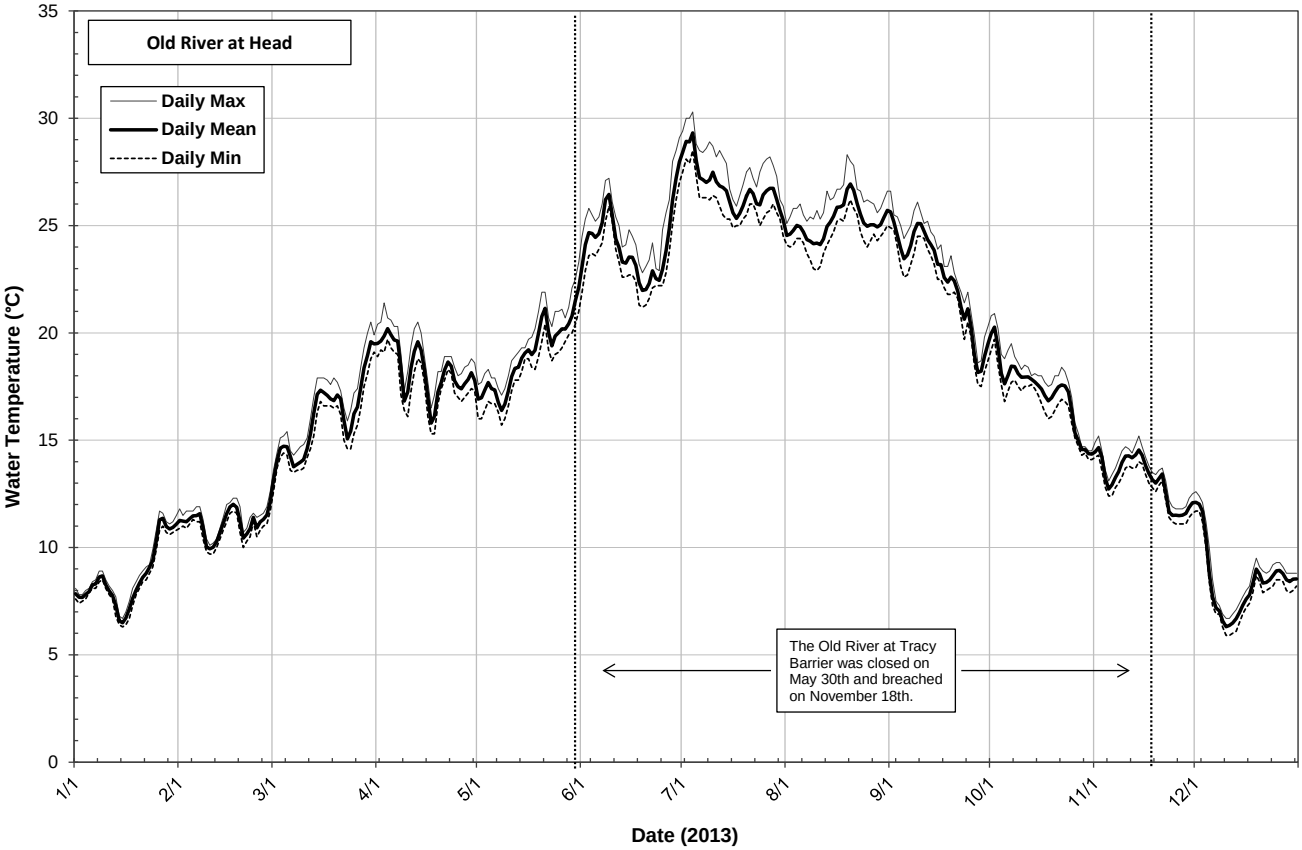

Victoria Canal
Daily Max
Daily Mean
Daily Min
The Middle River Barrier was closed on May 14th and breached on November 1st.
Water Temperature (°C)
Date (2013)
0
5
10
15
20
25
30
35
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

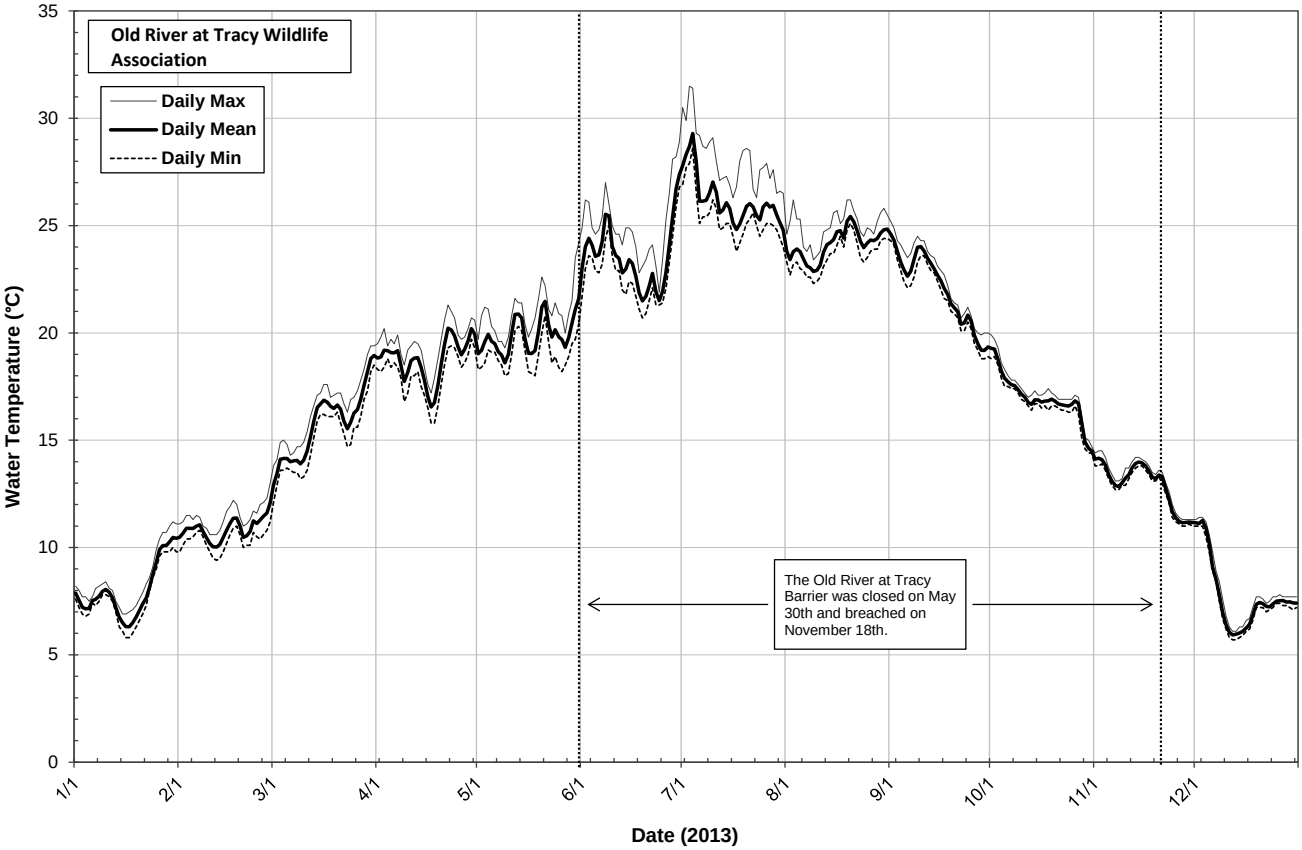

Middle River at Undine Road
Daily Max
Daily Mean
Daily Min
Water Temperature (°C)
35
30
25
20
15
10
5
0
The Middle River Barrier was closed on May 14 and breached on November 1.
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
1/1
Date (2013)

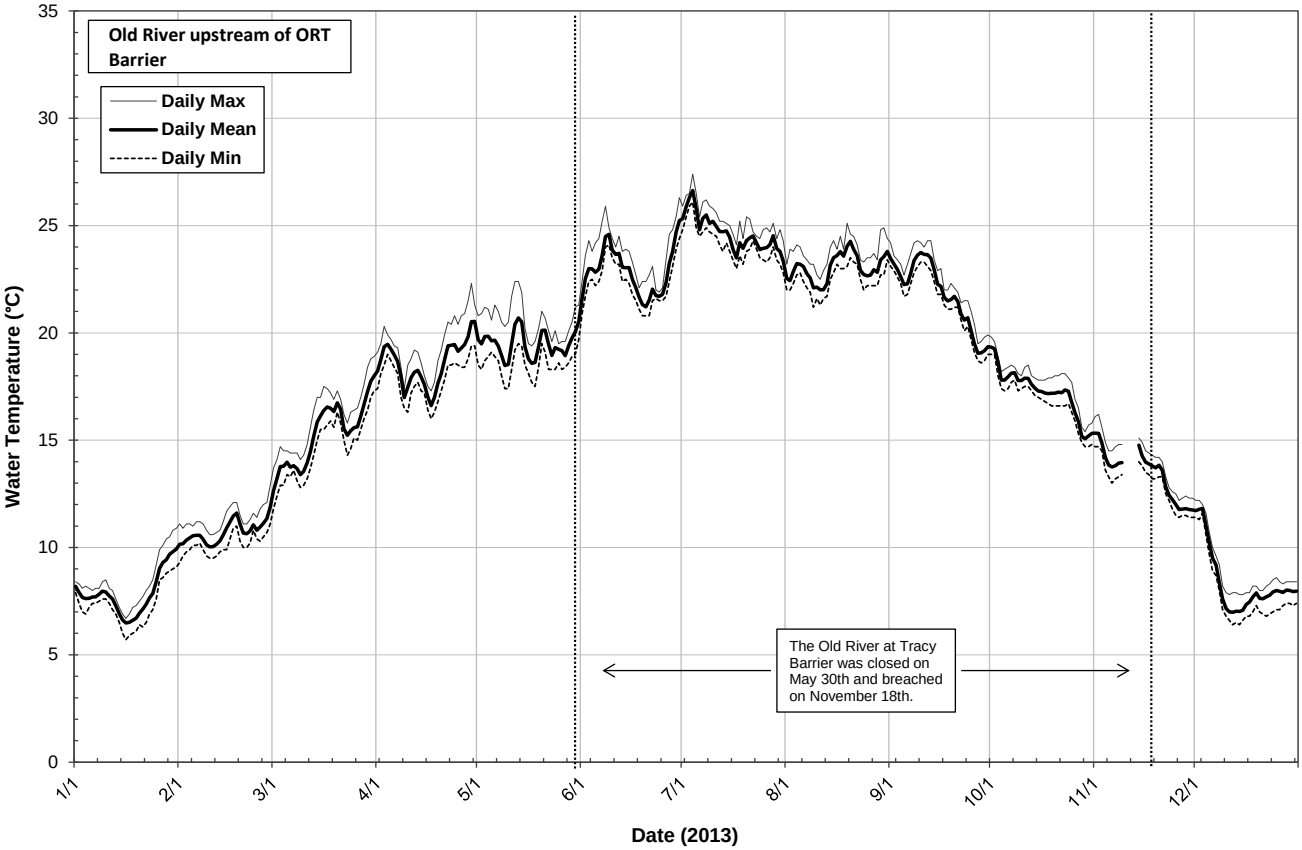

Middle River at Howard Road
Daily Max
Daily Mean
Daily Min
Water Temperature (°C)
35
30
25
20
15
10
5
0
The Middle River Barrier was closed on May 14 and breached on November 1.
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Date (2013)

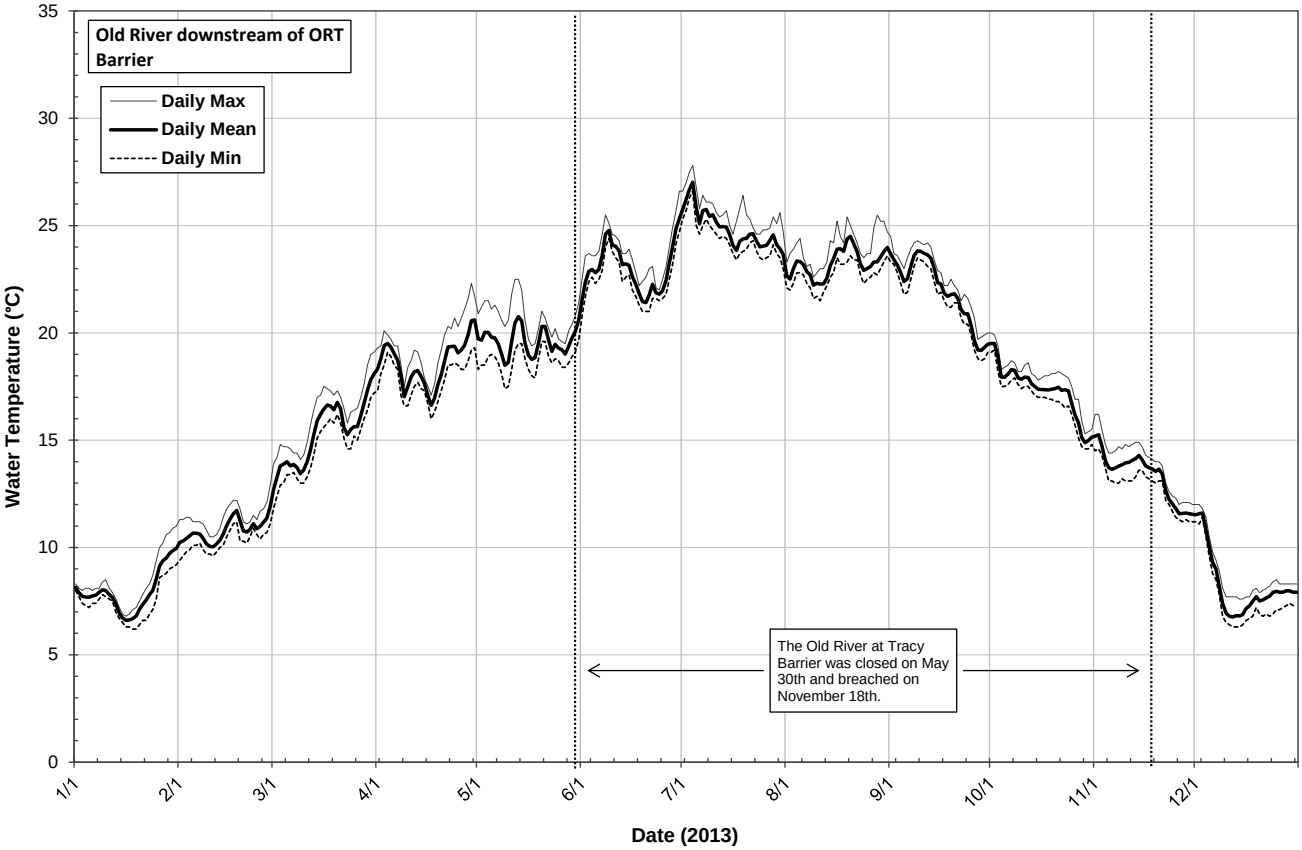

Middle River near Tracy Blvd.
Daily Max
Daily Mean
Daily Min
Water Temperature (°C)
35
30
25
20
15
10
5
0
The Middle River Barrier was closed on May 14 and breached on November 1.
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Date (2013)

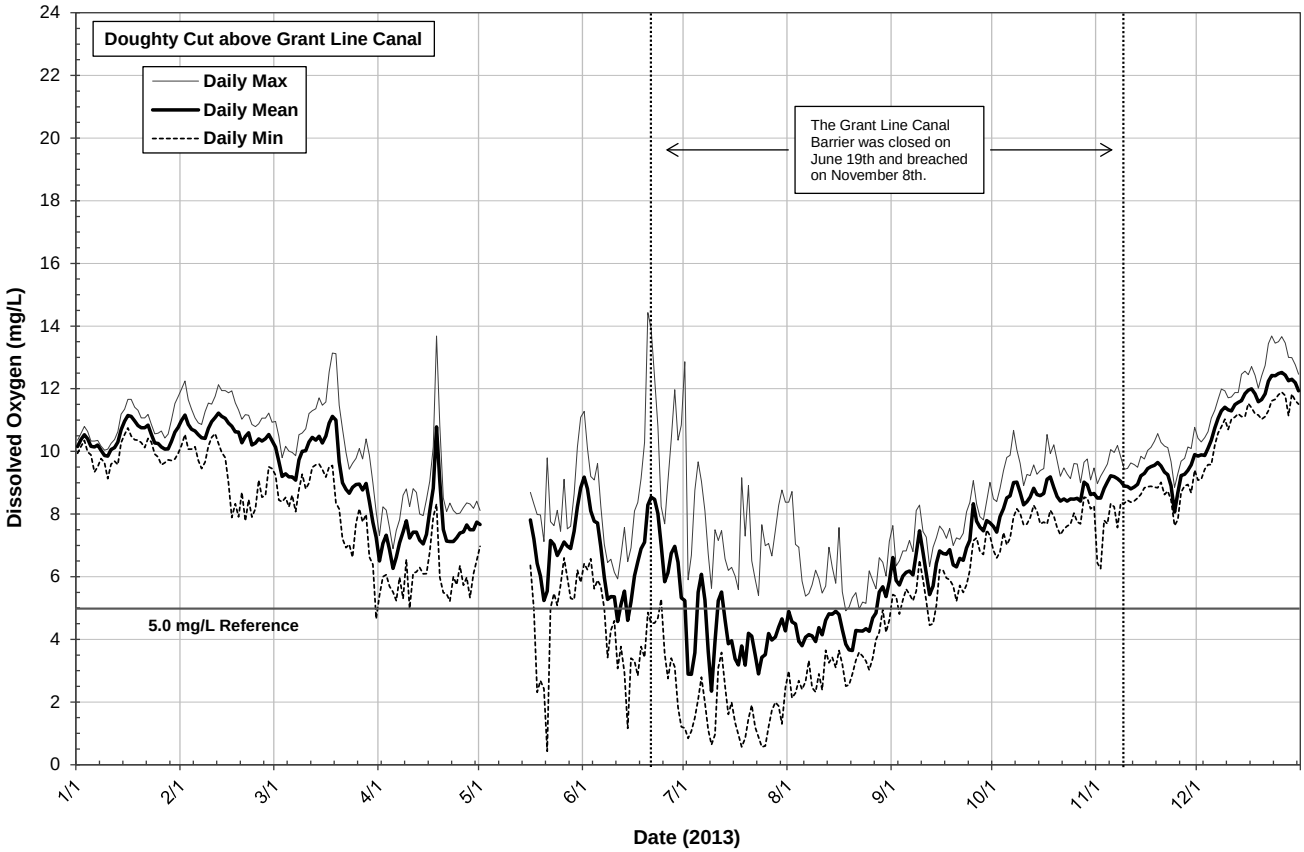

Middle River at Union Point
Daily Max
Daily Mean
Daily Min
Water Temperature (°C)
35
30
25
20
15
10
5
0
The Middle River Barrier was closed on May 14 and breached on November 1.
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Date (2013)

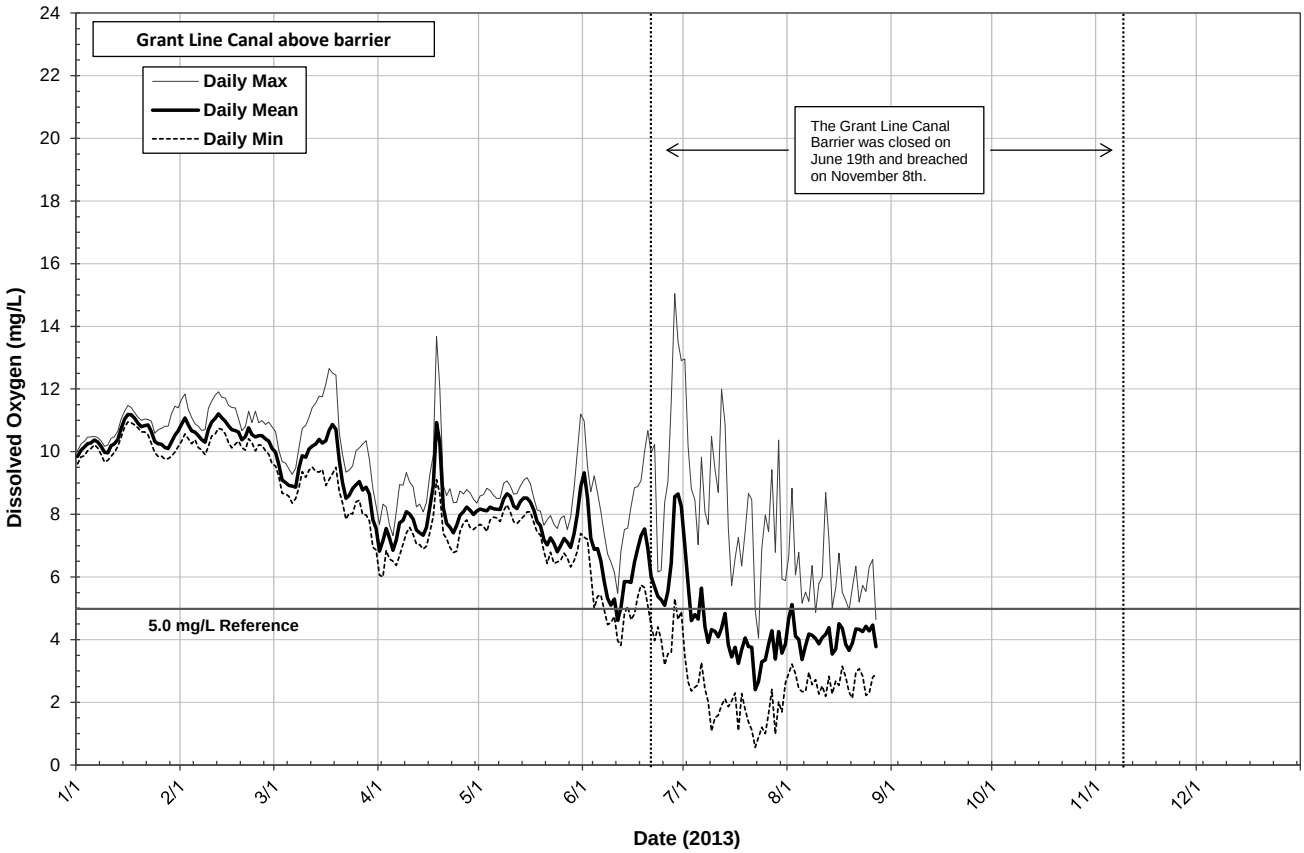

Old River at Head
Daily Max
Daily Mean
Daily Min
Water Temperature (°C)
35
30
25
20
15
10
5
0
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Date (2013)
The Old River at Tracy Barrier was closed on May 30th and breached on November 18th.

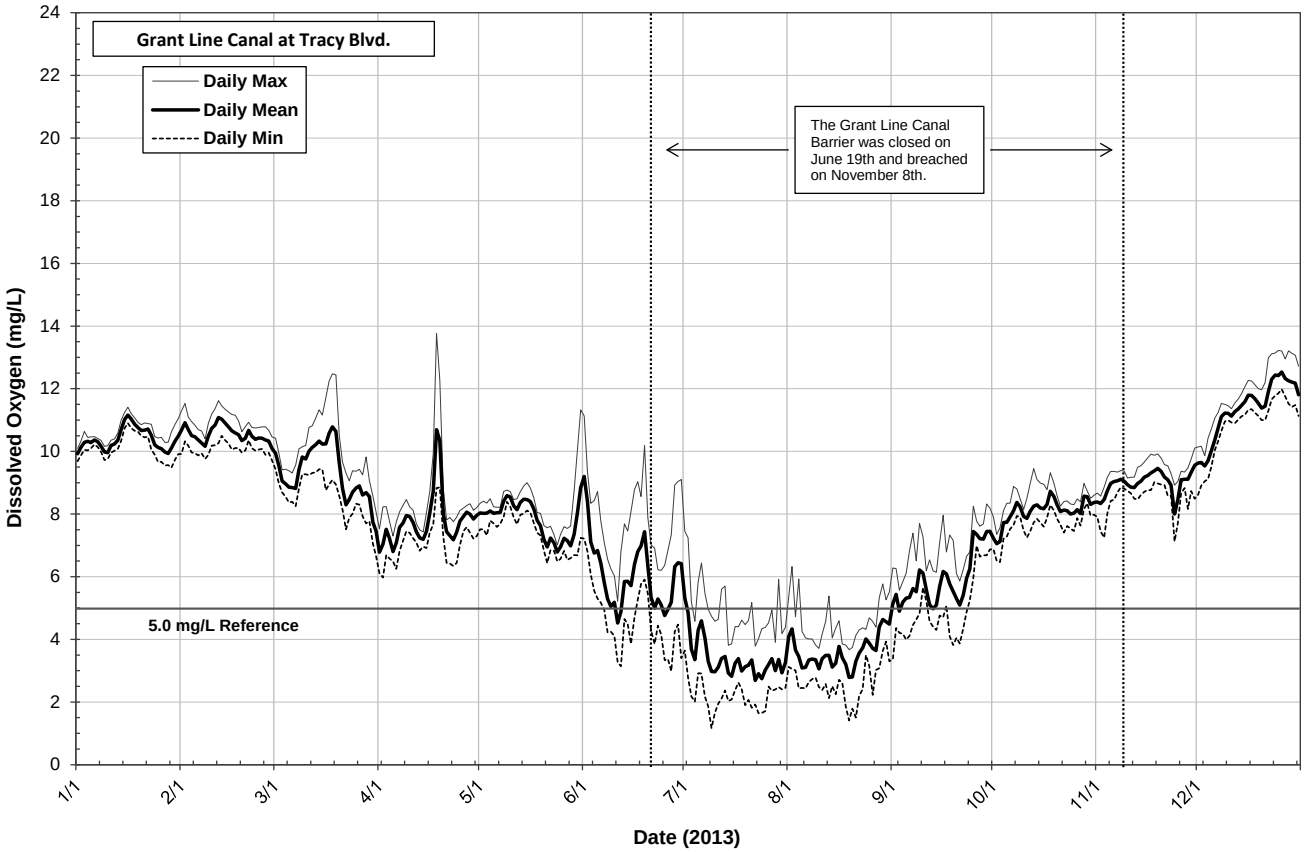

Old River at Tracy Wildlife Association
Daily Max
Daily Mean
Daily Min
Water Temperature (°C)
35
30
25
20
15
10
5
0
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Date (2013)
The Old River at Tracy Barrier was closed on May 30th and breached on November 18th.

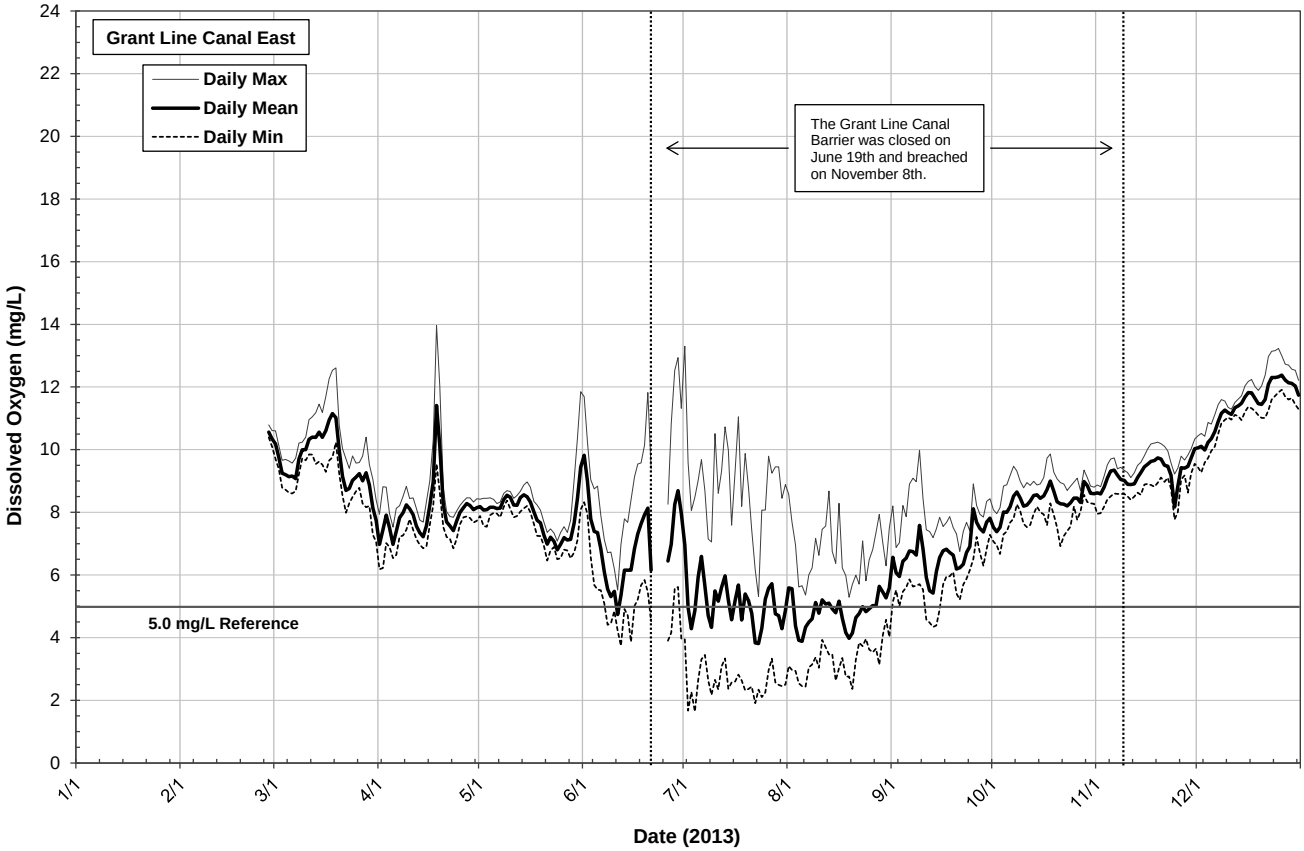

Old River upstream of ORT Barrier
Daily Max
Daily Mean
Daily Min
Water Temperature (°C)
35
30
25
20
15
10
5
0
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Date (2013)
The Old River at Tracy Barrier was closed on May 30th and breached on November 18th.

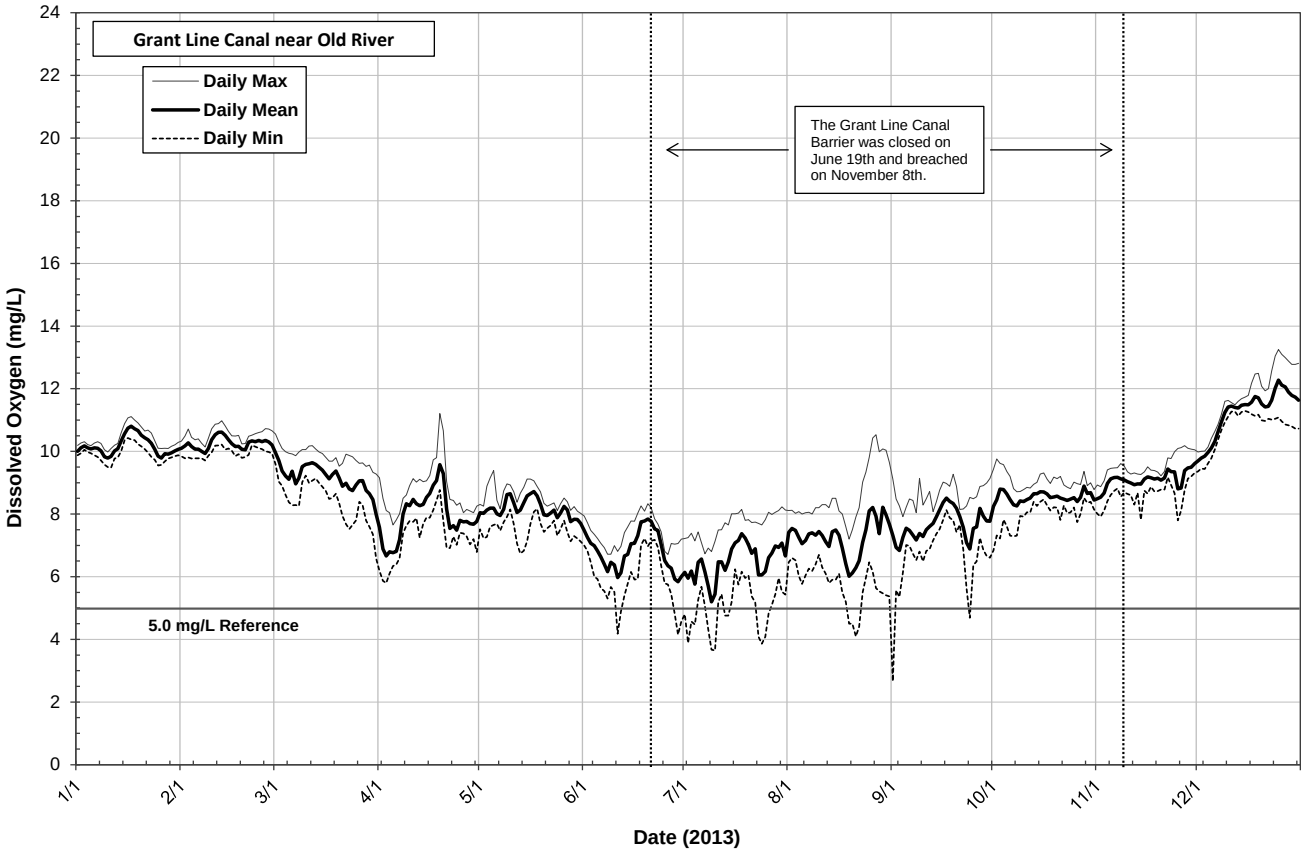

Old River downstream of ORT Barrier
Daily Max
Daily Mean
Daily Min
Water Temperature (°C)
35
30
25
20
15
10
5
0
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Date (2013)
The Old River at Tracy Barrier was closed on May 30th and breached on November 18th.

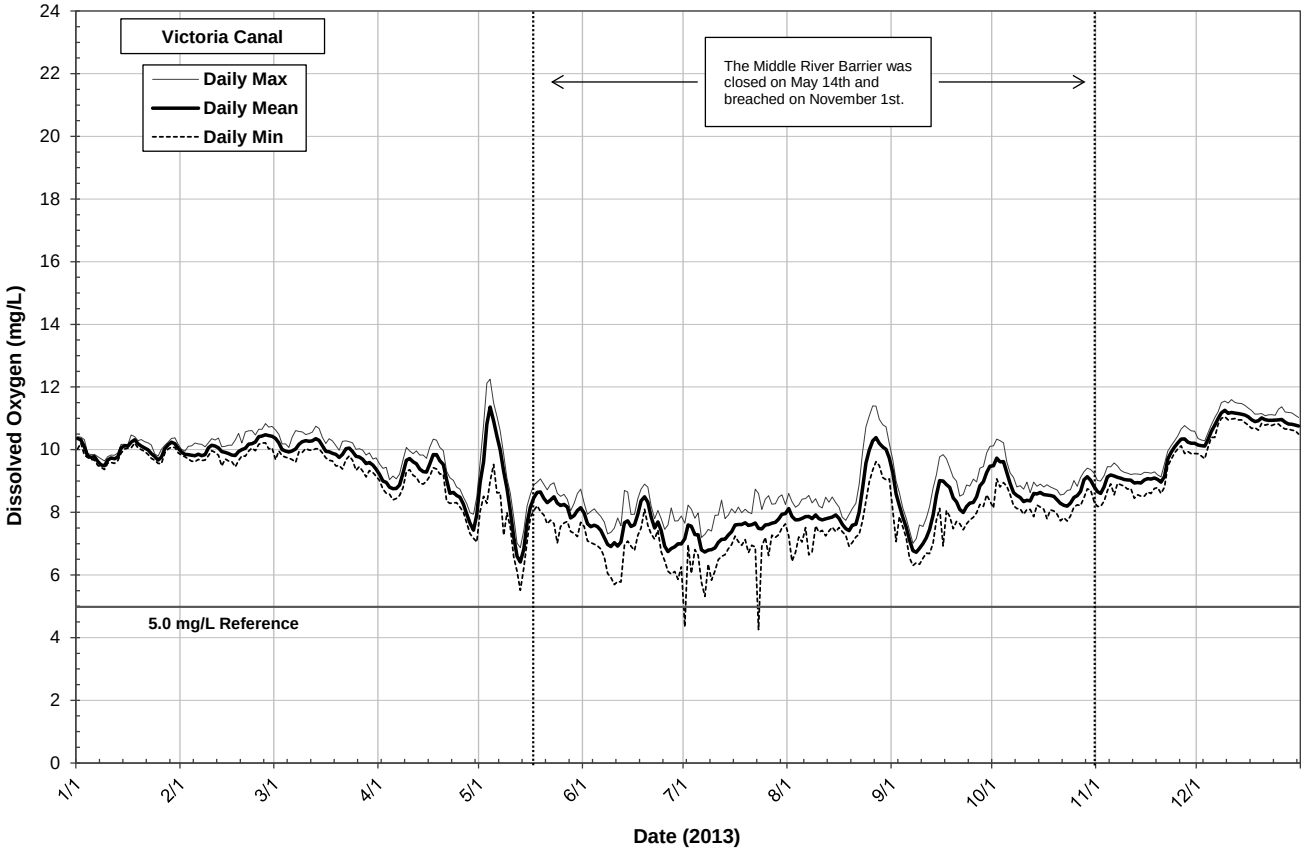

Doughty Cut above Grant Line Canal
Daily Max
Daily Mean
Daily Min
The Grant Line Canal Barrier was closed on June 19th and breached on November 8th.
5.0 mg/L Reference
Dissolved Oxygen (mg/L)
Date (2013)
0
2
4
6
8
10
12
14
16
18
20
22
24
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

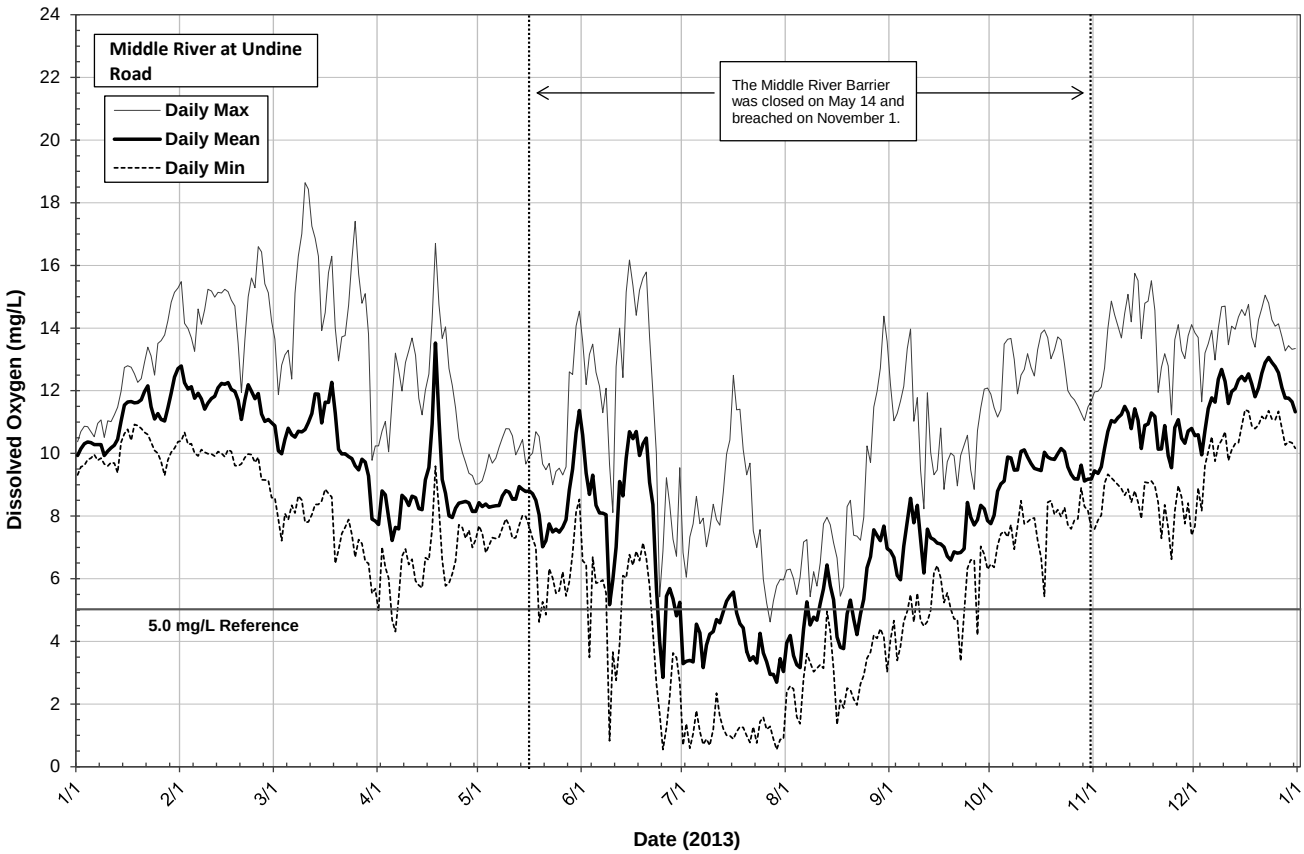

Grant Line Canal above barrier
Daily Max
Daily Mean
Daily Min
The Grant Line Canal Barrier was closed on June 19th and breached on November 8th.
5.0 mg/L Reference
Dissolved Oxygen (mg/L)
Date (2013)
0
2
4
6
8
10
12
14
16
18
20
22
24
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

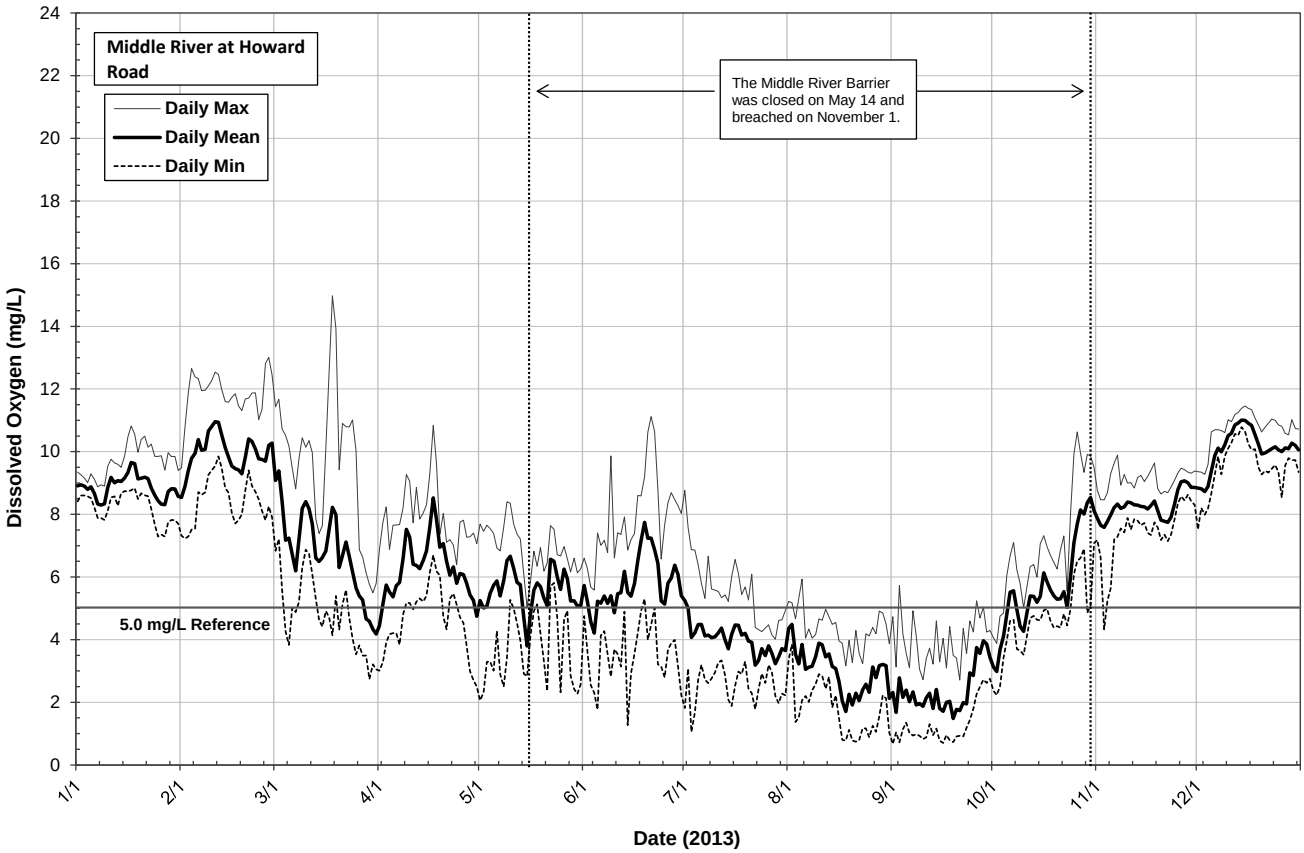

Grant Line Canal at Tracy Blvd.
Daily Max
Daily Mean
Daily Min
The Grant Line Canal Barrier was closed on June 19th and breached on November 8th.
5.0 mg/L Reference
Dissolved Oxygen (mg/L)
Date (2013)
0
2
4
6
8
10
12
14
16
18
20
22
24
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

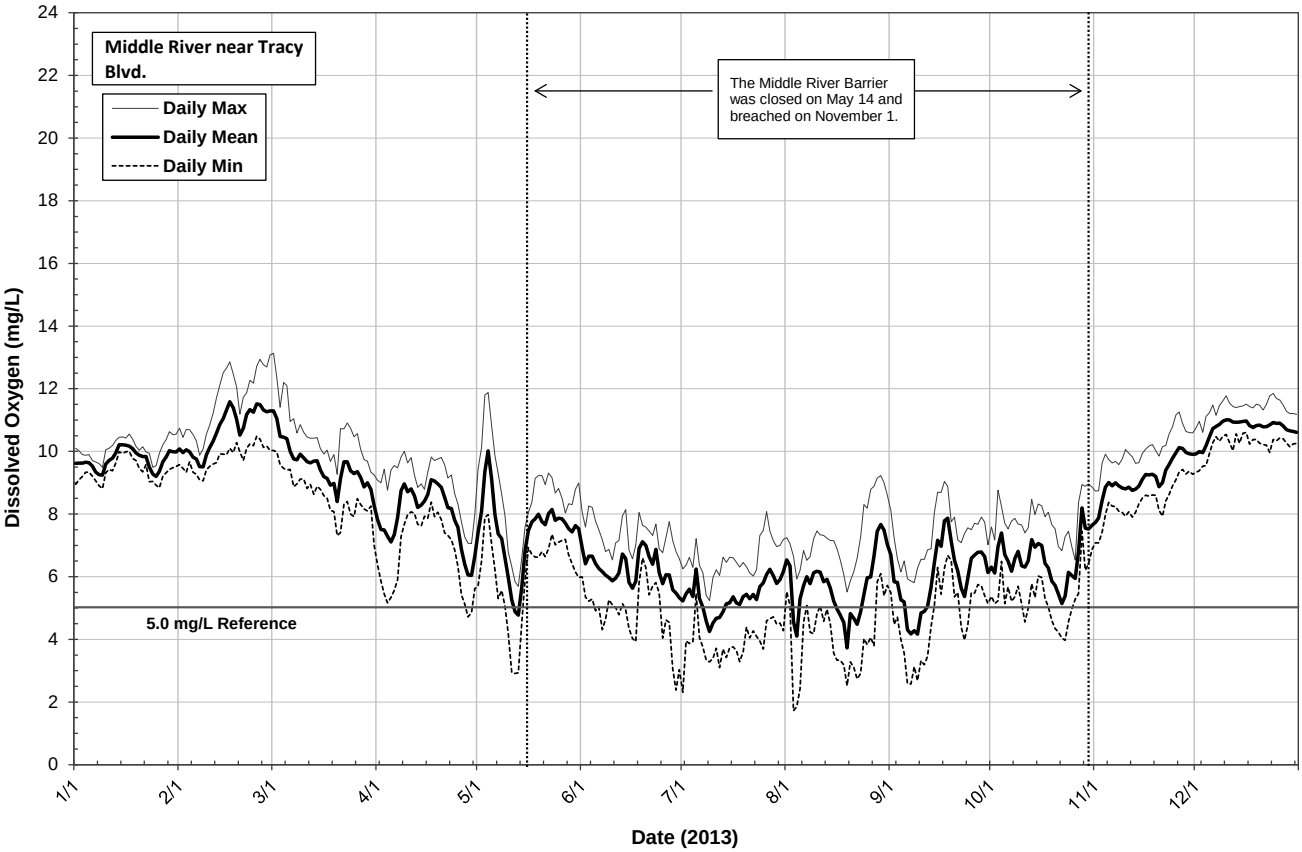

Grant Line Canal East
Daily Max
Daily Mean
Daily Min
The Grant Line Canal Barrier was closed on June 19th and breached on November 8th.
5.0 mg/L Reference
Dissolved Oxygen (mg/L)
Date (2013)
0
2
4
6
8
10
12
14
16
18
20
22
24
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

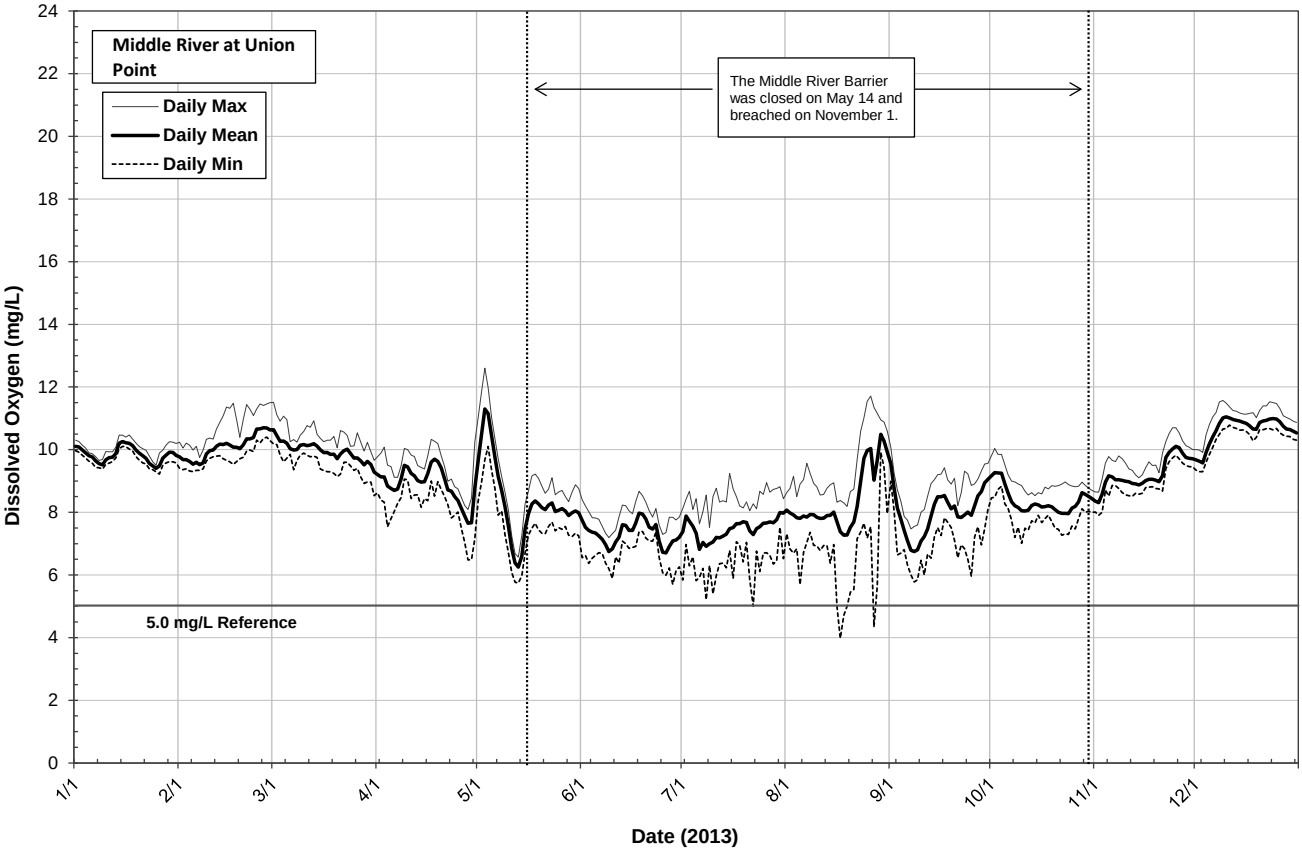

Grant Line Canal near Old River
Daily Max
Daily Mean
Daily Min
The Grant Line Canal Barrier was closed on June 19th and breached on November 8th.
5.0 mg/L Reference
Dissolved Oxygen (mg/L)
Date (2013)
0
2
4
6
8
10
12
14
16
18
20
22
24
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

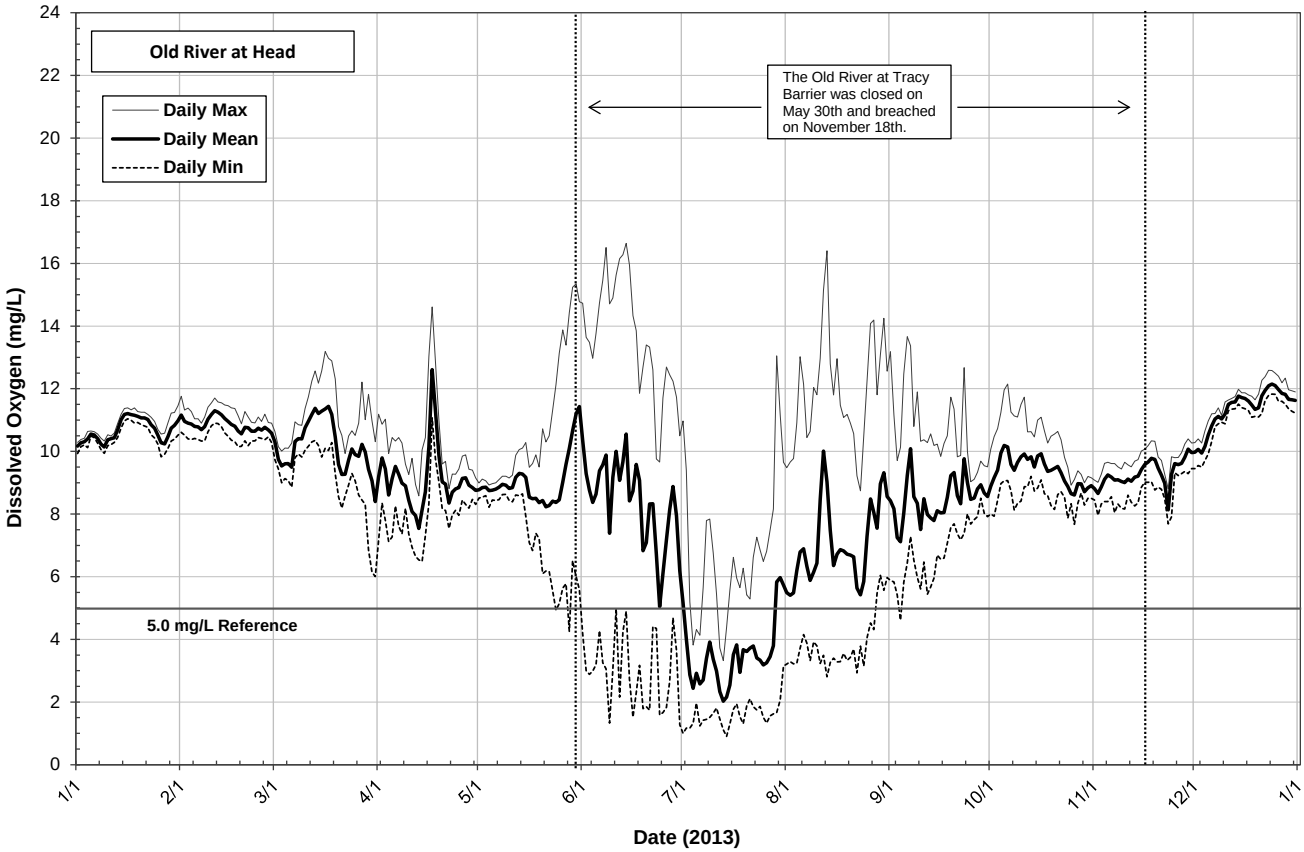

Victoria Canal
Daily Max
Daily Mean
Daily Min
The Middle River Barrier was closed on May 14th and breached on November 1st.
5.0 mg/L Reference
Dissolved Oxygen (mg/L)
Date (2013)
0
2
4
6
8
10
12
14
16
18
20
22
24
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

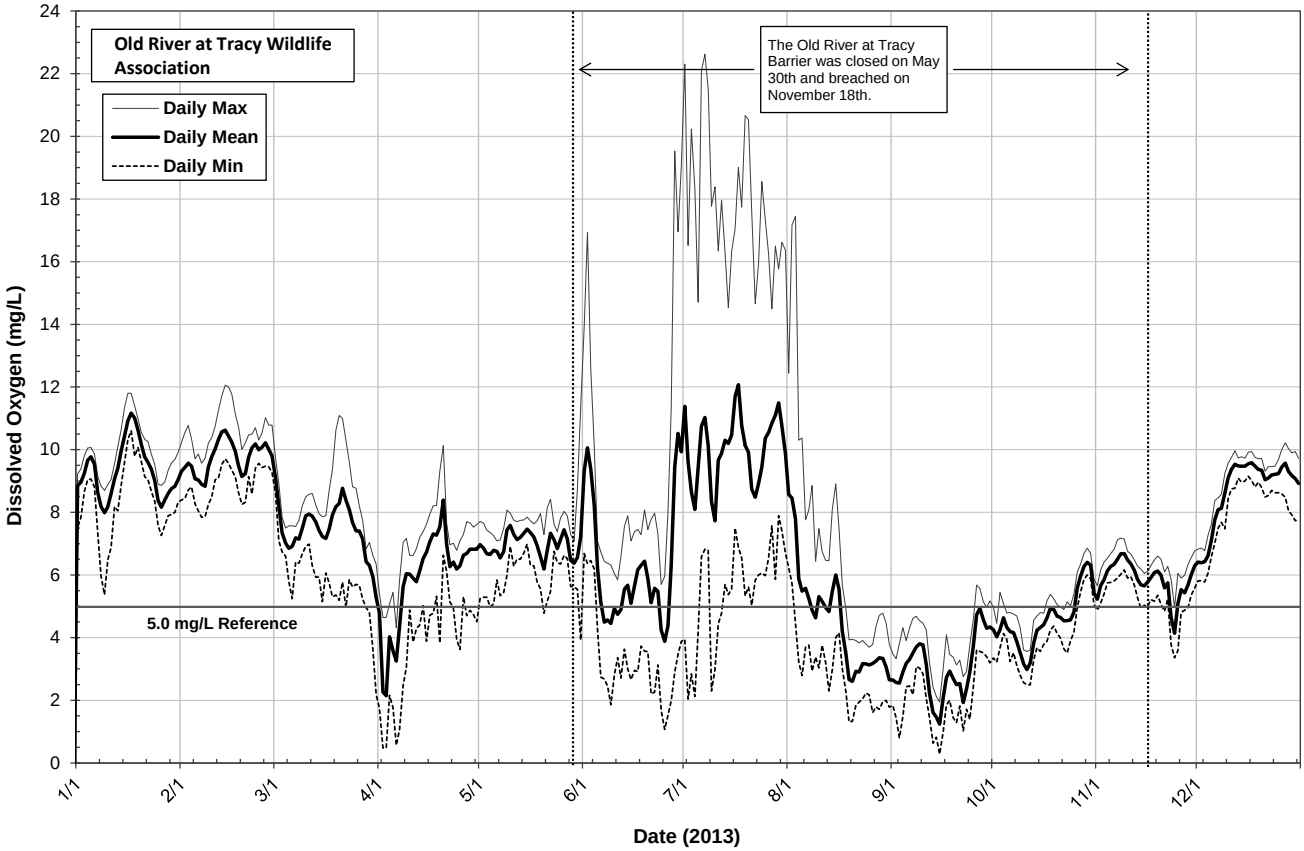

Middle River at Undine Road
Daily Max
Daily Mean
Daily Min
The Middle River Barrier was closed on May 14 and breached on November 1.
5.0 mg/L Reference
Dissolved Oxygen (mg/L)
Date (2013)
0
2
4
6
8
10
12
14
16
18
20
22
24
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
1/1

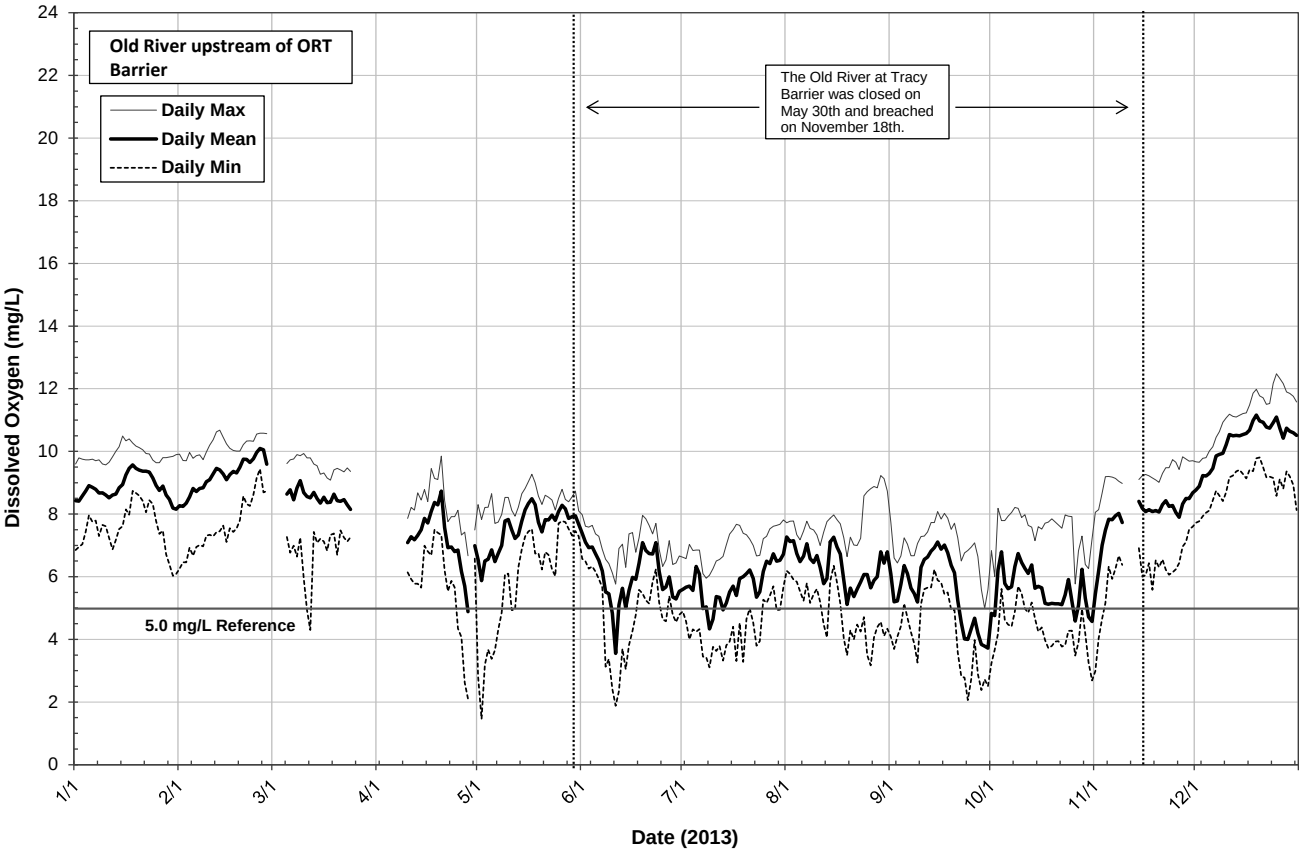

Middle River at Howard Road
Daily Max
Daily Mean
Daily Min
The Middle River Barrier was closed on May 14 and breached on November 1.
5.0 mg/L Reference
Dissolved Oxygen (mg/L)
Date (2013)
0
2
4
6
8
10
12
14
16
18
20
22
24
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

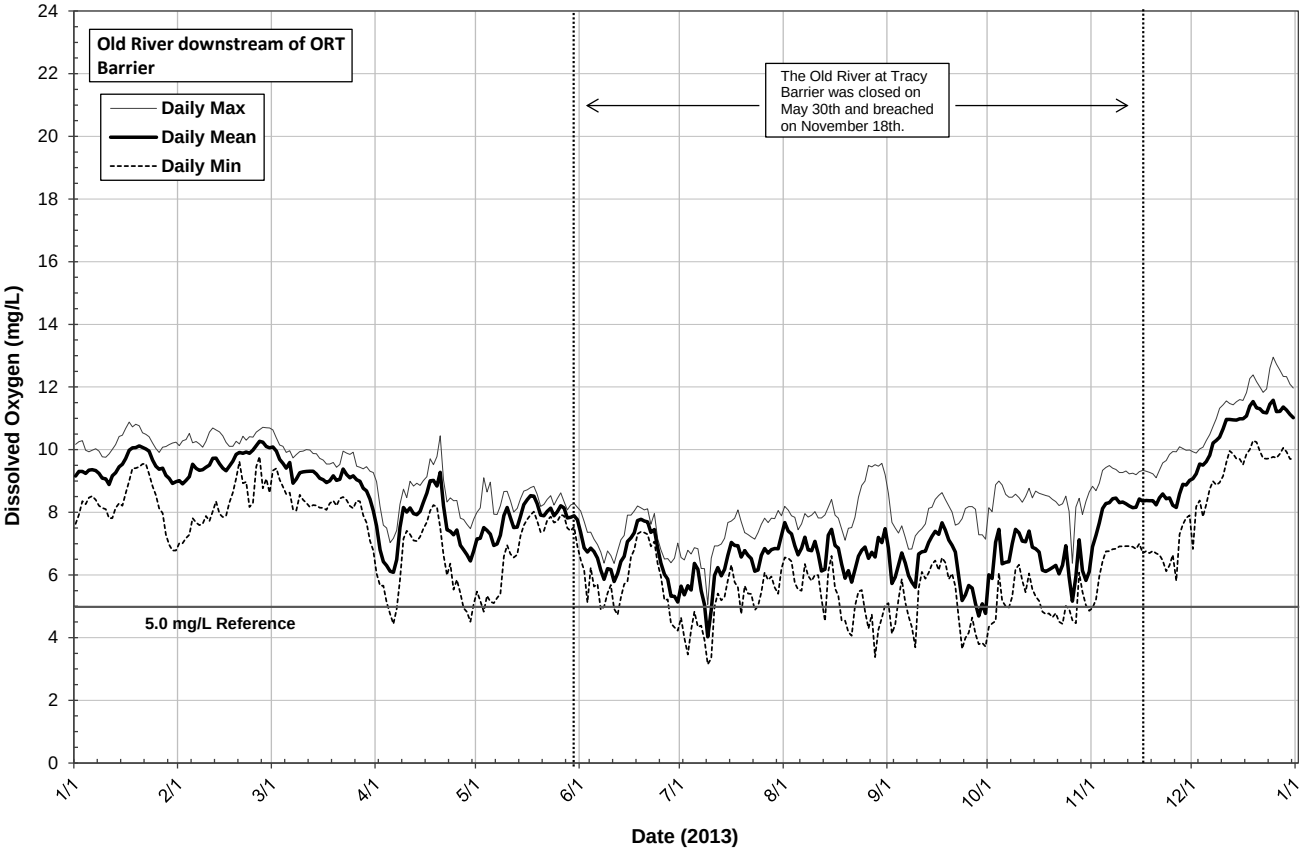

Middle River near Tracy Blvd.
Daily Max
Daily Mean
Daily Min
The Middle River Barrier was closed on May 14 and breached on November 1.
5.0 mg/L Reference
Dissolved Oxygen (mg/L)
Date (2013)
0
2
4
6
8
10
12
14
16
18
20
22
24
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

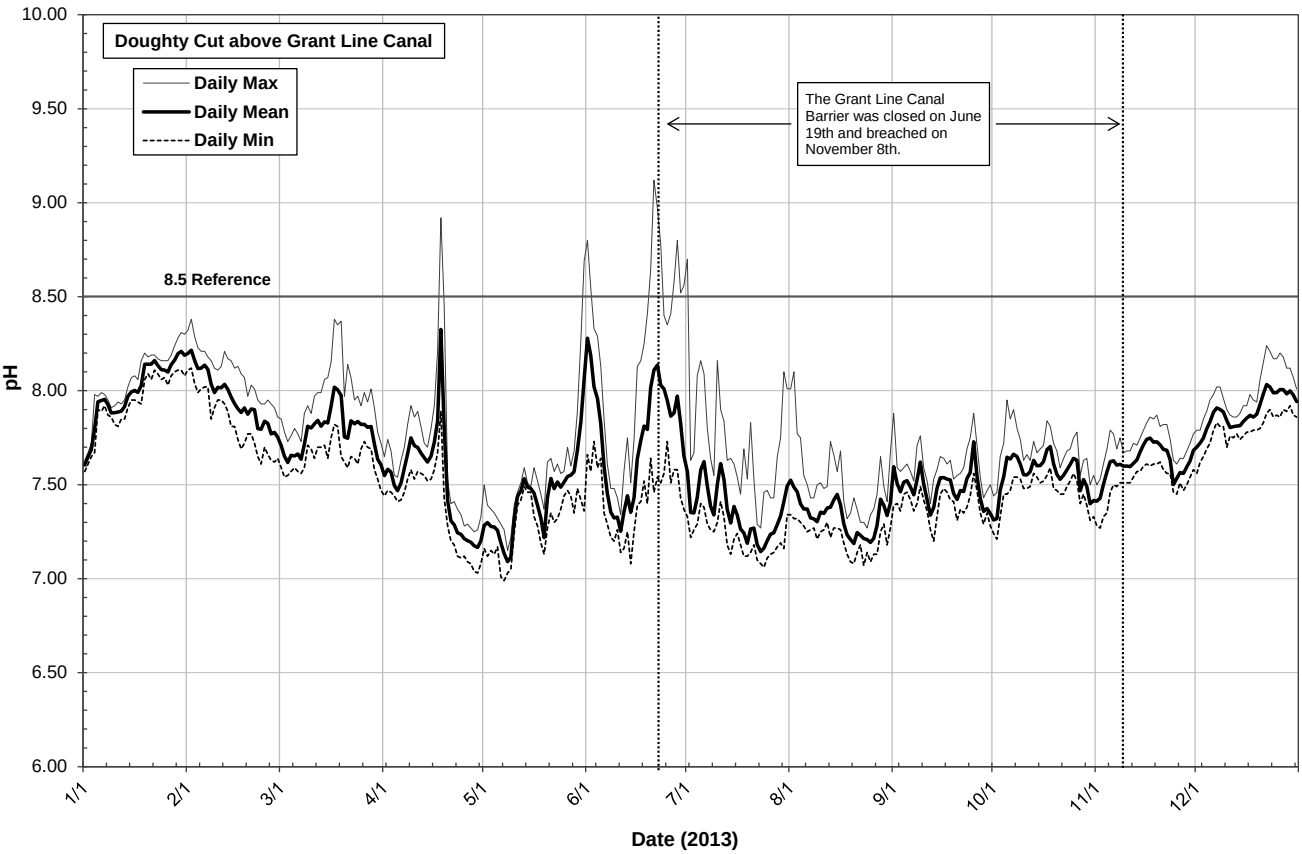

Middle River at Union Point
Daily Max
Daily Mean
Daily Min
The Middle River Barrier was closed on May 14 and breached on November 1.
5.0 mg/L Reference
Dissolved Oxygen (mg/L)
Date (2013)
0
2
4
6
8
10
12
14
16
18
20
22
24
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

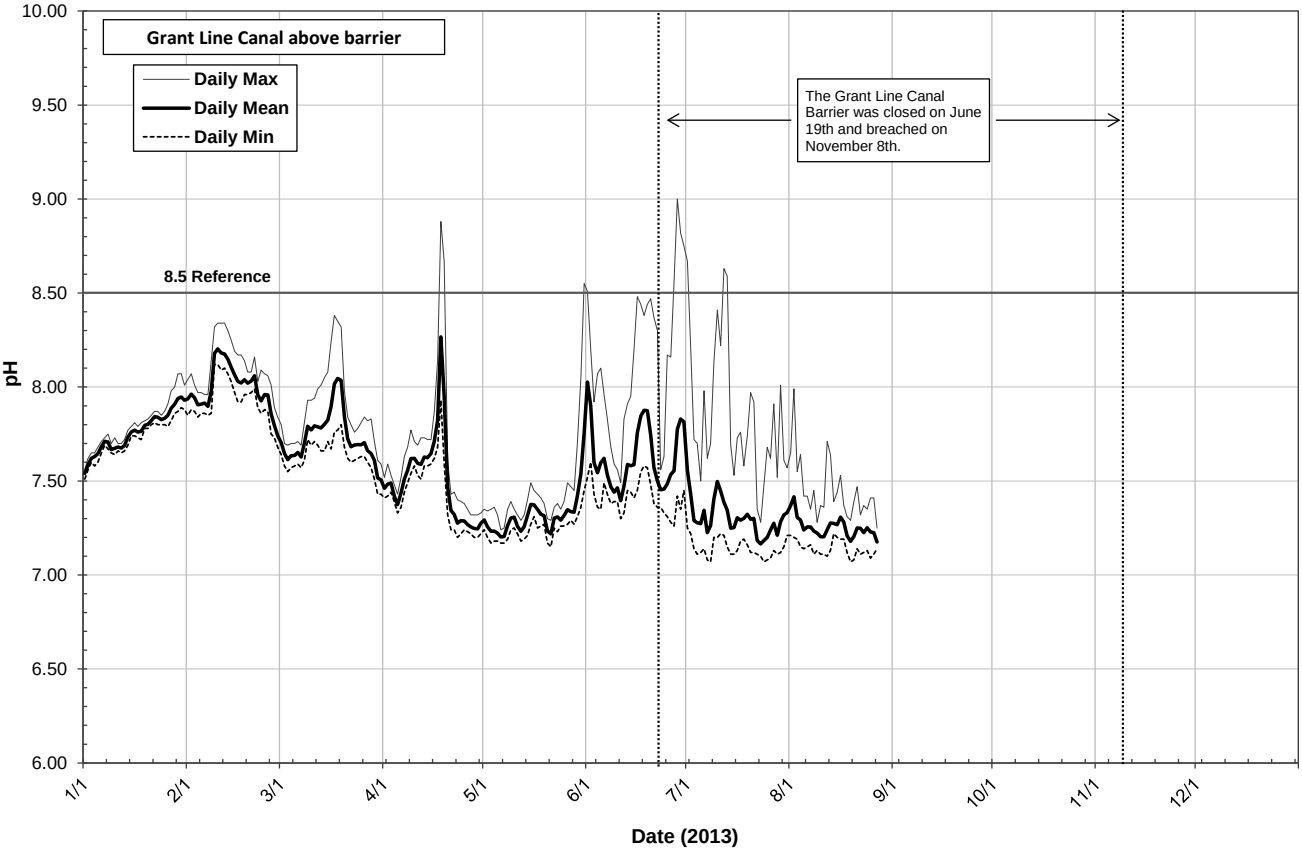

Old River at Head
Daily Max
Daily Mean
Daily Min
The Old River at Tracy Barrier was closed on May 30th and breached on November 18th.
5.0 mg/L Reference
Dissolved Oxygen (mg/L)
Date (2013)
0
2
4
6
8
10
12
14
16
18
20
22
24
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
1/1

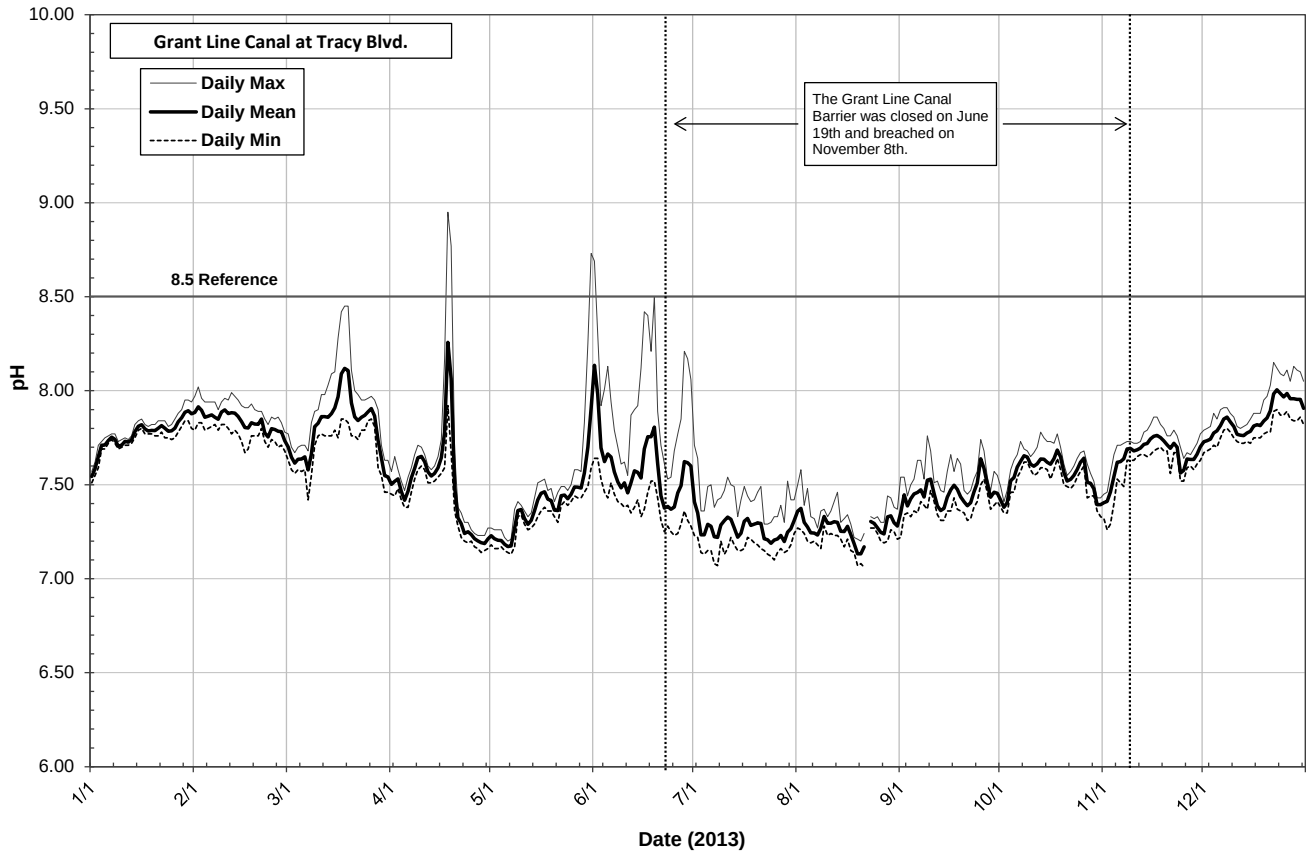

Old River at Tracy Wildlife Association
Daily Max
Daily Mean
Daily Min
The Old River at Tracy Barrier was closed on May 30th and breached on November 18th.
5.0 mg/L Reference
Dissolved Oxygen (mg/L)
Date (2013)
0
2
4
6
8
10
12
14
16
18
20
22
24
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

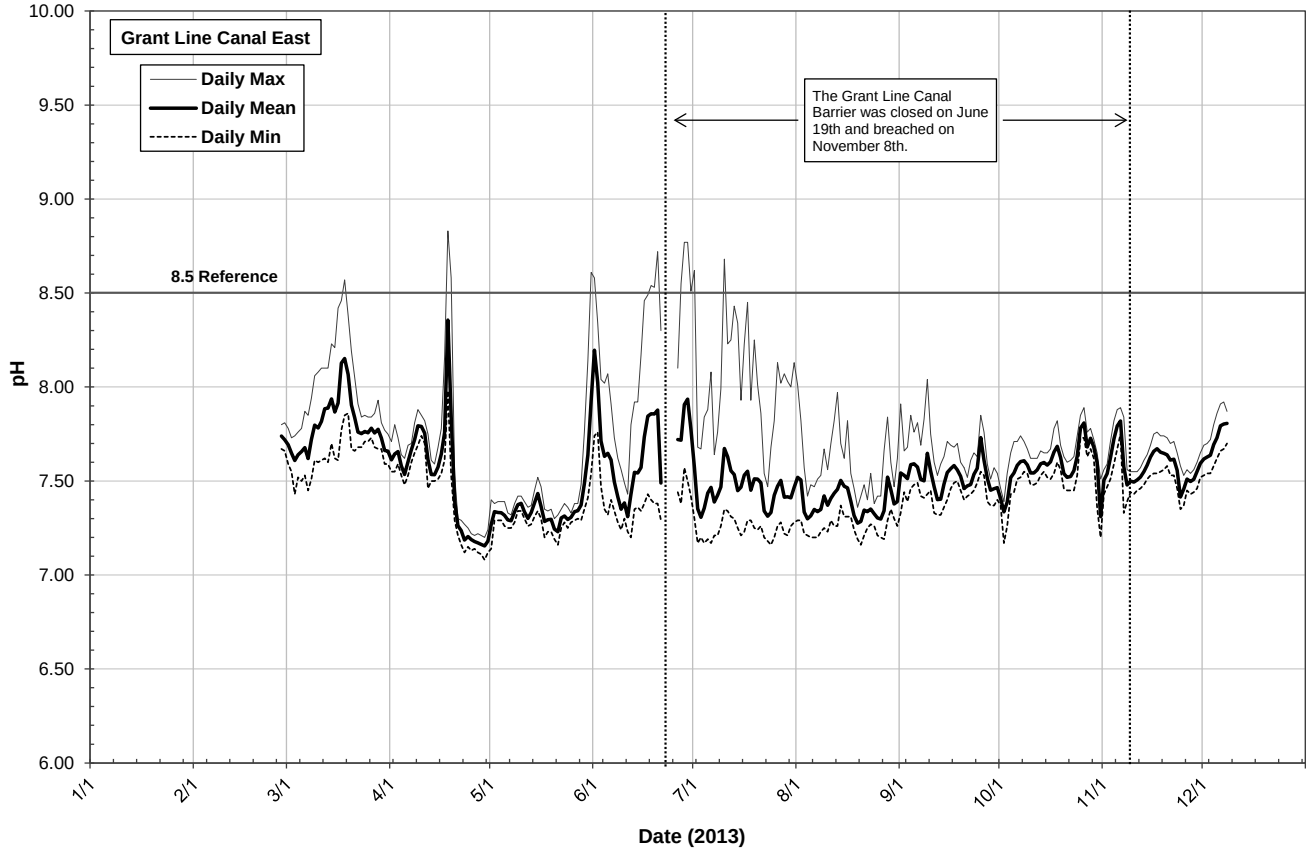

Old River upstream of ORT Barrier
Daily Max
Daily Mean
Daily Min
The Old River at Tracy Barrier was closed on May 30th and breached on November 18th.
5.0 mg/L Reference
Dissolved Oxygen (mg/L)
Date (2013)
0
2
4
6
8
10
12
14
16
18
20
22
24
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

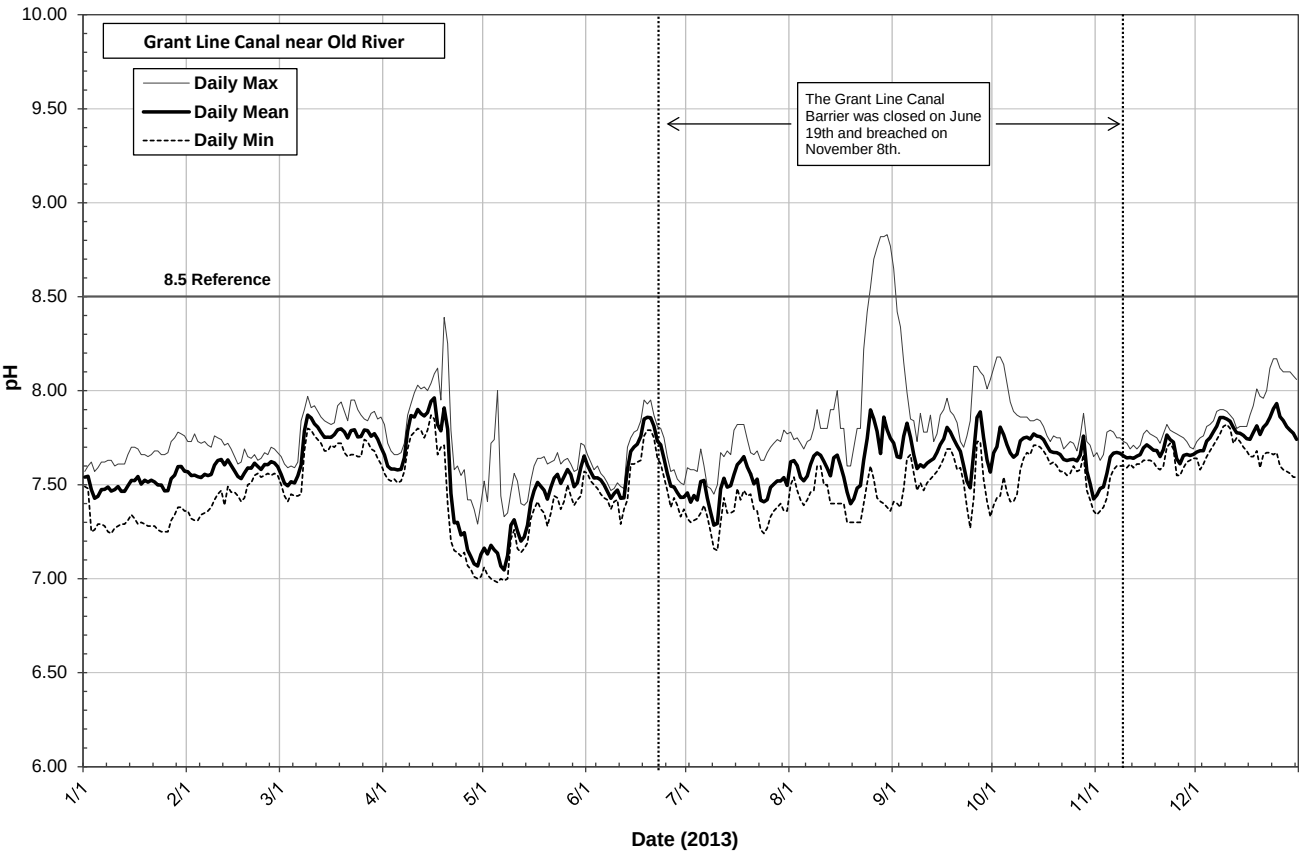

Old River downstream of ORT Barrier
Daily Max
Daily Mean
Daily Min
The Old River at Tracy Barrier was closed on May 30th and breached on November 18th.
5.0 mg/L Reference
Dissolved Oxygen (mg/L)
Date (2013)
0
2
4
6
8
10
12
14
16
18
20
22
24
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
1/1

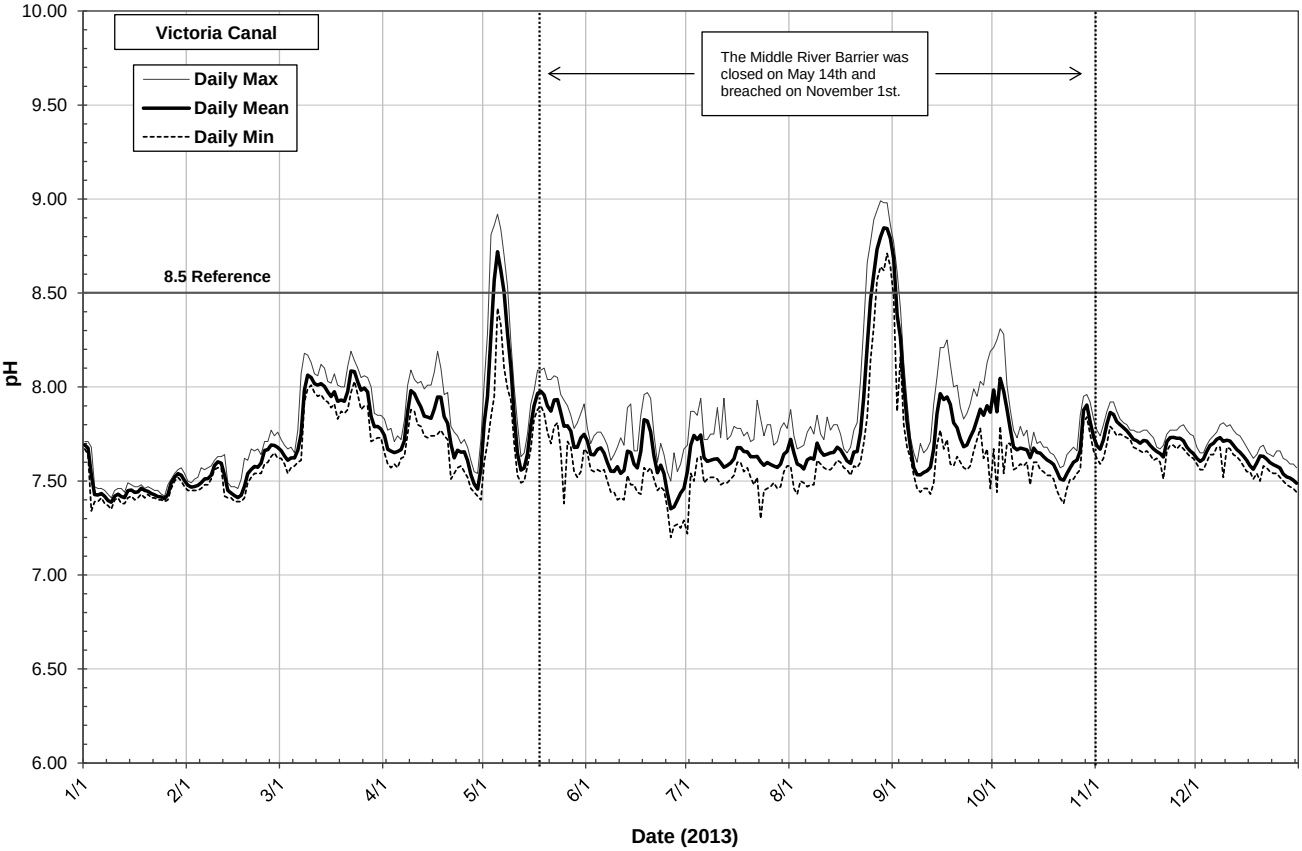

Doughty Cut above Grant Line Canal
Daily Max
Daily Mean
Daily Min
The Grant Line Canal Barrier was closed on June 19th and breached on November 8th.
8.5 Reference
pH
10.00
9.50
9.00
8.50
8.00
7.50
7.00
6.50
6.00
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Date (2013)

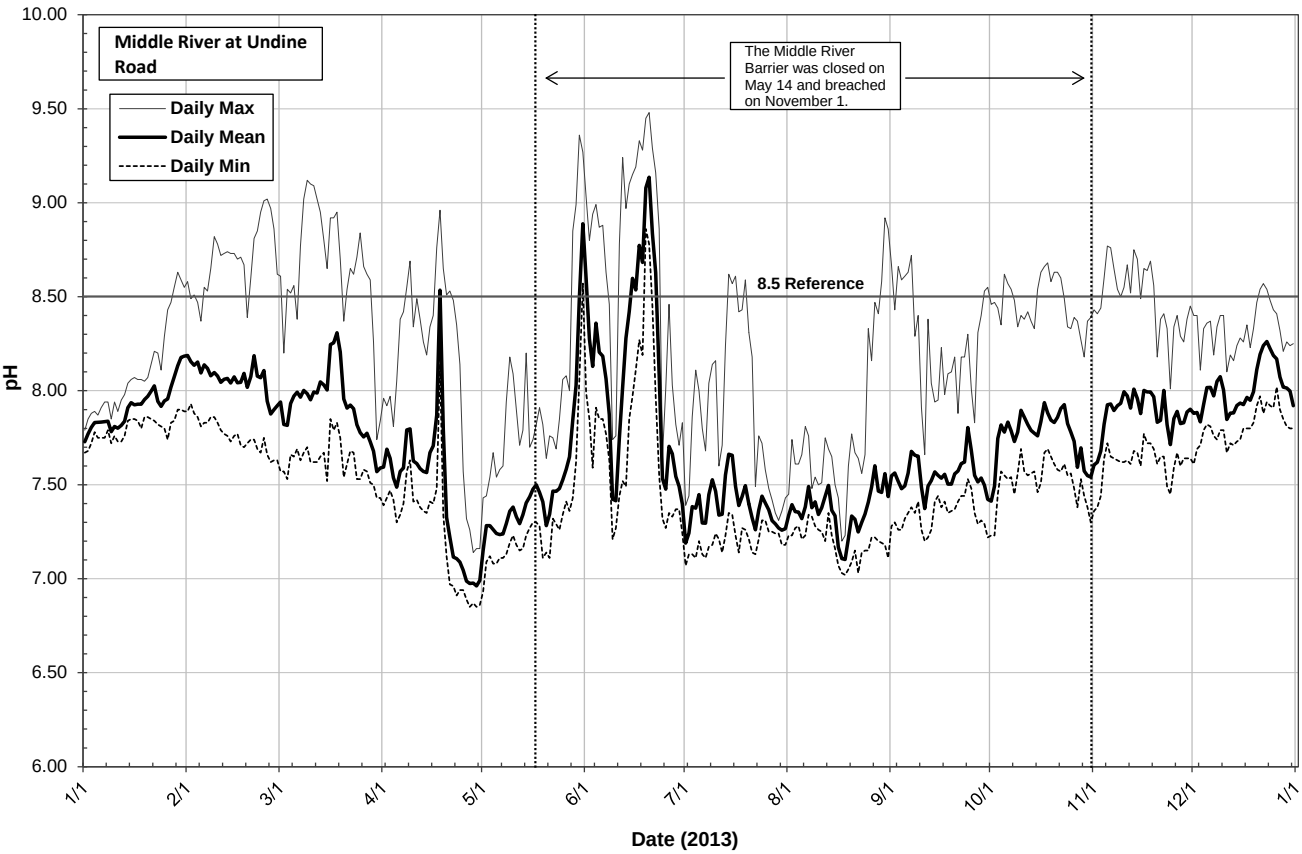

Grant Line Canal above barrier
Daily Max
Daily Mean
Daily Min
The Grant Line Canal Barrier was closed on June 19th and breached on November 8th.
8.5 Reference
pH
10.00
9.50
9.00
8.50
8.00
7.50
7.00
6.50
6.00
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Date (2013)

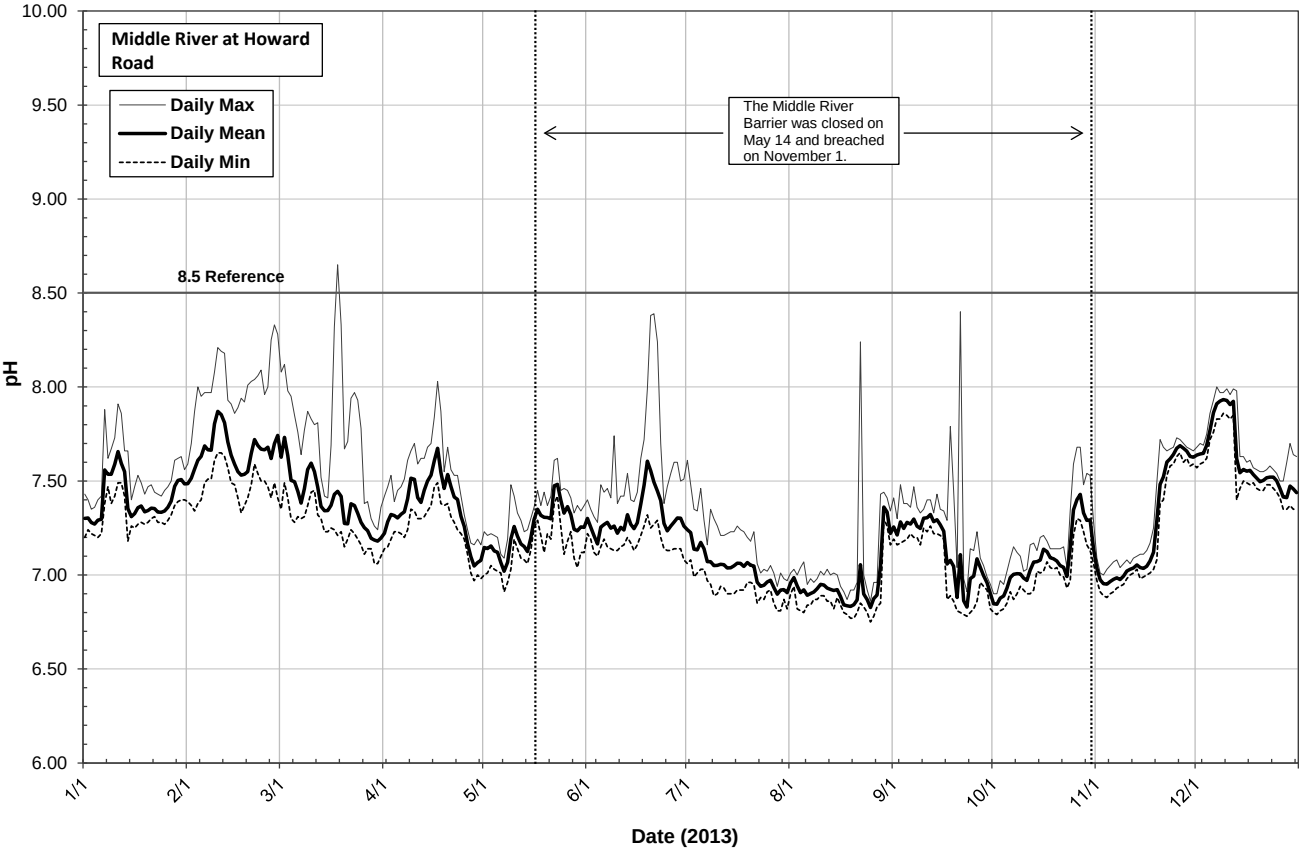

Grant Line Canal at Tracy Blvd.
Daily Max
Daily Mean
Daily Min
The Grant Line Canal Barrier was closed on June 19th and breached on November 8th.
8.5 Reference
pH
10.00
9.50
9.00
8.50
8.00
7.50
7.00
6.50
6.00
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Date (2013)

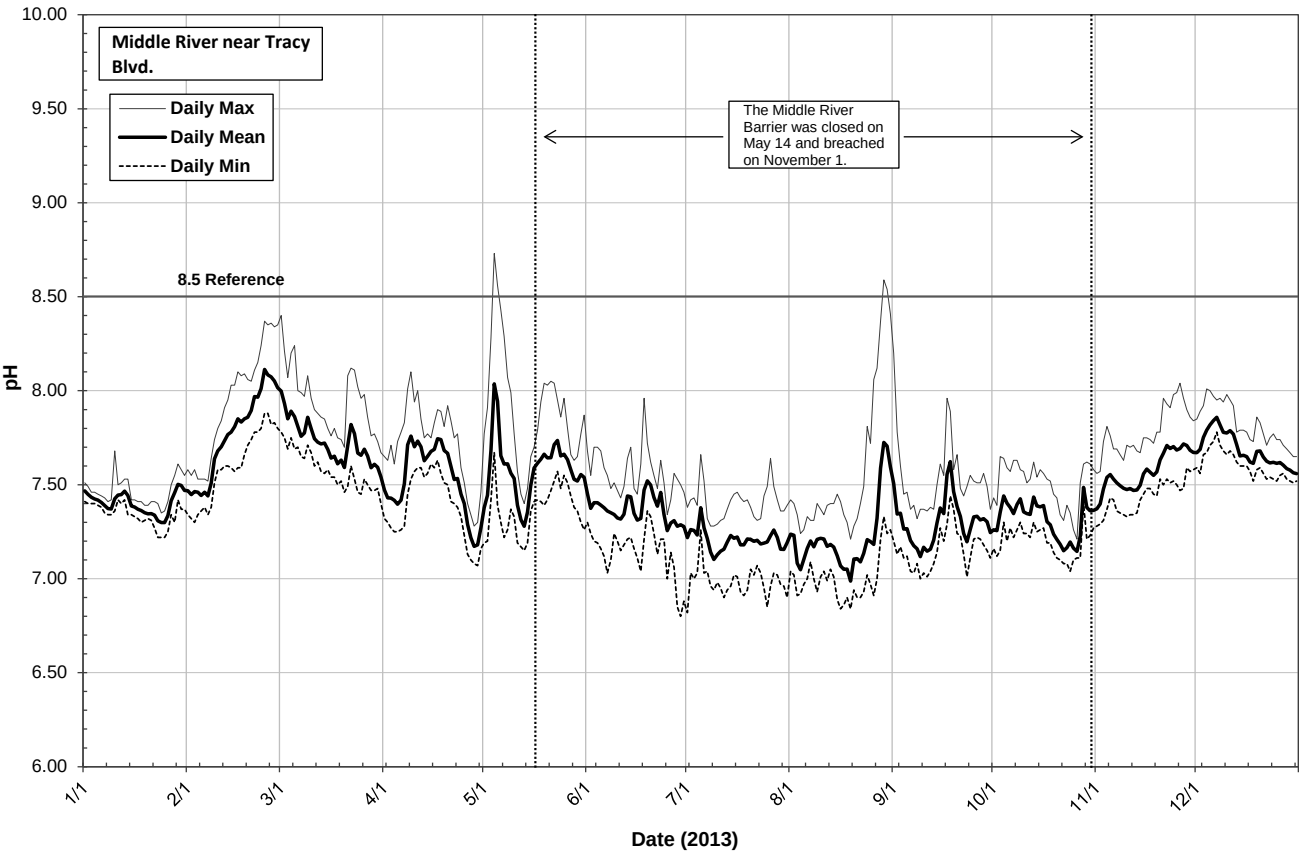

Grant Line Canal East
Daily Max
Daily Mean
Daily Min
The Grant Line Canal Barrier was closed on June 19th and breached on November 8th.
8.5 Reference
pH
10.00
9.50
9.00
8.50
8.00
7.50
7.00
6.50
6.00
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Date (2013)

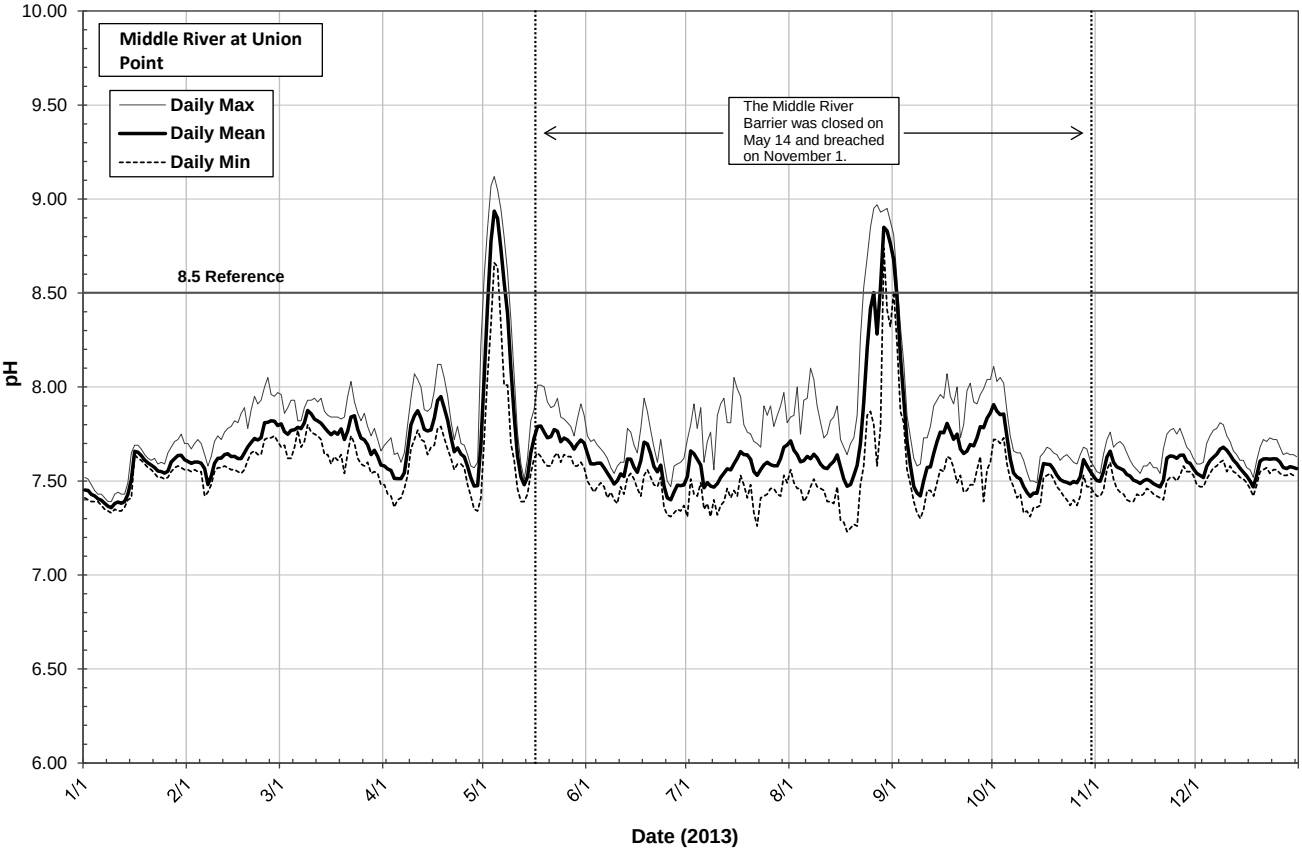

Grant Line Canal near Old River
Daily Max
Daily Mean
Daily Min
The Grant Line Canal Barrier was closed on June 19th and breached on November 8th.
8.5 Reference
pH
10.00
9.50
9.00
8.50
8.00
7.50
7.00
6.50
6.00
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Date (2013)

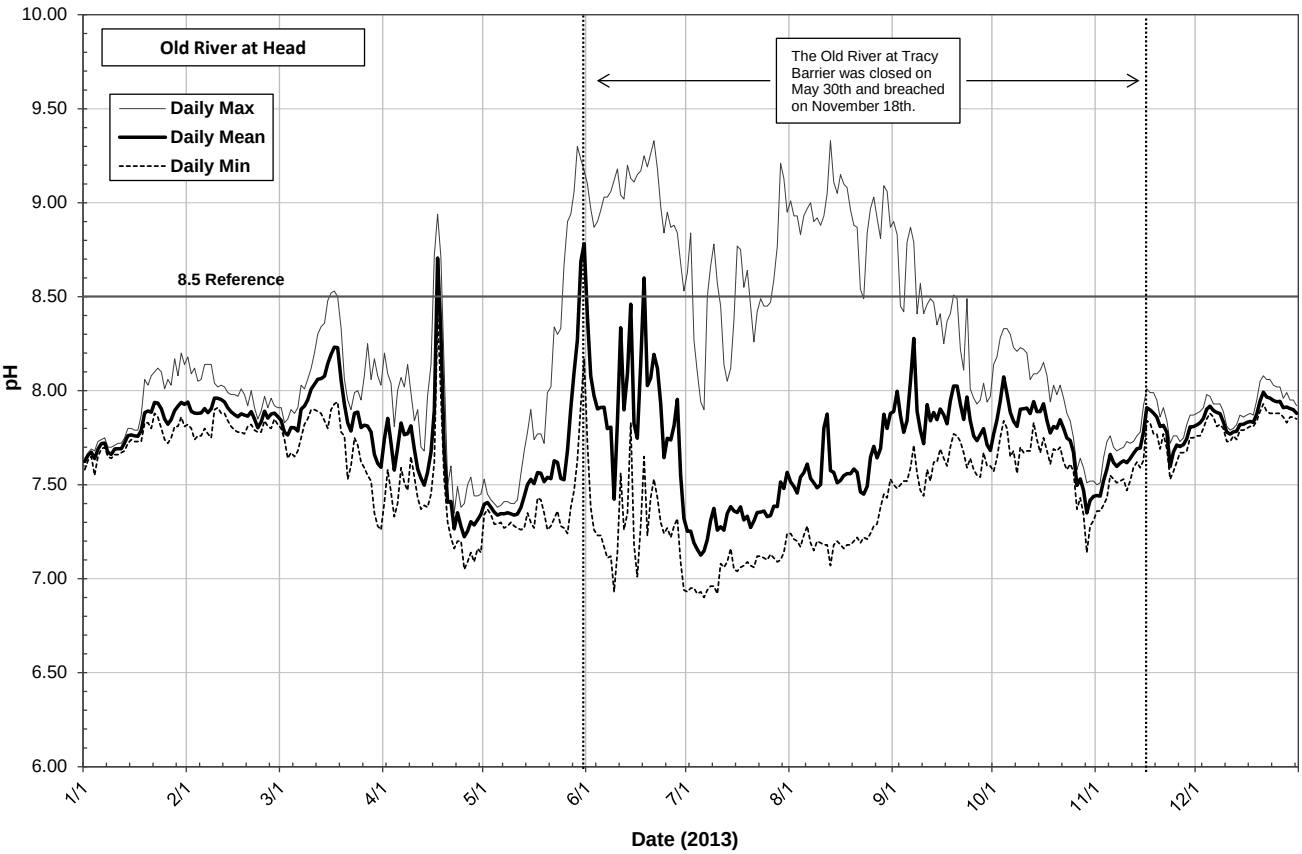

Victoria Canal
Daily Max
Daily Mean
Daily Min
The Middle River Barrier was closed on May 14th and breached on November 1st.
8.5 Reference
pH
10.00
9.50
9.00
8.50
8.00
7.50
7.00
6.50
6.00
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Date (2013)

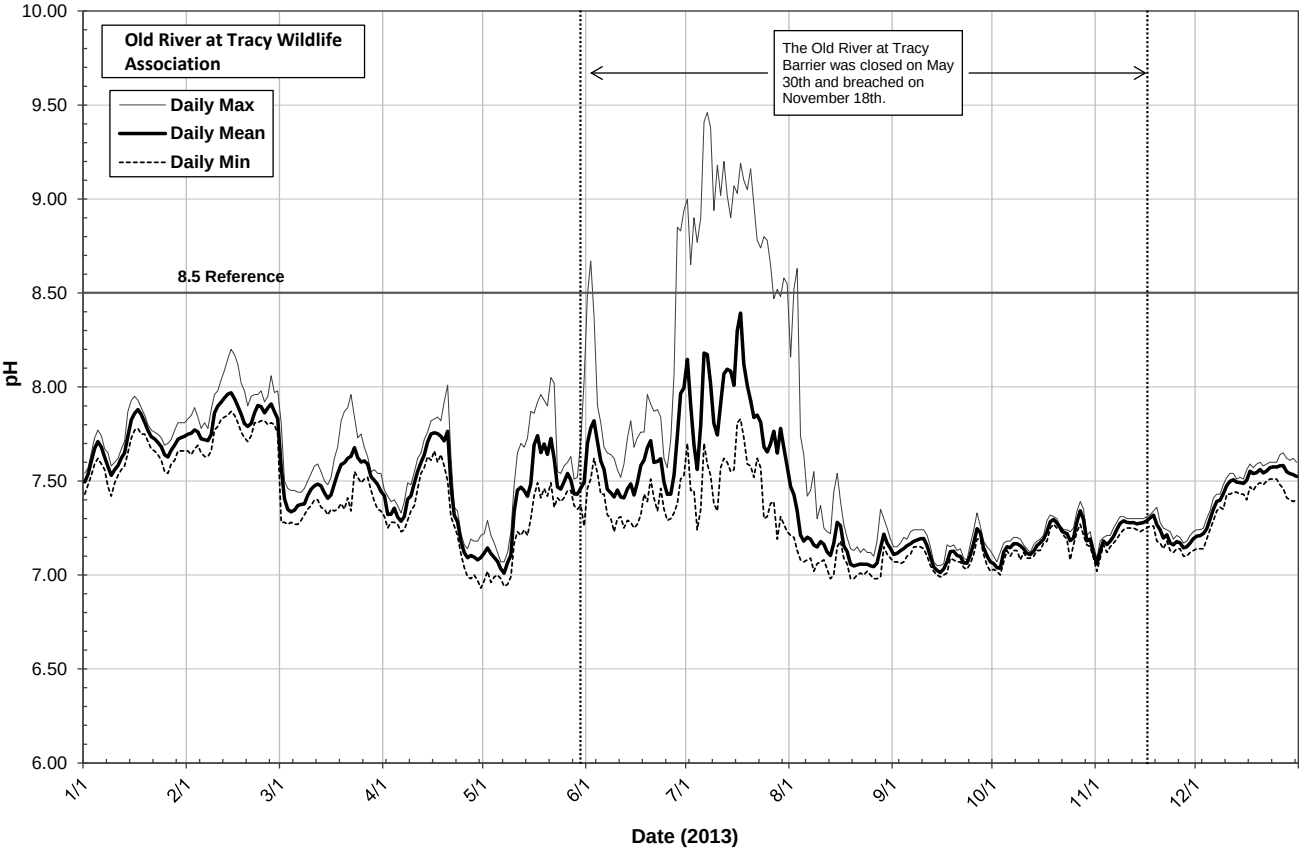

Middle River at Undine Road
Daily Max
Daily Mean
Daily Min
The Middle River Barrier was closed on May 14 and breached on November 1.
8.5 Reference
pH
10.00
9.50
9.00
8.50
8.00
7.50
7.00
6.50
6.00
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
1/1
Date (2013)

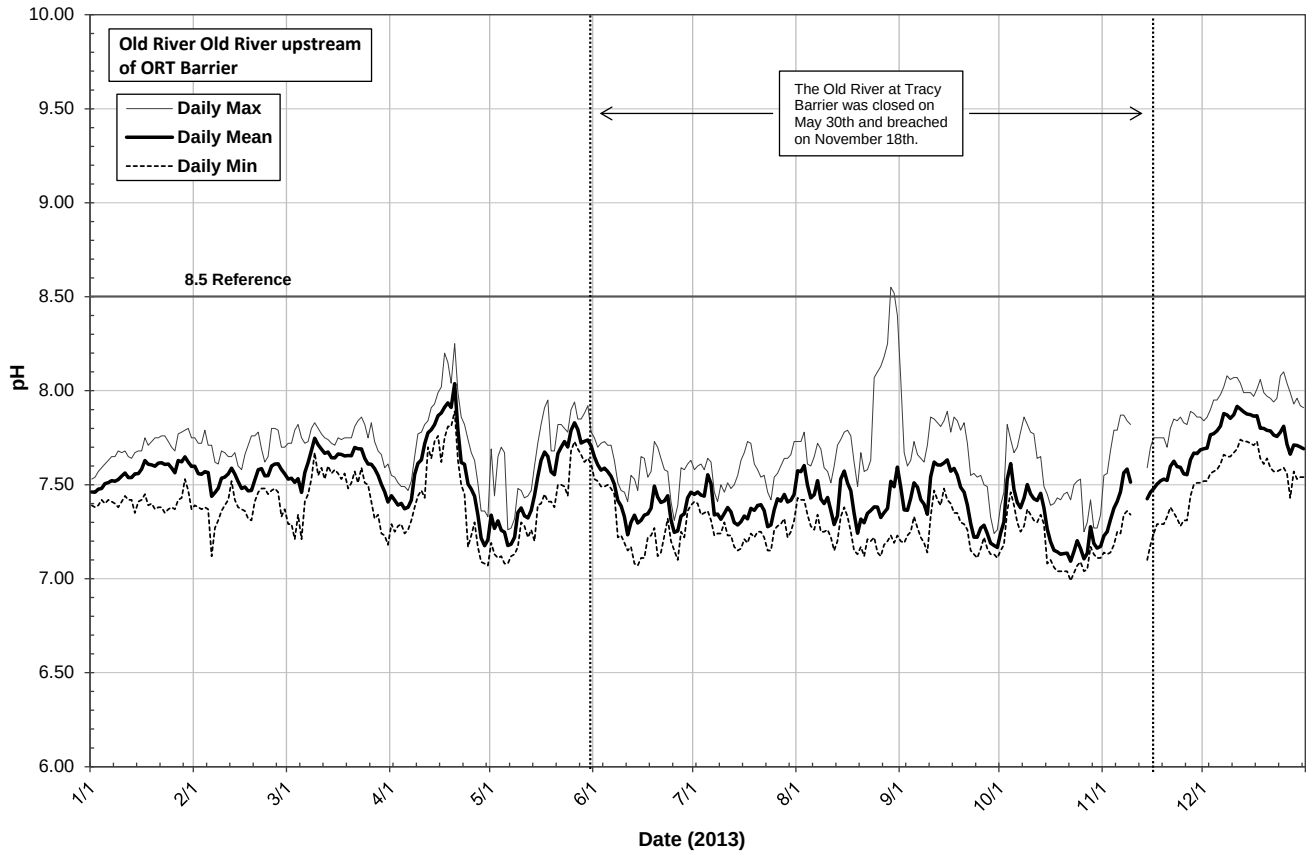

Middle River at Howard Road
Daily Max
Daily Mean
Daily Min
The Middle River Barrier was closed on May 14 and breached on November 1.
8.5 Reference
pH
10.00
9.50
9.00
8.50
8.00
7.50
7.00
6.50
6.00
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Date (2013)

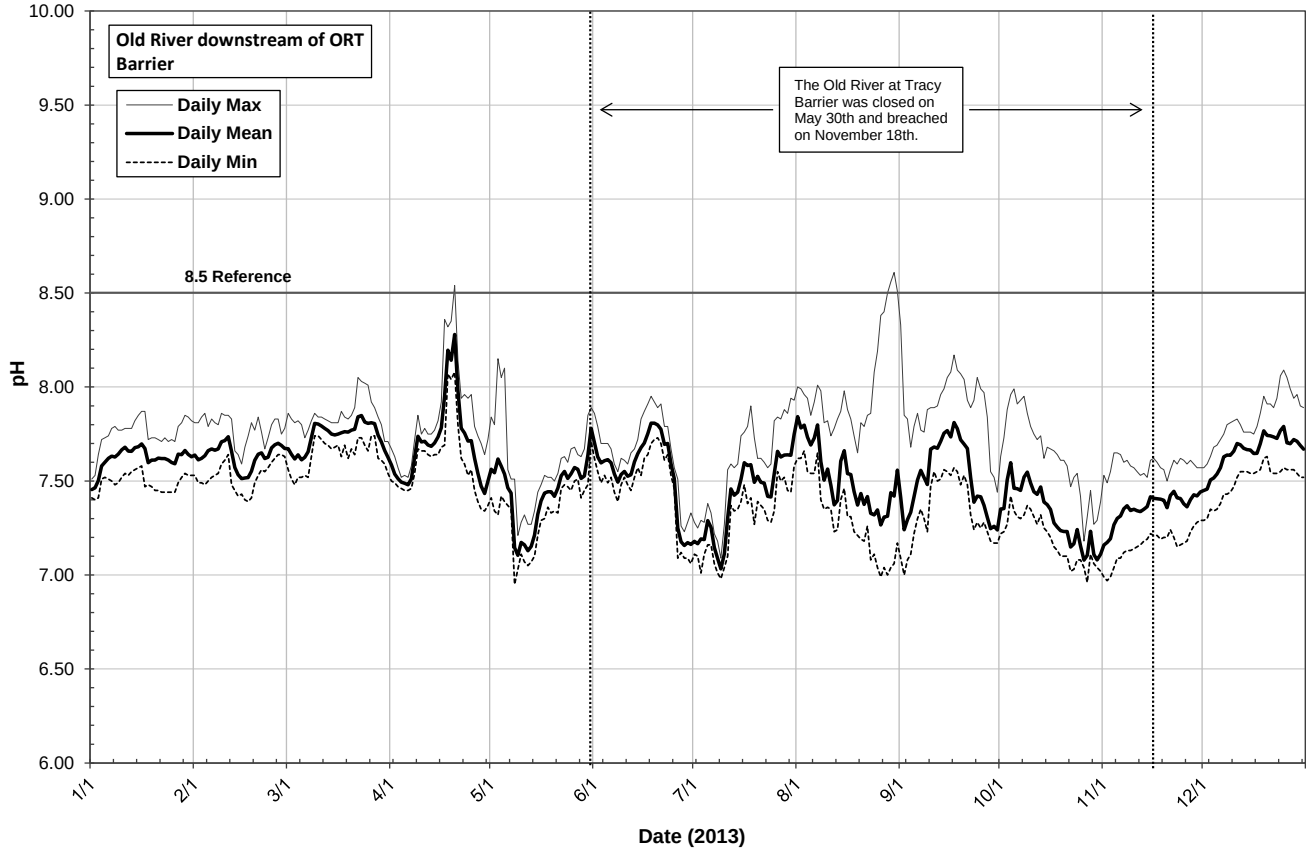

Middle River near Tracy Blvd.
Daily Max
Daily Mean
Daily Min
The Middle River Barrier was closed on May 14 and breached on November 1.
8.5 Reference
pH
10.00
9.50
9.00
8.50
8.00
7.50
7.00
6.50
6.00
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Date (2013)

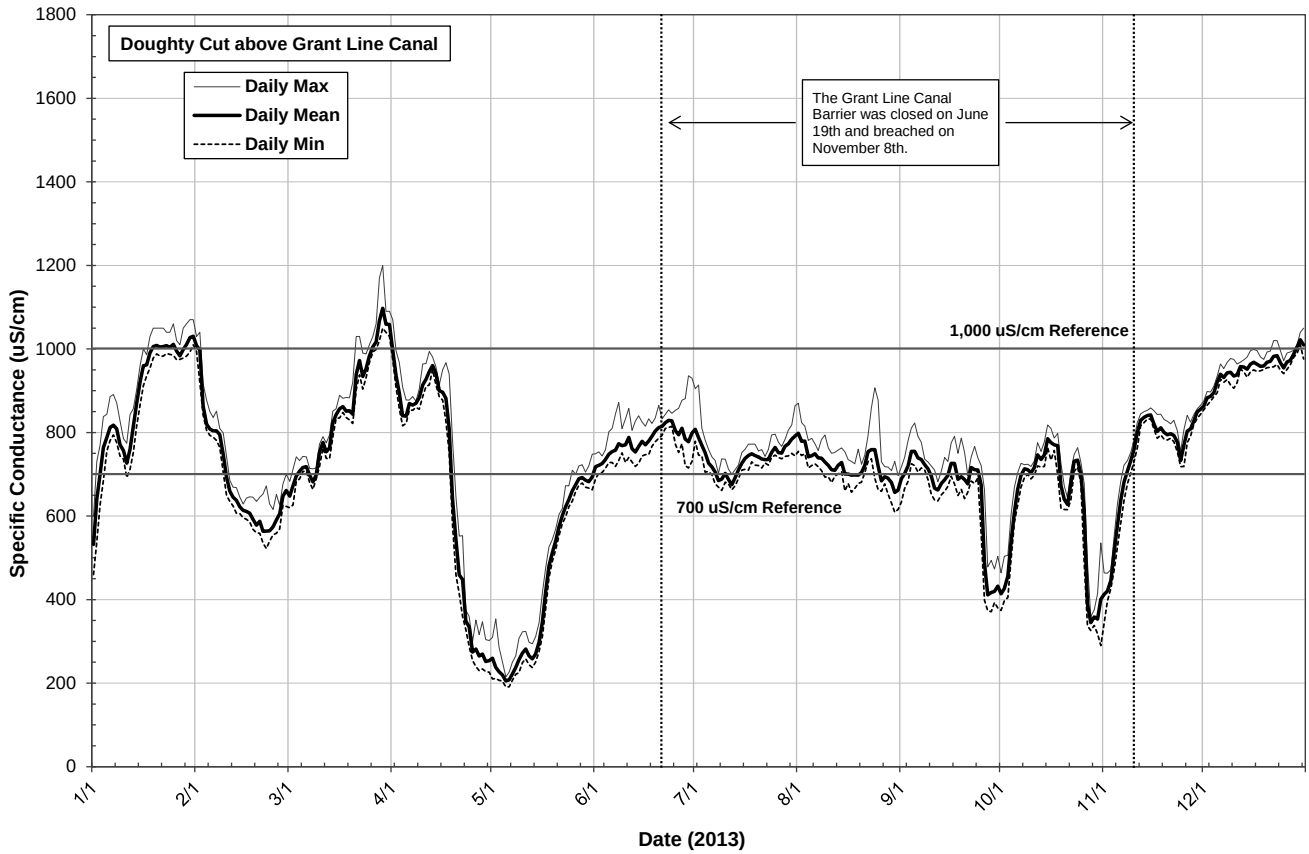

Middle River at Union Point
Daily Max
Daily Mean
Daily Min
The Middle River Barrier was closed on May 14 and breached on November 1.
8.5 Reference
pH
10.00
9.50
9.00
8.50
8.00
7.50
7.00
6.50
6.00
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Date (2013)

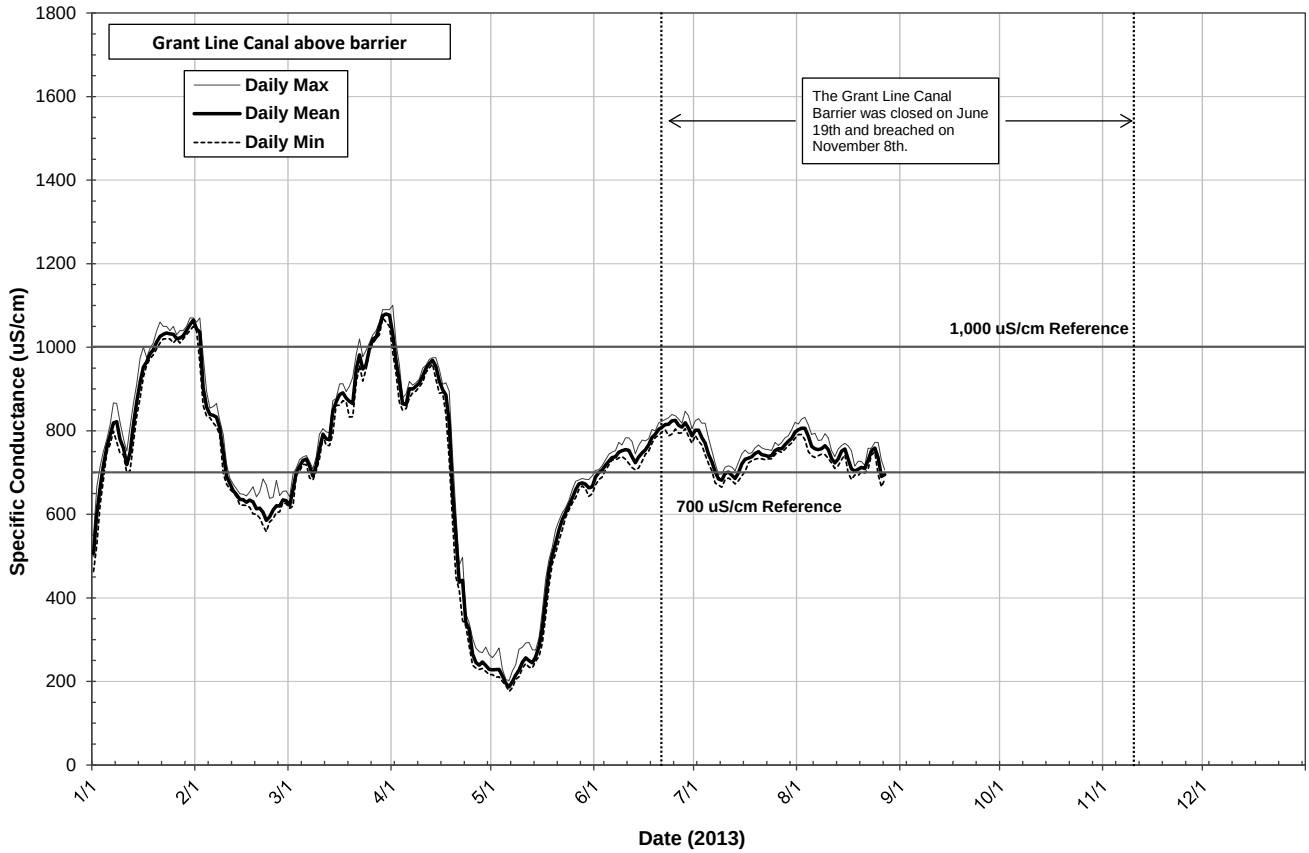

Old River at Head
Daily Max
Daily Mean
Daily Min
The Old River at Tracy Barrier was closed on May 30th and breached on November 18th.
8.5 Reference
pH
10.00
9.50
9.00
8.50
8.00
7.50
7.00
6.50
6.00
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Date (2013)

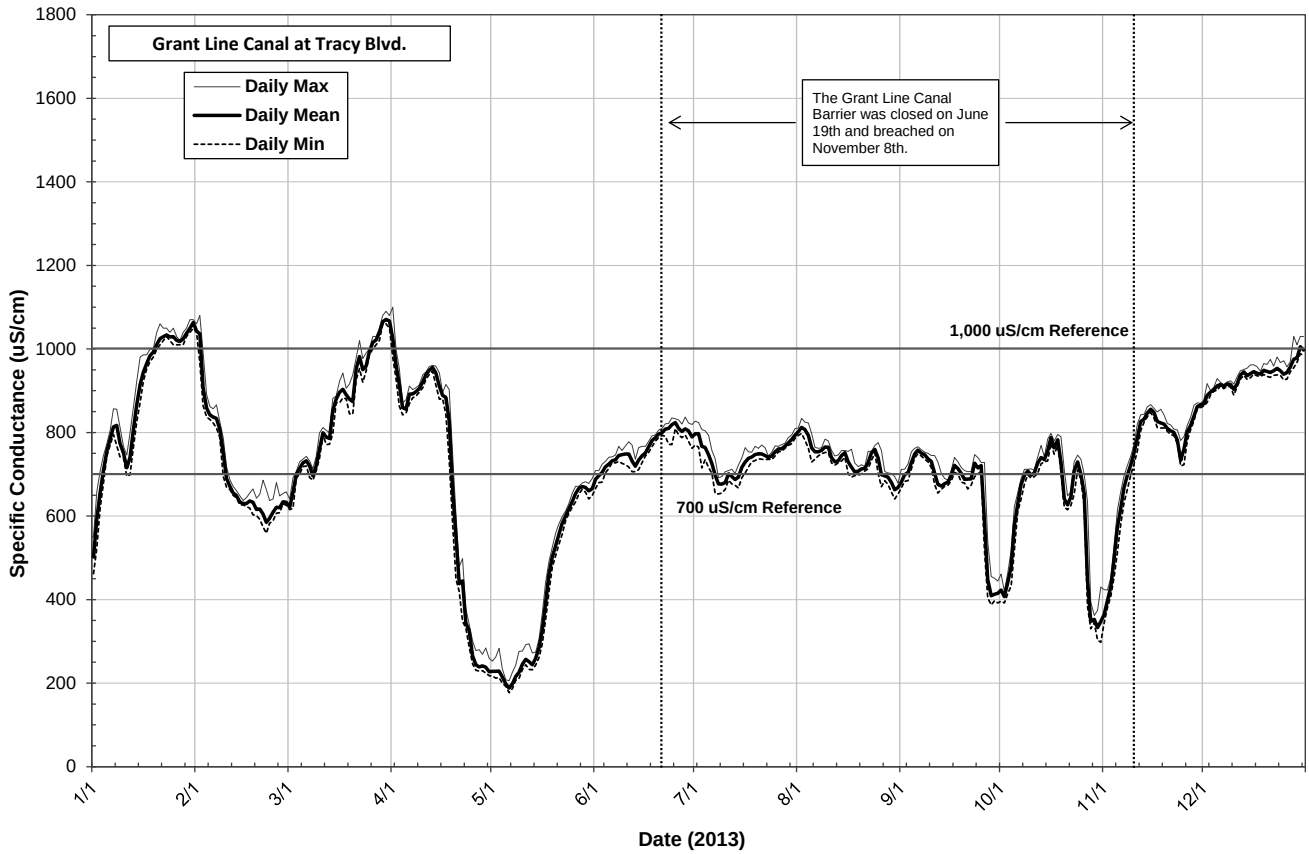

Old River at Tracy Wildlife Association
Daily Max
Daily Mean
Daily Min
The Old River at Tracy Barrier was closed on May 30th and breached on November 18th.
8.5 Reference
pH
10.00
9.50
9.00
8.50
8.00
7.50
7.00
6.50
6.00
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Date (2013)

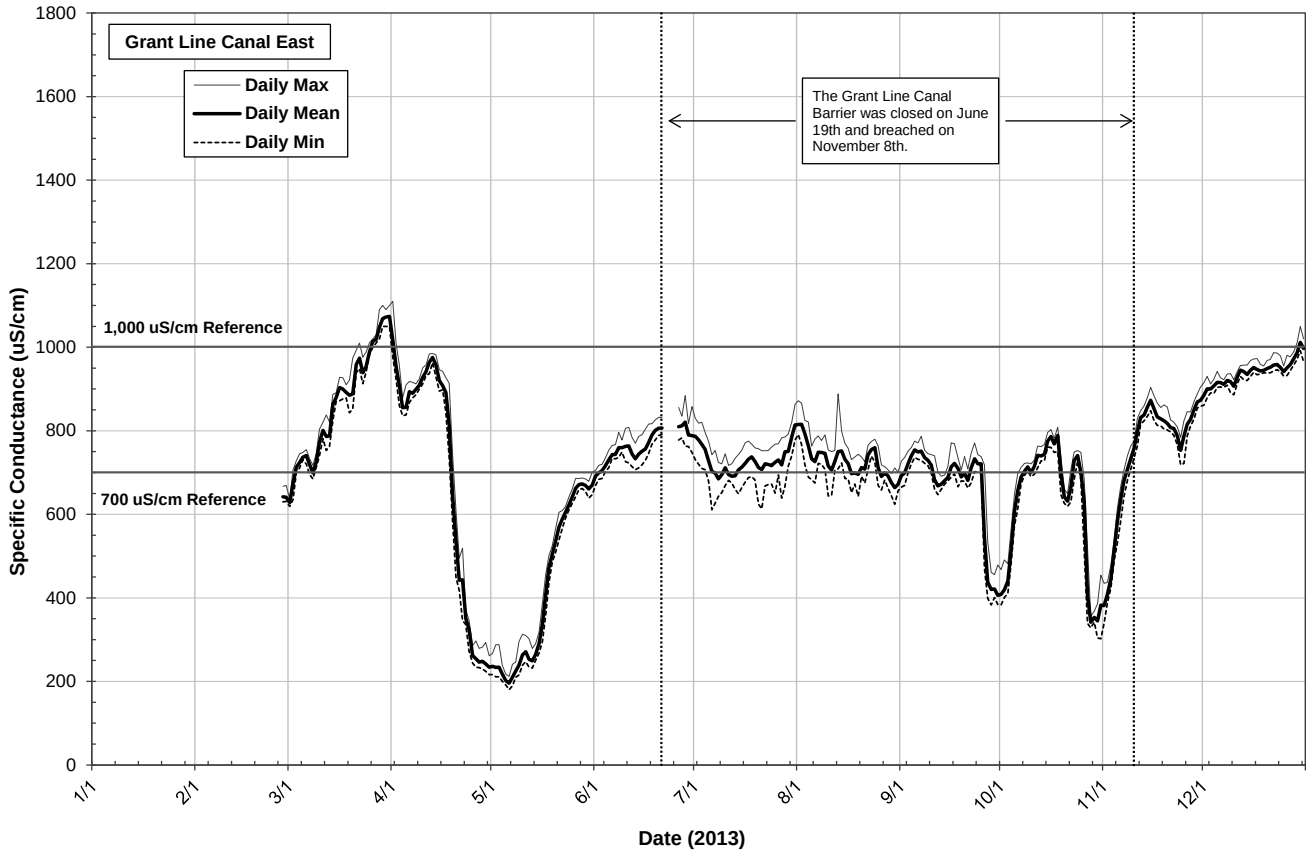

Old River Old River upstream of ORT Barrier
Daily Max
Daily Mean
Daily Min
The Old River at Tracy Barrier was closed on May 30th and breached on November 18th.
8.5 Reference
pH
10.00
9.50
9.00
8.50
8.00
7.50
7.00
6.50
6.00
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Date (2013)

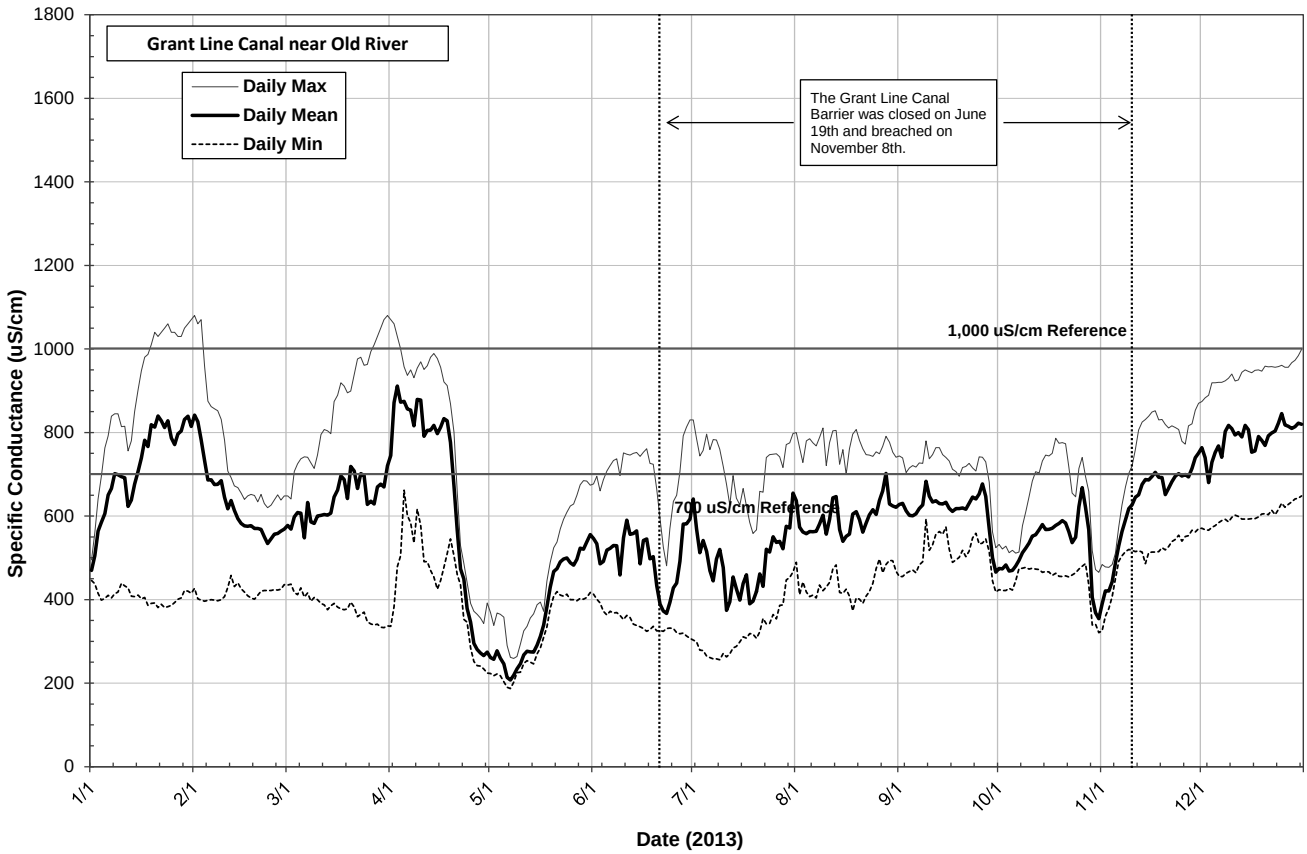

Old River downstream of ORT Barrier
Daily Max
Daily Mean
Daily Min
The Old River at Tracy Barrier was closed on May 30th and breached on November 18th.
8.5 Reference
pH
10.00
9.50
9.00
8.50
8.00
7.50
7.00
6.50
6.00
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Date (2013)

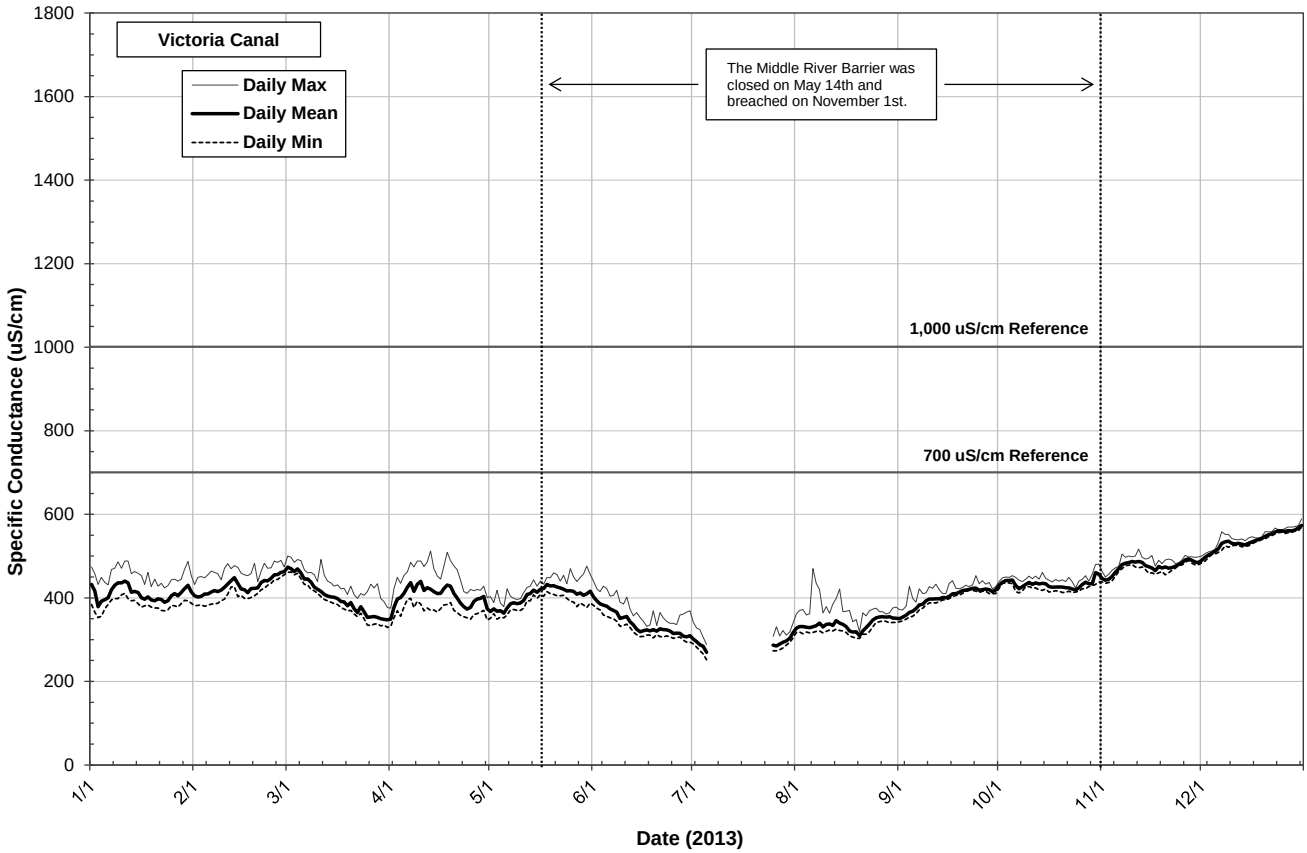

Doughty Cut above Grant Line Canal
Daily Max
Daily Mean
Daily Min
The Grant Line Canal Barrier was closed on June 19th and breached on November 8th.
1,000 uS/cm Reference
700 uS/cm Reference
Specific Conductance (uS/cm)
Date (2013)
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

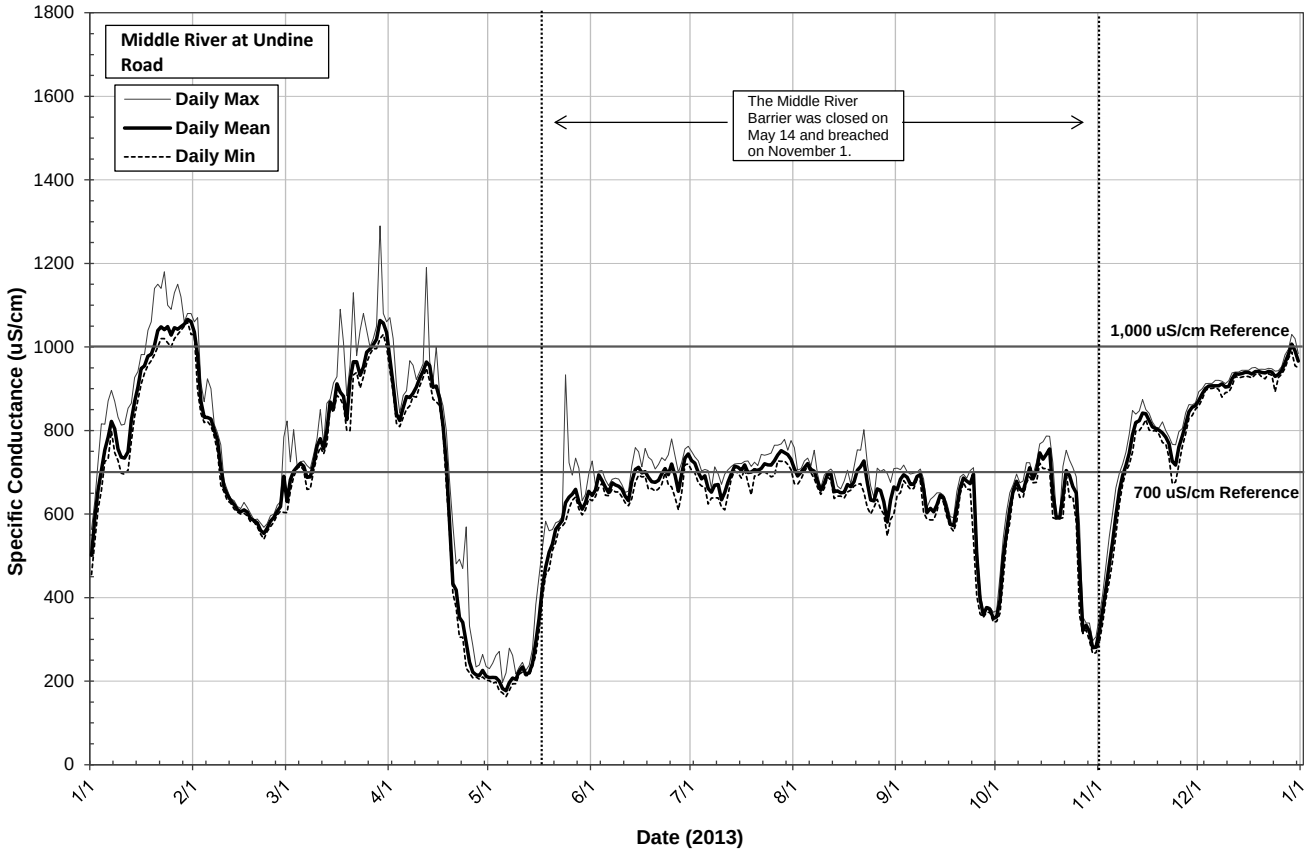

Grant Line Canal above barrier
Daily Max
Daily Mean
Daily Min
The Grant Line Canal Barrier was closed on June 19th and breached on November 8th.
1,000 uS/cm Reference
700 uS/cm Reference
Specific Conductance (uS/cm)
Date (2013)
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

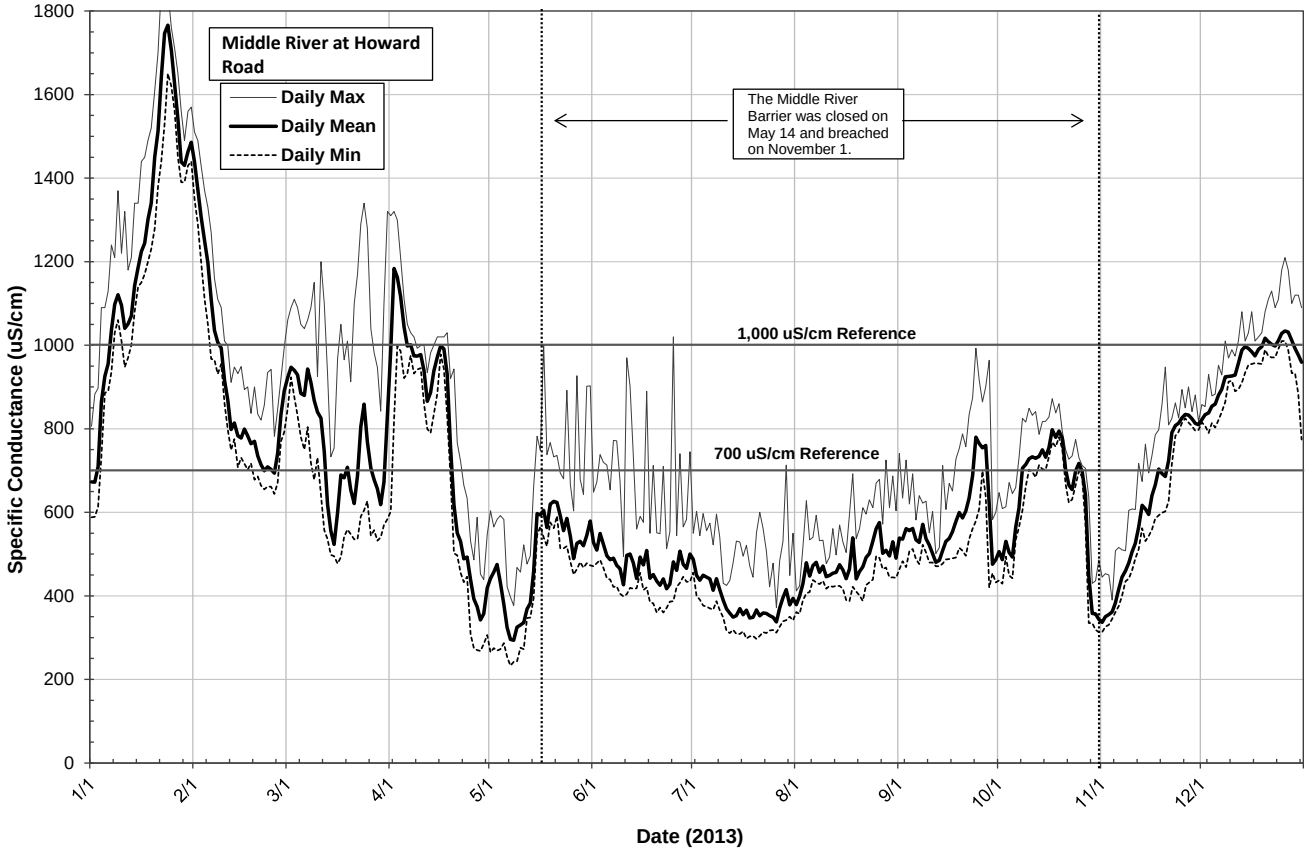

Grant Line Canal at Tracy Blvd.
Daily Max
Daily Mean
Daily Min
The Grant Line Canal Barrier was closed on June 19th and breached on November 8th.
1,000 uS/cm Reference
700 uS/cm Reference
Specific Conductance (uS/cm)
Date (2013)
0
200
400
600
800
1000
1200
1400
1600
1800
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

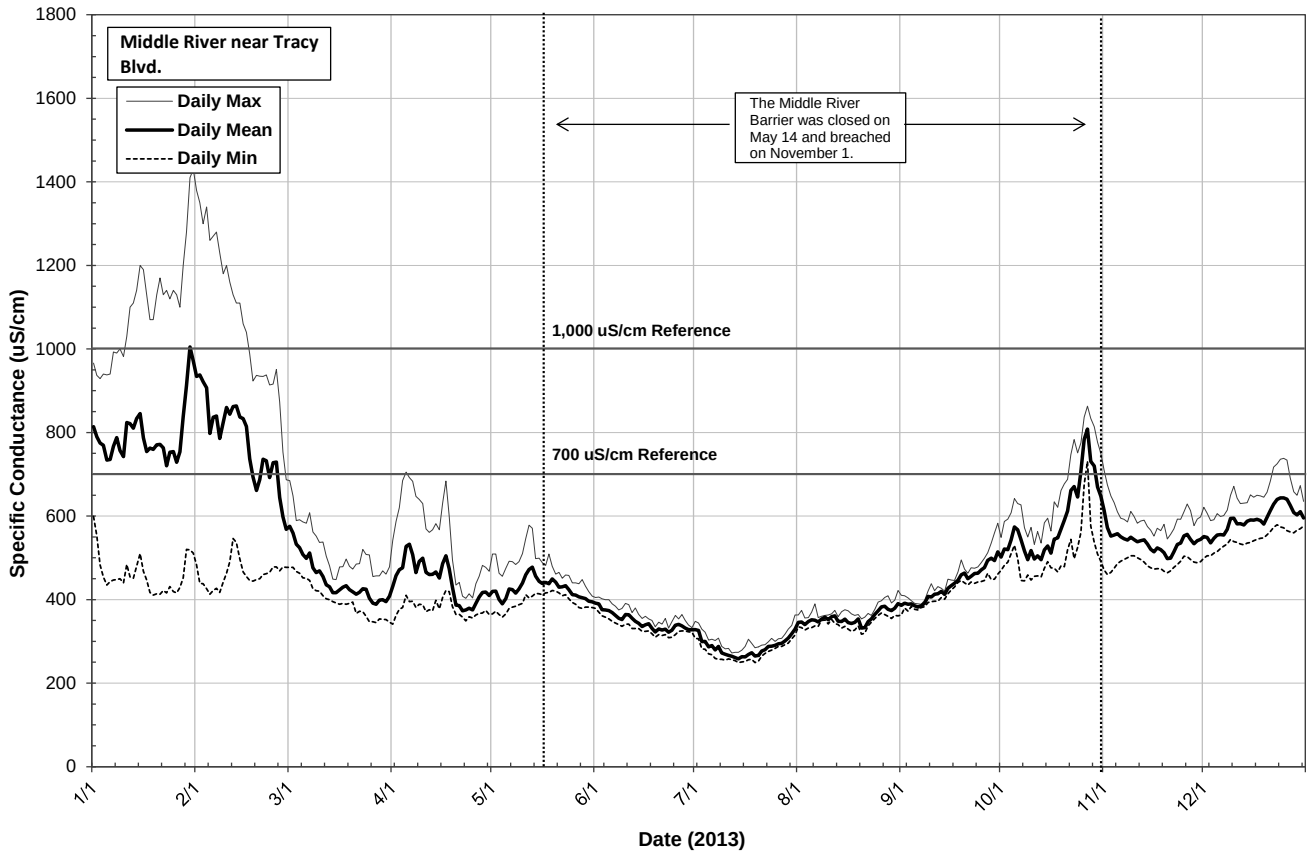

Grant Line Canal East
Daily Max
Daily Mean
Daily Min
The Grant Line Canal Barrier was closed on June 19th and breached on November 8th.
1,000 uS/cm Reference
700 uS/cm Reference
Specific Conductance (uS/cm)
Date (2013)
0
200
400
600
800
1000
1200
1400
1600
1800
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

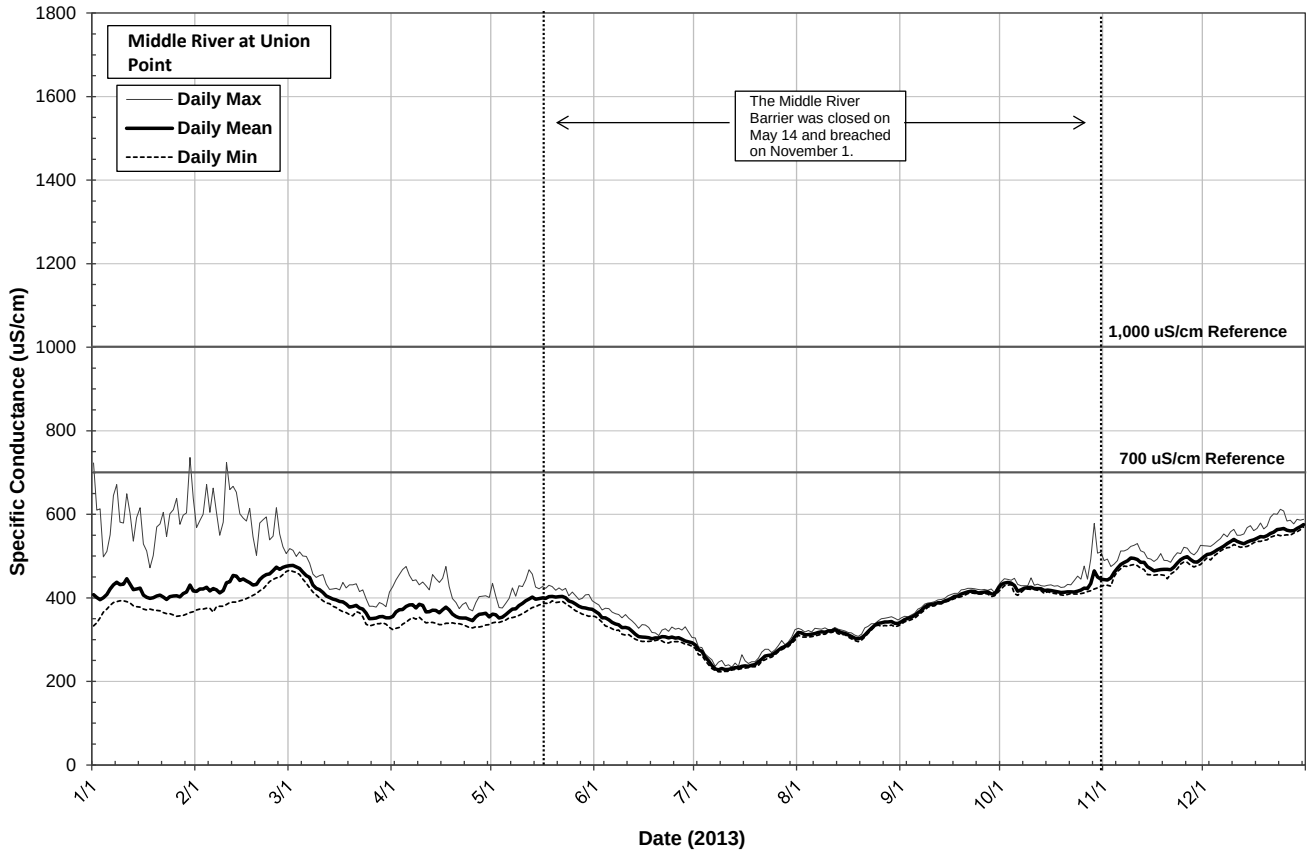

Grant Line Canal near Old River
Daily Max
Daily Mean
Daily Min
The Grant Line Canal Barrier was closed on June 19th and breached on November 8th.
1,000 uS/cm Reference
700 uS/cm Reference
Specific Conductance (uS/cm)
Date (2013)
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

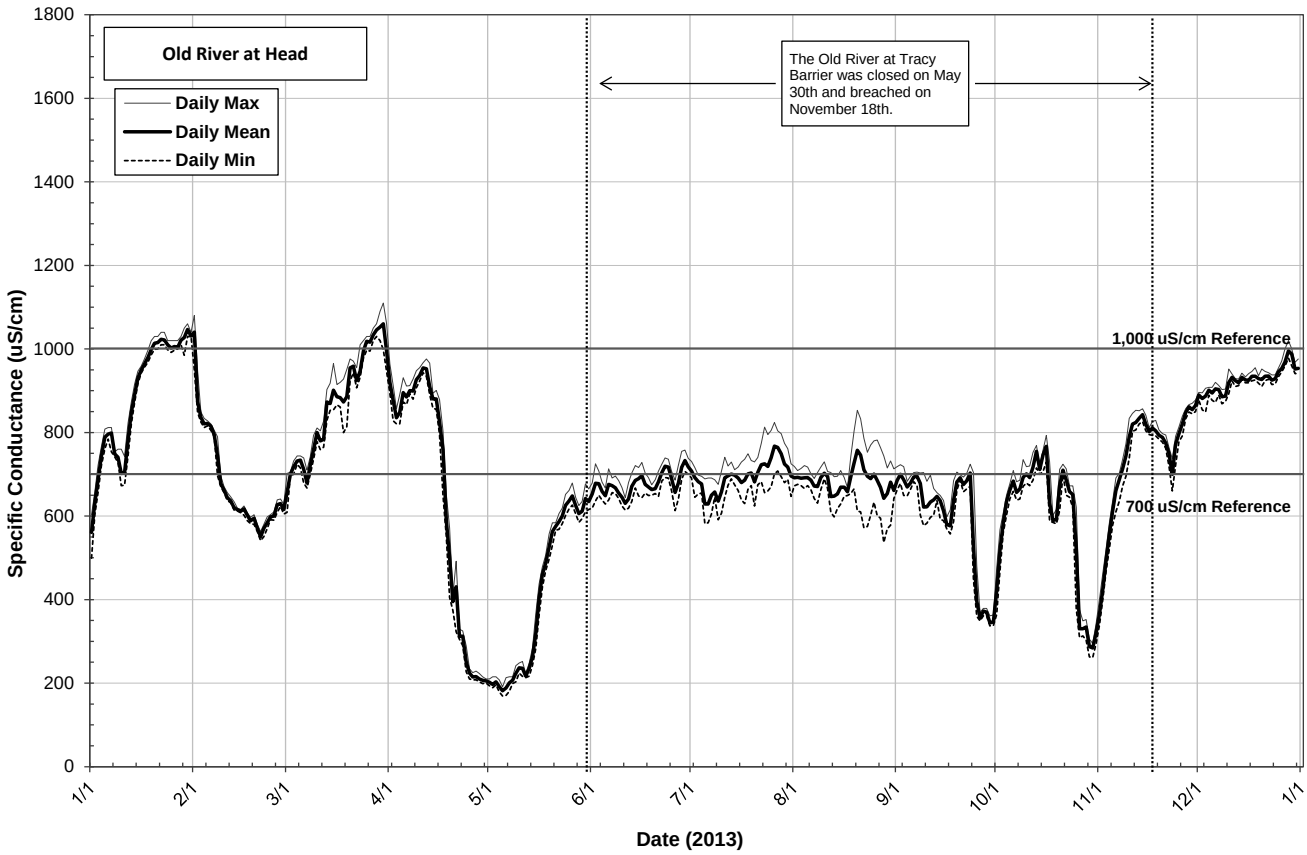

Victoria Canal
Daily Max
Daily Mean
Daily Min
The Middle River Barrier was closed on May 14th and breached on November 1st.
1,000 uS/cm Reference
700 uS/cm Reference
Specific Conductance (uS/cm)
Date (2013)
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

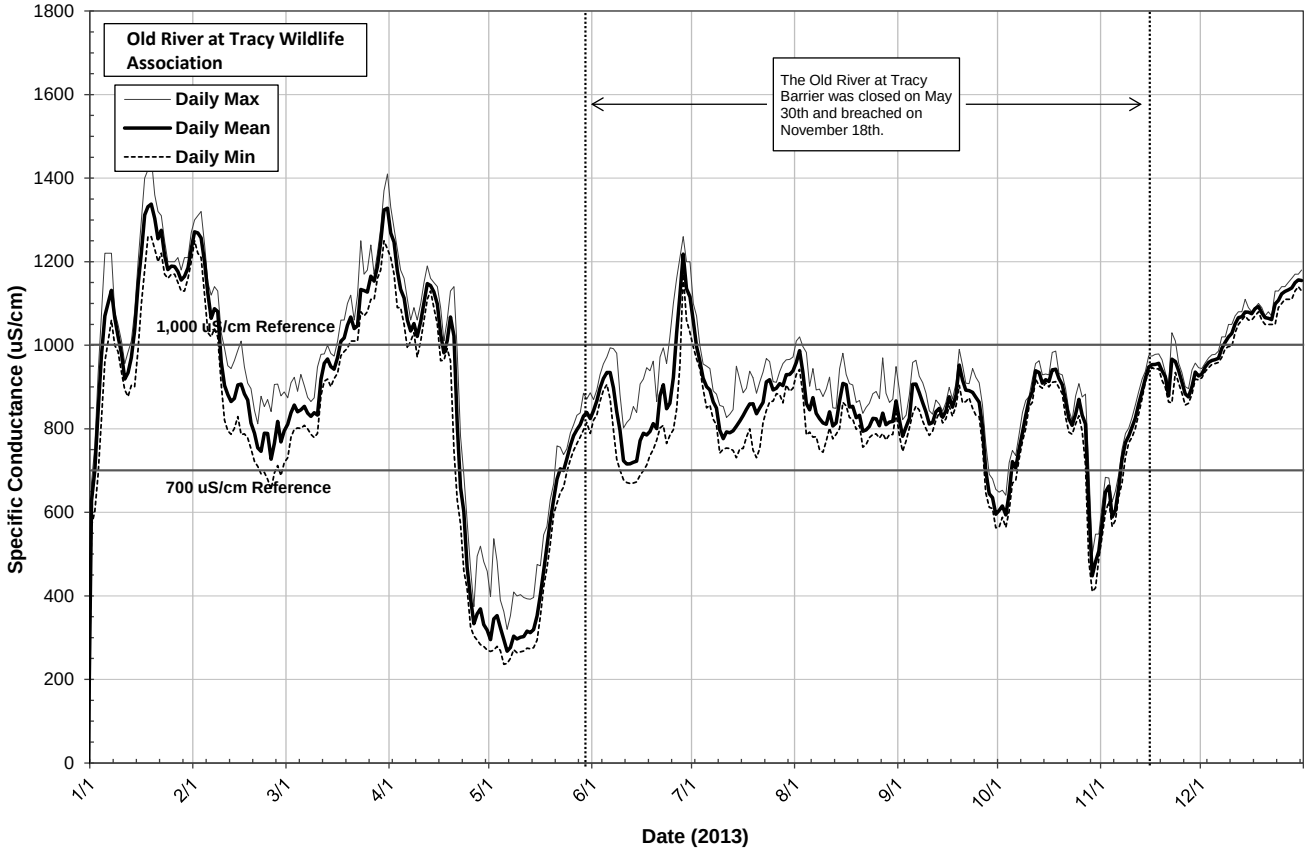

Middle River at Undine Road
Daily Max
Daily Mean
Daily Min
The Middle River Barrier was closed on May 14 and breached on November 1.
1,000 uS/cm Reference
700 uS/cm Reference
Specific Conductance (uS/cm)
Date (2013)
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
1/1

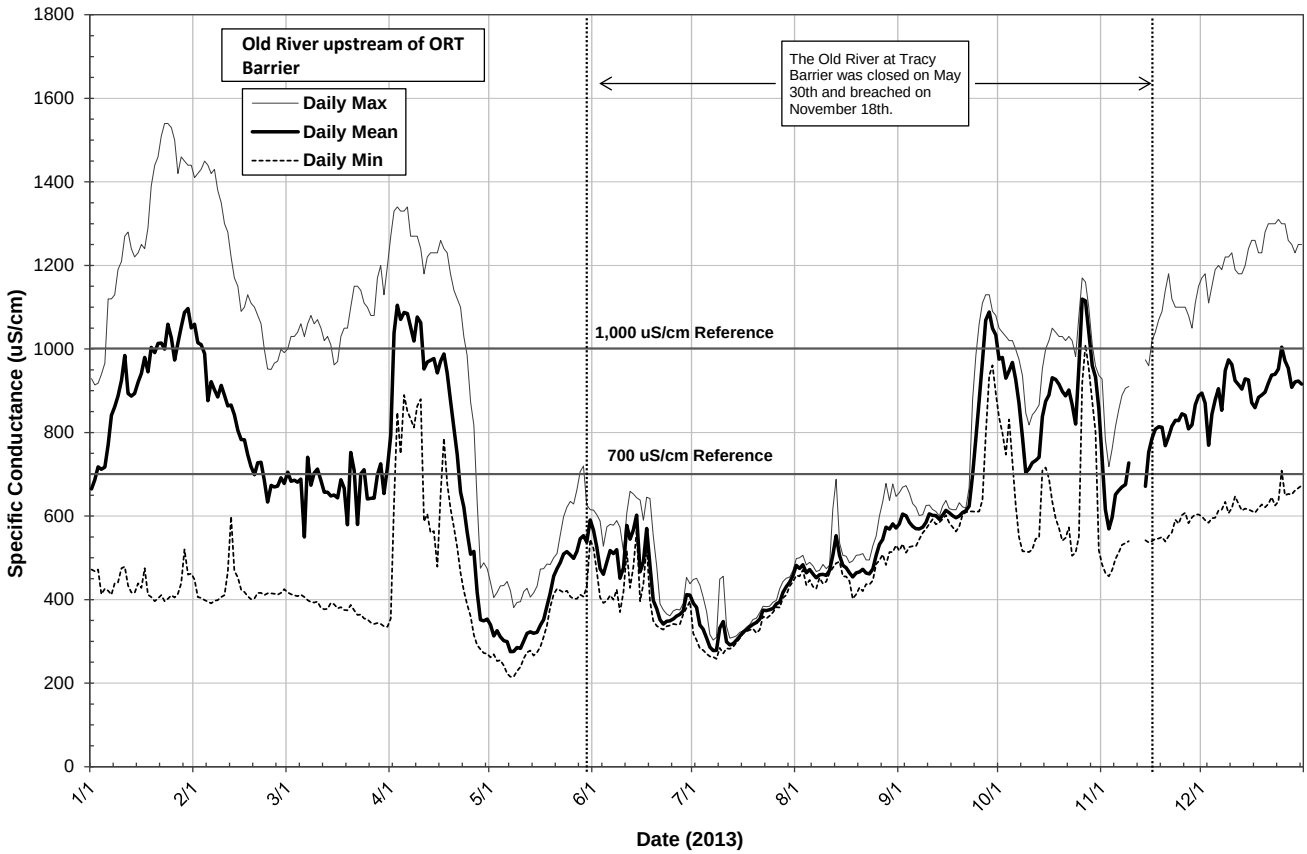

Middle River at Howard Road
Daily Max
Daily Mean
Daily Min
The Middle River Barrier was closed on May 14 and breached on November 1.
1,000 uS/cm Reference
700 uS/cm Reference
Specific Conductance (uS/cm)
Date (2013)
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

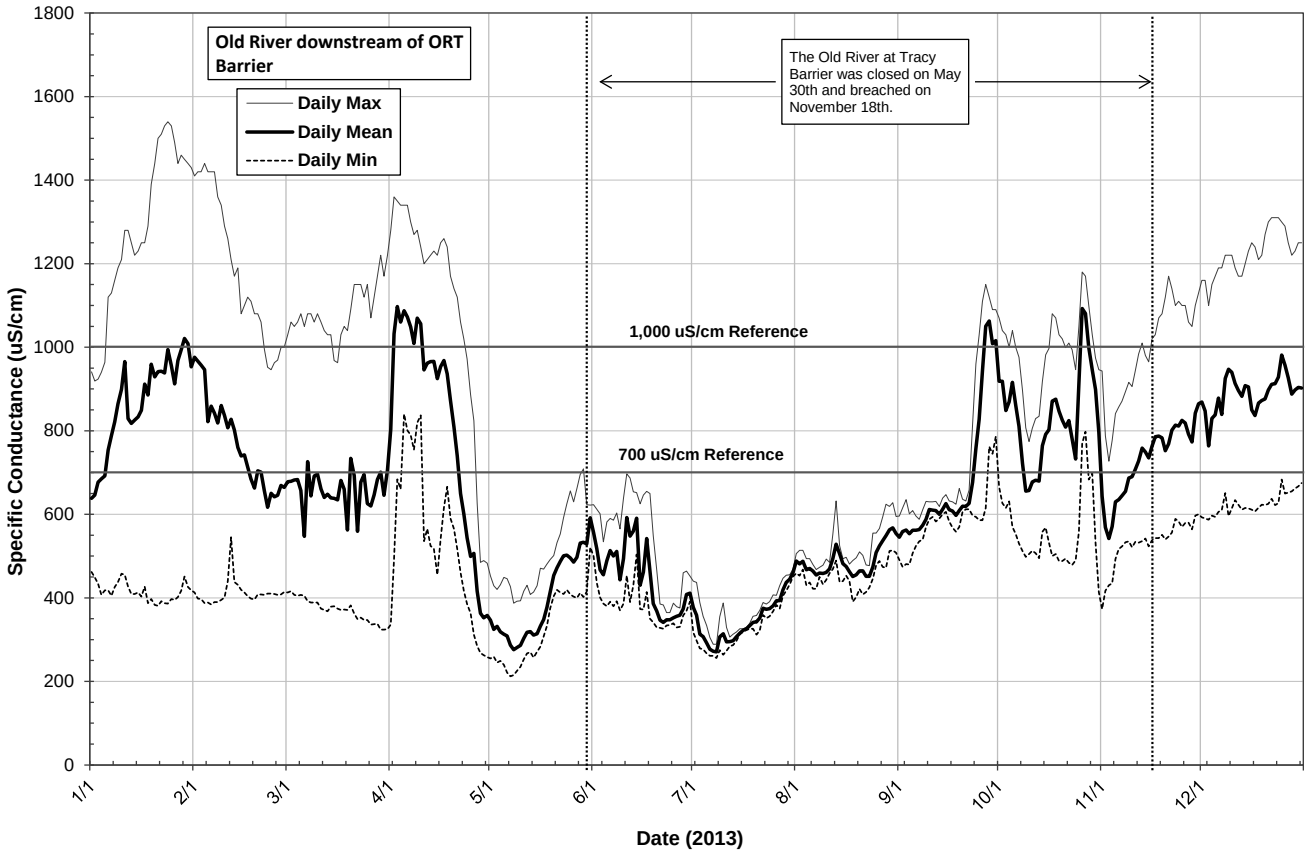

Middle River near Tracy Blvd.
Daily Max
Daily Mean
Daily Min
The Middle River Barrier was closed on May 14 and breached on November 1.
1,000 uS/cm Reference
700 uS/cm Reference
Specific Conductance (uS/cm)
Date (2013)
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

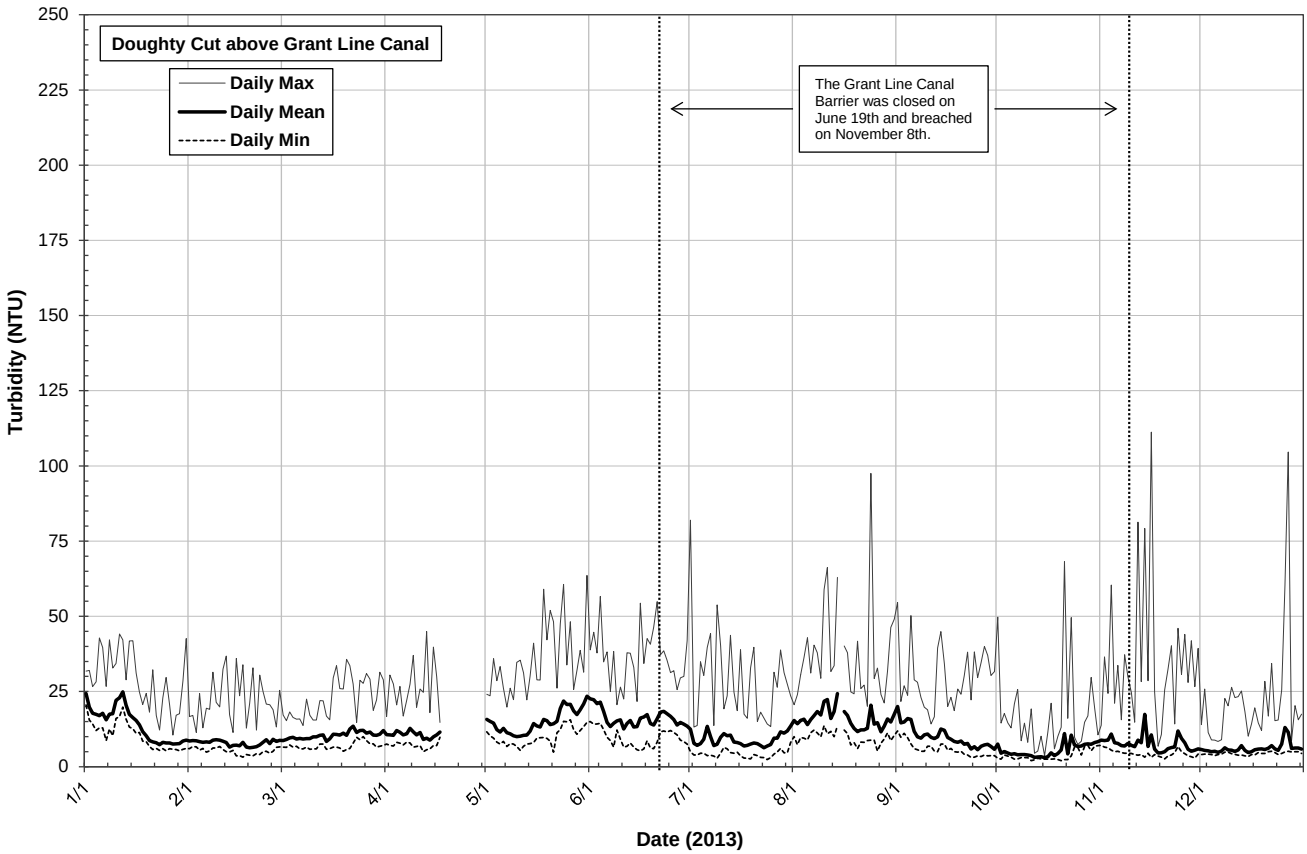

Middle River at Union Point
Daily Max
Daily Mean
Daily Min
The Middle River Barrier was closed on May 14 and breached on November 1.
1,000 uS/cm Reference
700 uS/cm Reference
Specific Conductance (uS/cm)
Date (2013)
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

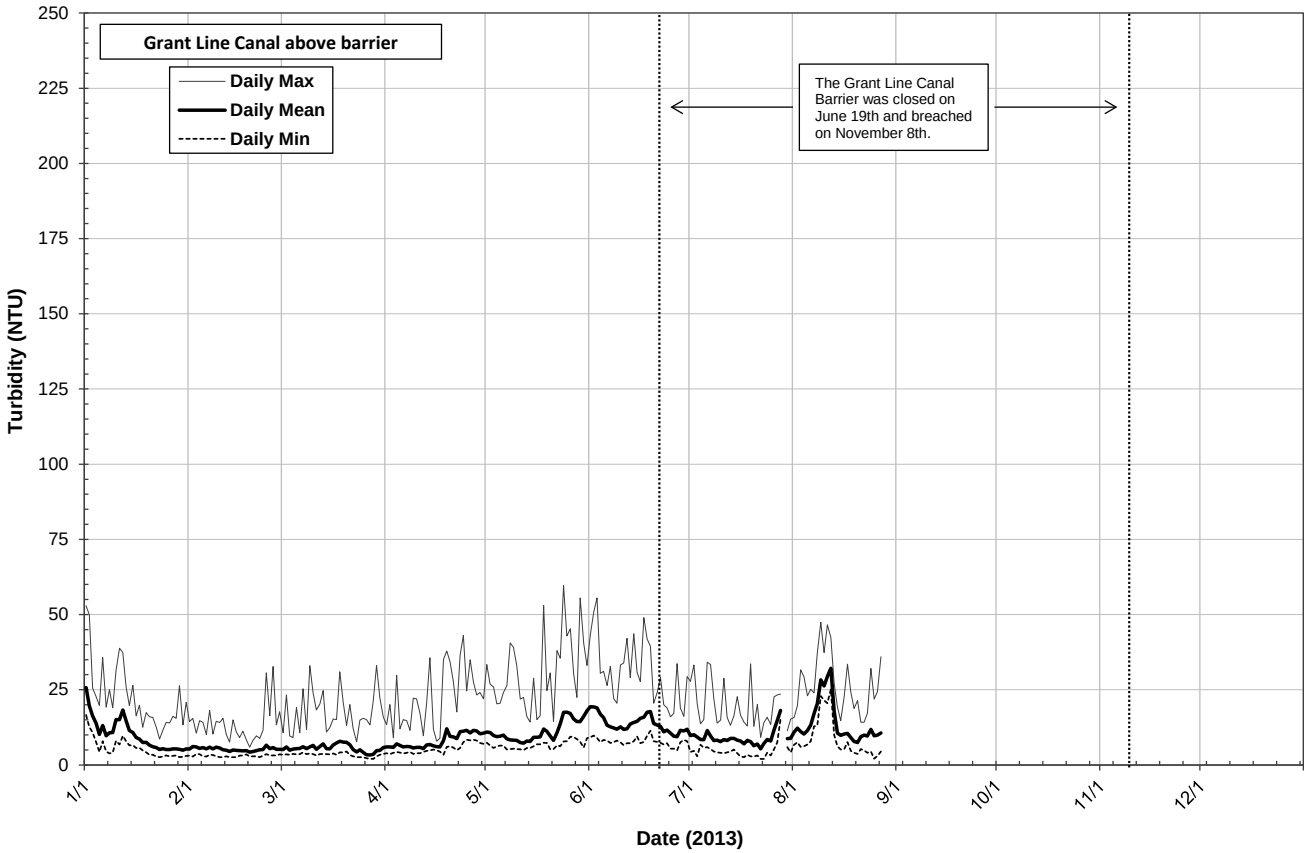

Old River at Head
Daily Max
Daily Mean
Daily Min
The Old River at Tracy Barrier was closed on May 30th and breached on November 18th.
1,000 uS/cm Reference
700 uS/cm Reference
Specific Conductance (uS/cm)
Date (2013)
0
200
400
600
800
1000
1200
1400
1600
1800
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
1/1

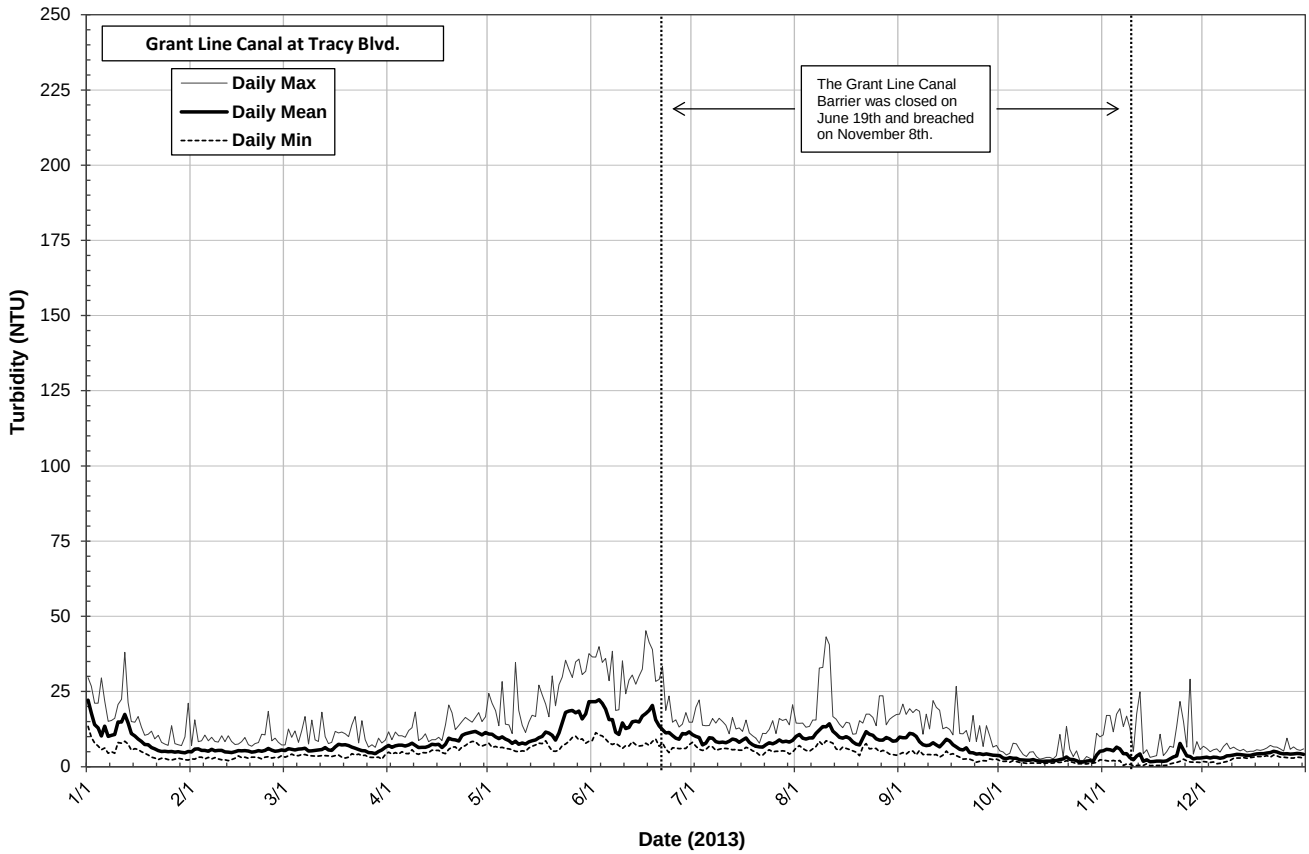

Old River at Tracy Wildlife Association
Daily Max
Daily Mean
Daily Min
The Old River at Tracy Barrier was closed on May 30th and breached on November 18th.
1,000 uS/cm Reference
700 uS/cm Reference
Specific Conductance (uS/cm)
Date (2013)
0
200
400
600
800
1000
1200
1400
1600
1800
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

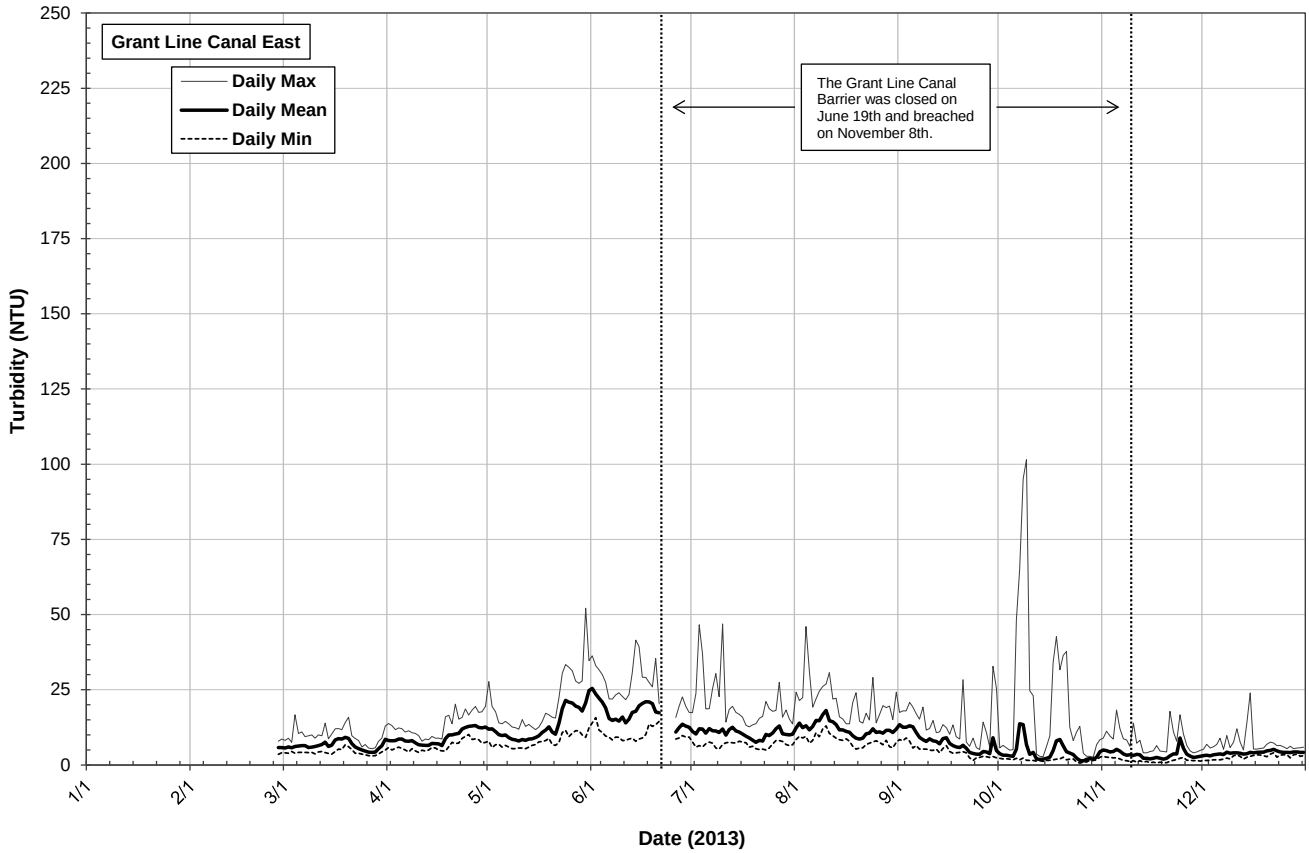

Old River upstream of ORT Barrier
Daily Max
Daily Mean
Daily Min
The Old River at Tracy Barrier was closed on May 30th and breached on November 18th.
1,000 uS/cm Reference
700 uS/cm Reference
Specific Conductance (uS/cm)
Date (2013)
0
200
400
600
800
1000
1200
1400
1600
1800
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

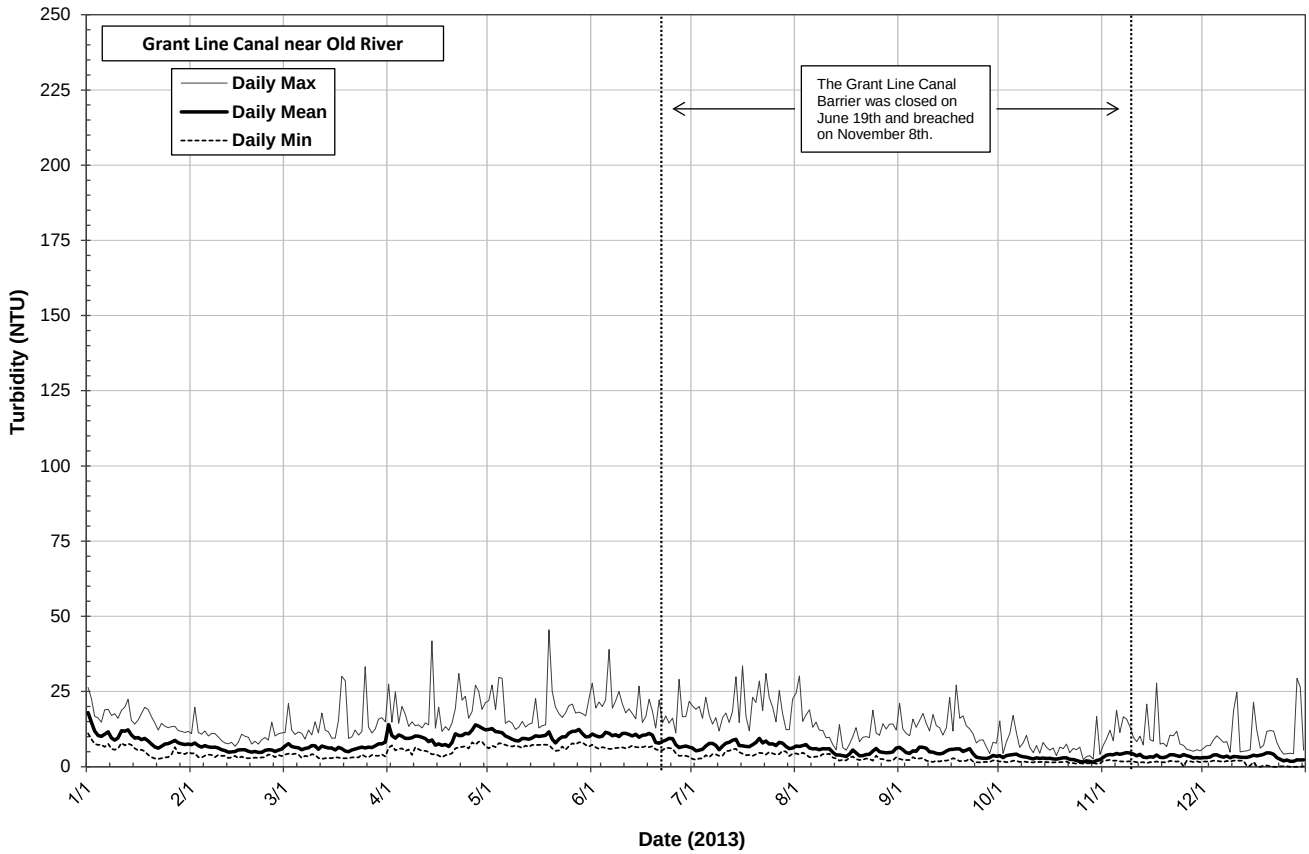

Old River downstream of ORT Barrier
Daily Max
Daily Mean
Daily Min
The Old River at Tracy Barrier was closed on May 30th and breached on November 18th.
1,000 uS/cm Reference
700 uS/cm Reference
Specific Conductance (uS/cm)
Date (2013)
0
200
400
600
800
1000
1200
1400
1600
1800
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

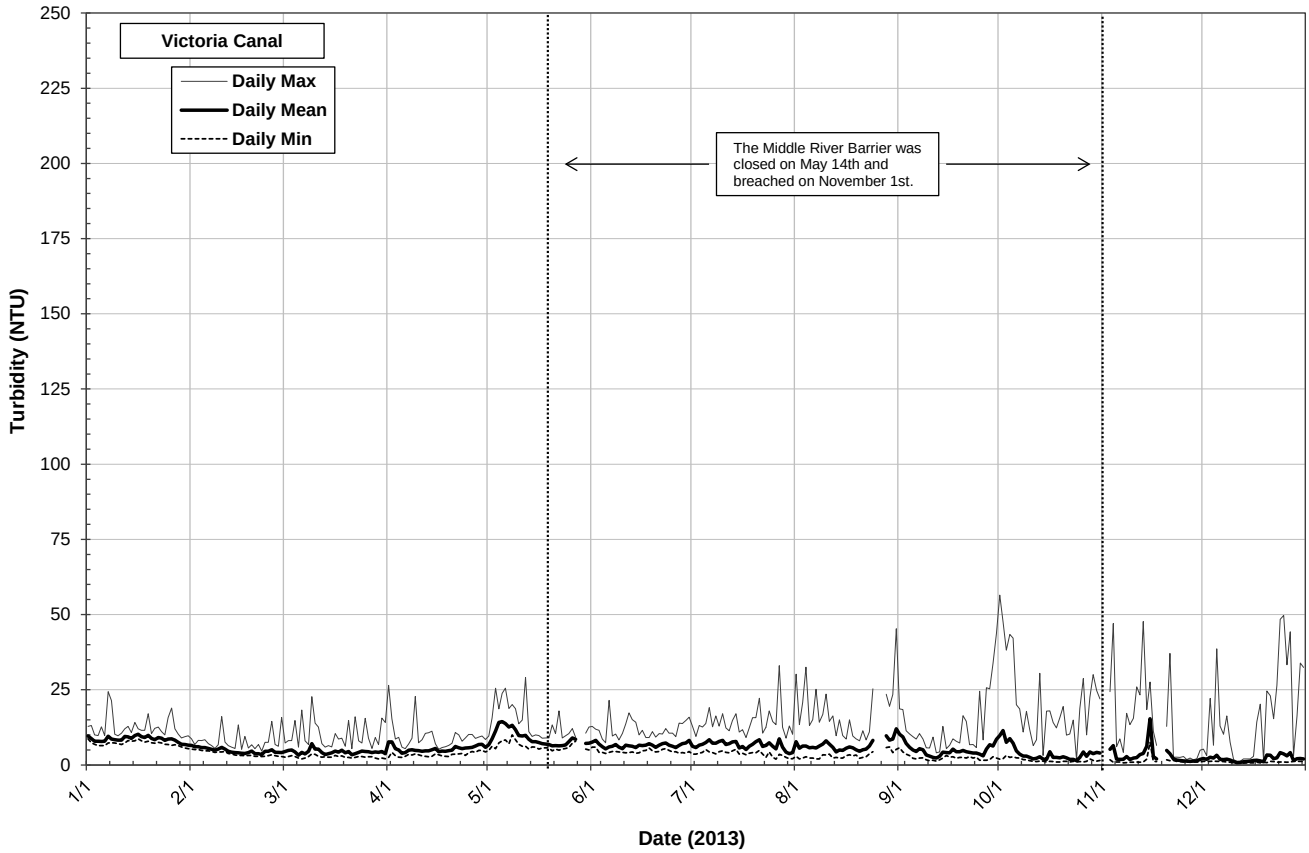

Doughty Cut above Grant Line Canal
Daily Max
Daily Mean
Daily Min
The Grant Line Canal Barrier was closed on June 19th and breached on November 8th.
Turbidity (NTU)
Date (2013)
250
225
200
175
150
125
100
75
50
25
0
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

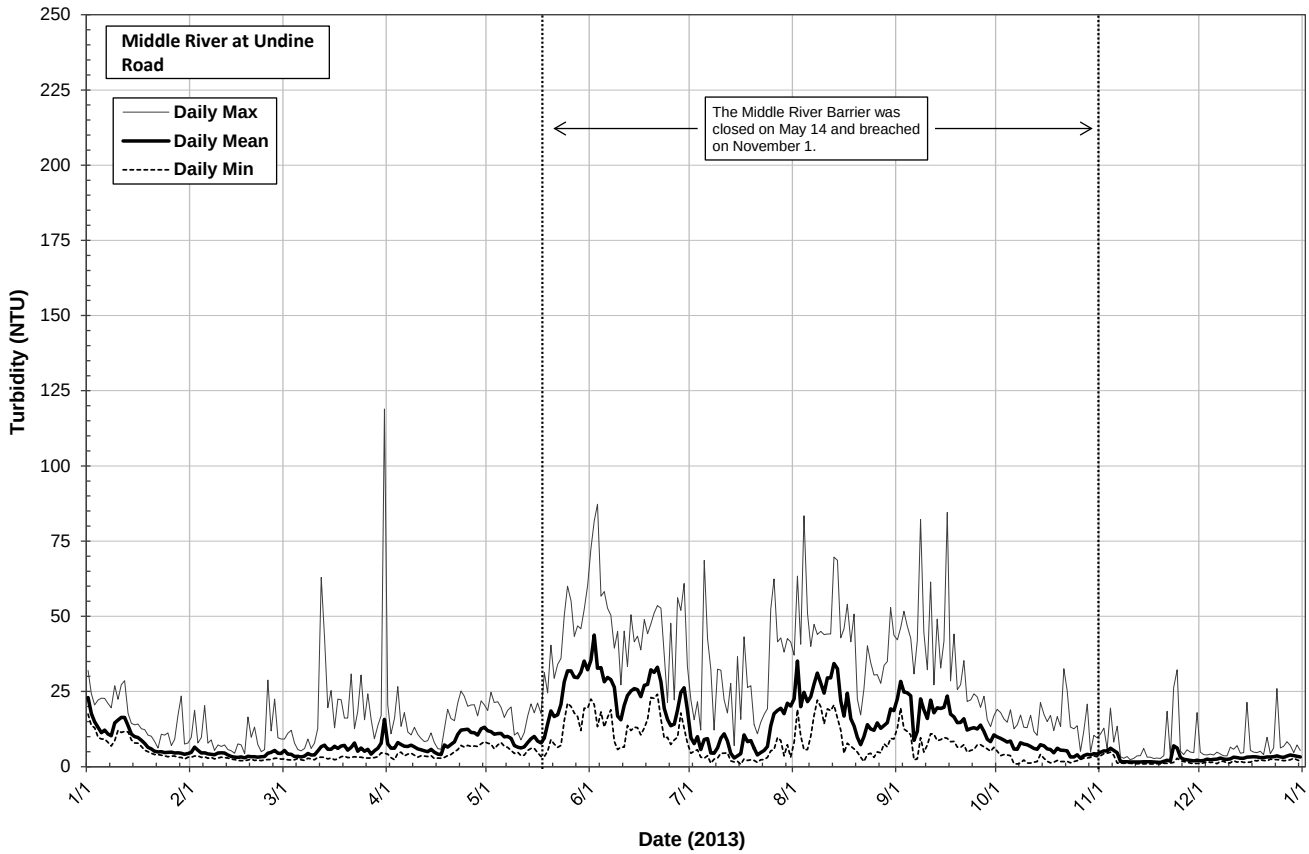

Grant Line Canal above barrier
Daily Max
Daily Mean
Daily Min
The Grant Line Canal Barrier was closed on June 19th and breached on November 8th.
Turbidity (NTU)
Date (2013)
250
225
200
175
150
125
100
75
50
25
0
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

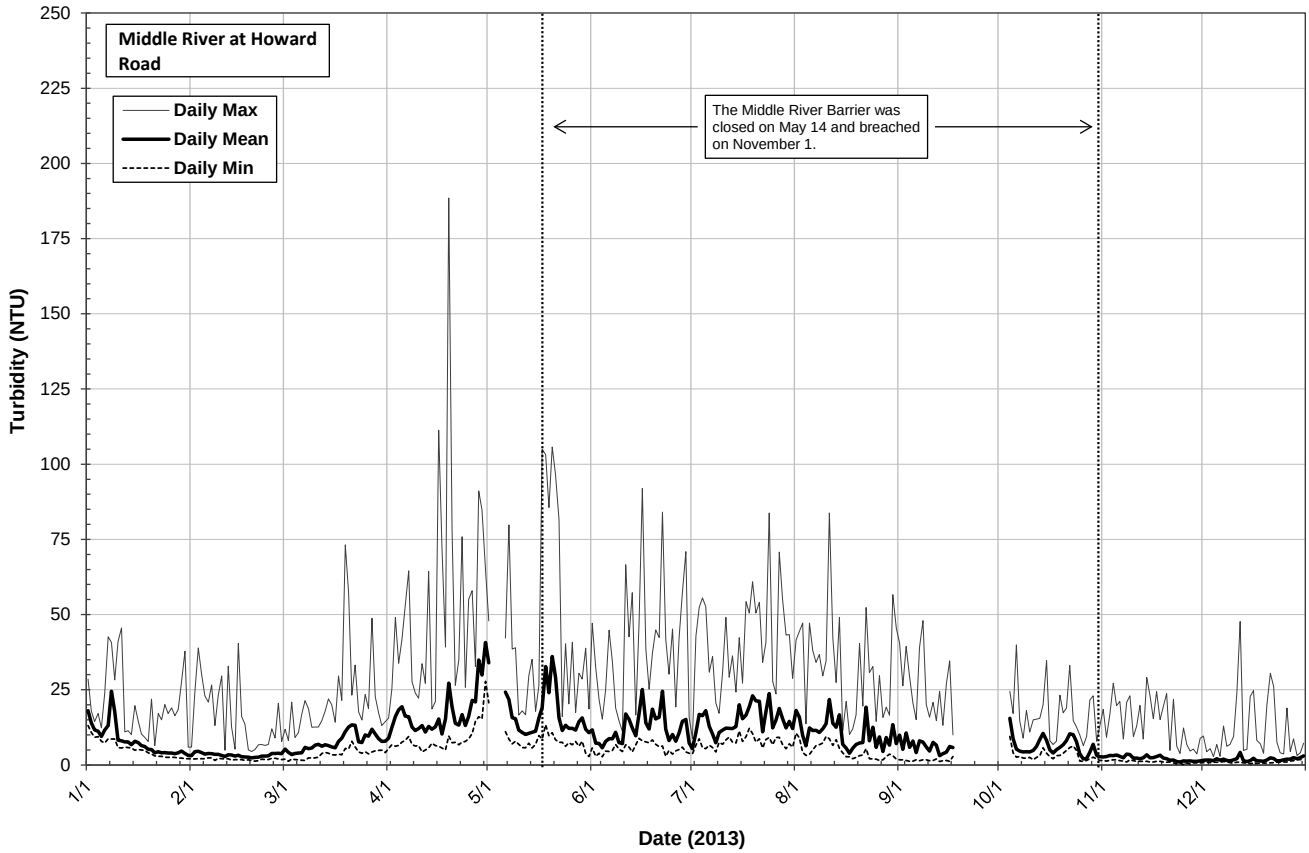

Grant Line Canal at Tracy Blvd.
Daily Max
Daily Mean
Daily Min
The Grant Line Canal Barrier was closed on June 19th and breached on November 8th.
Turbidity (NTU)
Date (2013)
250
225
200
175
150
125
100
75
50
25
0
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

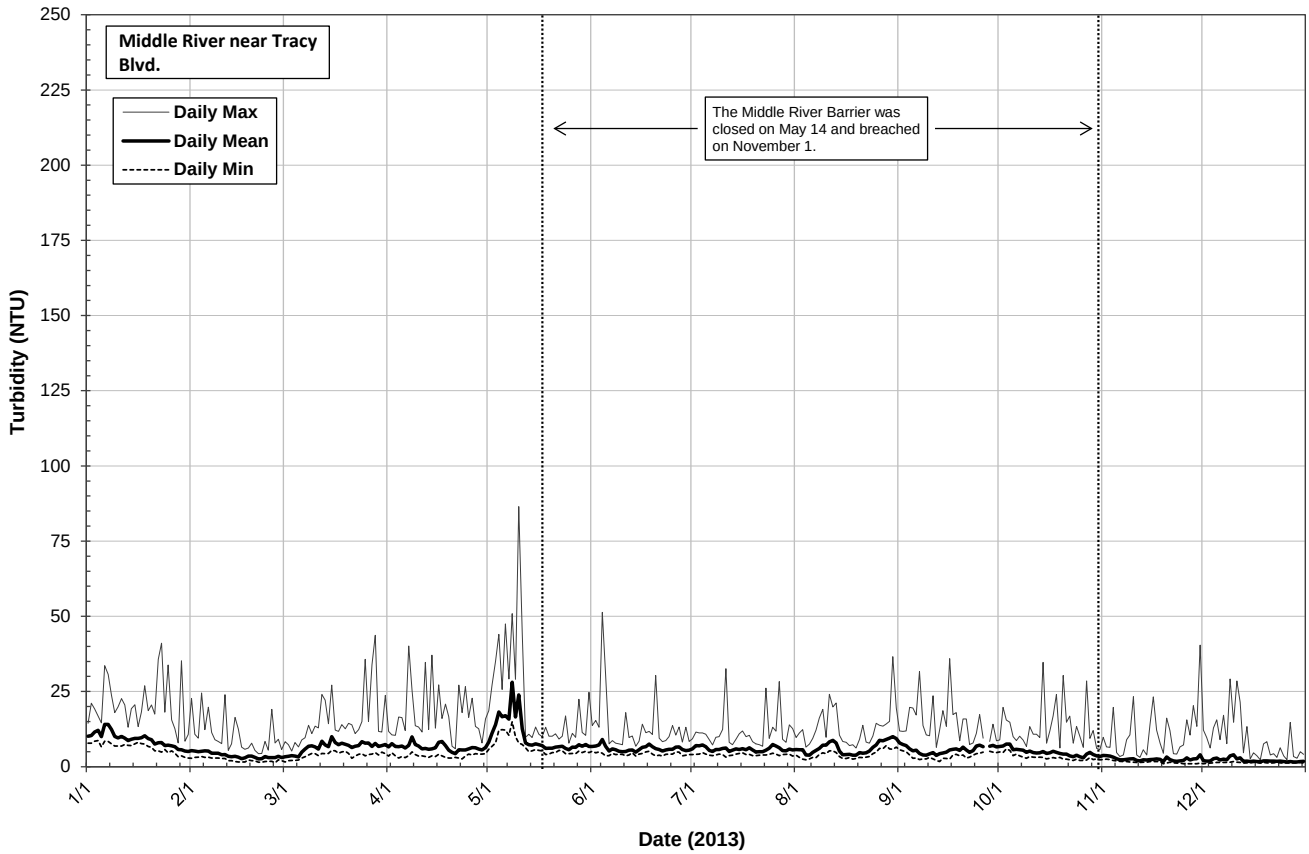

Grant Line Canal East
Daily Max
Daily Mean
Daily Min
The Grant Line Canal Barrier was closed on June 19th and breached on November 8th.
Turbidity (NTU)
Date (2013)
250
225
200
175
150
125
100
75
50
25
0
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

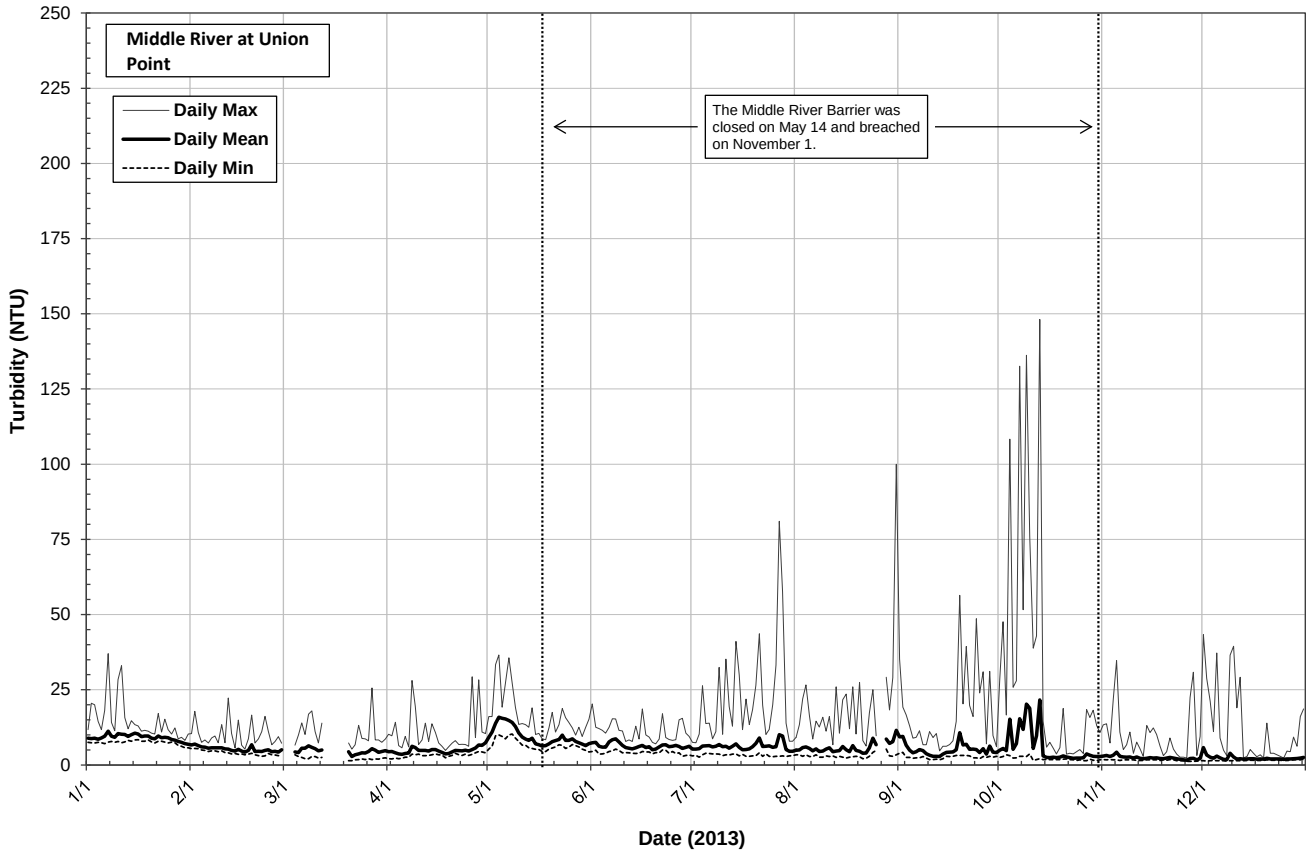

Grant Line Canal near Old River
Daily Max
Daily Mean
Daily Min
The Grant Line Canal Barrier was closed on June 19th and breached on November 8th.
Turbidity (NTU)
Date (2013)
250
225
200
175
150
125
100
75
50
25
0
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

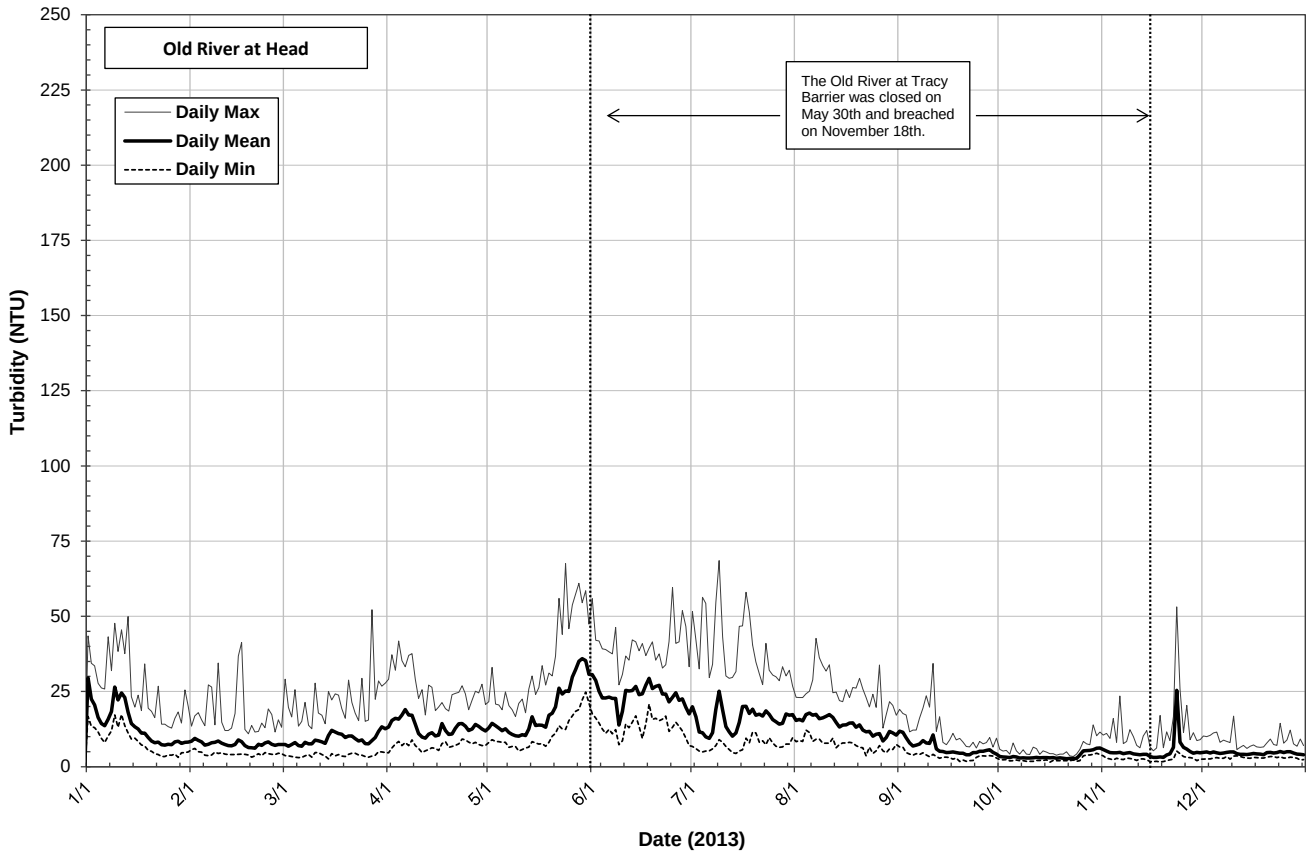

Victoria Canal
Daily Max
Daily Mean
Daily Min
The Middle River Barrier was closed on May 14th and breached on November 1st.
Turbidity (NTU)
Date (2013)
250
225
200
175
150
125
100
75
50
25
0
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

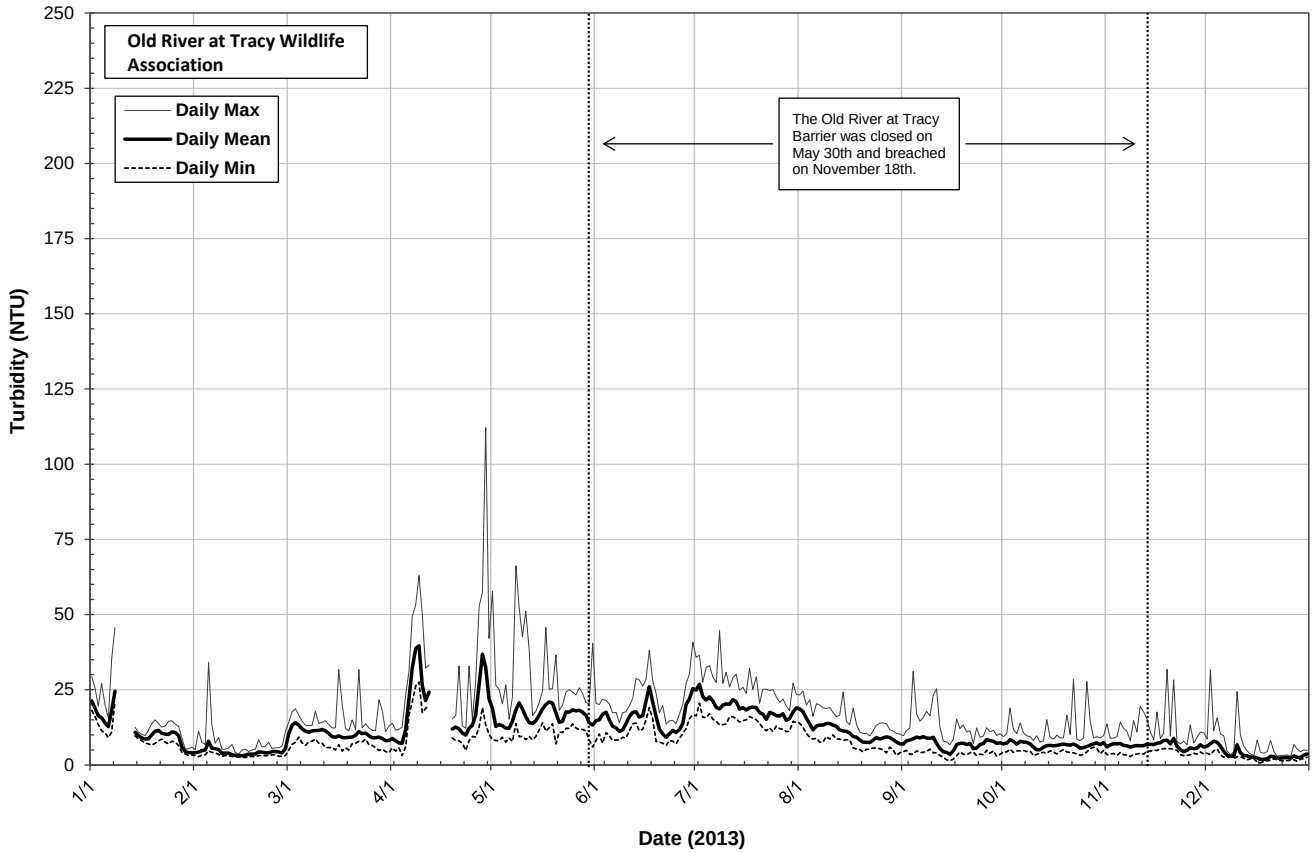

Middle River at Undine Road
Daily Max
Daily Mean
Daily Min
The Middle River Barrier was closed on May 14 and breached on November 1.
Turbidity (NTU)
Date (2013)
250
225
200
175
150
125
100
75
50
25
0
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
1/1

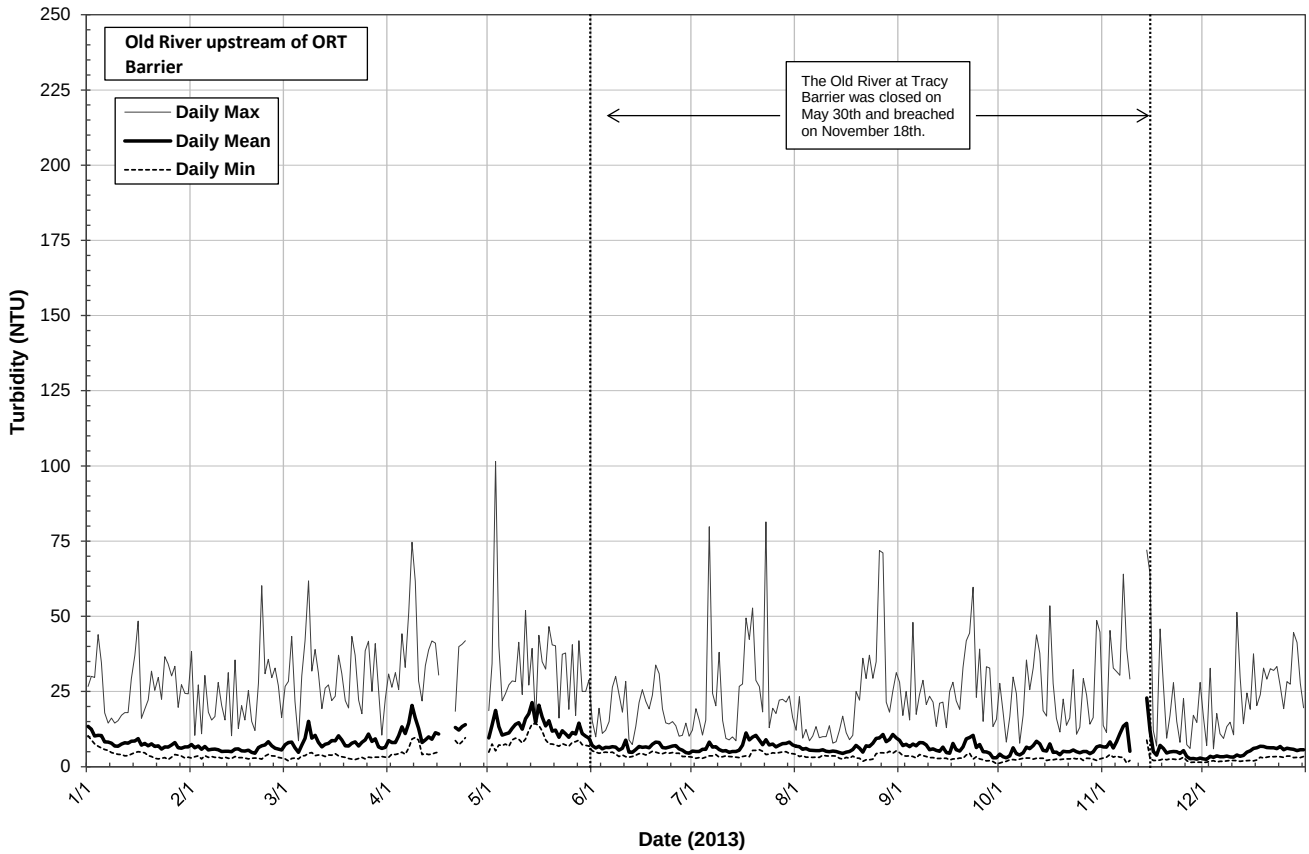

Middle River at Howard Road
Daily Max
Daily Mean
Daily Min
The Middle River Barrier was closed on May 14 and breached on November 1.
Turbidity (NTU)
Date (2013)
250
225
200
175
150
125
100
75
50
25
0
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

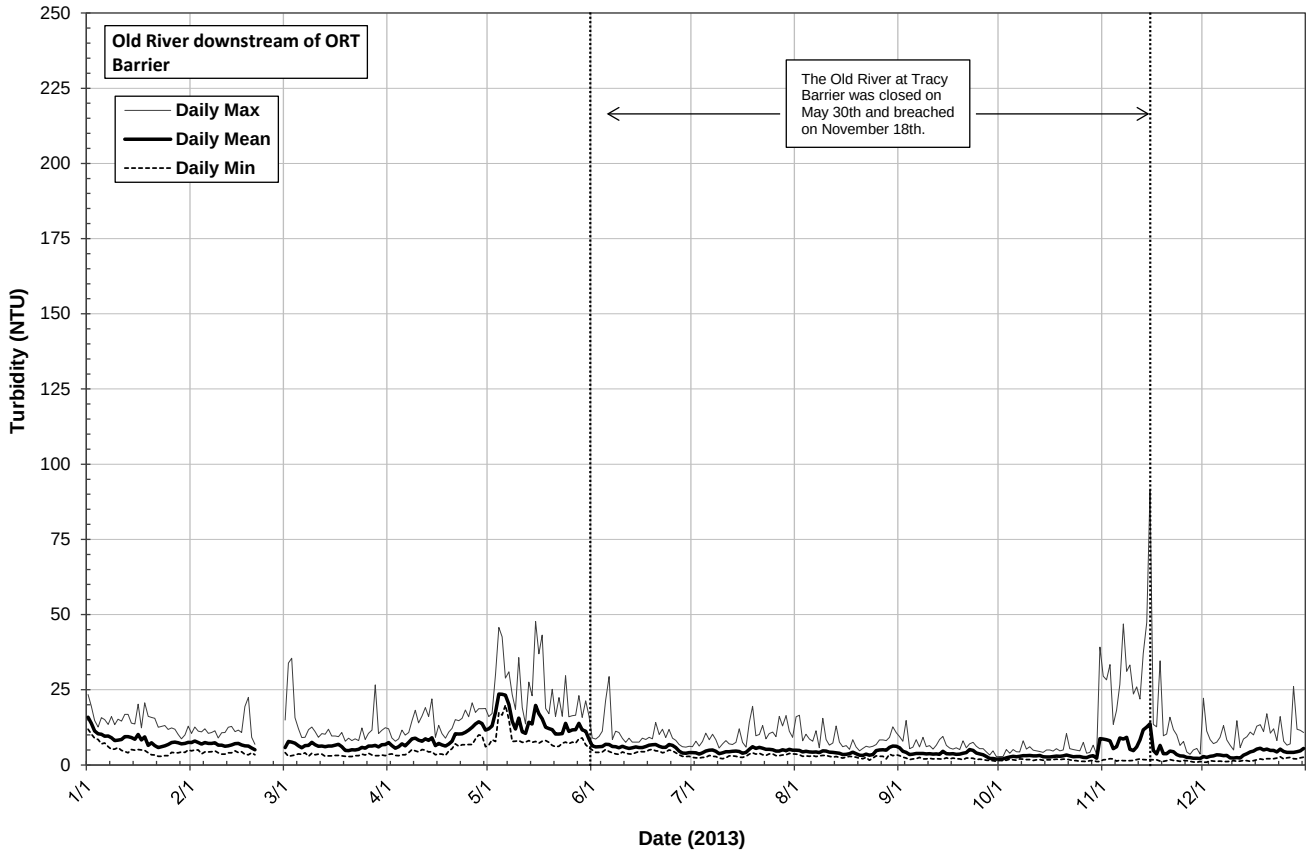

Middle River near Tracy Blvd.
Daily Max
Daily Mean
Daily Min
The Middle River Barrier was closed on May 14 and breached on November 1.
Turbidity (NTU)
Date (2013)
250
225
200
175
150
125
100
75
50
25
0
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1


Middle River at Union Point
Daily Max
Daily Mean
Daily Min
The Middle River Barrier was closed on May 14 and breached on November 1.
Turbidity (NTU)
Date (2013)
250
225
200
175
150
125
100
75
50
25
0
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1


Old River at Head
Daily Max
Daily Mean
Daily Min
The Old River at Tracy Barrier was closed on May 30th and breached on November 18th.
Turbidity (NTU)
Date (2013)
0
25
50
75
100
125
150
175
200
225
250
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1


Old River at Tracy Wildlife Association
Daily Max
Daily Mean
Daily Min
The Old River at Tracy Barrier was closed on May 30th and breached on November 18th.
Turbidity (NTU)
Date (2013)
0
25
50
75
100
125
150
175
200
225
250
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1


Old River upstream of ORT Barrier
Daily Max
Daily Mean
Daily Min
The Old River at Tracy Barrier was closed on May 30th and breached on November 18th.
Turbidity (NTU)
Date (2013)
250
225
200
175
150
125
100
75
50
25
0
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1


Old River downstream of ORT Barrier
Daily Max
Daily Mean
Daily Min
The Old River at Tracy Barrier was closed on May 30th and breached on November 18th.
Turbidity (NTU)
Date (2013)
250
225
200
175
150
125
100
75
50
25
0
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1

Appendix 7: Sound Monitoring Data

EXTANT ACOUSTICAL CONSULTING LLC

adj. (ëk-stânt') – *to stand out or above.*

TECHNICAL MEMORANDUM

December 13, 2013

Kevin Malone
President

Cal Neva Construction Services
2491 Rice Avenue
West Sacramento, CA 95648

Transmited eletronically to: kmmsr@calnevaconst.com; CC: kmalone@calnevaconst.com

Subject: **South Delta Temporary Barrier Project – Hydroacoustic Monitoring Report**

Reference: Extant Project No. 130507.01

1 Introduction

The South Delta Temporary Barriers Project (TBP) is an ongoing project that calls for the seasonal construction of temporary rock barriers to ensure that local agricultural diverters within the South Delta Water Agency do not experience adverse water level and circulation impacts caused by the State Water Project (SWP) and the Central Valley Project (CVP). The temporary rock barriers are designed to function as flow control structures that trap tidal waters during high tide, improving water levels and circulation for local South Delta farmers, as well as improve migration of Central Valley fall-run Chinook salmon originating in the San Joaquin River watershed by blocking movements into the Old River Channel from the mainstem San Joaquin River, reducing potential entrapment within the SWP and CVP pumps.

The annual installation of the TBP temporary rock barriers typically begins in early March, with the barriers remaining in place through the summer months and early fall. Removal of the barriers is required to be completed before November 30 of each year. The TBP typically includes the installation of temporary agricultural "flow control" rock barriers at Middle River (MR), Old River near Tracy (ORT) and Grant Line Canal (GLC). An additional fourth barrier associated with the TBP may be installed at the Head of Old River (HOR), to serve as a migration aid for Central Valley fall-run Chinook salmon; however, the HLR barrier is primarily a nonphysical bio acoustic fish fence, rather than a rock barrier. The project is generally located in the southern Sacramento/San Joaquin Delta; within San Joaquin County and Contra Costa County.

Due to the potential for the project activities to generate elevated underwater noise levels and the potential for listed/endangered species habitation in the project action area, the California Department of Fish and Wildlife (CDFW) and the National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NOAA-Fisheries/NMFS) has requested hydroacoustic monitoring be performed during the installation and removal of the TBP barriers.

Extant Acoustical Consulting LLC (Extant) was retained to provide hydroacoustic monitoring services in accordance with the DFG and NMFS request. This technical memorandum provides a summary of the setting, methodologies, and results of the noise monitoring program conducted in the vicinity of the project sites.

2 Regulations, Standards and Guidelines

Criteria specifically applicable to TBP operations was provided by NMFS through Section7 consultation and issuance of a Biological Opinion (BO) for the Project on May 1, 2013 (National Marine Fisheries Service 2013).

Adhering to the project description provided to the National Marine Fisheries Service (NMFS) for the purposes of Section 7 consultation, the amount of sound generated in the aquatic environment during construction and removal of temporary rock barriers would be monitored. Accurately projecting the direct impact on individual listed species is currently beyond the scope of the best available science. However, monitoring of underwater noise levels generated during construction and removal of the barriers and an understanding of behavioral and physiological responses, a measurable metric for determining the effect (incidental take) of the project can be developed. This metric for determining incidental take associated with the project is defined as an ecological surrogate. The ecological surrogate identified in the BO for the TBP regarding underwater noise is as follows:

> *Ecological Surrogates*
>
> *The analysis of the effects of the proposed TBP anticipates that the construction and removal of each barrier will result in acoustic noise generated in the aquatic environment that exceeds typical ambient background conditions for the action area. Based on the types of vehicles and equipment to be used, the methods described for construction and removal of the barriers, and the effects analysis conducted for this consultation, the amount of sound generated in the aquatic environment associated with the construction and removal of each barrier shall not exceed 150 dB[1] at a distance of 100 meters from the source activity at any time.*

The Biological Opinion concluded that underwater noise levels complying with these constraints would be considered an acceptable level incidental take; providing that the reasonable and prudent measures, and the terms and conditions outlined in the BO are instituted. The non-discretionary terms and conditions set forth in the BO, which ensure the project is exempt from the prohibitions of Section9 of the Endangered Species Act, require:

> *Monitoring of underwater sound generated by the construction and removal of each barrier shall be conducted to verify that sound level criteria are not being exceeded as described in the description of ecological surrogates above. If levels are exceeded, NMFS will be notified and work halted until corrective actions are instituted to achieve sound level criteria.*

As represented above, the NMFS BO sets forth the specific criteria for monitoring of underwater noise levels generated in association with the construction/installation and removal of the TBP Barriers. The specific noise level metric/descriptor intended for use with the criteria is not outlined; however, section B.1, page 69, provides a discussion of the behavioral alteration guidelines as implemented during previous monitoring years, reference to 150 decibels (dB) root-mean-square (RMS) (dBrms), re: 1μPa. Use of the RMS metric provides consistency with guidelines that NMFS and USFWS have previously used as the threshold for adverse behavioral effects to fish.

[1] Appendix A discusses acoustical terminology and noise level descriptors

3 Monitoring Methodology

Hydroacoustic/underwater noise monitoring of the construction and removal of temporary rock barriers associated with the 2013 – 2017 South Delta TBP was conducted Extant. The primary purpose of the monitoring was to directly monitor underwater noise levels, verify compliance with the ecological surrogate criteria established in the project BO. Measurements were conducted in accordance with the industry best practices and information prepared for the project by NFMS and DWR.

Noise monitoring was performed at a location of 100-meters from barrier construction and removal activities. However, due to the nature of some of the activities, constraints due to the configuration of the water channel and safety concerns, some underwater-noise generating events may have occurred at a distance of 100 meters ± 5 to 10 meters. The hydrophone sensor was suspended at approximate mid-depth in the water column at all monitoring locations.

Underwater noise measurements were performed using a Larson Davis Laboratories (LDL) Model 831 precision integrating sound level meter (SLM) with a Reson Model TC4013 omni-directional hydrophone. Field calibrations were performed on the SLMs using a G.R.A.S. 42AA pistonphone calibrator and hydrophone coupler, to ensure accuracy and the validity of the measurements. The SLM was manually operated to capture aquatic noise levels generated during placement/removal rock, gravel, frames, and culverts.

Underwater noise levels are presented as the Z-Weighted, RMS "fast" level, denoted as dB LZFmax re: 1μPa. The fast setting on the sound level meter utilizes a pressure detector with a 0.125 second time constant; which provides a reasonable but conservative estimation of the RMS level. Using the Z-weighted filter measures as close as possible to the unfiltered broadband frequency spectrum.

4 Monitoring Results

Monitoring of the installation and removal of temporary rock barriers was conducted beginning on May 20, 2013 through May 30, 2013 and continuing on October 30, 2013 through November 7, 2013. Hydroacoustic monitoring was performed for the Middle River (MR) Barrier, the Old River at Tracy (ORT) Barrier, and the Grant Line Canal (GLC) Barrier. Results of the underwater noise monitoring are presented separately in the following sections and summarized in Table 1. Detailed measurement time histories are provided in Appendix B, Appendix C, and Appendix D respectively.

Table 1 – Ambient Noise Monitoring Results

Site	Description[1]	Date	Noise Levels (dB LZFmax) Ambient	TBP Event
Middle River	Removal of rock from barrier	October 30, 2013	102 – 108	119 – 147
Old River at Tracy	Dumping Gravel into Stream from Boat Ramp	May 20, 2013	107 – 108	120 – 149
	Spreading Rock over Submerged Frame	May 20, 2013	115 – 117	125 – 149
	Setting Culverts	May 23, 2013	110 – 114	114 – 127
	Setting a top frame	May 23, 2013	110 – 113	115 – 130
	Removing frames	November 4, 2013	108 – 110	115 – 132
	Removal of Rock from Barrier	November 7, 2013	107 – 109	112 – 135
Grant Line Canal	Dump Truck Dumping Rock into Stream	May 24, 2013	115 – 116	120 – 149
	Bulldozer Pushing Rock into Stream	May 30, 2013	114 – 116	120 – 153
	Removal of In-stream Rock from Barrier	November 7, 2013	107 – 108	115 – 143

Source: Extant Acoustical Consulting LLC, 2013

4.1 Middle River Barrier

4.1.1 Removal

Underwater noise levels attributable to the removal construction activities of the Middle River (MR) Barrier were monitored on October 30, 2013. The Middle River temporary barrier was removed utilizing one dozer and one excavator. In-stream rock was removed using the excavator bucket and stockpiled on the remaining temporary rock barrier. The bulldozer would then remove rocks from the stockpile on the remaining temporary rock barrier. The dozer would scoop rock into the bucket and transport the rock to the southern levee toe for stockpiling. This method was repeated throughout the day as the temporary rock barrier removal continued out of the water channel. The results are summarized in Table 1 and complete data sheets are included in the Appendix B. A graphical representation of typical underwater noise levels due to rock removal of the barrier is shown below in Figure 1.

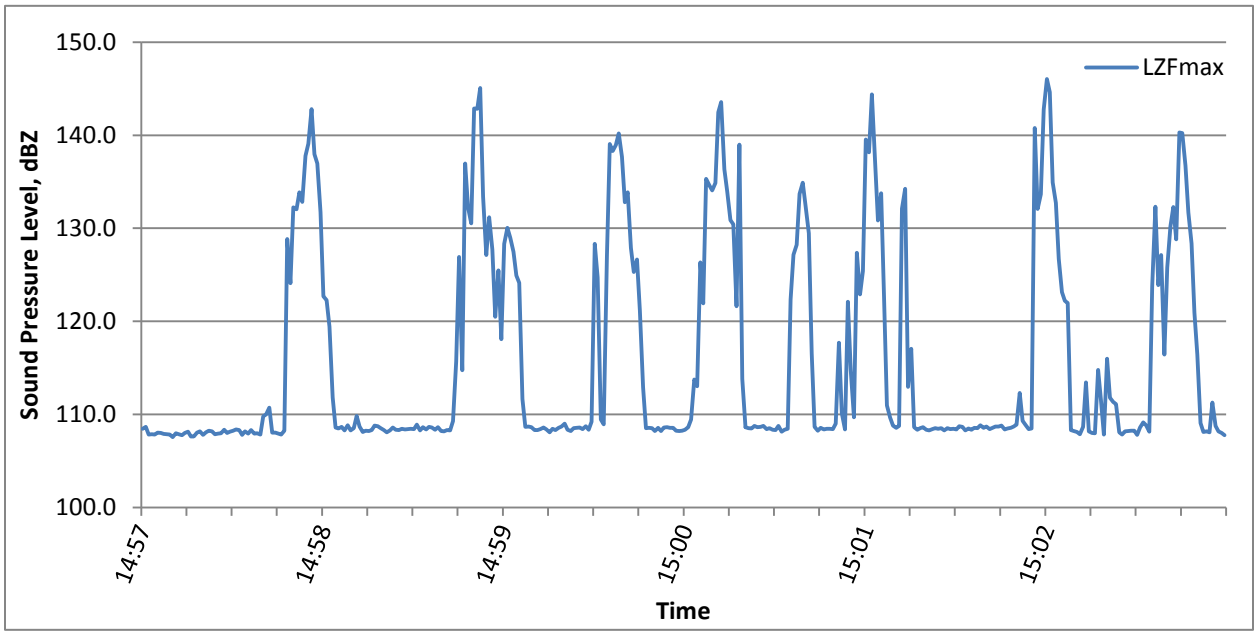


Figure 1: MR –Removal of In-stream Rock from Barrier

4.2 Old River at Tracey Barrier

4.2.1 Barrier Construction and Installation

Underwater noise levels attributable to the construction of the Old River at Tracy (ORT) barrier were monitored on Monday, May 20 and Thursday, May 23, 2013. Construction activities observed during the monitoring period included: off-road haul trucks dumping gravel off of the boat ramp, barge excavator distributing rock and gravel over the streambed, setting culvert frames, excavator spreading rock over submerged TBP frames, setting top frames, and the excavator spreading rock over submerged TBP frames. The results are summarized in Table 1 and complete data sheets are included in the Appendix C.

A graphical representation showing continuous monitoring of typical underwater noise levels due to several occurrences of haul trucks dumping gravel off of the boat ramp, directly into the stream is shown in Figure 2. The excavator would then collect and broadcast the material over the streambed/barrier location.

Typical underwater noise levels due to an excavator spreading rock over the top of submerged TBP frame is shown in Figure 3.

Observed underwater noise levels due to setting a culvert frame were relatively low, as shown in Figure 4. The bell shape at the end of the graphed data shows the air exiting the culvert as it submerged. Spikes at the beginning of the measurement were due to support skiff coming into contact with the culvert for positioning. Figure 5 provides a graphical representation of typical underwater noise levels from setting a top frame.

4.2.2 Barrier Removal

Underwater noise levels attributable to the removal of the ORT temporary rock barrier were monitored on Monday, November 4 and Thursday, November 7, 2013. Frames were removed utilizing a crane and support skiff. After the frames were removed, two excavators were used to remove rock. One excavator would remove in-stream rock and deposit it on the ramp toe. The second excavator would load haul trucks that then transported the rock to an off-site stockpile.

Figure 6 presents a graph of underwater noise levels measured during the removal of a single TBP frame. A representation of typical underwater noise level monitoring due to removing in-stream rock is shown in Figure 7.

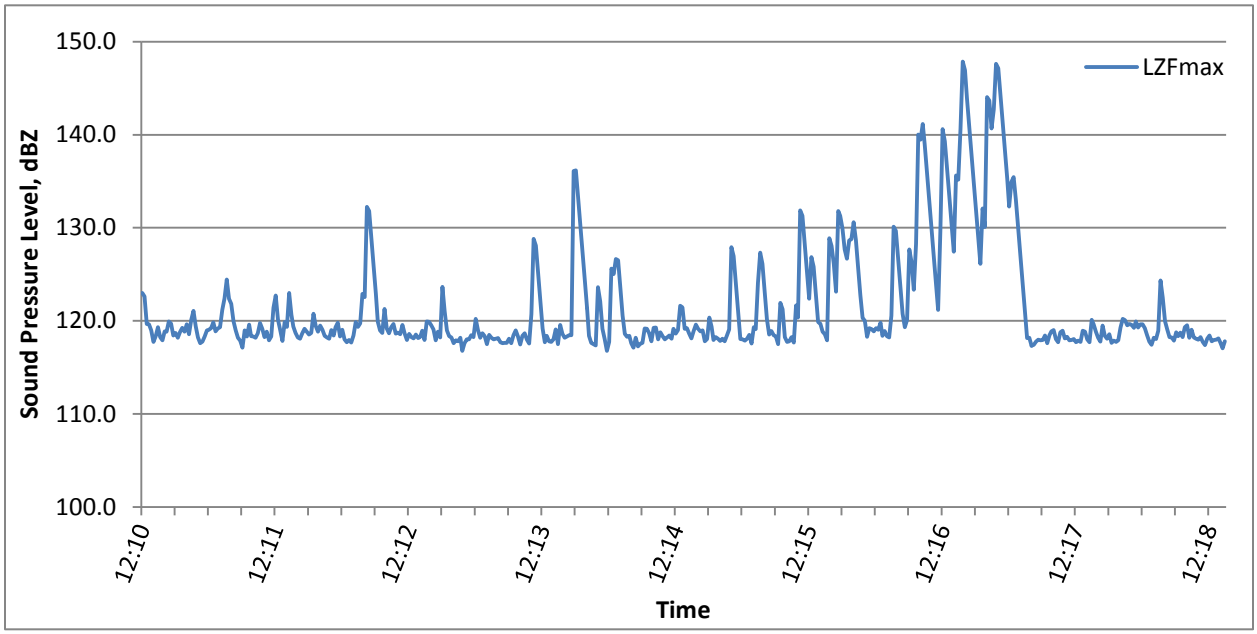


Figure 2: ORT– Dump Truck Dumping Gravel into Stream from Boat Ramp

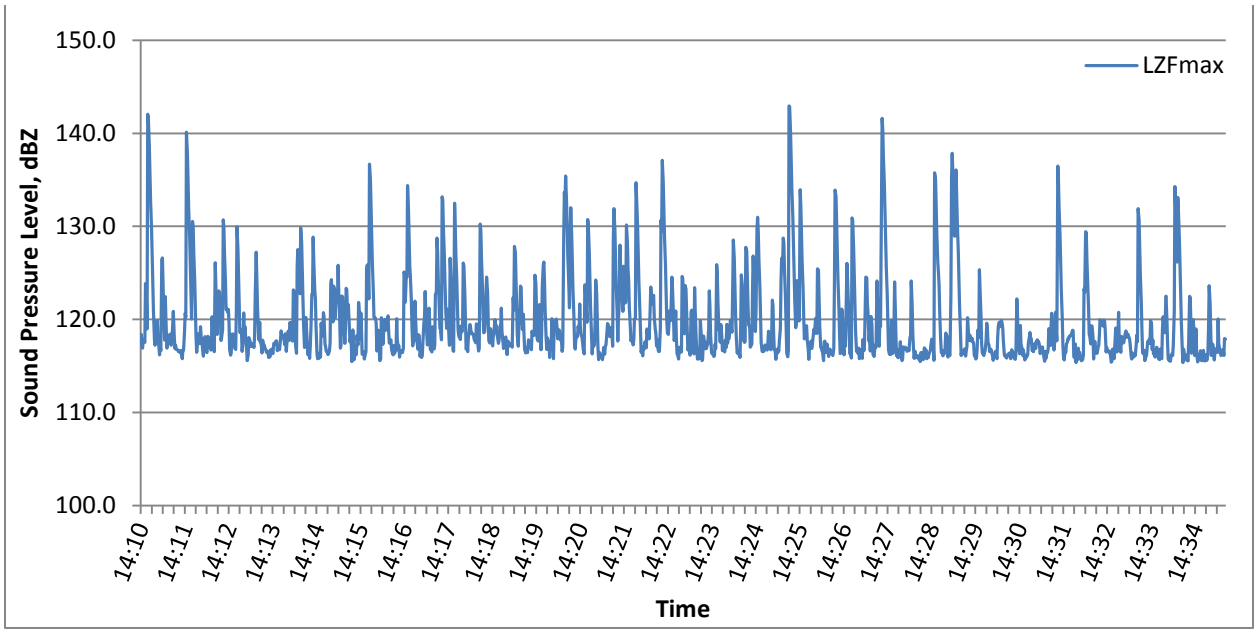


Figure 3: ORT– Excavator Spreading Rock over Submerged Frame

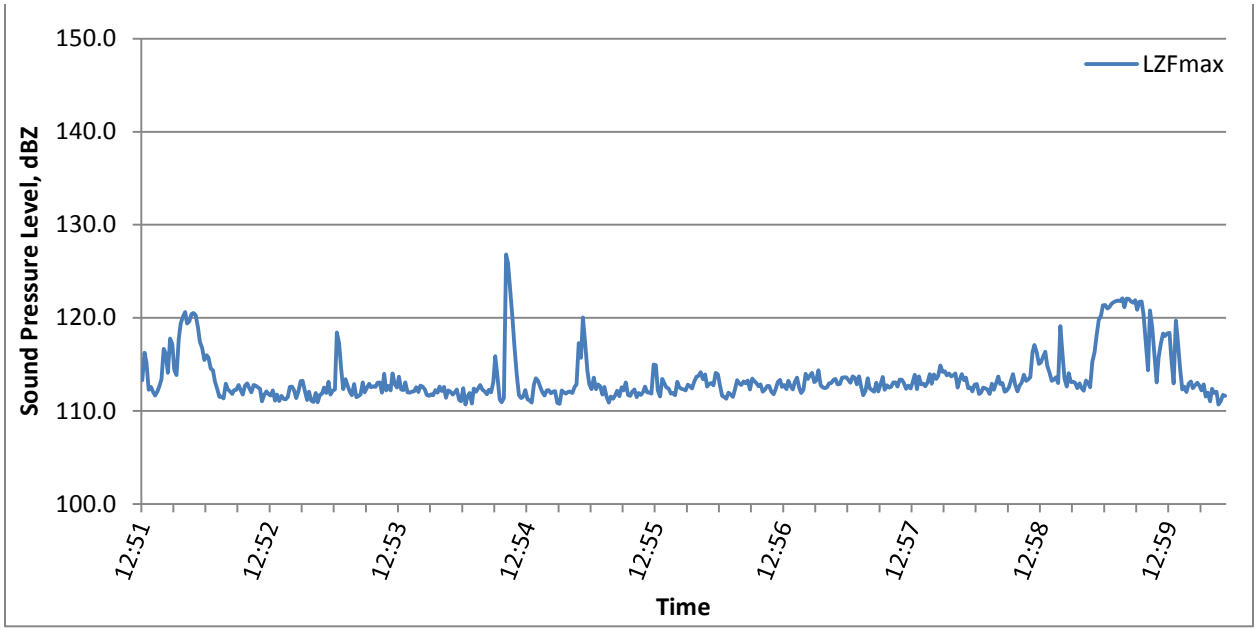


Figure 4: ORT– Setting Culvert Frame in Stream

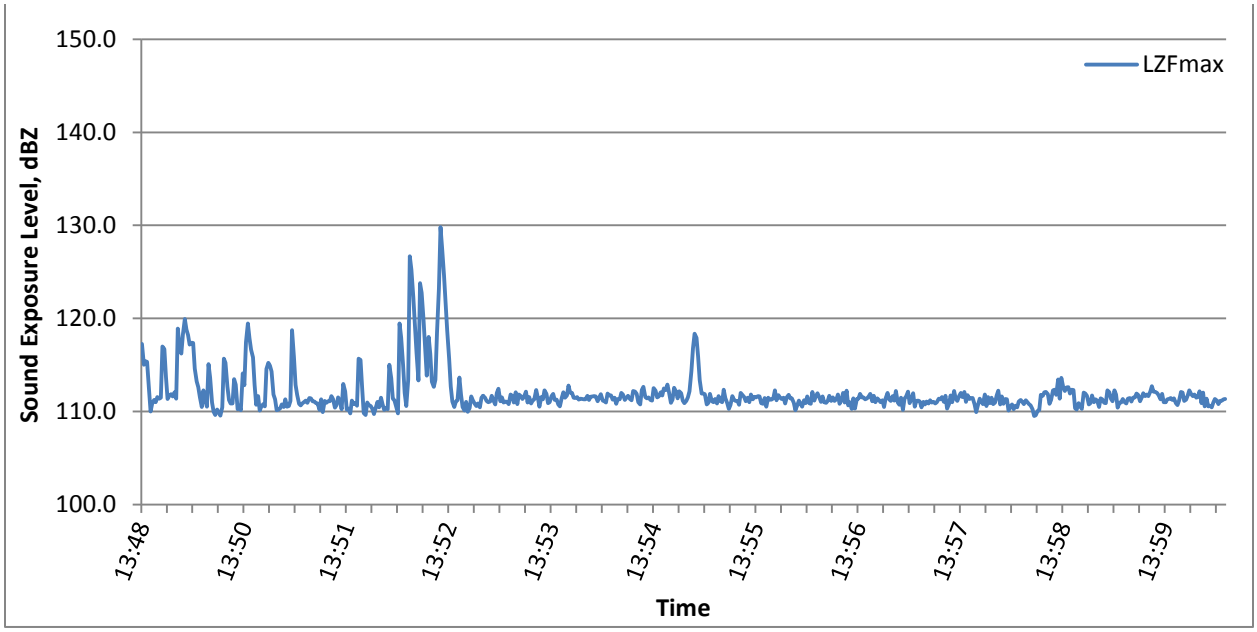


Figure 5: ORT– Setting a Top Frame

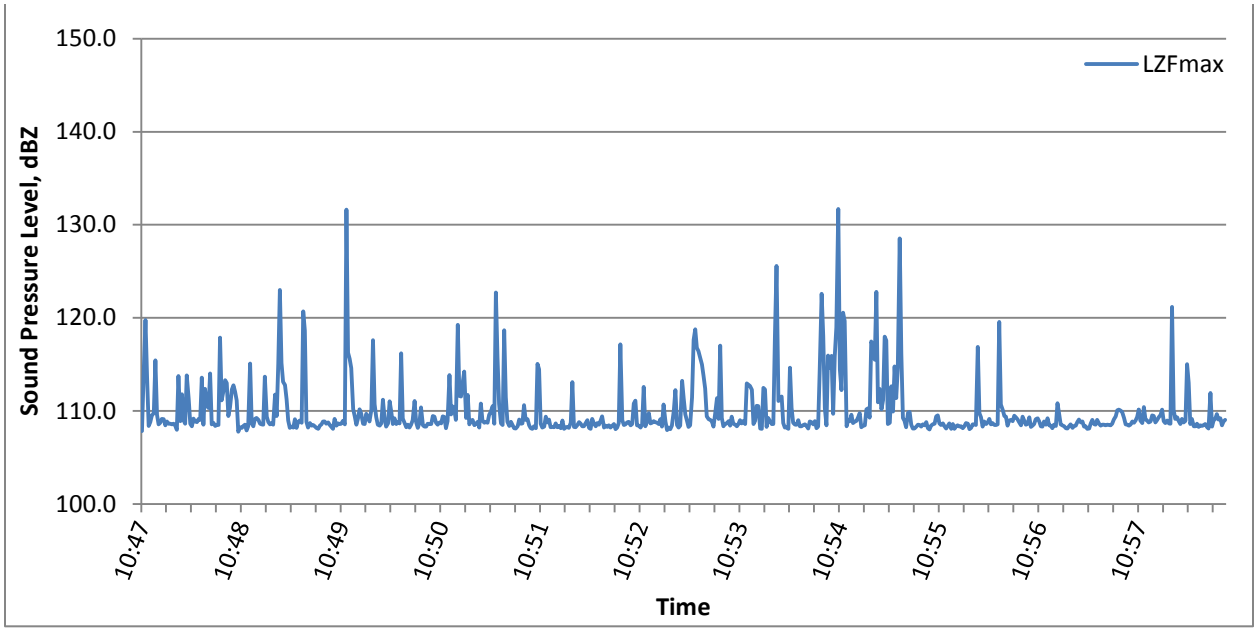


Figure 6: ORT– Removing Frames

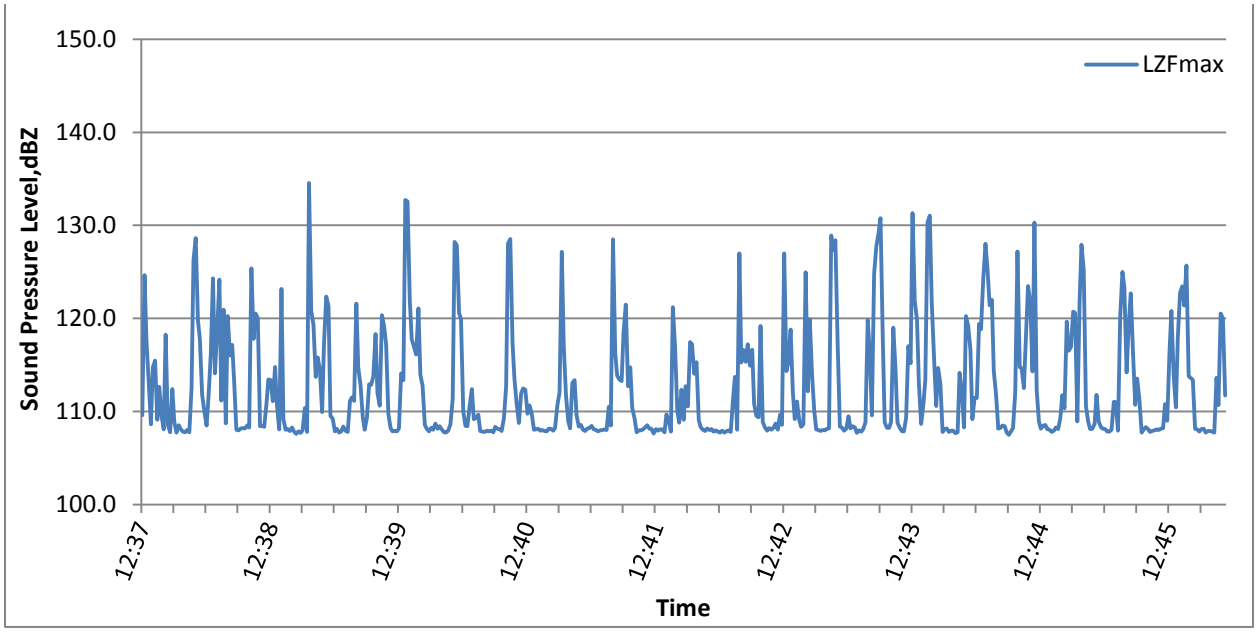


Figure 7: ORT–Removal of Rock from Barrier

4.3 Grant Line Canal Barrier

4.3.1 Barrier Construction and Installation

Underwater noise levels attributable to the construction of the temporary rock barrier at the Grant Line Barrier were monitored on Friday, May 24, Wednesday, May 29, 2013 and Thursday, May 30, 2013. The Grant Canal Barrier was constructed utilizing one dozer and several off-road haul trucks delivering rock. Rock was dumped directly into the water channel or stockpiled on the boat ramp toe. The dozer was used to organize rock dumped on the ramp toe and push the rock into the channel. Monitoring results are summarized Table 1 and complete 1-second time history data is included in the Appendix D.

Typical underwater noise levels due to rock being directly dump into the water channel by haul truck are shown in Figure 8.

Figure 9 displays a graph of typical underwater noise levels generated by continuous monitoring of rock being directly dumped into the channel and rock pushed into the channel with a bulldozer. Typically noise levels generated from these events ranged between 125 dB LZFmax and 148 dB LZFmax.

As shown in Figure 9 underwater noise levels due were observed to exceed 150 dB however, by eliminating direct rock deposit into the water channel from dump trucks was observed to mitigate these levels. Additionally, the use of the LZFmax noise level descriptor provides a conservative real-time representation of event RMS levels. Actual RMS event levels would be lower. It should be noted that aquatic and avian wildlife were observed during construction at and around the site. Fish were observed in the study area, breaching the surface and bird activity at the site was abundant, but bird predation was not witnessed during the monitoring period.

4.3.2 Barrier Construction and Installation

Underwater noise levels attributable to the removal of the temporary rock barrier at the Grant Line Barrier were monitored on Thursday, November 7, 2013. During the monitoring period one excavator would remove in-stream rock and deposit it on the ramp toe. The second excavator would load haul trucks that then transported the rock to an off-site stockpile. A graphical representation of typical underwater noise level monitoring due to removing in-stream rock is shown in Figure 10.

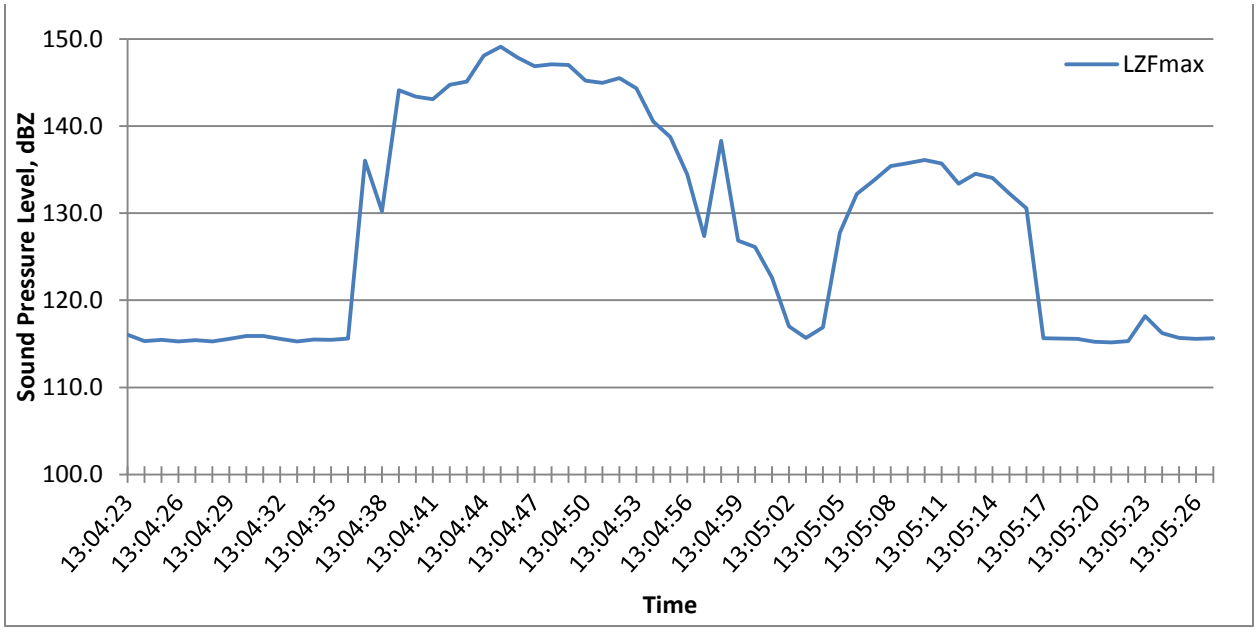


Figure 8: GLC– Dump Truck Dumping Rock into Stream

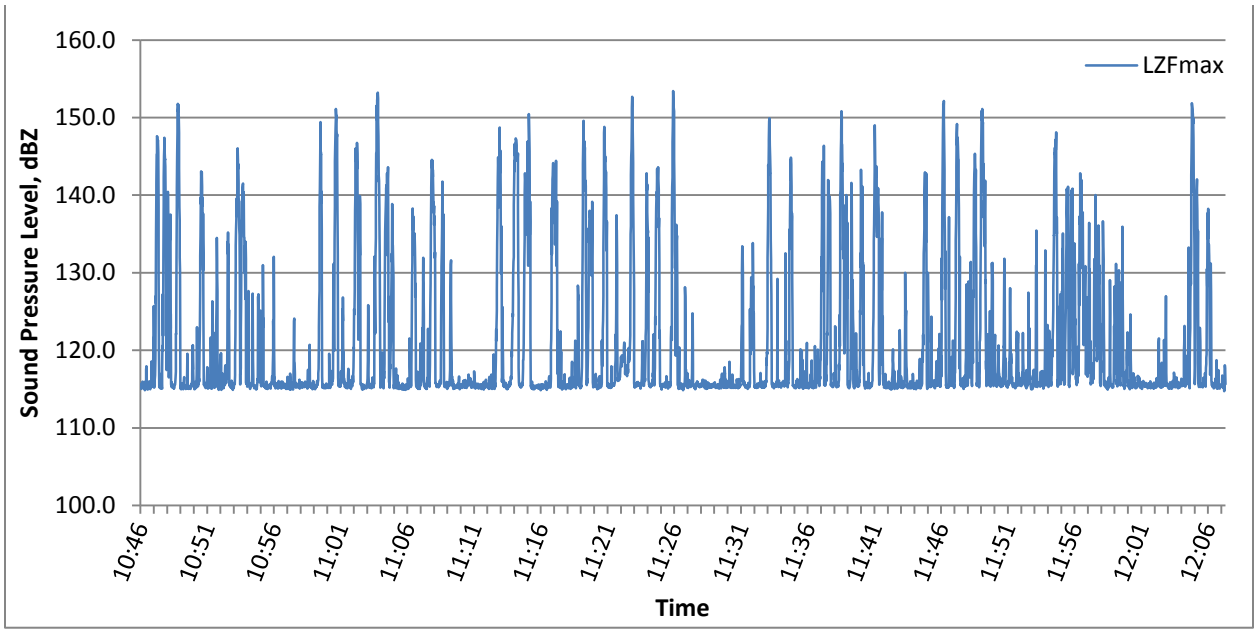


Figure 9: GLC– Bulldozer Pushing Rock into Stream

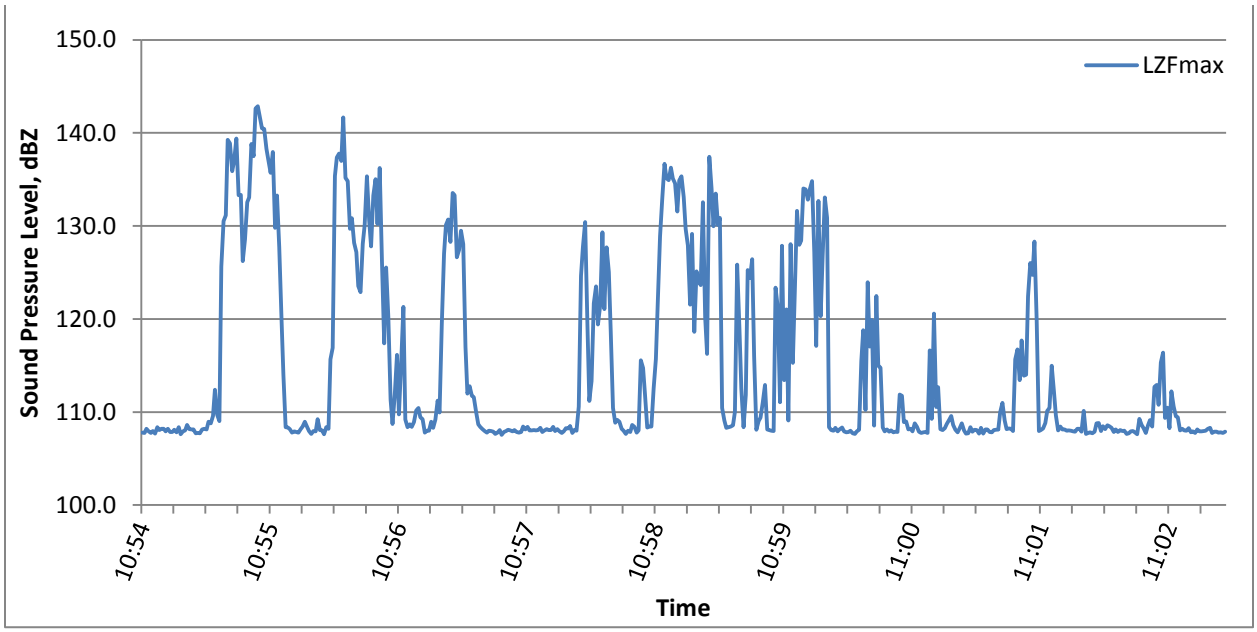


Figure 10: GLC– Removal of In-stream Rock from Barrier

5 Conclusion

Underwater noise monitoring was conducted for the construction and removal of the 2013 temporary rock barriers at Middle River, Old River near Tracy, and Grant Line Canal. Underwater noise levels generated by typical construction activities were characterized. Ambient underwater noise levels measured during the TBP monitoring typically ranged between 102 and 116 dB LZFmax. Noise levels generated by construction activities associated with TBP ranged from 112 to 153 dB LZFmax at an approximate distance of 100 meters from the temporary rock barrier operations. Observations of normal aquatic and avian activity were noted during the monitoring period at each site. Aquatic life was present with various fish surfacing in and around the construction site. Avian species were present and active in and around the construction areas.

During the monitoring of the temporary rock barrier installation at the Grant Line Canal site, the noise level metric used to conservatively represent the ecological surrogate of 150 dB RMS was exceeded momentarily. However, it was observed that aquatic activities were not impeded by construction.

This concludes the Hydroacoustic Monitoring Report for the temporary barrier construction and removal monitoring associated with the South Delta Temporary Barrier Project 2013 year.

If you should have any question, or would like to discuss any aspect of this memorandum, please contact Michael Carr in our office via email at mcarr@extantacoustical.com or via phone at (916) 520-4322.

Appendix A Description of Noise Metrics

This Appendix describes the noise metrics used in this report.

A.1 Underwater Sound Descriptors and Metrics

Peak Sound Pressure

Peak sound pressure level is the highest absolute value of the instantaneous sound pressure. Typically, expressed as decibel level (dB Peak), referenced to 1 micro-Pascal (μPa), but can be expressed as a unit of pressure, i.e. μPa, or PSI.

Root Mean Square Sound Pressure Level

Root-Mean-Square (RMS) sound pressure level is the average of the squared pressure over a period.

> The National Oceanic and Atmospheric Administration – Fisheries (National Marine Fisheries Service) has established a criterion using the RMS "impulse" sound pressure level measured over the duration of the impulse waveform containing 90 percent of the acoustical energy for one pile driving impulse (i.e., hammer strike). This can be approximated in the field through use of the "impulse" detector setting (0.035-second time constant) on modern sound level meters. Use of the "fast" detector setting (0.125-second time constant) provides a slightly longer time constant, more appropriate for general construction activities.

Sound Exposure Level (SEL), dB re: 1μPa^2-sec

The time integral of the squared sound pressure over the duration of an event or impulse; described in terms of μPa^2. It is the sound level in one second, which has the same amount of acoustic energy as the original time-varying sound (i.e., the total energy of an event).

SEL$_{ACCUMULATED}$ dB re: 1μPa^2-sec

Same as described above, but incorporating the accumulated energy exposure for a complete day of pile driving at a fixed position.

A.2 Terminology

Background levels

The composite of noise from all sources near or far, excluding construction.

Decibel (dB)

A dB or decibel is a logarithmic unit of measure for describing differences in loudness or sound pressure relative to a reference loudness. The reference pressure for water is 1 micro Pascal.

Hertz (Hz)

Hertz, frequency or cycles per second.

Kilojoule (kJ)

The basic unit of force moving a body a unit distance in the metric system is 1 Newton-meter or 1 Joule. One Joule is 0.7376 ft-lbs. A thousand Joules or one kilo Joule is represented as kJ.

Mean Lower Low Water

Zero tidal elevation. Minus tides are below MLLW.

Micro Pascal (μPa)

Most underwater acoustic sound pressure measurements are stated in terms of a pressure level relative to one micro Pascal.

Mortality

Cessation of all activity including movements of the operculum, or when all respiration stops and the fish lays motionless.

Pascal (Pa)

A Pascal is a unit of pressure equal to one Newton per square meter.

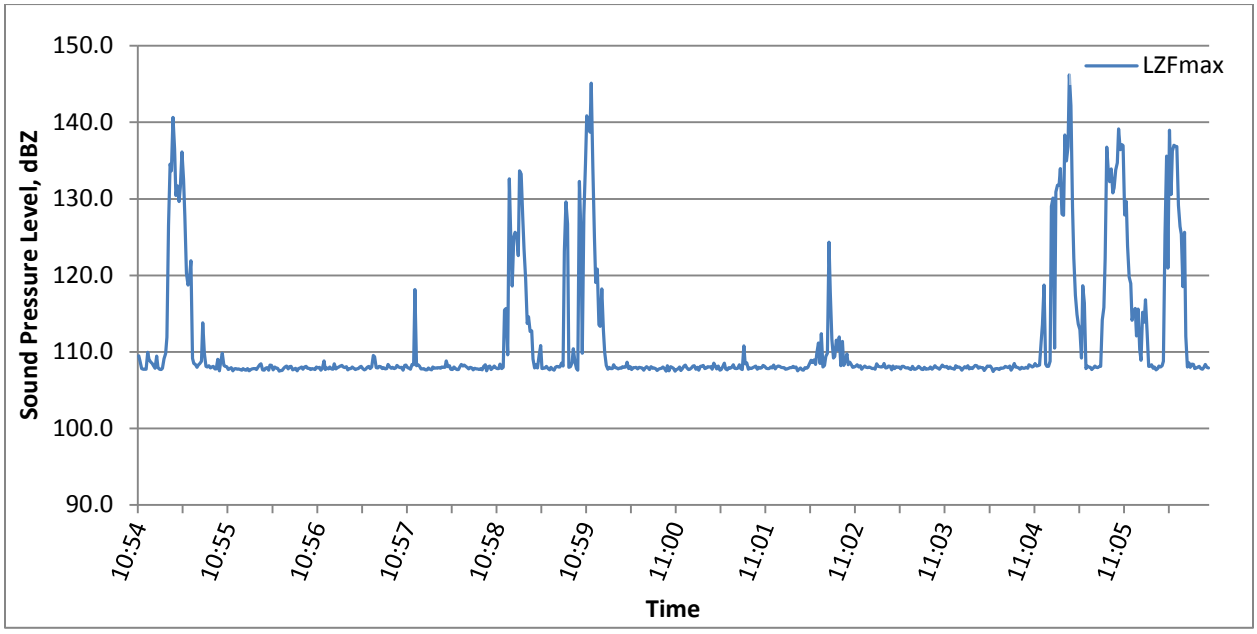
Propagation Loss

The decrease in sound pressure level due to the spherical spreading of the sound wave. In the far field the rate of decrease in the sound pressure level is proportional to the distance or 1/r. In an unbounded, homogeneous medium, propagation loss will be on the order of 6 dB for every doubling of the distance.

Appendix B – Middle River Monitoring Data

October 30, 2013

Removing In-Stream Rock from Barrier



Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
10:54:34	109.5	10:54:59	130.4	10:55:24	108.1	10:55:49	107.7	10:56:14	107.8	10:56:39	107.7
10:54:35	108.8	10:55:00	131.7	10:55:25	107.8	10:55:50	107.8	10:56:15	108.1	10:56:40	107.9
10:54:36	107.8	10:55:01	129.6	10:55:26	107.8	10:55:51	107.8	10:56:16	108.1	10:56:41	107.8
10:54:37	107.7	10:55:02	131.6	10:55:27	109.0	10:55:52	107.8	10:56:17	107.7	10:56:42	108.0
10:54:38	107.7	10:55:03	136.1	10:55:28	107.5	10:55:53	107.7	10:56:18	107.7	10:56:43	107.8
10:54:39	107.7	10:55:04	132.6	10:55:29	108.6	10:55:54	108.0	10:56:19	107.8	10:56:44	107.7
10:54:40	109.9	10:55:05	127.8	10:55:30	109.8	10:55:55	108.3	10:56:20	107.5	10:56:45	108.5
10:54:41	109.0	10:55:06	120.3	10:55:31	108.2	10:55:56	108.4	10:56:21	107.8	10:56:46	107.8
10:54:42	108.7	10:55:07	118.7	10:55:32	108.1	10:55:57	107.7	10:56:22	107.9	10:56:47	107.9
10:54:43	108.5	10:55:08	119.4	10:55:33	108.1	10:55:58	107.6	10:56:23	108.0	10:56:48	108.0
10:54:44	108.2	10:55:09	121.9	10:55:34	107.7	10:55:59	107.8	10:56:24	107.7	10:56:49	108.1
10:54:45	107.9	10:55:10	109.2	10:55:35	107.8	10:56:00	107.9	10:56:25	108.0	10:56:50	108.2
10:54:46	109.5	10:55:11	108.5	10:55:36	108.0	10:56:01	107.6	10:56:26	108.1	10:56:51	108.0
10:54:47	108.0	10:55:12	108.3	10:55:37	107.5	10:56:02	108.3	10:56:27	107.8	10:56:52	107.9
10:54:48	107.7	10:55:13	108.0	10:55:38	107.8	10:56:03	108.3	10:56:28	107.8	10:56:53	108.0
10:54:49	107.7	10:55:14	108.3	10:55:39	107.8	10:56:04	107.6	10:56:29	107.7	10:56:54	107.6
10:54:50	107.9	10:55:15	108.5	10:55:40	107.7	10:56:05	108.0	10:56:30	107.8	10:56:55	107.8
10:54:51	109.1	10:55:16	108.8	10:55:41	107.8	10:56:06	107.9	10:56:31	107.8	10:56:56	107.8
10:54:52	109.8	10:55:17	113.8	10:55:42	107.7	10:56:07	107.9	10:56:32	107.7	10:56:57	108.0
10:54:53	111.9	10:55:18	109.8	10:55:43	107.6	10:56:08	107.5	10:56:33	108.0	10:56:58	107.8
10:54:54	126.5	10:55:19	108.1	10:55:44	107.8	10:56:09	107.6	10:56:34	107.9	10:56:59	107.7
10:54:55	134.5	10:55:20	108.0	10:55:45	107.6	10:56:10	107.6	10:56:35	108.0	10:57:00	107.8
10:54:56	133.7	10:55:21	108.2	10:55:46	107.6	10:56:11	107.9	10:56:36	107.6	10:57:01	107.8
10:54:57	140.6	10:55:22	107.9	10:55:47	107.8	10:56:12	108.0	10:56:37	107.8	10:57:02	108.0
10:54:58	136.5	10:55:23	108.0	10:55:48	107.5	10:56:13	108.1	10:56:38	108.8	10:57:03	108.1

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
10:57:04	107.8	10:57:48	107.9	10:58:32	108.1	10:59:16	108.0	11:00:00	108.0	11:00:44	107.9
10:57:05	107.6	10:57:49	107.7	10:58:33	108.0	10:59:17	108.5	11:00:01	108.6	11:00:45	108.2
10:57:06	107.7	10:57:50	107.7	10:58:34	107.8	10:59:18	108.1	11:00:02	107.8	11:00:46	108.2
10:57:07	108.0	10:57:51	108.0	10:58:35	107.8	10:59:19	123.2	11:00:03	108.1	11:00:47	107.7
10:57:08	108.1	10:57:52	107.9	10:58:36	108.4	10:59:20	129.6	11:00:04	107.7	11:00:48	108.0
10:57:09	107.8	10:57:53	107.9	10:58:37	107.8	10:59:21	126.7	11:00:05	107.9	11:00:49	107.6
10:57:10	108.0	10:57:54	107.9	10:58:38	108.0	10:59:22	108.0	11:00:06	108.0	11:00:50	108.1
10:57:11	109.5	10:57:55	108.0	10:58:39	115.5	10:59:23	108.1	11:00:07	108.0	11:00:51	108.2
10:57:12	109.4	10:57:56	107.9	10:58:40	115.7	10:59:24	108.6	11:00:08	107.8	11:00:52	108.2
10:57:13	107.9	10:57:57	108.0	10:58:41	109.6	10:59:25	110.4	11:00:09	108.0	11:00:53	107.8
10:57:14	107.9	10:57:58	108.0	10:58:42	132.6	10:59:26	108.7	11:00:10	108.0	11:00:54	107.9
10:57:15	108.1	10:57:59	108.0	10:58:43	125.8	10:59:27	107.8	11:00:11	107.9	11:00:55	108.1
10:57:16	108.1	10:58:00	108.8	10:58:44	118.6	10:59:28	107.6	11:00:12	107.6	11:00:56	108.0
10:57:17	107.8	10:58:01	108.0	10:58:45	125.0	10:59:29	132.3	11:00:13	107.9	11:00:57	108.1
10:57:18	107.9	10:58:02	108.2	10:58:46	125.6	10:59:30	125.1	11:00:14	108.1	11:00:58	107.7
10:57:19	107.8	10:58:03	107.7	10:58:47	125.3	10:59:31	109.8	11:00:15	107.9	11:00:59	108.5
10:57:20	107.8	10:58:04	107.7	10:58:48	122.6	10:59:32	127.9	11:00:16	107.7	11:01:00	108.1
10:57:21	108.4	10:58:05	108.0	10:58:49	133.7	10:59:33	134.6	11:00:17	108.1	11:01:01	107.8
10:57:22	108.0	10:58:06	107.9	10:58:50	133.2	10:59:34	140.9	11:00:18	107.8	11:01:02	108.1
10:57:23	107.9	10:58:07	107.7	10:58:51	127.6	10:59:35	139.3	11:00:19	107.9	11:01:03	107.6
10:57:24	108.0	10:58:08	107.7	10:58:52	123.4	10:59:36	138.7	11:00:20	107.8	11:01:04	107.7
10:57:25	107.8	10:58:09	108.0	10:58:53	119.5	10:59:37	145.1	11:00:21	107.6	11:01:05	108.1
10:57:26	107.9	10:58:10	108.4	10:58:54	113.7	10:59:38	134.1	11:00:22	107.7	11:01:06	108.5
10:57:27	108.2	10:58:11	108.2	10:58:55	114.6	10:59:39	125.0	11:00:23	107.8	11:01:07	107.8
10:57:28	108.0	10:58:12	108.3	10:58:56	112.7	10:59:40	119.1	11:00:24	107.9	11:01:08	107.6
10:57:29	108.0	10:58:13	108.1	10:58:57	112.8	10:59:41	120.8	11:00:25	108.0	11:01:09	107.9
10:57:30	108.0	10:58:14	107.9	10:58:58	109.1	10:59:42	113.5	11:00:26	107.8	11:01:10	107.9
10:57:31	107.6	10:58:15	107.8	10:58:59	107.9	10:59:43	113.4	11:00:27	107.5	11:01:11	108.0
10:57:32	108.3	10:58:16	108.0	10:59:00	108.4	10:59:44	118.2	11:00:28	108.2	11:01:12	108.3
10:57:33	108.3	10:58:17	107.9	10:59:01	107.9	10:59:45	112.8	11:00:29	107.5	11:01:13	107.8
10:57:34	107.9	10:58:18	107.7	10:59:02	109.5	10:59:46	109.9	11:00:30	108.1	11:01:14	107.8
10:57:35	107.9	10:58:19	107.8	10:59:03	110.8	10:59:47	108.3	11:00:31	108.0	11:01:15	107.8
10:57:36	107.7	10:58:20	107.8	10:59:04	107.8	10:59:48	107.7	11:00:32	107.9	11:01:16	108.3
10:57:37	108.4	10:58:21	107.8	10:59:05	107.9	10:59:49	108.0	11:00:33	107.5	11:01:17	107.8
10:57:38	108.3	10:58:22	107.7	10:59:06	107.9	10:59:50	107.8	11:00:34	107.7	11:01:18	107.7
10:57:39	118.1	10:58:23	107.8	10:59:07	108.1	10:59:51	107.8	11:00:35	107.8	11:01:19	110.8
10:57:40	108.2	10:58:24	107.7	10:59:08	107.8	10:59:52	108.3	11:00:36	108.0	11:01:20	108.4
10:57:41	108.3	10:58:25	108.1	10:59:09	107.6	10:59:53	107.9	11:00:37	107.6	11:01:21	108.6
10:57:42	108.1	10:58:26	108.3	10:59:10	108.0	10:59:54	107.9	11:00:38	107.8	11:01:22	107.7
10:57:43	107.8	10:58:27	107.5	10:59:11	107.7	10:59:55	107.8	11:00:39	108.1	11:01:23	107.9
10:57:44	107.8	10:58:28	108.1	10:59:12	107.6	10:59:56	107.9	11:00:40	108.3	11:01:24	107.8
10:57:45	107.8	10:58:29	108.2	10:59:13	108.0	10:59:57	107.9	11:00:41	107.9	11:01:25	107.9
10:57:46	107.6	10:58:30	107.7	10:59:14	108.1	10:59:58	108.1	11:00:42	107.7	11:01:26	108.0
10:57:47	107.6	10:58:31	107.9	10:59:15	108.0	10:59:59	108.0	11:00:43	107.7	11:01:27	108.2

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
11:01:28	107.7	11:02:12	108.0	11:02:56	108.2	11:03:40	107.7	11:04:24	107.7	11:05:08	107.8
11:01:29	108.0	11:02:13	108.2	11:02:57	108.1	11:03:41	108.2	11:04:25	108.0	11:05:09	108.1
11:01:30	107.9	11:02:14	109.4	11:02:58	107.6	11:03:42	108.0	11:04:26	107.8	11:05:10	108.0
11:01:31	107.9	11:02:15	109.8	11:02:59	108.1	11:03:43	108.0	11:04:27	107.9	11:05:11	108.0
11:01:32	108.2	11:02:16	124.3	11:03:00	107.8	11:03:44	108.0	11:04:28	108.0	11:05:12	107.7
11:01:33	108.1	11:02:17	117.8	11:03:01	108.1	11:03:45	107.6	11:04:29	107.9	11:05:13	107.9
11:01:34	107.8	11:02:18	111.6	11:03:02	108.0	11:03:46	107.9	11:04:30	108.3	11:05:14	108.2
11:01:35	107.8	11:02:19	109.2	11:03:03	108.0	11:03:47	108.1	11:04:31	108.2	11:05:15	108.0
11:01:36	107.8	11:02:20	109.4	11:03:04	107.8	11:03:48	107.9	11:04:32	108.0	11:05:16	108.0
11:01:37	108.0	11:02:21	111.6	11:03:05	108.1	11:03:49	108.2	11:04:33	108.1	11:05:17	108.1
11:01:38	107.9	11:02:22	110.3	11:03:06	108.1	11:03:50	107.8	11:04:34	108.4	11:05:18	108.1
11:01:39	108.3	11:02:23	112.0	11:03:07	107.9	11:03:51	107.9	11:04:35	108.2	11:05:19	114.2
11:01:40	107.8	11:02:24	108.2	11:03:08	107.9	11:03:52	107.8	11:04:36	108.2	11:05:20	115.8
11:01:41	108.0	11:02:25	111.3	11:03:09	107.9	11:03:53	108.1	11:04:37	108.3	11:05:21	122.2
11:01:42	108.2	11:02:26	108.2	11:03:10	107.8	11:03:54	108.3	11:04:38	111.3	11:05:22	136.7
11:01:43	108.1	11:02:27	108.8	11:03:11	107.7	11:03:55	108.2	11:04:39	113.6	11:05:23	133.5
11:01:44	108.0	11:02:28	109.8	11:03:12	108.1	11:03:56	107.9	11:04:40	118.7	11:05:24	132.2
11:01:45	107.9	11:02:29	108.3	11:03:13	107.7	11:03:57	108.0	11:04:41	108.4	11:05:25	133.9
11:01:46	107.9	11:02:30	108.7	11:03:14	107.7	11:03:58	107.9	11:04:42	108.1	11:05:26	130.8
11:01:47	107.7	11:02:31	108.3	11:03:15	107.9	11:03:59	108.0	11:04:43	108.1	11:05:27	131.4
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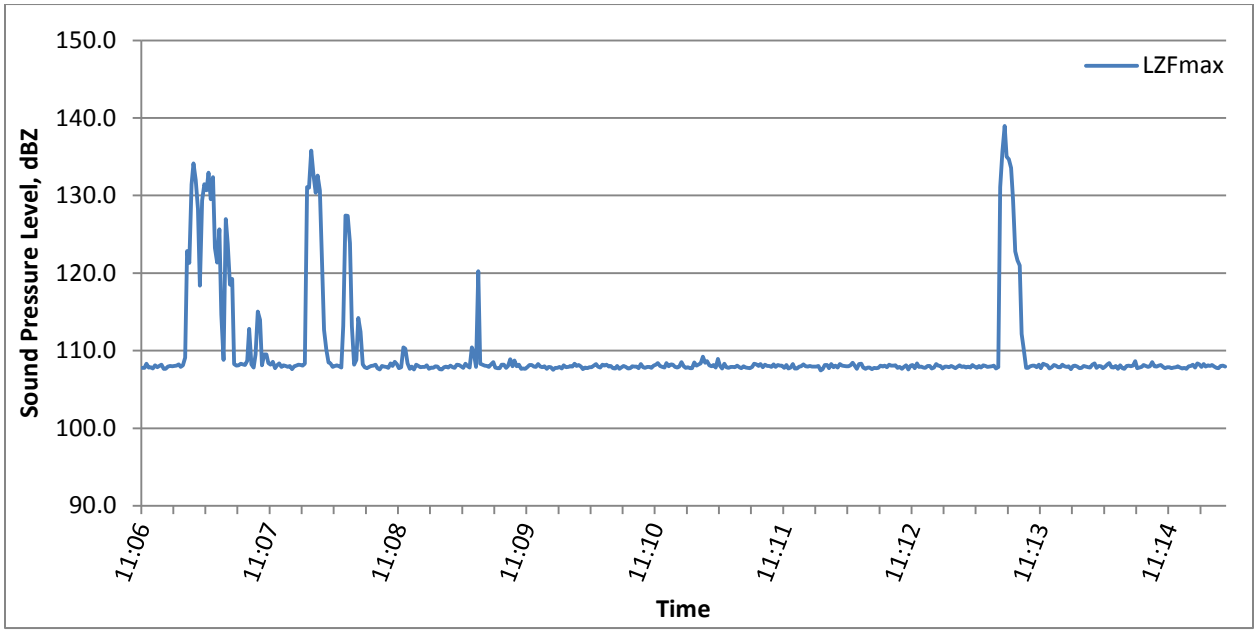
11:01:49	107.9	11:02:33	108.0	11:03:17	108.0	11:04:01	107.8	11:04:45	129.0	11:05:29	134.7
11:01:50	107.9	11:02:34	108.1	11:03:18	107.7	11:04:02	108.2	11:04:46	130.1	11:05:30	139.1
11:01:51	107.9	11:02:35	108.3	11:03:19	107.7	11:04:03	108.1	11:04:47	110.5	11:05:31	136.4
11:01:52	108.1	11:02:36	108.0	11:03:20	108.0	11:04:04	108.1	11:04:48	130.9	11:05:32	137.1
11:01:53	107.9	11:02:37	108.2	11:03:21	107.7	11:04:05	107.8	11:04:49	131.8	11:05:33	137.0
11:01:54	108.0	11:02:38	107.7	11:03:22	107.8	11:04:06	107.4	11:04:50	131.8	11:05:34	127.9
11:01:55	107.5	11:02:39	108.0	11:03:23	107.8	11:04:07	107.8	11:04:51	133.9	11:05:35	129.7
11:01:56	107.7	11:02:40	108.1	11:03:24	108.0	11:04:08	107.8	11:04:52	128.0	11:05:36	123.8
11:01:57	107.9	11:02:41	108.0	11:03:25	107.7	11:04:09	107.8	11:04:53	127.8	11:05:37	119.8
11:01:58	107.6	11:02:42	107.9	11:03:26	107.9	11:04:10	107.7	11:04:54	138.4	11:05:38	118.9
11:01:59	107.6	11:02:43	108.0	11:03:27	108.2	11:04:11	107.9	11:04:55	135.0	11:05:39	114.1
11:02:00	108.0	11:02:44	107.9	11:03:28	107.9	11:04:12	107.9	11:04:56	136.8	11:05:40	115.2
11:02:01	107.9	11:02:45	107.8	11:03:29	107.9	11:04:13	107.9	11:04:57	146.2	11:05:41	115.7
11:02:02	108.0	11:02:46	107.9	11:03:30	107.7	11:04:14	108.1	11:04:58	142.2	11:05:42	112.1
11:02:03	108.4	11:02:47	107.7	11:03:31	108.0	11:04:15	108.0	11:04:59	128.9	11:05:43	115.6
11:02:04	108.9	11:02:48	108.5	11:03:32	108.3	11:04:16	107.9	11:05:00	122.3	11:05:44	110.3
11:02:05	108.6	11:02:49	108.1	11:03:33	108.1	11:04:17	108.2	11:05:01	117.4	11:05:45	108.9
11:02:06	108.9	11:02:50	108.1	11:03:34	108.0	11:04:18	107.6	11:05:02	114.9	11:05:46	115.2
11:02:07	108.3	11:02:51	108.0	11:03:35	108.1	11:04:19	107.9	11:05:03	113.6	11:05:47	113.9
11:02:08	109.8	11:02:52	108.1	11:03:36	107.8	11:04:20	108.5	11:05:04	112.9	11:05:48	116.8
11:02:09	111.1	11:02:53	108.5	11:03:37	108.0	11:04:21	108.0	11:05:05	109.2	11:05:49	112.7
11:02:10	108.5	11:02:54	107.9	11:03:38	107.9	11:04:22	108.0	11:05:06	118.6	11:05:50	108.1
11:02:11	112.4	11:02:55	107.9	11:03:39	107.8	11:04:23	107.9	11:05:07	116.4	11:05:51	108.1

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
11:05:52	108.3	11:05:59	108.2	11:06:06	136.3	11:06:13	118.5	11:06:20	108.4	11:06:27	107.9
11:05:53	107.8	11:06:00	108.8	11:06:07	137.0	11:06:14	125.6	11:06:21	107.8	11:06:28	108.4
11:05:54	108.0	11:06:01	125.2	11:06:08	136.8	11:06:15	112.0	11:06:22	107.9	11:06:29	108.0
11:05:55	107.7	11:06:02	135.6	11:06:09	136.9	11:06:16	108.0	11:06:23	108.0	11:06:30	107.9
11:05:56	107.8	11:06:03	120.9	11:06:10	129.2	11:06:17	108.6	11:06:24	108.1		
11:05:57	108.2	11:06:04	139.0	11:06:11	126.4	11:06:18	108.0	11:06:25	107.8		
11:05:58	108.0	11:06:05	130.6	11:06:12	125.4	11:06:19	108.4	11:06:26	107.7		

Removing In-Stream Rock from Barrier



Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
11:06:31	107.8	11:06:48	108.2	11:07:05	123.2	11:07:22	108.2	11:07:39	107.9	11:07:56	112.7
11:06:32	107.8	11:06:49	107.9	11:07:06	121.4	11:07:23	107.8	11:07:40	108.0	11:07:57	110.2
11:06:33	108.3	11:06:50	108.1	11:07:07	125.6	11:07:24	109.5	11:07:41	107.6	11:07:58	108.5
11:06:34	107.8	11:06:51	109.1	11:07:08	114.6	11:07:25	115.0	11:07:42	108.0	11:07:59	108.3
11:06:35	107.9	11:06:52	122.9	11:07:09	108.8	11:07:26	114.0	11:07:43	108.1	11:08:00	107.9
11:06:36	107.7	11:06:53	121.3	11:07:10	127.0	11:07:27	108.1	11:07:44	108.2	11:08:01	108.0
11:06:37	108.1	11:06:54	131.4	11:07:11	123.8	11:07:28	109.5	11:07:45	108.2	11:08:02	108.1
11:06:38	107.9	11:06:55	134.1	11:07:12	118.5	11:07:29	109.5	11:07:46	108.1	11:08:03	108.0
11:06:39	108.0	11:06:56	132.0	11:07:13	119.2	11:07:30	108.4	11:07:47	108.3	11:08:04	107.8
11:06:40	108.2	11:06:57	128.3	11:07:14	108.3	11:07:31	108.2	11:07:48	131.1	11:08:05	113.2
11:06:41	107.6	11:06:58	118.4	11:07:15	108.1	11:07:32	108.6	11:07:49	131.0	11:08:06	127.4
11:06:42	107.6	11:06:59	129.4	11:07:16	108.1	11:07:33	107.8	11:07:50	135.8	11:08:07	127.4
11:06:43	107.9	11:07:00	131.5	11:07:17	108.3	11:07:34	108.1	11:07:51	132.7	11:08:08	123.9
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11:06:45	108.0	11:07:02	133.0	11:07:19	108.1	11:07:36	107.9	11:07:53	132.6	11:08:10	108.2
11:06:46	108.0	11:07:03	129.5	11:07:20	108.7	11:07:37	108.1	11:07:54	130.6	11:08:11	108.8
11:06:47	108.1	11:07:04	132.4	11:07:21	112.8	11:07:38	108.0	11:07:55	121.0	11:08:12	114.2

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
11:08:13	112.4	11:08:57	107.8	11:09:41	107.9	11:10:25	107.9	11:11:09	108.1	11:11:53	108.3
11:08:14	108.2	11:08:58	108.2	11:09:42	107.8	11:10:26	107.8	11:11:10	107.9	11:11:54	107.9
11:08:15	107.9	11:08:59	108.1	11:09:43	107.5	11:10:27	107.9	11:11:11	107.8	11:11:55	108.1
11:08:16	107.7	11:09:00	108.0	11:09:44	107.8	11:10:28	107.9	11:11:12	108.0	11:11:56	107.8
11:08:17	107.9	11:09:01	107.8	11:09:45	107.8	11:10:29	107.8	11:11:13	107.8	11:11:57	108.3
11:08:18	108.0	11:09:02	108.3	11:09:46	107.9	11:10:30	108.1	11:11:14	107.8	11:11:58	108.1
11:08:19	108.1	11:09:03	108.0	11:09:47	107.7	11:10:31	108.2	11:11:15	107.7	11:11:59	108.0
11:08:20	108.2	11:09:04	107.8	11:09:48	108.1	11:10:32	108.4	11:11:16	107.9	11:12:00	108.0
11:08:21	107.7	11:09:05	110.4	11:09:49	107.9	11:10:33	108.0	11:11:17	108.3	11:12:01	108.0
11:08:22	107.6	11:09:06	109.7	11:09:50	107.9	11:10:34	107.9	11:11:18	108.2	11:12:02	108.1
11:08:23	108.0	11:09:07	107.9	11:09:51	108.0	11:10:35	107.8	11:11:19	108.0	11:12:03	108.4
11:08:24	107.9	11:09:08	120.2	11:09:52	108.0	11:10:36	108.4	11:11:20	108.3	11:12:04	108.0
11:08:25	107.9	11:09:09	108.3	11:09:53	108.3	11:10:37	108.0	11:11:21	107.8	11:12:05	107.6
11:08:26	107.8	11:09:10	108.2	11:09:54	108.0	11:10:38	108.2	11:11:22	108.2	11:12:06	108.3
11:08:27	108.4	11:09:11	108.1	11:09:55	108.2	11:10:39	108.2	11:11:23	108.0	11:12:07	108.3
11:08:28	108.0	11:09:12	108.0	11:09:56	107.9	11:10:40	107.9	11:11:24	108.0	11:12:08	107.8
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11:08:30	108.2	11:09:14	108.3	11:09:58	107.8	11:10:42	108.0	11:11:26	108.2	11:12:10	107.8
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11:08:37	107.9	11:09:21	107.8	11:10:05	107.8	11:10:49	108.5	11:11:33	107.7	11:12:17	108.0
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11:08:44	108.1	11:09:28	107.7	11:10:12	107.7	11:10:56	108.1	11:11:40	108.2	11:12:24	107.8
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11:08:47	107.8	11:09:31	107.9	11:10:15	107.9	11:10:59	107.8	11:11:43	108.0	11:12:27	107.9
11:08:48	108.0	11:09:32	108.1	11:10:16	108.0	11:11:00	108.9	11:11:44	107.9	11:12:28	108.1
11:08:49	108.0	11:09:33	108.1	11:10:17	107.9	11:11:01	108.1	11:11:45	107.9	11:12:29	107.6
11:08:50	107.6	11:09:34	107.9	11:10:18	107.7	11:11:02	107.7	11:11:46	107.9	11:12:30	108.1
11:08:51	107.6	11:09:35	107.9	11:10:19	107.8	11:11:03	108.3	11:11:47	108.0	11:12:31	108.2
11:08:52	107.8	11:09:36	108.3	11:10:20	108.0	11:11:04	107.9	11:11:48	107.4	11:12:32	107.8
11:08:53	107.9	11:09:37	108.0	11:10:21	107.9	11:11:05	107.8	11:11:49	107.6	11:12:33	108.4
11:08:54	107.8	11:09:38	107.8	11:10:22	107.9	11:11:06	107.9	11:11:50	108.2	11:12:34	107.9
11:08:55	108.1	11:09:39	108.0	11:10:23	107.7	11:11:07	107.9	11:11:51	108.1	11:12:35	107.9
11:08:56	107.8	11:09:40	107.7	11:10:24	108.3	11:11:08	107.9	11:11:52	107.7	11:12:36	107.8

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
11:12:37	107.8	11:13:21	121.0	11:14:05	107.8	11:14:49	108.1	11:15:33	107.9	11:16:17	108.2
11:12:38	108.0	11:13:22	112.2	11:14:06	108.0	11:14:50	108.0	11:15:34	107.8	11:16:18	107.9
11:12:39	108.0	11:13:23	110.1	11:14:07	107.7	11:14:51	108.2	11:15:35	107.7	11:16:19	108.0
11:12:40	107.7	11:13:24	107.8	11:14:08	108.1	11:14:52	108.0	11:15:36	107.8	11:16:20	108.2
11:12:41	107.8	11:13:25	107.8	11:14:09	107.7	11:14:53	107.8	11:15:37	107.8	11:16:21	108.7
11:12:42	108.3	11:13:26	108.0	11:14:10	107.7	11:14:54	107.7	11:15:38	107.7	11:16:22	108.0
11:12:43	108.1	11:13:27	108.1	11:14:11	108.0	11:14:55	108.0	11:15:39	107.9	11:16:23	107.7
11:12:44	108.0	11:13:28	108.1	11:14:12	108.1	11:14:56	108.1	11:15:40	107.7	11:16:24	108.3
11:12:45	107.7	11:13:29	107.9	11:14:13	108.0	11:14:57	107.9	11:15:41	107.9	11:16:25	107.9
11:12:46	108.0	11:13:30	108.2	11:14:14	108.1	11:14:58	108.1	11:15:42	107.9	11:16:26	108.3
11:12:47	108.0	11:13:31	107.7	11:14:15	108.7	11:14:59	108.1	11:15:43	107.7	11:16:27	108.1
11:12:48	107.9	11:13:32	108.3	11:14:16	107.8	11:15:00	107.7	11:15:44	107.9	11:16:28	108.1
11:12:49	108.0	11:13:33	108.2	11:14:17	107.8	11:15:01	107.8	11:15:45	109.0	11:16:29	108.2
11:12:50	107.9	11:13:34	108.1	11:14:18	107.9	11:15:02	107.6	11:15:46	108.0	11:16:30	108.3
11:12:51	107.7	11:13:35	107.7	11:14:19	108.2	11:15:03	108.0	11:15:47	107.9	11:16:31	107.9
11:12:52	107.9	11:13:36	107.8	11:14:20	108.0	11:15:04	107.9	11:15:48	108.4	11:16:32	109.0
11:12:53	108.1	11:13:37	108.2	11:14:21	107.9	11:15:05	108.0	11:15:49	108.3	11:16:33	108.3
11:12:54	107.9	11:13:38	108.1	11:14:22	108.0	11:15:06	107.9	11:15:50	108.0	11:16:34	110.4
11:12:55	108.0	11:13:39	107.9	11:14:23	108.5	11:15:07	107.9	11:15:51	107.8	11:16:35	112.4
11:12:56	107.8	11:13:40	107.8	11:14:24	108.0	11:15:08	108.1	11:15:52	107.9	11:16:36	123.7
11:12:57	108.0	11:13:41	108.2	11:14:25	108.0	11:15:09	107.6	11:15:53	108.1	11:16:37	121.3
11:12:58	107.8	11:13:42	108.0	11:14:26	108.1	11:15:10	108.1	11:15:54	108.0	11:16:38	128.7
11:12:59	108.2	11:13:43	107.9	11:14:27	108.2	11:15:11	107.9	11:15:55	108.2	11:16:39	129.6
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11:13:02	108.0	11:13:46	108.0	11:14:30	107.8	11:15:14	108.2	11:15:58	107.8	11:16:42	131.7
11:13:03	107.8	11:13:47	108.1	11:14:31	107.9	11:15:15	108.0	11:15:59	108.3	11:16:43	134.9
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11:13:05	108.0	11:13:49	107.7	11:14:33	107.8	11:15:17	108.1	11:16:01	108.1	11:16:45	127.5
11:13:06	107.9	11:13:50	107.8	11:14:34	107.9	11:15:18	108.0	11:16:02	108.4	11:16:46	124.8
11:13:07	107.9	11:13:51	108.0	11:14:35	108.0	11:15:19	108.1	11:16:03	108.2	11:16:47	124.8
11:13:08	108.0	11:13:52	108.0	11:14:36	107.8	11:15:20	108.0	11:16:04	108.3	11:16:48	126.5
11:13:09	108.1	11:13:53	107.9	11:14:37	107.7	11:15:21	107.9	11:16:05	108.3	11:16:49	129.9
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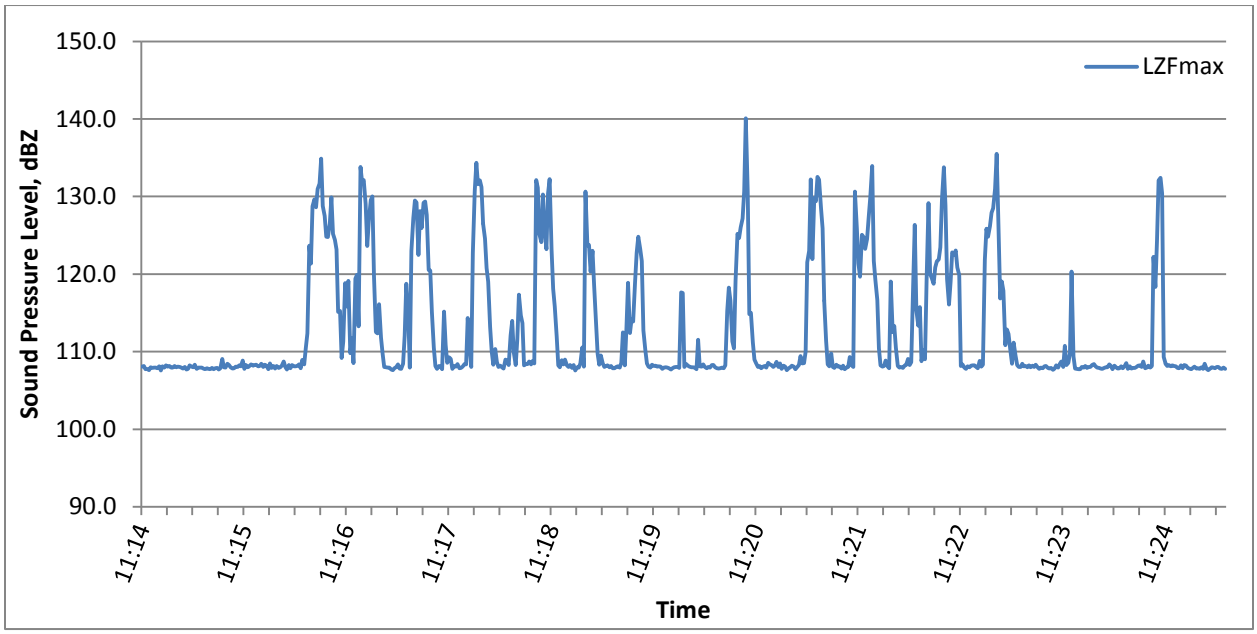
11:13:11	107.9	11:13:55	108.2	11:14:39	107.7	11:15:23	108.0	11:16:07	108.2	11:16:51	124.4
11:13:12	131.1	11:13:56	108.4	11:14:40	108.0	11:15:24	107.7	11:16:08	108.4	11:16:52	123.2
11:13:13	135.7	11:13:57	107.8	11:14:41	108.0	11:15:25	107.8	11:16:09	108.0	11:16:53	115.1
11:13:14	139.0	11:13:58	108.0	11:14:42	108.2	11:15:26	108.2	11:16:10	108.3	11:16:54	115.2
11:13:15	135.0	11:13:59	108.0	11:14:43	107.8	11:15:27	108.1	11:16:11	108.2	11:16:55	109.2
11:13:16	134.7	11:14:00	107.7	11:14:44	108.4	11:15:28	108.0	11:16:12	107.7	11:16:56	111.3
11:13:17	133.6	11:14:01	107.9	11:14:45	108.2	11:15:29	108.3	11:16:13	108.5	11:16:57	118.8
11:13:18	129.6	11:14:02	108.2	11:14:46	107.9	11:15:30	107.8	11:16:14	107.9	11:16:58	115.8
11:13:19	122.8	11:14:03	108.4	11:14:47	108.3	11:15:31	108.0	11:16:15	108.1	11:16:59	119.1
11:13:20	121.6	11:14:04	107.9	11:14:48	108.0	11:15:32	107.9	11:16:16	107.8	11:17:00	109.8

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
11:17:01	111.7	11:17:16	112.4	11:17:31	108.4	11:17:46	120.5	11:18:01	108.1	11:18:16	132.1
11:17:02	108.5	11:17:17	116.1	11:17:32	112.0	11:17:47	120.5	11:18:02	108.1	11:18:17	131.2
11:17:03	119.4	11:17:18	111.8	11:17:33	118.7	11:17:48	115.1	11:18:03	108.4	11:18:18	126.5
11:17:04	119.9	11:17:19	109.7	11:17:34	115.1	11:17:49	110.5	11:18:04	107.9	11:18:19	124.6
11:17:05	113.3	11:17:20	108.0	11:17:35	108.0	11:17:50	108.1	11:18:05	107.9	11:18:20	120.8
11:17:06	133.8	11:17:21	108.0	11:17:36	123.0	11:17:51	107.8	11:18:06	108.1	11:18:21	119.0
11:17:07	131.8	11:17:22	107.9	11:17:37	127.2	11:17:52	108.2	11:18:07	108.4	11:18:22	113.2
11:17:08	132.1	11:17:23	107.9	11:17:38	129.5	11:17:53	108.1	11:18:08	108.4	11:18:23	110.0
11:17:09	129.1	11:17:24	107.7	11:17:39	129.2	11:17:54	107.8	11:18:09	114.3	11:18:24	108.3
11:17:10	123.6	11:17:25	107.6	11:17:40	122.5	11:17:55	115.2	11:18:10	110.5	11:18:25	110.3
11:17:11	126.9	11:17:26	107.9	11:17:41	128.1	11:17:56	110.9	11:18:11	108.0	11:18:26	108.7
11:17:12	129.5	11:17:27	108.0	11:17:42	125.9	11:17:57	108.6	11:18:12	122.7	11:18:27	108.0
11:17:13	130.0	11:17:28	108.3	11:17:43	129.2	11:17:58	109.3	11:18:13	130.8	11:18:28	108.2
11:17:14	119.8	11:17:29	107.8	11:17:44	129.3	11:17:59	109.1	11:18:14	134.3	11:18:29	108.0
11:17:15	112.5	11:17:30	107.8	11:17:45	127.6	11:18:00	107.8	11:18:15	131.6		

Removing In-Stream Rock from Barrier



Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
11:14:58	108.1	11:15:05	108.0	11:15:12	108.2	11:15:19	108.1	11:15:26	108.2	11:15:33	107.9
11:14:59	108.1	11:15:06	107.9	11:15:13	108.1	11:15:20	108.0	11:15:27	108.1	11:15:34	107.8
11:15:00	107.7	11:15:07	107.9	11:15:14	108.2	11:15:21	107.9	11:15:28	108.0	11:15:35	107.7
11:15:01	107.8	11:15:08	108.1	11:15:15	108.0	11:15:22	107.8	11:15:29	108.3	11:15:36	107.8
11:15:02	107.6	11:15:09	107.6	11:15:16	107.9	11:15:23	108.0	11:15:30	107.8	11:15:37	107.8
11:15:03	108.0	11:15:10	108.1	11:15:17	108.1	11:15:24	107.7	11:15:31	108.0	11:15:38	107.7
11:15:04	107.9	11:15:11	107.9	11:15:18	108.0	11:15:25	107.8	11:15:32	107.9	11:15:39	107.9

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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11:15:41	107.9	11:16:25	107.9	11:17:09	129.1	11:17:53	108.1	11:18:37	108.3	11:19:21	120.3
11:15:42	107.9	11:16:26	108.3	11:17:10	123.6	11:17:54	107.8	11:18:38	111.6	11:19:22	123.0
11:15:43	107.7	11:16:27	108.1	11:17:11	126.9	11:17:55	115.2	11:18:39	117.3	11:19:23	118.5
11:15:44	107.9	11:16:28	108.1	11:17:12	129.5	11:17:56	110.9	11:18:40	114.7	11:19:24	114.5
11:15:45	109.0	11:16:29	108.2	11:17:13	130.0	11:17:57	108.6	11:18:41	113.7	11:19:25	109.7
11:15:46	108.0	11:16:30	108.3	11:17:14	119.8	11:17:58	109.3	11:18:42	108.2	11:19:26	108.3
11:15:47	107.9	11:16:31	107.9	11:17:15	112.5	11:17:59	109.1	11:18:43	108.4	11:19:27	109.5
11:15:48	108.4	11:16:32	109.0	11:17:16	112.4	11:18:00	107.8	11:18:44	108.4	11:19:28	108.5
11:15:49	108.3	11:16:33	108.3	11:17:17	116.1	11:18:01	108.1	11:18:45	108.7	11:19:29	108.0
11:15:50	108.0	11:16:34	110.4	11:17:18	111.8	11:18:02	108.1	11:18:46	108.3	11:19:30	108.1
11:15:51	107.8	11:16:35	112.4	11:17:19	109.7	11:18:03	108.4	11:18:47	108.8	11:19:31	108.2
11:15:52	107.9	11:16:36	123.7	11:17:20	108.0	11:18:04	107.9	11:18:48	108.5	11:19:32	108.0
11:15:53	108.1	11:16:37	121.3	11:17:21	108.0	11:18:05	107.9	11:18:49	132.1	11:19:33	108.1
11:15:54	108.0	11:16:38	128.7	11:17:22	107.9	11:18:06	108.1	11:18:50	131.1	11:19:34	107.9
11:15:55	108.2	11:16:39	129.6	11:17:23	107.9	11:18:07	108.4	11:18:51	125.1	11:19:35	107.9
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11:15:57	108.9	11:16:41	131.0	11:17:25	107.6	11:18:09	114.3	11:18:53	130.3	11:19:37	108.1
11:15:58	107.8	11:16:42	131.7	11:17:26	107.9	11:18:10	110.5	11:18:54	125.8	11:19:38	108.0
11:15:59	108.3	11:16:43	134.9	11:17:27	108.0	11:18:11	108.0	11:18:55	123.2	11:19:39	108.6
11:16:00	108.0	11:16:44	128.8	11:17:28	108.3	11:18:12	122.7	11:18:56	130.4	11:19:40	112.5
11:16:01	108.1	11:16:45	127.5	11:17:29	107.8	11:18:13	130.8	11:18:57	132.2	11:19:41	108.2
11:16:02	108.4	11:16:46	124.8	11:17:30	107.8	11:18:14	134.3	11:18:58	123.2	11:19:42	113.0
11:16:03	108.2	11:16:47	124.8	11:17:31	108.4	11:18:15	131.6	11:18:59	118.1	11:19:43	118.9
11:16:04	108.3	11:16:48	126.5	11:17:32	112.0	11:18:16	132.1	11:19:00	115.8	11:19:44	112.4
11:16:05	108.3	11:16:49	129.9	11:17:33	118.7	11:18:17	131.2	11:19:01	112.0	11:19:45	114.2
11:16:06	108.1	11:16:50	125.2	11:17:34	115.1	11:18:18	126.5	11:19:02	108.2	11:19:46	113.9
11:16:07	108.2	11:16:51	124.4	11:17:35	108.0	11:18:19	124.6	11:19:03	108.0	11:19:47	119.0
11:16:08	108.4	11:16:52	123.2	11:17:36	123.0	11:18:20	120.8	11:19:04	108.9	11:19:48	122.7
11:16:09	108.0	11:16:53	115.1	11:17:37	127.2	11:18:21	119.0	11:19:05	108.4	11:19:49	124.8
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11:16:11	108.2	11:16:55	109.2	11:17:39	129.2	11:18:23	110.0	11:19:07	108.2	11:19:51	121.7
11:16:12	107.7	11:16:56	111.3	11:17:40	122.5	11:18:24	108.3	11:19:08	108.0	11:19:52	112.7
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11:16:18	107.9	11:17:02	108.5	11:17:46	120.5	11:18:30	107.8	11:19:14	107.9	11:19:58	108.1
11:16:19	108.0	11:17:03	119.4	11:17:47	120.5	11:18:31	109.0	11:19:15	108.5	11:19:59	108.2
11:16:20	108.2	11:17:04	119.9	11:17:48	115.1	11:18:32	108.9	11:19:16	110.5	11:20:00	108.0
11:16:21	108.7	11:17:05	113.3	11:17:49	110.5	11:18:33	108.3	11:19:17	108.1	11:20:01	108.1
11:16:22	108.0	11:17:06	133.8	11:17:50	108.1	11:18:34	112.1	11:19:18	130.7	11:20:02	108.1
11:16:23	107.7	11:17:07	131.8	11:17:51	107.8	11:18:35	114.0	11:19:19	123.7	11:20:03	107.8

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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11:20:06	107.9	11:20:50	127.2	11:21:34	132.5	11:22:18	112.5	11:23:02	108.1	11:23:46	107.9
11:20:07	107.9	11:20:51	130.7	11:21:35	132.2	11:22:19	113.3	11:23:03	108.0	11:23:47	108.1
11:20:08	107.7	11:20:52	140.1	11:21:36	128.5	11:22:20	110.5	11:23:04	108.2	11:23:48	108.2
11:20:09	107.9	11:20:53	130.7	11:21:37	125.9	11:22:21	108.1	11:23:05	108.2	11:23:49	107.9
11:20:10	108.0	11:20:54	114.8	11:21:38	116.6	11:22:22	108.0	11:23:06	108.2	11:23:50	107.8
11:20:11	108.0	11:20:55	115.0	11:21:39	111.4	11:22:23	108.0	11:23:07	108.0	11:23:51	107.9
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11:20:18	108.2	11:21:02	108.1	11:21:46	108.1	11:22:30	118.6	11:23:14	124.8	11:23:58	108.0
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11:20:21	108.0	11:21:05	108.6	11:21:49	108.2	11:22:33	113.4	11:23:17	128.5	11:24:01	108.6
11:20:22	107.9	11:21:06	108.4	11:21:50	107.7	11:22:34	115.7	11:23:18	131.0	11:24:02	109.8
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11:20:24	111.5	11:21:08	108.0	11:21:52	108.0	11:22:36	110.2	11:23:20	127.2	11:24:04	109.4
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11:20:26	108.1	11:21:10	108.7	11:21:54	108.3	11:22:38	119.2	11:23:22	119.1	11:24:06	107.8
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11:20:29	107.8	11:21:13	107.8	11:21:57	125.9	11:22:41	119.5	11:23:25	112.9	11:24:09	108.0
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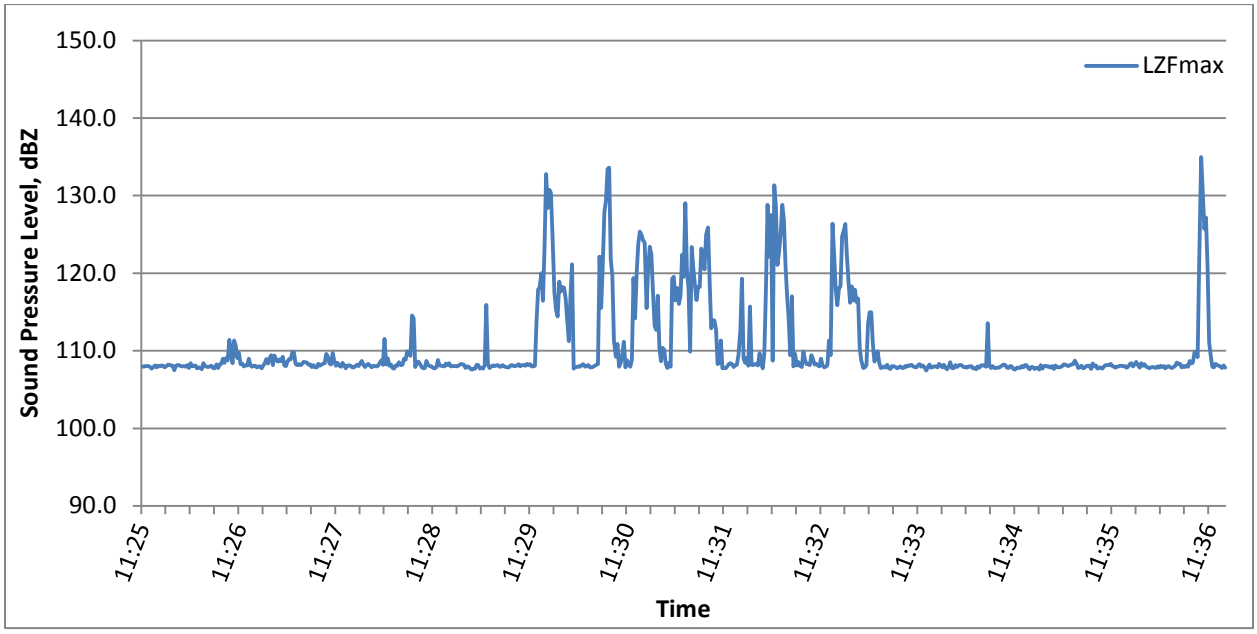
11:20:33	108.3	11:21:17	107.9	11:22:01	124.8	11:22:45	121.9	11:23:29	111.2	11:24:13	108.0
11:20:34	108.0	11:21:18	108.0	11:22:02	123.3	11:22:46	123.4	11:23:30	109.5	11:24:14	108.0
11:20:35	107.8	11:21:19	108.2	11:22:03	124.5	11:22:47	129.6	11:23:31	108.3	11:24:15	108.3
11:20:36	107.8	11:21:20	108.1	11:22:04	127.3	11:22:48	133.8	11:23:32	108.0	11:24:16	108.4
11:20:37	107.9	11:21:21	107.7	11:22:05	129.9	11:22:49	128.8	11:23:33	108.0	11:24:17	108.1
11:20:38	108.0	11:21:22	108.0	11:22:06	133.9	11:22:50	119.3	11:23:34	108.4	11:24:18	107.9
11:20:39	107.9	11:21:23	108.3	11:22:07	121.7	11:22:51	116.1	11:23:35	108.1	11:24:19	107.9
11:20:40	108.2	11:21:24	109.4	11:22:08	119.2	11:22:52	119.0	11:23:36	108.2	11:24:20	107.8
11:20:41	115.2	11:21:25	108.5	11:22:09	116.7	11:22:53	122.8	11:23:37	108.0	11:24:21	107.8
11:20:42	118.2	11:21:26	108.5	11:22:10	110.4	11:22:54	122.5	11:23:38	108.2	11:24:22	107.9
11:20:43	116.6	11:21:27	110.0	11:22:11	108.2	11:22:55	123.0	11:23:39	108.0	11:24:23	108.0
11:20:44	111.3	11:21:28	121.5	11:22:12	108.1	11:22:56	120.9	11:23:40	108.2	11:24:24	108.0
11:20:45	110.4	11:21:29	123.0	11:22:13	108.1	11:22:57	119.9	11:23:41	108.0	11:24:25	108.3
11:20:46	119.2	11:21:30	132.2	11:22:14	108.8	11:22:58	108.2	11:23:42	108.3	11:24:26	108.2
11:20:47	125.2	11:21:31	121.9	11:22:15	108.1	11:22:59	108.4	11:23:43	108.0	11:24:27	107.8

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
11:24:28	108.2	11:24:40	107.9	11:24:52	118.3	11:25:04	108.1	11:25:16	107.8	11:25:28	108.0
11:24:29	108.0	11:24:41	108.0	11:24:53	124.3	11:25:05	107.9	11:25:17	107.9	11:25:29	108.0
11:24:30	107.8	11:24:42	108.2	11:24:54	132.1	11:25:06	107.9	11:25:18	107.8	11:25:30	107.8
11:24:31	107.9	11:24:43	108.2	11:24:55	132.4	11:25:07	108.2	11:25:19	108.0	11:25:31	107.8
11:24:32	108.1	11:24:44	108.0	11:24:56	130.4	11:25:08	107.9	11:25:20	107.8	11:25:32	107.9
11:24:33	107.9	11:24:45	108.7	11:24:57	109.3	11:25:09	108.3	11:25:21	108.4	11:25:33	107.8
11:24:34	108.2	11:24:46	107.8	11:24:58	108.5	11:25:10	108.2	11:25:22	107.8	11:25:34	107.8
11:24:35	108.5	11:24:47	107.9	11:24:59	108.2	11:25:11	107.9	11:25:23	107.6		
11:24:36	107.8	11:24:48	108.2	11:25:00	108.3	11:25:12	107.8	11:25:24	107.8		
11:24:37	108.1	11:24:49	107.9	11:25:01	108.1	11:25:13	107.8	11:25:25	108.0		
11:24:38	107.8	11:24:50	108.1	11:25:02	108.2	11:25:14	107.9	11:25:26	108.0		
11:24:39	107.9	11:24:51	122.2	11:25:03	108.1	11:25:15	108.1	11:25:27	107.9		

Removing In-Stream Rock from Barrier



Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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11:25:36	107.9	11:25:48	108.1	11:26:00	108.0	11:26:12	107.6	11:26:24	108.3	11:26:36	108.3
11:25:37	108.0	11:25:49	107.8	11:26:01	108.0	11:26:13	108.4	11:26:25	109.0	11:26:37	108.3
11:25:38	108.0	11:25:50	108.0	11:26:02	108.0	11:26:14	108.0	11:26:26	108.4	11:26:38	108.0
11:25:39	108.0	11:25:51	108.2	11:26:03	108.2	11:26:15	107.9	11:26:27	109.1	11:26:39	108.1
11:25:40	107.9	11:25:52	108.2	11:26:04	107.8	11:26:16	107.9	11:26:28	108.8	11:26:40	108.1
11:25:41	107.7	11:25:53	108.1	11:26:05	108.4	11:26:17	108.0	11:26:29	111.4	11:26:41	109.0
11:25:42	107.8	11:25:54	108.1	11:26:06	108.0	11:26:18	108.1	11:26:30	110.0	11:26:42	108.1
11:25:43	108.1	11:25:55	107.5	11:26:07	108.0	11:26:19	107.8	11:26:31	108.4	11:26:43	107.9
11:25:44	107.9	11:25:56	108.1	11:26:08	108.1	11:26:20	107.7	11:26:32	111.3	11:26:44	108.1
11:25:45	108.1	11:25:57	108.2	11:26:09	107.7	11:26:21	108.2	11:26:33	110.7	11:26:45	108.1
11:25:46	108.0	11:25:58	108.1	11:26:10	107.9	11:26:22	107.8	11:26:34	109.1	11:26:46	107.9

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
11:26:47	108.0	11:27:31	108.4	11:28:15	108.2	11:28:59	107.6	11:29:43	116.5	11:30:27	111.2
11:26:48	108.0	11:27:32	108.3	11:28:16	108.2	11:29:00	107.7	11:29:44	123.3	11:30:28	109.2
11:26:49	107.8	11:27:33	109.7	11:28:17	109.0	11:29:01	107.7	11:29:45	132.8	11:30:29	110.9
11:26:50	108.1	11:27:34	108.7	11:28:18	108.9	11:29:02	108.2	11:29:46	128.4	11:30:30	107.9
11:26:51	108.4	11:27:35	108.1	11:28:19	109.9	11:29:03	108.1	11:29:47	130.8	11:30:31	108.4
11:26:52	108.9	11:27:36	108.4	11:28:20	109.6	11:29:04	107.7	11:29:48	130.3	11:30:32	109.5
11:26:53	108.4	11:27:37	108.1	11:28:21	109.3	11:29:05	107.8	11:29:49	124.8	11:30:33	111.2
11:26:54	109.1	11:27:38	108.0	11:28:22	114.5	11:29:06	107.7	11:29:50	117.4	11:30:34	107.9
11:26:55	109.4	11:27:39	108.4	11:28:23	114.2	11:29:07	108.1	11:29:51	115.3	11:30:35	108.8
11:26:56	108.2	11:27:40	108.1	11:28:24	107.9	11:29:08	115.9	11:29:52	114.4	11:30:36	108.4
11:26:57	109.4	11:27:41	107.7	11:28:25	108.4	11:29:09	108.4	11:29:53	118.9	11:30:37	108.0
11:26:58	108.9	11:27:42	108.1	11:28:26	108.6	11:29:10	107.8	11:29:54	117.7	11:30:38	108.9
11:26:59	108.6	11:27:43	108.1	11:28:27	108.3	11:29:11	107.9	11:29:55	118.2	11:30:39	119.4
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11:27:01	108.6	11:27:45	107.9	11:28:29	107.8	11:29:13	108.0	11:29:57	116.8	11:30:41	120.1
11:27:02	109.2	11:27:46	107.9	11:28:30	107.8	11:29:14	108.1	11:29:58	113.9	11:30:42	123.8
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11:27:09	109.8	11:27:53	107.9	11:28:37	107.9	11:29:21	107.8	11:30:05	108.0	11:30:49	123.4
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Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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11:31:15	123.4	11:31:59	107.8	11:32:43	122.4	11:33:27	108.0	11:34:11	107.6	11:34:55	107.9
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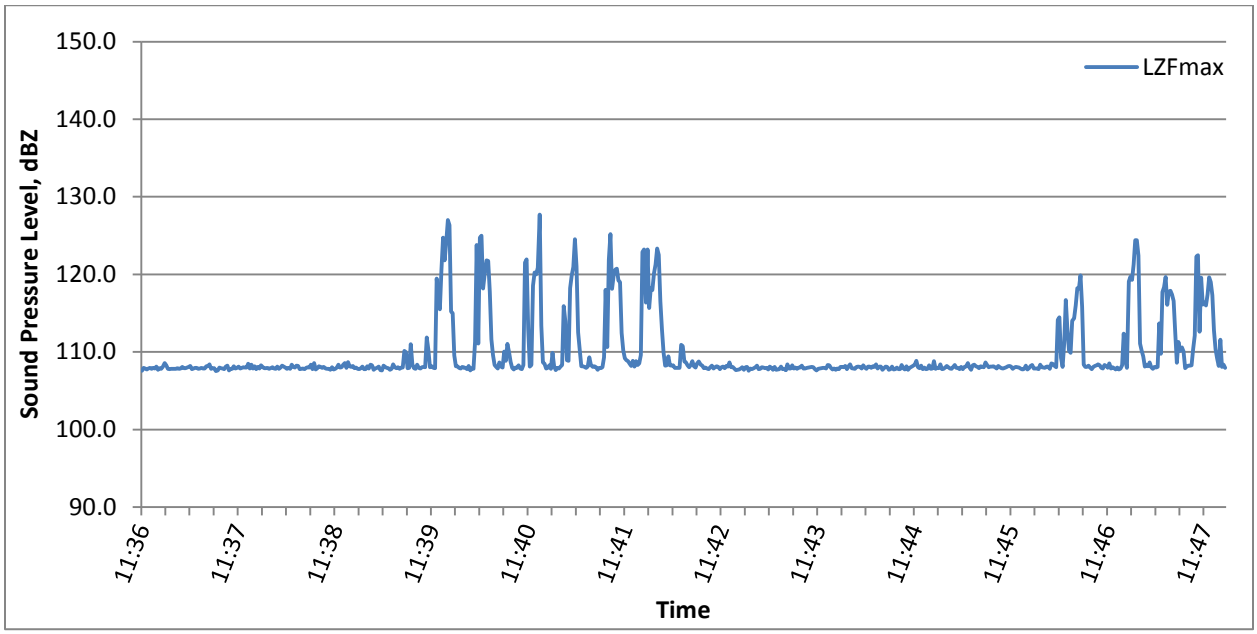
11:31:33	111.3	11:32:17	117.0	11:33:01	107.8	11:33:45	108.0	11:34:29	108.1	11:35:13	108.4
11:31:34	107.7	11:32:18	108.0	11:33:02	107.9	11:33:46	108.0	11:34:30	107.8	11:35:14	107.8
11:31:35	107.8	11:32:19	109.6	11:33:03	108.1	11:33:47	107.9	11:34:31	107.8	11:35:15	107.9
11:31:36	107.7	11:32:20	108.1	11:33:04	113.5	11:33:48	108.3	11:34:32	108.0	11:35:16	108.1
11:31:37	108.0	11:32:21	108.6	11:33:05	115.0	11:33:49	108.1	11:34:33	108.0	11:35:17	107.8
11:31:38	108.3	11:32:22	108.1	11:33:06	115.0	11:33:50	107.8	11:34:34	107.7	11:35:18	107.8
11:31:39	108.4	11:32:23	107.9	11:33:07	110.9	11:33:51	108.2	11:34:35	107.6	11:35:19	108.0
11:31:40	108.3	11:32:24	109.9	11:33:08	108.6	11:33:52	107.8	11:34:36	107.8	11:35:20	108.1
11:31:41	107.9	11:32:25	108.8	11:33:09	109.1	11:33:53	107.6	11:34:37	107.8	11:35:21	108.1
11:31:42	108.1	11:32:26	108.3	11:33:10	109.9	11:33:54	108.0	11:34:38	107.8	11:35:22	107.7
11:31:43	108.2	11:32:27	108.3	11:33:11	108.4	11:33:55	108.5	11:34:39	108.0	11:35:23	108.3
11:31:44	109.4	11:32:28	108.1	11:33:12	107.8	11:33:56	107.8	11:34:40	107.9	11:35:24	108.0
11:31:45	112.6	11:32:29	109.4	11:33:13	107.8	11:33:57	107.8	11:34:41	108.2	11:35:25	108.1
11:31:46	119.3	11:32:30	108.9	11:33:14	108.0	11:33:58	108.2	11:34:42	108.1	11:35:26	107.7
11:31:47	109.0	11:32:31	108.2	11:33:15	107.8	11:33:59	107.9	11:34:43	107.8	11:35:27	107.9
11:31:48	108.4	11:32:32	108.3	11:33:16	108.2	11:34:00	108.1	11:34:44	107.6	11:35:28	107.8
11:31:49	109.1	11:32:33	108.1	11:33:17	107.7	11:34:01	108.2	11:34:45	107.9	11:35:29	107.7
11:31:50	108.1	11:32:34	108.0	11:33:18	107.7	11:34:02	108.1	11:34:46	107.9	11:35:30	108.0
11:31:51	115.7	11:32:35	109.0	11:33:19	108.0	11:34:03	107.9	11:34:47	107.7	11:35:31	108.2
11:31:52	108.2	11:32:36	108.1	11:33:20	108.0	11:34:04	107.9	11:34:48	107.8	11:35:32	108.2
11:31:53	108.2	11:32:37	107.9	11:33:21	107.9	11:34:05	107.8	11:34:49	107.8	11:35:33	108.1
11:31:54	108.3	11:32:38	108.0	11:33:22	107.7	11:34:06	108.0	11:34:50	107.6	11:35:34	108.3

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
11:35:35	108.1	11:35:47	108.4	11:35:59	107.9	11:36:11	107.9	11:36:23	108.7	11:36:35	111.1
11:35:36	107.9	11:35:48	108.0	11:36:00	107.9	11:36:12	107.8	11:36:24	108.4	11:36:36	109.4
11:35:37	107.8	11:35:49	108.2	11:36:01	107.8	11:36:13	107.9	11:36:25	108.5	11:36:37	108.0
11:35:38	108.0	11:35:50	108.6	11:36:02	107.8	11:36:14	108.1	11:36:26	109.8	11:36:38	107.9
11:35:39	108.0	11:35:51	108.2	11:36:03	108.0	11:36:15	108.5	11:36:27	109.8	11:36:39	108.3
11:35:40	108.1	11:35:52	107.8	11:36:04	107.8	11:36:16	108.3	11:36:28	109.2	11:36:40	108.1
11:35:41	108.1	11:35:53	108.4	11:36:05	108.1	11:36:17	108.3	11:36:29	121.7	11:36:41	108.1
11:35:42	108.0	11:35:54	108.1	11:36:06	107.9	11:36:18	107.9	11:36:30	135.0	11:36:42	108.0
11:35:43	108.0	11:35:55	108.3	11:36:07	108.0	11:36:19	108.0	11:36:31	130.5	11:36:43	107.8
11:35:44	107.8	11:35:56	107.9	11:36:08	107.7	11:36:20	107.9	11:36:32	125.7	11:36:44	108.1
11:35:45	107.9	11:35:57	107.8	11:36:09	107.9	11:36:21	108.1	11:36:33	127.2	11:36:45	107.8
11:35:46	108.3	11:35:58	107.7	11:36:10	108.0	11:36:22	108.0	11:36:34	120.8		

Removing In-Stream Rock from Barrier



Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
11:36:46	107.6	11:36:57	107.9	11:37:08	107.9	11:37:19	107.9	11:37:30	107.9	11:37:41	107.8
11:36:47	107.9	11:36:58	107.8	11:37:09	107.8	11:37:20	108.0	11:37:31	107.9	11:37:42	107.8
11:36:48	107.9	11:36:59	108.1	11:37:10	107.9	11:37:21	107.8	11:37:32	107.5	11:37:43	108.2
11:36:49	107.7	11:37:00	108.6	11:37:11	108.1	11:37:22	107.9	11:37:33	107.6	11:37:44	107.9
11:36:50	107.9	11:37:01	108.3	11:37:12	107.9	11:37:23	108.0	11:37:34	108.0	11:37:45	107.9
11:36:51	107.9	11:37:02	107.8	11:37:13	107.9	11:37:24	107.9	11:37:35	107.9	11:37:46	108.1
11:36:52	107.8	11:37:03	107.8	11:37:14	108.0	11:37:25	107.9	11:37:36	107.9	11:37:47	107.8
11:36:53	108.0	11:37:04	107.8	11:37:15	108.1	11:37:26	108.1	11:37:37	107.8	11:37:48	108.0
11:36:54	107.9	11:37:05	107.8	11:37:16	108.2	11:37:27	108.2	11:37:38	108.1	11:37:49	108.0
11:36:55	108.1	11:37:06	107.8	11:37:17	107.8	11:37:28	108.4	11:37:39	108.2	11:37:50	108.0
11:36:56	107.7	11:37:07	107.8	11:37:18	107.9	11:37:29	107.8	11:37:40	107.6	11:37:51	108.0

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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11:37:53	107.9	11:38:37	108.0	11:39:21	107.8	11:40:05	108.1	11:40:49	118.5	11:41:33	109.3
11:37:54	108.3	11:38:38	108.0	11:39:22	108.4	11:40:06	108.0	11:40:50	120.3	11:41:34	118.0
11:37:55	107.9	11:38:39	108.1	11:39:23	108.0	11:40:07	107.9	11:40:51	120.0	11:41:35	110.6
11:37:56	108.1	11:38:40	107.8	11:39:24	107.9	11:40:08	107.8	11:40:52	120.9	11:41:36	121.9
11:37:57	107.8	11:38:41	107.8	11:39:25	108.0	11:40:09	108.2	11:40:53	127.7	11:41:37	125.2
11:37:58	108.1	11:38:42	107.8	11:39:26	107.8	11:40:10	107.6	11:40:54	113.4	11:41:38	118.2
11:37:59	107.9	11:38:43	107.7	11:39:27	108.0	11:40:11	107.9	11:40:55	108.7	11:41:39	119.8
11:38:00	108.3	11:38:44	108.0	11:39:28	108.0	11:40:12	107.8	11:40:56	108.5	11:41:40	120.6
11:38:01	108.1	11:38:45	107.7	11:39:29	110.1	11:40:13	111.3	11:40:57	107.8	11:41:41	120.7
11:38:02	107.9	11:38:46	107.8	11:39:30	110.0	11:40:14	123.8	11:40:58	107.9	11:41:42	119.2
11:38:03	107.9	11:38:47	108.0	11:39:31	107.9	11:40:15	111.1	11:40:59	108.3	11:41:43	119.0
11:38:04	108.0	11:38:48	108.3	11:39:32	108.0	11:40:16	124.7	11:41:00	107.8	11:41:44	112.4
11:38:05	107.8	11:38:49	108.0	11:39:33	111.0	11:40:17	125.0	11:41:01	109.9	11:41:45	110.2
11:38:06	107.9	11:38:50	108.0	11:39:34	108.4	11:40:18	118.2	11:41:02	108.2	11:41:46	109.2
11:38:07	108.0	11:38:51	108.3	11:39:35	107.9	11:40:19	120.0	11:41:03	107.7	11:41:47	108.9
11:38:08	107.9	11:38:52	108.6	11:39:36	107.8	11:40:20	121.8	11:41:04	107.9	11:41:48	108.8
11:38:09	107.8	11:38:53	107.9	11:39:37	108.3	11:40:21	121.7	11:41:05	107.9	11:41:49	108.5
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11:38:11	107.8	11:38:55	108.1	11:39:39	107.9	11:40:23	111.6	11:41:07	108.3	11:41:51	108.8
11:38:12	108.0	11:38:56	108.0	11:39:40	108.0	11:40:24	109.6	11:41:08	115.9	11:41:52	108.1
11:38:13	108.2	11:38:57	108.2	11:39:41	108.1	11:40:25	108.3	11:41:09	114.0	11:41:53	108.8
11:38:14	108.1	11:38:58	107.9	11:39:42	108.0	11:40:26	108.1	11:41:10	108.9	11:41:54	108.3
11:38:15	108.0	11:38:59	108.0	11:39:43	111.9	11:40:27	107.9	11:41:11	108.9	11:41:55	108.5
11:38:16	107.8	11:39:00	107.8	11:39:44	110.3	11:40:28	108.6	11:41:12	118.2	11:41:56	109.6
11:38:17	107.9	11:39:01	107.8	11:39:45	108.0	11:40:29	108.1	11:41:13	119.9	11:41:57	122.9
11:38:18	107.8	11:39:02	107.9	11:39:46	108.1	11:40:30	108.0	11:41:14	120.9	11:41:58	123.2
11:38:19	108.3	11:39:03	108.1	11:39:47	107.9	11:40:31	110.0	11:41:15	124.5	11:41:59	116.4
11:38:20	108.1	11:39:04	107.8	11:39:48	107.9	11:40:32	108.9	11:41:16	121.0	11:42:00	123.2
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11:38:23	108.2	11:39:07	107.8	11:39:51	115.5	11:40:35	108.7	11:41:19	108.2	11:42:03	118.0
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11:38:26	107.9	11:39:10	107.7	11:39:54	121.8	11:40:38	108.0	11:41:22	107.9	11:42:06	123.3
11:38:27	107.8	11:39:11	107.9	11:39:55	124.2	11:40:39	107.9	11:41:23	108.1	11:42:07	122.5
11:38:28	107.9	11:39:12	108.0	11:39:56	127.0	11:40:40	108.3	11:41:24	109.3	11:42:08	116.5
11:38:29	108.0	11:39:13	108.1	11:39:57	126.4	11:40:41	107.8	11:41:25	108.3	11:42:09	112.9
11:38:30	108.0	11:39:14	107.6	11:39:58	115.2	11:40:42	107.8	11:41:26	108.1	11:42:10	109.9
11:38:31	108.3	11:39:15	107.6	11:39:59	115.0	11:40:43	108.3	11:41:27	108.2	11:42:11	108.2
11:38:32	107.8	11:39:16	108.2	11:40:00	109.6	11:40:44	121.5	11:41:28	108.0	11:42:12	108.3
11:38:33	108.6	11:39:17	108.1	11:40:01	108.1	11:40:45	121.9	11:41:29	107.7	11:42:13	109.4
11:38:34	107.7	11:39:18	107.9	11:40:02	108.1	11:40:46	113.0	11:41:30	107.9	11:42:14	108.3
11:38:35	107.9	11:39:19	107.9	11:40:03	107.9	11:40:47	108.1	11:41:31	107.9	11:42:15	108.3

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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11:42:17	107.9	11:43:01	108.0	11:43:45	107.6	11:44:29	108.1	11:45:13	108.0	11:45:57	107.9
11:42:18	107.9	11:43:02	108.1	11:43:46	107.8	11:44:30	107.7	11:45:14	107.8	11:45:58	108.2
11:42:19	108.0	11:43:03	107.6	11:43:47	107.9	11:44:31	107.8	11:45:15	108.1	11:45:59	108.3
11:42:20	107.9	11:43:04	107.9	11:43:48	107.9	11:44:32	108.1	11:45:16	107.8	11:46:00	107.9
11:42:21	110.9	11:43:05	107.8	11:43:49	108.0	11:44:33	107.7	11:45:17	108.0	11:46:01	107.8
11:42:22	110.8	11:43:06	107.9	11:43:50	108.0	11:44:34	107.8	11:45:18	108.1	11:46:02	107.9
11:42:23	108.8	11:43:07	108.0	11:43:51	107.9	11:44:35	108.0	11:45:19	108.6	11:46:03	107.8
11:42:24	108.7	11:43:08	108.2	11:43:52	108.3	11:44:36	107.8	11:45:20	108.0	11:46:04	108.3
11:42:25	108.3	11:43:09	107.8	11:43:53	108.3	11:44:37	107.8	11:45:21	107.7	11:46:05	108.0
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11:42:27	108.3	11:43:11	108.0	11:43:55	107.7	11:44:39	107.9	11:45:23	108.3	11:46:07	107.9
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11:42:33	108.4	11:43:17	108.0	11:44:01	108.1	11:44:45	108.2	11:45:29	108.0	11:46:13	108.2
11:42:34	108.2	11:43:18	107.7	11:44:02	108.0	11:44:46	108.4	11:45:30	108.6	11:46:14	108.0
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11:42:43	108.1	11:43:27	108.4	11:44:11	108.1	11:44:55	108.3	11:45:39	108.0	11:46:23	109.9
11:42:44	108.1	11:43:28	107.8	11:44:12	108.1	11:44:56	107.8	11:45:40	107.9	11:46:24	114.0
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11:42:50	108.1	11:43:34	108.0	11:44:18	108.1	11:45:02	108.4	11:45:46	108.1	11:46:30	115.8
11:42:51	108.6	11:43:35	108.0	11:44:19	107.9	11:45:03	107.8	11:45:47	107.8	11:46:31	108.3
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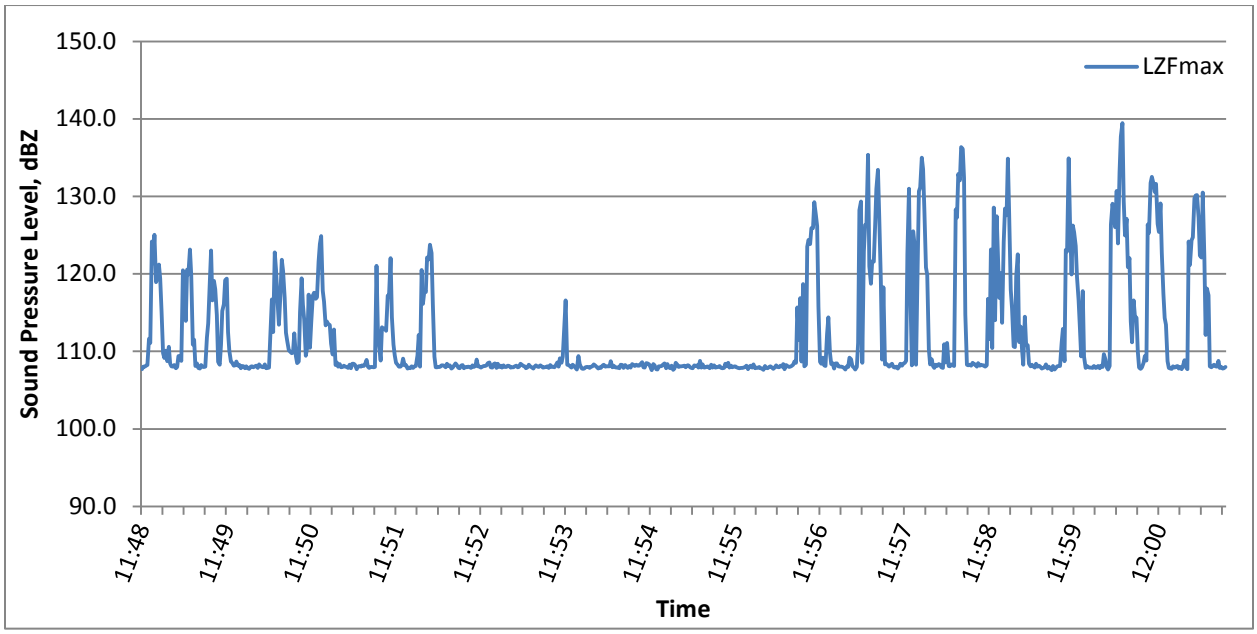
11:42:53	108.1	11:43:37	107.8	11:44:21	108.1	11:45:05	108.0	11:45:49	108.1	11:46:33	108.1
11:42:54	107.9	11:43:38	107.9	11:44:22	108.4	11:45:06	108.2	11:45:50	108.0	11:46:34	108.2
11:42:55	107.7	11:43:39	107.9	11:44:23	107.9	11:45:07	108.0	11:45:51	108.0	11:46:35	108.0
11:42:56	107.7	11:43:40	108.0	11:44:24	108.1	11:45:08	107.8	11:45:52	107.8	11:46:36	107.8
11:42:57	107.7	11:43:41	108.0	11:44:25	108.1	11:45:09	107.8	11:45:53	107.8	11:46:37	108.1
11:42:58	107.9	11:43:42	108.1	11:44:26	107.7	11:45:10	108.1	11:45:54	107.8	11:46:38	108.2
11:42:59	108.0	11:43:43	108.0	11:44:27	107.9	11:45:11	108.3	11:45:55	108.3	11:46:39	108.3

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
11:46:40	108.4	11:46:54	107.9	11:47:08	109.4	11:47:22	119.6	11:47:36	108.2	11:47:50	119.0
11:46:41	108.3	11:46:55	108.3	11:47:09	108.1	11:47:23	116.1	11:47:37	108.2	11:47:51	117.3
11:46:42	108.0	11:46:56	112.4	11:47:10	108.3	11:47:24	117.8	11:47:38	108.3	11:47:52	112.8
11:46:43	107.9	11:46:57	108.8	11:47:11	108.1	11:47:25	117.9	11:47:39	110.4	11:47:53	110.3
11:46:44	108.3	11:46:58	107.9	11:47:12	108.6	11:47:26	117.4	11:47:40	112.1	11:47:54	109.1
11:46:45	108.2	11:46:59	119.1	11:47:13	108.0	11:47:27	116.6	11:47:41	122.3	11:47:55	108.2
11:46:46	108.0	11:47:00	119.7	11:47:14	107.8	11:47:28	112.5	11:47:42	122.5	11:47:56	111.6
11:46:47	108.5	11:47:01	119.3	11:47:15	108.1	11:47:29	108.6	11:47:43	112.6	11:47:57	108.1
11:46:48	107.8	11:47:02	121.3	11:47:16	108.0	11:47:30	111.3	11:47:44	119.6	11:47:58	108.3
11:46:49	108.0	11:47:03	124.4	11:47:17	108.1	11:47:31	110.1	11:47:45	116.1	11:47:59	107.9
11:46:50	107.9	11:47:04	124.4	11:47:18	113.7	11:47:32	110.6	11:47:46	116.4		
11:46:51	107.7	11:47:05	122.4	11:47:19	109.7	11:47:33	110.0	11:47:47	116.0		
11:46:52	108.0	11:47:06	111.1	11:47:20	117.7	11:47:34	107.9	11:47:48	117.4		
11:46:53	107.7	11:47:07	110.2	11:47:21	118.4	11:47:35	108.1	11:47:49	119.6		

Removing In-Stream Rock from Barrier



Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
11:48:00	107.7	11:48:08	121.4	11:48:16	109.1	11:48:24	107.8	11:48:32	120.5	11:48:40	107.9
11:48:01	108.0	11:48:09	125.0	11:48:17	110.1	11:48:25	108.0	11:48:33	119.9	11:48:41	107.8
11:48:02	108.0	11:48:10	118.9	11:48:18	108.7	11:48:26	109.4	11:48:34	123.2	11:48:42	108.2
11:48:03	108.2	11:48:11	119.4	11:48:19	110.6	11:48:27	109.4	11:48:35	119.8	11:48:43	108.0
11:48:04	108.2	11:48:12	121.2	11:48:20	108.5	11:48:28	108.8	11:48:36	110.9	11:48:44	108.0
11:48:05	111.6	11:48:13	119.4	11:48:21	108.1	11:48:29	120.5	11:48:37	111.5	11:48:45	108.0
11:48:06	111.1	11:48:14	115.4	11:48:22	108.0	11:48:30	119.2	11:48:38	108.1	11:48:46	111.8
11:48:07	124.2	11:48:15	109.8	11:48:23	108.3	11:48:31	113.9	11:48:39	108.5	11:48:47	113.6

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
11:48:48	118.9	11:49:32	116.7	11:50:16	112.8	11:51:00	108.6	11:51:44	107.9	11:52:28	108.4
11:48:49	123.0	11:49:33	112.5	11:50:17	108.3	11:51:01	108.3	11:51:45	107.8	11:52:29	108.3
11:48:50	116.6	11:49:34	122.8	11:50:18	108.6	11:51:02	108.0	11:51:46	108.2	11:52:30	108.1
11:48:51	119.1	11:49:35	120.5	11:50:19	108.0	11:51:03	108.0	11:51:47	108.2	11:52:31	108.1
11:48:52	118.0	11:49:36	116.3	11:50:20	108.4	11:51:04	108.3	11:51:48	107.8	11:52:32	107.8
11:48:53	114.7	11:49:37	113.4	11:50:21	108.0	11:51:05	109.1	11:51:49	108.0	11:52:33	107.9
11:48:54	108.7	11:49:38	116.8	11:50:22	108.0	11:51:06	108.2	11:51:50	107.9	11:52:34	108.3
11:48:55	108.3	11:49:39	121.8	11:50:23	108.1	11:51:07	108.2	11:51:51	108.0	11:52:35	108.0
11:48:56	110.9	11:49:40	120.4	11:50:24	108.1	11:51:08	107.8	11:51:52	108.0	11:52:36	107.9
11:48:57	115.2	11:49:41	116.9	11:50:25	108.0	11:51:09	107.9	11:51:53	107.9	11:52:37	107.8
11:48:58	116.1	11:49:42	112.4	11:50:26	107.9	11:51:10	107.8	11:51:54	108.2	11:52:38	108.0
11:48:59	119.2	11:49:43	111.4	11:50:27	108.3	11:51:11	108.1	11:51:55	108.0	11:52:39	108.2
11:49:00	119.4	11:49:44	110.1	11:50:28	107.8	11:51:12	107.9	11:51:56	108.1	11:52:40	108.1
11:49:01	112.5	11:49:45	110.0	11:50:29	108.4	11:51:13	108.1	11:51:57	108.9	11:52:41	108.0
11:49:02	110.1	11:49:46	109.8	11:50:30	108.4	11:51:14	108.1	11:51:58	108.1	11:52:42	108.2
11:49:03	108.7	11:49:47	109.9	11:50:31	108.2	11:51:15	109.5	11:51:59	108.0	11:52:43	108.1
11:49:04	108.5	11:49:48	112.3	11:50:32	107.7	11:51:16	112.1	11:52:00	107.9	11:52:44	107.9
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11:49:06	108.2	11:49:50	108.5	11:50:34	108.1	11:51:18	120.5	11:52:02	108.1	11:52:46	108.0
11:49:07	108.7	11:49:51	108.7	11:50:35	108.0	11:51:19	116.1	11:52:03	108.1	11:52:47	108.1
11:49:08	108.2	11:49:52	115.1	11:50:36	108.2	11:51:20	117.9	11:52:04	108.2	11:52:48	107.9
11:49:09	108.3	11:49:53	119.4	11:50:37	108.1	11:51:21	117.7	11:52:05	108.5	11:52:49	108.2
11:49:10	107.8	11:49:54	116.0	11:50:38	108.3	11:51:22	122.1	11:52:06	108.6	11:52:50	108.0
11:49:11	108.1	11:49:55	114.1	11:50:39	108.9	11:51:23	121.9	11:52:07	108.0	11:52:51	108.0
11:49:12	108.1	11:49:56	109.5	11:50:40	108.1	11:51:24	123.8	11:52:08	107.9	11:52:52	108.0
11:49:13	107.8	11:49:57	110.4	11:50:41	107.9	11:51:25	122.7	11:52:09	108.4	11:52:53	108.2
11:49:14	108.1	11:49:58	117.3	11:50:42	108.0	11:51:26	116.1	11:52:10	108.4	11:52:54	108.6
11:49:15	107.8	11:49:59	110.5	11:50:43	108.0	11:51:27	109.3	11:52:11	107.9	11:52:55	108.0
11:49:16	107.8	11:50:00	113.7	11:50:44	108.0	11:51:28	108.0	11:52:12	108.4	11:52:56	109.1
11:49:17	108.1	11:50:01	117.2	11:50:45	108.0	11:51:29	108.0	11:52:13	108.0	11:52:57	108.5
11:49:18	108.1	11:50:02	117.6	11:50:46	121.0	11:51:30	108.0	11:52:14	108.1	11:52:58	109.3
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11:49:23	108.3	11:50:07	124.9	11:50:51	112.9	11:51:35	108.0	11:52:19	108.1	11:53:03	108.1
11:49:24	108.1	11:50:08	117.8	11:50:52	112.9	11:51:36	108.4	11:52:20	108.1	11:53:04	107.9
11:49:25	108.0	11:50:09	116.4	11:50:53	112.7	11:51:37	108.1	11:52:21	107.9	11:53:05	108.3
11:49:26	107.9	11:50:10	113.4	11:50:54	117.2	11:51:38	108.2	11:52:22	108.0	11:53:06	108.1
11:49:27	108.3	11:50:11	113.9	11:50:55	117.1	11:51:39	107.8	11:52:23	107.9	11:53:07	107.9
11:49:28	107.8	11:50:12	113.5	11:50:56	122.0	11:51:40	107.9	11:52:24	108.1	11:53:08	107.7
11:49:29	107.9	11:50:13	113.4	11:50:57	114.4	11:51:41	108.2	11:52:25	108.2	11:53:09	109.4
11:49:30	107.9	11:50:14	111.0	11:50:58	110.9	11:51:42	108.5	11:52:26	108.0	11:53:10	108.3
11:49:31	111.9	11:50:15	109.6	11:50:59	109.5	11:51:43	108.3	11:52:27	108.0	11:53:11	107.9

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
11:53:12	107.8	11:53:56	107.9	11:54:40	108.0	11:55:24	108.0	11:56:08	108.4	11:56:52	108.0
11:53:13	107.8	11:53:57	108.5	11:54:41	108.0	11:55:25	108.1	11:56:09	108.5	11:56:53	107.9
11:53:14	108.0	11:53:58	108.5	11:54:42	107.8	11:55:26	107.9	11:56:10	107.8	11:56:54	108.0
11:53:15	108.0	11:53:59	108.3	11:54:43	108.3	11:55:27	107.8	11:56:11	108.4	11:56:55	107.8
11:53:16	108.0	11:54:00	108.0	11:54:44	107.9	11:55:28	107.9	11:56:12	108.5	11:56:56	108.0
11:53:17	107.9	11:54:01	107.6	11:54:45	108.2	11:55:29	108.2	11:56:13	108.1	11:56:57	108.4
11:53:18	108.0	11:54:02	108.4	11:54:46	107.9	11:55:30	108.0	11:56:14	108.1	11:56:58	108.2
11:53:19	108.1	11:54:03	108.2	11:54:47	107.9	11:55:31	108.0	11:56:15	108.1	11:56:59	108.4
11:53:20	108.3	11:54:04	107.7	11:54:48	108.0	11:55:32	108.2	11:56:16	108.0	11:57:00	108.5
11:53:21	108.2	11:54:05	107.7	11:54:49	108.1	11:55:33	108.0	11:56:17	107.9	11:57:01	108.8
11:53:22	108.0	11:54:06	108.1	11:54:50	107.9	11:55:34	108.4	11:56:18	107.7	11:57:02	122.6
11:53:23	107.8	11:54:07	108.1	11:54:51	107.8	11:55:35	107.7	11:56:19	108.1	11:57:03	131.0
11:53:24	108.0	11:54:08	108.1	11:54:52	107.9	11:55:36	108.3	11:56:20	108.0	11:57:04	118.2
11:53:25	107.9	11:54:09	108.3	11:54:53	108.4	11:55:37	108.1	11:56:21	109.2	11:57:05	108.2
11:53:26	108.2	11:54:10	108.5	11:54:54	108.1	11:55:38	108.0	11:56:22	109.0	11:57:06	125.5
11:53:27	108.3	11:54:11	107.8	11:54:55	108.5	11:55:39	108.0	11:56:23	108.1	11:57:07	123.6
11:53:28	108.0	11:54:12	108.4	11:54:56	107.9	11:55:40	108.1	11:56:24	107.9	11:57:08	108.3
11:53:29	108.1	11:54:13	108.0	11:54:57	108.1	11:55:41	108.3	11:56:25	107.7	11:57:09	118.4
11:53:30	108.1	11:54:14	107.8	11:54:58	107.9	11:55:42	108.7	11:56:26	108.0	11:57:10	130.7
11:53:31	108.1	11:54:15	108.2	11:54:59	108.0	11:55:43	108.6	11:56:27	111.1	11:57:11	131.1
11:53:32	108.7	11:54:16	107.6	11:55:00	108.1	11:55:44	115.7	11:56:28	128.2	11:57:12	135.0
11:53:33	108.0	11:54:17	107.8	11:55:01	107.9	11:55:45	111.5	11:56:29	129.3	11:57:13	133.5
11:53:34	108.2	11:54:18	108.5	11:55:02	107.9	11:55:46	116.9	11:56:30	108.5	11:57:14	128.3
11:53:35	108.0	11:54:19	108.3	11:55:03	107.8	11:55:47	108.7	11:56:31	122.9	11:57:15	120.9
11:53:36	107.9	11:54:20	108.0	11:55:04	107.9	11:55:48	118.7	11:56:32	126.3	11:57:16	119.9
11:53:37	108.0	11:54:21	108.1	11:55:05	107.9	11:55:49	108.1	11:56:33	126.4	11:57:17	110.3
11:53:38	107.8	11:54:22	108.1	11:55:06	107.9	11:55:50	108.3	11:56:34	135.4	11:57:18	108.3
11:53:39	108.3	11:54:23	108.1	11:55:07	108.0	11:55:51	123.5	11:56:35	121.0	11:57:19	109.0
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11:53:42	108.3	11:54:26	108.2	11:55:10	108.0	11:55:54	125.9	11:56:38	121.6	11:57:22	108.3
11:53:43	108.1	11:54:27	108.2	11:55:11	108.2	11:55:55	125.9	11:56:39	126.0	11:57:23	108.1
11:53:44	107.9	11:54:28	108.0	11:55:12	107.9	11:55:56	129.3	11:56:40	131.0	11:57:24	108.4
11:53:45	108.1	11:54:29	107.9	11:55:13	108.3	11:55:57	127.6	11:56:41	133.4	11:57:25	108.3
11:53:46	107.9	11:54:30	107.8	11:55:14	107.8	11:55:58	126.2	11:56:42	127.4	11:57:26	107.9
11:53:47	108.4	11:54:31	108.2	11:55:15	107.9	11:55:59	115.7	11:56:43	119.2	11:57:27	107.9
11:53:48	108.3	11:54:32	108.1	11:55:16	107.9	11:56:00	108.6	11:56:44	108.9	11:57:28	110.9
11:53:49	108.1	11:54:33	108.2	11:55:17	108.0	11:56:01	108.4	11:56:45	118.3	11:57:29	108.6
11:53:50	108.3	11:54:34	107.9	11:55:18	107.8	11:56:02	109.2	11:56:46	108.3	11:57:30	111.1
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11:53:52	108.2	11:54:36	107.9	11:55:20	107.6	11:56:04	108.1	11:56:48	108.2	11:57:32	108.1
11:53:53	108.4	11:54:37	108.3	11:55:21	108.1	11:56:05	112.2	11:56:49	108.0	11:57:33	108.3
11:53:54	108.6	11:54:38	107.9	11:55:22	107.9	11:56:06	114.4	11:56:50	108.3	11:57:34	108.2
11:53:55	107.9	11:54:39	108.0	11:55:23	107.8	11:56:07	109.8	11:56:51	108.4	11:57:35	108.1

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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11:57:37	127.3	11:58:10	124.1	11:58:43	107.8	11:59:15	107.9	11:59:48	108.0	12:00:21	124.2
11:57:38	132.9	11:58:11	128.4	11:58:44	107.6	11:59:16	107.9	11:59:49	108.5	12:00:22	121.2
11:57:39	132.1	11:58:12	127.6	11:58:45	108.1	11:59:17	108.1	11:59:50	109.4	12:00:23	124.3
11:57:40	136.4	11:58:13	134.9	11:58:46	107.7	11:59:18	107.8	11:59:51	108.8	12:00:24	124.7
11:57:41	136.1	11:58:14	127.7	11:58:47	107.9	11:59:19	108.2	11:59:52	126.4	12:00:25	129.8
11:57:42	132.3	11:58:15	117.9	11:58:48	108.1	11:59:20	108.0	11:59:53	125.3	12:00:26	130.1
11:57:43	114.8	11:58:16	115.6	11:58:49	108.1	11:59:21	109.6	11:59:54	131.7	12:00:27	130.2
11:57:44	108.3	11:58:17	110.6	11:58:50	108.1	11:59:22	108.9	11:59:55	132.5	12:00:28	127.2
11:57:45	108.2	11:58:18	110.6	11:58:51	111.1	11:59:23	108.0	11:59:56	131.7	12:00:29	122.3
11:57:46	108.3	11:58:19	119.6	11:58:52	112.9	11:59:24	107.7	11:59:57	130.6	12:00:30	122.1
11:57:47	108.2	11:58:20	122.5	11:58:53	108.8	11:59:25	108.1	11:59:58	131.6	12:00:31	130.5
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11:57:52	108.5	11:58:25	114.5	11:58:58	119.9	11:59:30	130.7	12:00:03	117.5	12:00:36	108.1
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11:58:00	111.6	11:58:33	108.4	11:59:06	117.8	11:59:38	120.9	12:00:11	107.9	12:00:44	108.0
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11:58:03	128.6	11:58:36	108.0	11:59:09	108.1	11:59:41	111.2	12:00:14	107.8	12:00:47	108.0
11:58:04	114.0	11:58:37	107.8	11:59:10	108.0	11:59:42	116.6	12:00:15	108.0		
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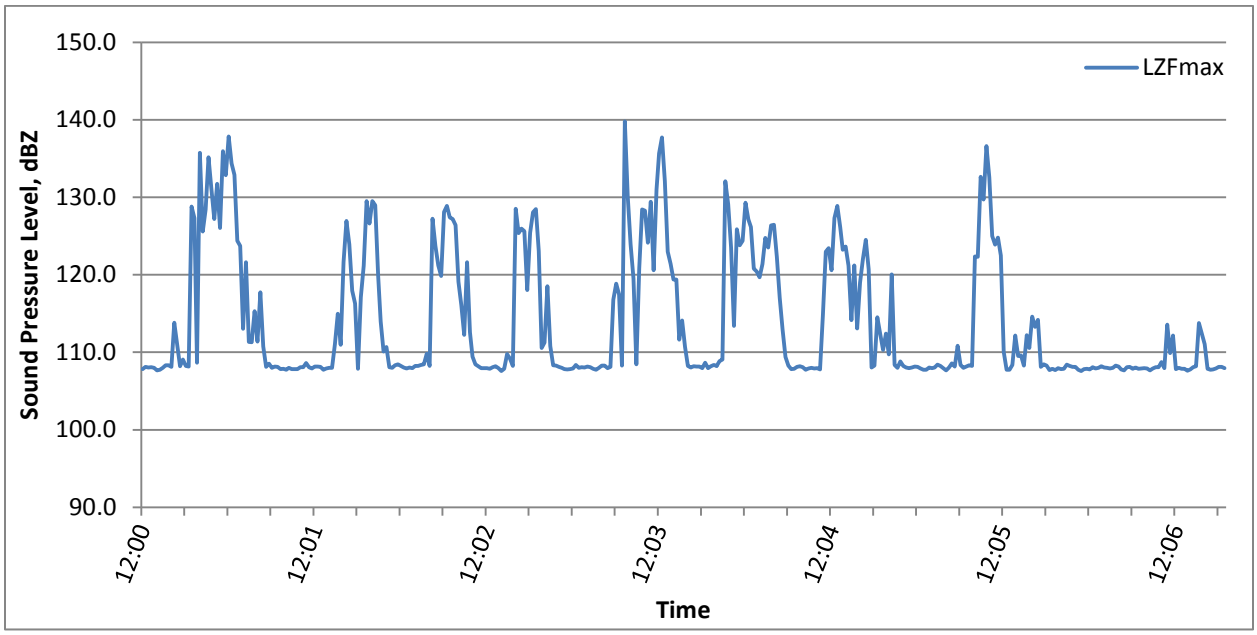
11:58:06	122.3	11:58:39	108.0	11:59:12	107.9	11:59:44	114.4	12:00:17	108.1		
11:58:07	116.9	11:58:40	108.3	11:57:37	127.3	11:59:45	110.0	12:00:18	108.9		
11:58:08	120.1	11:58:41	107.8	11:59:13	107.9	11:59:46	107.9	12:00:19	108.0		

Removing In-Stream Rock from Barrier



Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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12:00:49	108.1	12:01:14	131.8	12:01:39	108.0	12:02:04	117.1	12:02:29	127.2	12:02:54	107.9
12:00:50	108.0	12:01:15	126.0	12:01:40	107.8	12:02:05	121.2	12:02:30	123.7	12:02:55	109.8
12:00:51	108.1	12:01:16	136.0	12:01:41	107.8	12:02:06	129.5	12:02:31	121.2	12:02:56	109.2
12:00:52	108.0	12:01:17	132.9	12:01:42	107.8	12:02:07	126.6	12:02:32	119.8	12:02:57	108.2
12:00:53	107.7	12:01:18	137.9	12:01:43	108.1	12:02:08	129.5	12:02:33	128.1	12:02:58	128.5
12:00:54	107.7	12:01:19	134.4	12:01:44	108.1	12:02:09	129.0	12:02:34	128.9	12:02:59	125.4
12:00:55	108.0	12:01:20	132.9	12:01:45	108.6	12:02:10	120.0	12:02:35	127.4	12:03:00	126.0
12:00:56	108.3	12:01:21	124.4	12:01:46	108.1	12:02:11	114.0	12:02:36	127.2	12:03:01	125.6
12:00:57	108.3	12:01:22	123.7	12:01:47	107.9	12:02:12	110.1	12:02:37	126.4	12:03:02	118.0
12:00:58	108.1	12:01:23	113.0	12:01:48	108.2	12:02:13	110.7	12:02:38	119.1	12:03:03	125.4
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12:01:01	108.2	12:01:26	111.3	12:01:51	107.7	12:02:16	108.3	12:02:41	121.6	12:03:06	123.1
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12:01:03	108.3	12:01:28	111.4	12:01:53	108.0	12:02:18	108.3	12:02:43	109.5	12:03:08	111.2
12:01:04	108.2	12:01:29	117.8	12:01:54	108.0	12:02:19	108.0	12:02:44	108.5	12:03:09	118.5
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12:01:12	131.1	12:01:37	107.9	12:02:02	116.3	12:02:27	109.8	12:02:52	107.9	12:03:17	107.8

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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12:03:19	108.4	12:03:58	108.3	12:04:37	108.2	12:05:16	108.0	12:05:55	108.3	12:06:34	108.0
12:03:20	108.0	12:03:59	108.0	12:04:38	108.1	12:05:17	108.2	12:05:56	112.2	12:06:35	107.9
12:03:21	108.1	12:04:00	108.2	12:04:39	107.8	12:05:18	108.1	12:05:57	110.6	12:06:36	107.9
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12:03:23	108.1	12:04:02	108.2	12:04:41	108.0	12:05:20	107.7	12:05:59	113.3	12:06:38	107.9
12:03:24	108.1	12:04:03	108.0	12:04:42	107.9	12:05:21	107.7	12:06:00	114.2	12:06:39	107.7
12:03:25	107.9	12:04:04	108.7	12:04:43	107.9	12:05:22	108.0	12:06:01	108.1	12:06:40	107.9
12:03:26	107.8	12:04:05	107.9	12:04:44	107.8	12:05:23	108.0	12:06:02	108.4	12:06:41	108.1
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12:03:43	128.3	12:04:22	120.4	12:05:01	120.7	12:05:40	132.7	12:06:19	108.1	12:06:58	111.1
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12:03:47	131.0	12:04:26	123.5	12:05:05	112.4	12:05:44	125.0	12:06:23	108.0	12:07:02	107.9
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12:03:49	137.7	12:04:28	126.5	12:05:07	112.4	12:05:46	124.8	12:06:25	107.9	12:07:04	108.1
12:03:50	132.1	12:04:29	122.3	12:05:08	109.7	12:05:47	122.5	12:06:26	108.0	12:07:05	107.9
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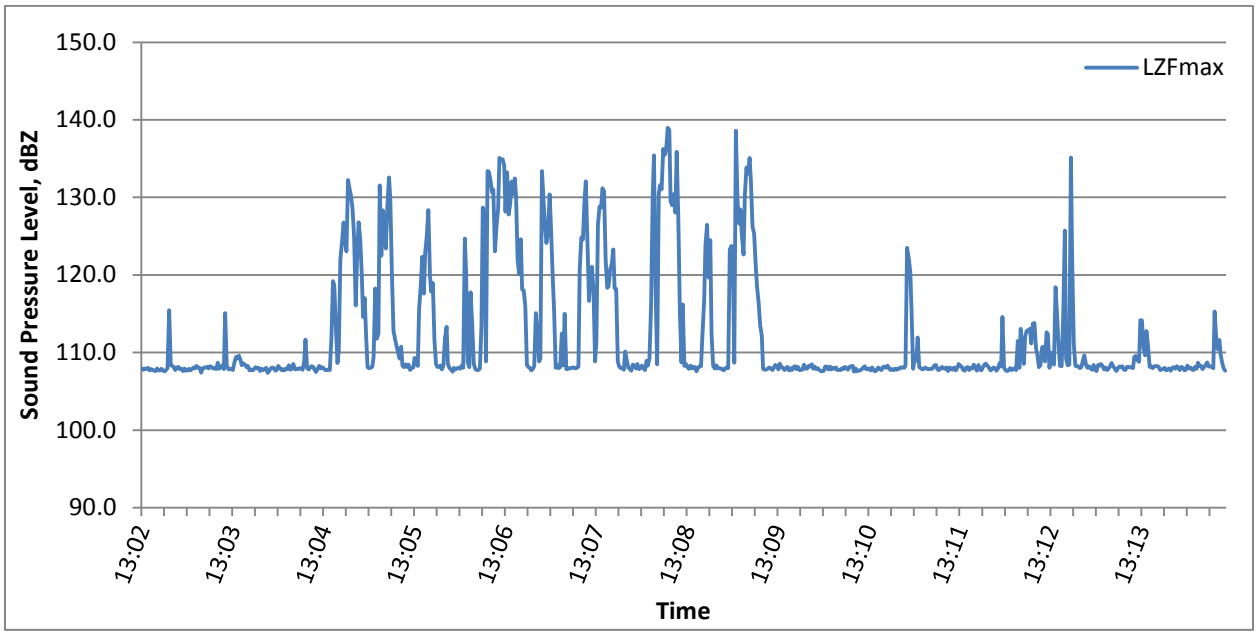
12:03:55	111.6	12:04:34	107.8	12:05:13	108.2	12:05:52	112.1	12:06:31	108.1		
12:03:56	114.1	12:04:35	107.9	12:05:14	108.1	12:05:53	109.5	12:06:32	108.1		

Removing In-Stream Rock from Barrier



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13:02:30	107.8	13:02:55	107.9	13:03:20	107.9	13:03:45	108.0	13:04:10	107.8	13:04:35	119.2
13:02:31	107.9	13:02:56	107.6	13:03:21	108.1	13:03:46	108.0	13:04:11	107.9	13:04:36	118.7
13:02:32	107.9	13:02:57	107.9	13:03:22	108.4	13:03:47	107.6	13:04:12	107.9	13:04:37	113.2
13:02:33	108.0	13:02:58	107.6	13:03:23	107.9	13:03:48	107.9	13:04:13	108.0	13:04:38	108.6
13:02:34	107.7	13:02:59	107.7	13:03:24	115.1	13:03:49	107.7	13:04:14	107.9	13:04:39	110.1
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13:02:36	107.8	13:03:01	107.7	13:03:26	107.9	13:03:51	108.0	13:04:16	108.8	13:04:41	124.2
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13:02:38	107.6	13:03:03	108.1	13:03:28	107.9	13:03:53	107.7	13:04:18	108.0	13:04:43	124.5
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13:02:44	107.6	13:03:09	107.9	13:03:34	109.0	13:03:59	108.3	13:04:24	107.5	13:04:49	124.9
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13:02:52	108.1	13:03:17	108.0	13:03:42	107.7	13:04:07	107.8	13:04:32	107.8	13:04:57	111.7
13:02:53	108.1	13:03:18	107.9	13:03:43	107.8	13:04:08	108.0	13:04:33	107.8	13:04:58	108.1

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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13:05:00	108.0	13:05:44	108.1	13:06:28	134.1	13:07:12	108.0	13:07:56	108.5	13:08:40	116.8
13:05:01	108.2	13:05:45	108.1	13:06:29	128.2	13:07:13	108.1	13:07:57	107.9	13:08:41	123.9
13:05:02	109.5	13:05:46	108.3	13:06:30	133.2	13:07:14	108.1	13:07:58	108.0	13:08:42	126.5
13:05:03	118.3	13:05:47	107.8	13:06:31	127.8	13:07:15	108.0	13:07:59	108.3	13:08:43	119.6
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13:05:14	120.3	13:05:58	108.0	13:06:42	115.9	13:07:26	121.1	13:08:10	130.4	13:08:54	107.9
13:05:15	112.8	13:05:59	107.9	13:06:43	108.4	13:07:27	118.1	13:08:11	131.6	13:08:55	108.1
13:05:16	111.7	13:06:00	108.3	13:06:44	108.2	13:07:28	108.9	13:08:12	131.1	13:08:56	108.0
13:05:17	111.0	13:06:01	108.0	13:06:45	108.0	13:07:29	111.3	13:08:13	136.2	13:08:57	123.3
13:05:18	110.1	13:06:02	124.7	13:06:46	107.7	13:07:30	126.5	13:08:14	135.5	13:08:58	123.8
13:05:19	109.2	13:06:03	120.2	13:06:47	107.9	13:07:31	128.8	13:08:15	136.1	13:08:59	120.8
13:05:20	110.8	13:06:04	108.7	13:06:48	108.3	13:07:32	128.7	13:08:16	139.0	13:09:00	108.7
13:05:21	108.3	13:06:05	108.1	13:06:49	115.1	13:07:33	131.2	13:08:17	138.7	13:09:01	138.6
13:05:22	108.1	13:06:06	117.8	13:06:50	112.6	13:07:34	130.8	13:08:18	129.5	13:09:02	129.7
13:05:23	108.5	13:06:07	113.7	13:06:51	108.9	13:07:35	122.0	13:08:19	129.0	13:09:03	126.6
13:05:24	108.2	13:06:08	108.5	13:06:52	109.2	13:07:36	118.3	13:08:20	130.4	13:09:04	128.5
13:05:25	108.4	13:06:09	107.9	13:06:53	133.4	13:07:37	118.5	13:08:21	128.0	13:09:05	125.0
13:05:26	107.8	13:06:10	107.7	13:06:54	129.6	13:07:38	120.7	13:08:22	135.9	13:09:06	122.6
13:05:27	108.0	13:06:11	107.7	13:06:55	126.6	13:07:39	121.4	13:08:23	127.6	13:09:07	130.3
13:05:28	108.1	13:06:12	107.9	13:06:56	124.1	13:07:40	123.3	13:08:24	115.3	13:09:08	133.9
13:05:29	109.3	13:06:13	113.5	13:06:57	125.5	13:07:41	118.3	13:08:25	108.7	13:09:09	133.1
13:05:30	109.0	13:06:14	128.7	13:06:58	130.4	13:07:42	118.2	13:08:26	116.2	13:09:10	135.1
13:05:31	108.3	13:06:15	127.9	13:06:59	126.3	13:07:43	108.9	13:08:27	108.3	13:09:11	132.0
13:05:32	115.6	13:06:16	108.9	13:07:00	120.5	13:07:44	108.2	13:08:28	108.5	13:09:12	126.2
13:05:33	118.5	13:06:17	133.4	13:07:01	115.3	13:07:45	108.0	13:08:29	108.1	13:09:13	125.3
13:05:34	122.3	13:06:18	133.3	13:07:02	108.0	13:07:46	108.0	13:08:30	107.9	13:09:14	121.2
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13:05:36	122.8	13:06:20	130.7	13:07:04	108.0	13:07:48	110.1	13:08:32	108.0	13:09:16	116.5
13:05:37	125.0	13:06:21	131.0	13:07:05	108.1	13:07:49	109.0	13:08:33	108.1	13:09:17	113.5
13:05:38	128.4	13:06:22	123.0	13:07:06	112.5	13:07:50	108.0	13:08:34	108.1	13:09:18	112.2
13:05:39	120.0	13:06:23	126.3	13:07:07	108.4	13:07:51	107.9	13:08:35	107.6	13:09:19	107.9
13:05:40	117.9	13:06:24	128.5	13:07:08	115.0	13:07:52	107.7	13:08:36	108.1	13:09:20	107.8
13:05:41	119.0	13:06:25	135.1	13:07:09	107.9	13:07:53	108.4	13:08:37	108.2	13:09:21	107.8
13:05:42	111.6	13:06:26	134.8	13:07:10	107.9	13:07:54	108.3	13:08:38	108.2	13:09:22	107.9

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
13:09:23	108.1	13:10:07	108.1	13:10:51	108.1	13:11:35	107.7	13:12:19	110.5	13:13:03	108.3
13:09:24	108.0	13:10:08	107.7	13:10:52	108.0	13:11:36	108.0	13:12:20	109.8	13:13:04	107.8
13:09:25	107.8	13:10:09	107.8	13:10:53	108.3	13:11:37	107.9	13:12:21	108.1	13:13:05	108.1
13:09:26	108.0	13:10:10	107.7	13:10:54	123.5	13:11:38	108.4	13:12:22	108.4	13:13:06	107.7
13:09:27	108.4	13:10:11	108.0	13:10:55	122.2	13:11:39	108.1	13:12:23	110.7	13:13:07	108.0
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13:09:32	108.0	13:10:16	108.1	13:11:00	108.9	13:11:44	108.1	13:12:28	108.0	13:13:12	107.6
13:09:33	107.7	13:10:17	108.2	13:11:01	111.9	13:11:45	108.4	13:12:29	110.0	13:13:13	107.9
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13:09:37	108.0	13:10:21	107.6	13:11:05	107.9	13:11:49	107.7	13:12:33	114.7	13:13:17	107.8
13:09:38	107.7	13:10:22	107.7	13:11:06	108.1	13:11:50	107.8	13:12:34	110.4	13:13:18	107.7
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13:09:49	108.3	13:10:33	107.6	13:11:17	108.2	13:12:01	107.7	13:12:45	108.3	13:13:29	114.1
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13:09:51	108.5	13:10:35	108.1	13:11:19	107.9	13:12:03	107.7	13:12:47	108.2	13:13:31	109.7
13:09:52	107.9	13:10:36	107.9	13:11:20	108.1	13:12:04	107.9	13:12:48	108.0	13:13:32	112.8
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13:09:55	108.0	13:10:39	108.2	13:11:23	107.9	13:12:07	111.5	13:12:51	109.6	13:13:35	108.2
13:09:56	107.8	13:10:40	108.0	13:11:24	107.8	13:12:08	108.0	13:12:52	108.4	13:13:36	108.0
13:09:57	107.6	13:10:41	108.3	13:11:25	108.1	13:12:09	113.1	13:12:53	108.0	13:13:37	108.3
13:09:58	107.6	13:10:42	108.0	13:11:26	107.7	13:12:10	110.0	13:12:54	108.2	13:13:38	108.2
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13:10:00	108.2	13:10:44	107.9	13:11:28	108.5	13:12:12	112.1	13:12:56	107.8	13:13:40	108.1
13:10:01	108.2	13:10:45	107.7	13:11:29	108.3	13:12:13	112.8	13:12:57	108.4	13:13:41	107.7
13:10:02	107.8	13:10:46	107.9	13:11:30	108.1	13:12:14	112.9	13:12:58	107.8	13:13:42	107.8
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13:10:04	107.8	13:10:48	108.0	13:11:32	107.6	13:12:16	111.2	13:13:00	108.4	13:13:44	108.0
13:10:05	108.0	13:10:49	107.9	13:11:33	108.1	13:12:17	113.7	13:13:01	108.3	13:13:45	107.7
13:10:06	107.9	13:10:50	108.1	13:11:34	108.1	13:12:18	113.8	13:13:02	108.5	13:13:46	107.8

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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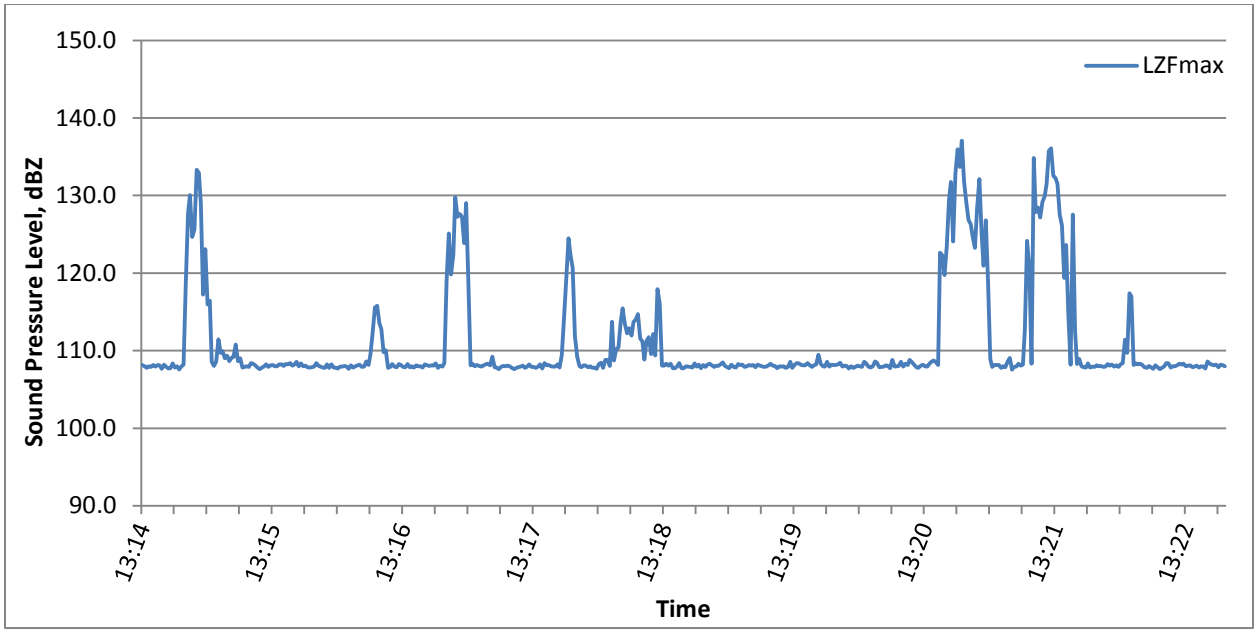
13:13:48	107.6	13:13:55	108.1	13:14:02	107.8	13:14:09	107.9	13:14:16	108.0	13:14:23	107.9
13:13:49	108.0	13:13:56	108.0	13:14:03	107.7	13:14:10	108.1	13:14:17	115.3	13:14:24	107.6
13:13:50	108.1	13:13:57	107.7	13:14:04	108.2	13:14:11	108.4	13:14:18	111.9		
13:13:51	107.9	13:13:58	107.8	13:14:05	107.9	13:14:12	108.7	13:14:19	110.4		
13:13:52	108.2	13:13:59	108.3	13:14:06	108.7	13:14:13	108.2	13:14:20	111.6		
13:13:53	108.1	13:14:00	107.9	13:14:07	108.3	13:14:14	108.2	13:14:21	109.7		

Removing In-Stream Rock from Barrier



Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
13:14:25	108.2	13:14:40	107.8	13:14:55	115.9	13:15:10	109.0	13:15:25	108.1	13:15:40	108.0
13:14:26	108.0	13:14:41	108.0	13:14:56	116.4	13:15:11	107.8	13:15:26	108.0	13:15:41	107.9
13:14:27	107.8	13:14:42	107.6	13:14:57	108.6	13:15:12	107.9	13:15:27	108.0	13:15:42	107.8
13:14:28	108.0	13:14:43	107.9	13:14:58	108.0	13:15:13	108.0	13:15:28	108.2	13:15:43	107.9
13:14:29	107.9	13:14:44	108.2	13:14:59	108.6	13:15:14	107.9	13:15:29	108.2	13:15:44	108.0
13:14:30	108.2	13:14:45	118.7	13:15:00	111.4	13:15:15	108.4	13:15:30	108.0	13:15:45	108.4
13:14:31	107.9	13:14:46	127.7	13:15:01	109.7	13:15:16	108.3	13:15:31	108.3	13:15:46	108.0
13:14:32	108.2	13:14:47	130.1	13:15:02	109.9	13:15:17	108.1	13:15:32	108.2	13:15:47	108.0
13:14:33	108.1	13:14:48	124.7	13:15:03	109.0	13:15:18	107.8	13:15:33	108.4	13:15:48	107.8
13:14:34	107.7	13:14:49	125.6	13:15:04	109.3	13:15:19	107.6	13:15:34	108.1	13:15:49	107.8
13:14:35	108.2	13:14:50	133.3	13:15:05	108.7	13:15:20	107.8	13:15:35	108.2	13:15:50	108.2
13:14:36	107.9	13:14:51	132.9	13:15:06	109.1	13:15:21	107.9	13:15:36	108.6	13:15:51	107.8
13:14:37	107.7	13:14:52	129.0	13:15:07	109.2	13:15:22	108.2	13:15:37	108.0	13:15:52	108.2
13:14:38	107.8	13:14:53	117.2	13:15:08	110.8	13:15:23	107.9	13:15:38	108.3	13:15:53	107.8
13:14:39	108.4	13:14:54	123.1	13:15:09	108.6	13:15:24	108.1	13:15:39	108.0	13:15:54	107.8

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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13:15:56	107.9	13:16:40	108.3	13:17:24	107.9	13:18:08	112.3	13:18:52	108.5	13:19:36	109.5
13:15:57	107.9	13:16:41	107.8	13:17:25	107.9	13:18:09	112.9	13:18:53	108.0	13:19:37	108.3
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13:15:59	107.9	13:16:43	107.9	13:17:27	107.9	13:18:11	113.7	13:18:55	107.7	13:19:39	107.9
13:16:00	107.7	13:16:44	108.4	13:17:28	108.2	13:18:12	114.0	13:18:56	108.2	13:19:40	108.6
13:16:01	108.1	13:16:45	119.1	13:17:29	107.7	13:18:13	114.7	13:18:57	107.9	13:19:41	108.0
13:16:02	107.8	13:16:46	125.1	13:17:30	108.4	13:18:14	111.6	13:18:58	107.8	13:19:42	108.2
13:16:03	108.0	13:16:47	119.8	13:17:31	108.1	13:18:15	111.2	13:18:59	108.3	13:19:43	108.2
13:16:04	108.1	13:16:48	122.3	13:17:32	108.2	13:18:16	108.9	13:19:00	108.2	13:19:44	108.1
13:16:05	108.2	13:16:49	129.8	13:17:33	108.0	13:18:17	111.3	13:19:01	108.2	13:19:45	108.2
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13:16:08	108.6	13:16:52	127.3	13:17:36	108.2	13:18:20	112.1	13:19:04	108.1	13:19:48	108.1
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13:16:30	107.8	13:17:14	108.0	13:17:58	108.8	13:18:42	107.7	13:19:26	108.4	13:20:10	108.8
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13:16:33	108.0	13:17:17	107.8	13:18:01	113.7	13:18:45	108.2	13:19:29	108.1	13:20:13	108.0
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13:16:35	108.2	13:17:19	107.9	13:18:03	110.2	13:18:47	108.1	13:19:31	108.4	13:20:15	107.9
13:16:36	108.1	13:17:20	108.1	13:18:04	110.4	13:18:48	107.9	13:19:32	108.1	13:20:16	108.3
13:16:37	108.0	13:17:21	107.8	13:18:05	113.7	13:18:49	108.1	13:19:33	107.9	13:20:17	108.2
13:16:38	108.1	13:17:22	108.0	13:18:06	115.5	13:18:50	108.0	13:19:34	108.1	13:20:18	108.8

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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13:20:20	108.2	13:20:45	126.8	13:21:10	108.2	13:21:35	108.3	13:22:00	117.0	13:22:25	108.0
13:20:21	107.9	13:20:46	126.3	13:21:11	112.6	13:21:36	109.0	13:22:01	108.1	13:22:26	108.0
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13:20:24	108.2	13:20:49	128.4	13:21:14	108.3	13:21:39	107.8	13:22:04	108.3	13:22:29	107.9
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13:20:26	108.0	13:20:51	125.0	13:21:16	127.9	13:21:41	107.8	13:22:06	107.9	13:22:31	107.8
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13:20:28	108.6	13:20:53	126.8	13:21:18	127.2	13:21:43	107.9	13:22:08	108.0	13:22:33	108.0
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13:20:33	122.3	13:20:58	108.2	13:21:23	136.1	13:21:48	108.0	13:22:13	107.6	13:22:38	108.1
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13:20:35	123.4	13:21:00	107.8	13:21:25	132.3	13:21:50	108.1	13:22:15	108.0	13:22:40	107.9
13:20:36	129.4	13:21:01	108.0	13:21:26	131.5	13:21:51	108.2	13:22:16	108.4	13:22:41	108.2
13:20:37	131.8	13:21:02	107.9	13:21:27	127.6	13:21:52	108.0	13:22:17	108.4	13:22:42	108.1
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13:20:39	132.8	13:21:04	109.1	13:21:29	119.4	13:21:54	107.9	13:22:19	108.0		
13:20:40	135.9	13:21:05	107.6	13:21:30	123.6	13:21:55	108.3	13:22:20	108.0		
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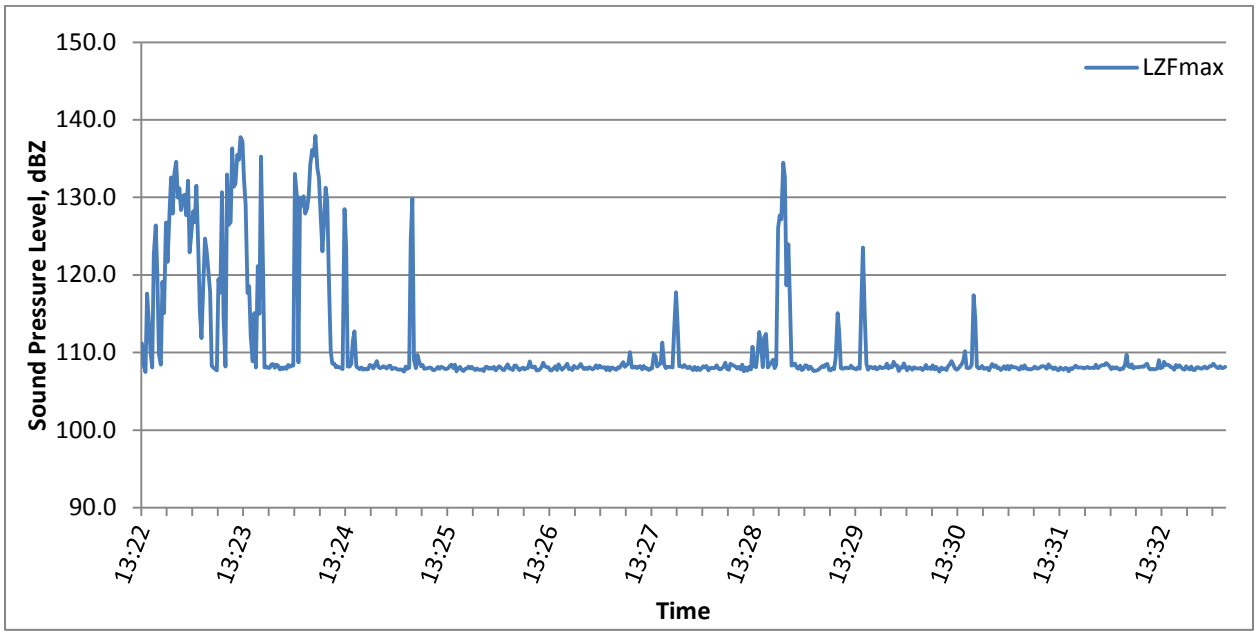
13:20:42	137.1	13:21:07	108.0	13:21:32	108.2	13:21:57	111.4	13:22:22	108.3		
13:20:43	131.8	13:21:08	108.3	13:21:33	127.5	13:21:58	109.7	13:22:23	108.2		

Removing In-Stream Rock from Barrier



Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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13:22:45	108.3	13:23:10	127.7	13:23:35	126.5	13:24:00	108.4	13:24:25	135.4	13:24:50	108.2
13:22:46	107.5	13:23:11	132.2	13:23:36	126.8	13:24:01	108.5	13:24:26	137.9	13:24:51	108.0
13:22:47	117.6	13:23:12	122.9	13:23:37	136.3	13:24:02	108.0	13:24:27	133.8	13:24:52	107.9
13:22:48	114.3	13:23:13	125.2	13:23:38	131.4	13:24:03	108.4	13:24:28	132.6	13:24:53	108.1
13:22:49	110.0	13:23:14	128.2	13:23:39	131.8	13:24:04	108.3	13:24:29	128.0	13:24:54	107.8
13:22:50	108.1	13:23:15	126.8	13:23:40	135.5	13:24:05	107.8	13:24:30	123.1	13:24:55	107.9
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13:22:53	120.1	13:23:18	115.3	13:23:43	137.3	13:24:08	108.1	13:24:33	129.5	13:24:58	108.4
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13:23:06	131.2	13:23:31	130.7	13:23:56	108.1	13:24:21	128.6	13:24:46	108.2	13:25:11	107.9
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13:23:08	130.1	13:23:33	108.2	13:23:58	108.0	13:24:23	134.3	13:24:48	111.4	13:25:13	108.0

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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13:25:15	107.8	13:25:59	107.9	13:26:43	108.1	13:27:27	108.8	13:28:11	108.1	13:28:55	109.1
13:25:16	107.8	13:26:00	107.7	13:26:44	107.7	13:27:28	108.2	13:28:12	107.7	13:28:56	108.0
13:25:17	107.8	13:26:01	107.9	13:26:45	107.7	13:27:29	108.4	13:28:13	108.0	13:28:57	108.4
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13:25:19	108.2	13:26:03	107.8	13:26:47	108.2	13:27:31	110.1	13:28:15	108.1	13:28:59	127.7
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13:29:41	108.3	13:30:19	107.9	13:30:57	108.0	13:31:35	108.2	13:32:13	108.2	13:32:51	107.8
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13:30:01	108.1	13:30:39	108.4	13:31:17	108.1	13:31:55	108.1	13:32:33	108.2	13:33:11	108.1
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13:30:03	107.9	13:30:41	108.5	13:31:19	108.0	13:31:57	108.1	13:32:35	108.6	13:33:13	108.3
13:30:04	108.2	13:30:42	108.0	13:31:20	107.8	13:31:58	107.9	13:32:36	108.0	13:33:14	108.6
13:30:05	108.1	13:30:43	107.8	13:31:21	108.2	13:31:59	108.0	13:32:37	107.8	13:33:15	108.3
13:30:06	108.8	13:30:44	107.9	13:31:22	107.9	13:32:00	108.2	13:32:38	107.9	13:33:16	108.1
13:30:07	108.3	13:30:45	108.2	13:31:23	108.4	13:32:01	108.0	13:32:39	107.8	13:33:17	108.0
13:30:08	108.3	13:30:46	108.5	13:31:24	108.0	13:32:02	108.0	13:32:40	107.9	13:33:18	108.3
13:30:09	107.6	13:30:47	109.0	13:31:25	107.8	13:32:03	108.0	13:32:41	107.9	13:33:19	108.0
13:30:10	108.1	13:30:48	110.2	13:31:26	107.9	13:32:04	108.0	13:32:42	109.0	13:33:20	108.0
13:30:11	108.0	13:30:49	108.0	13:31:27	107.8	13:32:05	108.4	13:32:43	108.0	13:33:21	108.1
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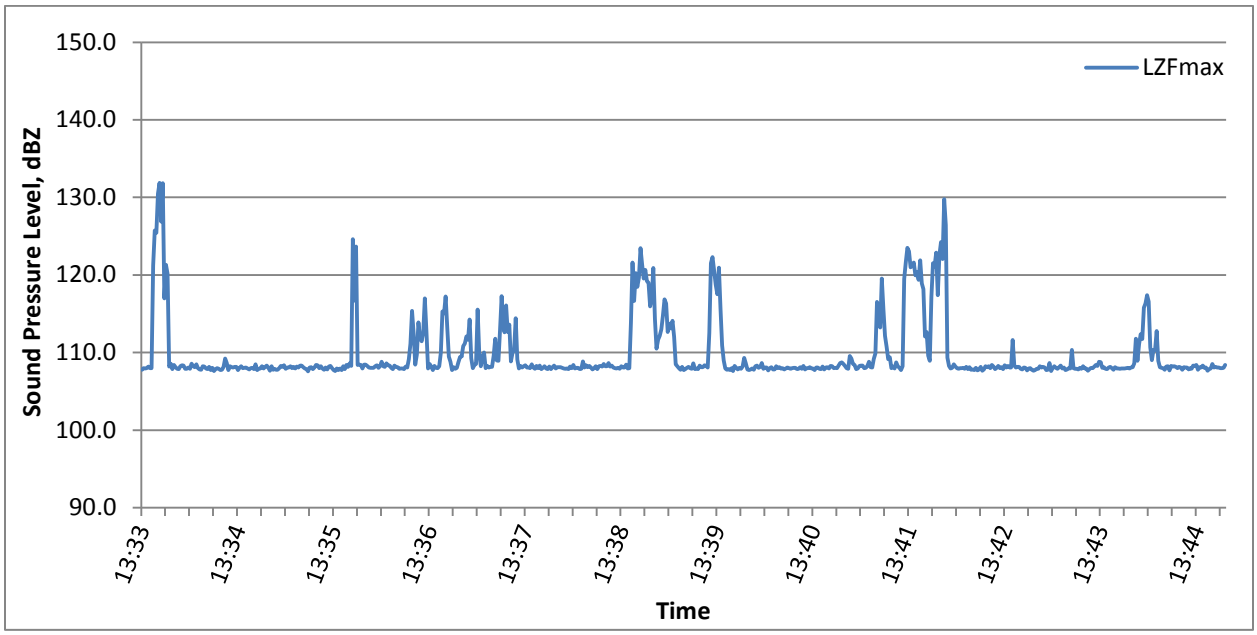
13:30:13	108.1	13:30:51	108.1	13:31:29	108.2	13:32:07	108.1	13:32:45	108.8		
13:30:14	107.7	13:30:52	108.4	13:31:30	108.0	13:32:08	108.3	13:32:46	108.4		
13:30:15	108.1	13:30:53	117.4	13:31:31	108.0	13:32:09	108.4	13:32:47	108.4		

Removing In-Stream Rock from Barrier



Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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13:33:23	108.0	13:33:49	107.9	13:34:15	108.7	13:34:41	108.0	13:35:07	108.1	13:35:33	108.3
13:33:24	107.9	13:33:50	107.9	13:34:16	107.7	13:34:42	107.7	13:35:08	108.1	13:35:34	124.6
13:33:25	108.0	13:33:51	108.1	13:34:17	108.2	13:34:43	108.3	13:35:09	107.9	13:35:35	116.7
13:33:26	108.2	13:33:52	107.9	13:34:18	108.1	13:34:44	107.8	13:35:10	108.1	13:35:36	123.7
13:33:27	108.0	13:33:53	108.6	13:34:19	108.1	13:34:45	107.9	13:35:11	108.4	13:35:37	108.4
13:33:28	108.0	13:33:54	108.3	13:34:20	108.1	13:34:46	107.8	13:35:12	108.4	13:35:38	108.4
13:33:29	121.2	13:33:55	108.1	13:34:21	108.1	13:34:47	107.8	13:35:13	108.0	13:35:39	108.4
13:33:30	125.7	13:33:56	108.5	13:34:22	107.7	13:34:48	108.0	13:35:14	108.2	13:35:40	108.0
13:33:31	125.4	13:33:57	108.0	13:34:23	108.0	13:34:49	108.3	13:35:15	107.9	13:35:41	108.4
13:33:32	130.5	13:33:58	107.8	13:34:24	108.2	13:34:50	108.1	13:35:16	107.8	13:35:42	108.4
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13:33:36	117.0	13:34:02	108.0	13:34:28	107.9	13:34:54	108.1	13:35:20	108.3	13:35:46	108.0
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13:33:38	120.2	13:34:04	108.2	13:34:30	108.0	13:34:56	108.0	13:35:22	107.8	13:35:48	108.2
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13:33:45	107.9	13:34:11	107.7	13:34:37	108.2	13:35:03	108.1	13:35:29	107.8	13:35:55	108.6
13:33:46	108.3	13:34:12	107.8	13:34:38	107.9	13:35:04	107.9	13:35:30	108.4	13:35:56	108.3
13:33:47	108.4	13:34:13	108.1	13:34:39	108.1	13:35:05	107.9	13:35:31	108.1	13:35:57	108.3

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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13:35:59	107.8	13:36:43	110.8	13:37:27	108.1	13:38:11	108.5	13:38:55	112.0	13:39:39	109.3
13:36:00	108.3	13:36:44	111.2	13:37:28	107.9	13:38:12	108.2	13:38:56	108.5	13:39:40	108.6
13:36:01	108.2	13:36:45	112.1	13:37:29	108.3	13:38:13	108.2	13:38:57	108.2	13:39:41	107.8
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13:36:06	107.9	13:36:50	108.4	13:37:34	108.3	13:38:18	108.0	13:39:02	107.8	13:39:46	108.2
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13:36:08	108.1	13:36:52	115.6	13:37:36	107.9	13:38:20	108.0	13:39:04	108.1	13:39:48	108.0
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Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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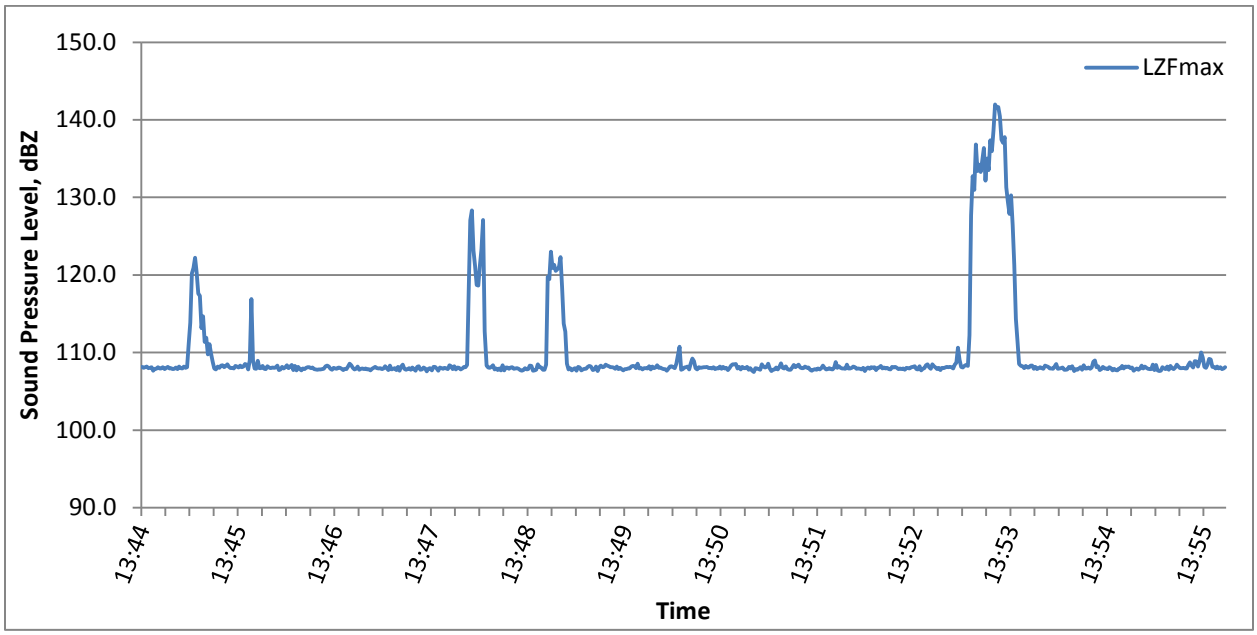
13:41:03	115.9	13:41:47	108.3	13:42:31	108.2	13:43:15	107.9	13:43:59	108.1		
13:41:04	113.2	13:41:48	107.9	13:42:32	107.9	13:43:16	108.0	13:44:00	108.0		
13:41:05	119.5	13:41:49	108.0	13:42:33	107.8	13:43:17	108.0	13:44:01	108.0		

Removing In-Stream Rock from Barrier



Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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13:44:42	108.0	13:45:07	108.2	13:45:32	108.1	13:45:57	107.9	13:46:22	107.9	13:46:47	107.9
13:44:43	108.1	13:45:08	108.0	13:45:33	108.3	13:45:58	107.8	13:46:23	108.0	13:46:48	107.9
13:44:44	108.2	13:45:09	108.1	13:45:34	108.5	13:45:59	108.2	13:46:24	108.1	13:46:49	108.2
13:44:45	108.0	13:45:10	111.1	13:45:35	108.2	13:46:00	108.1	13:46:25	108.1	13:46:50	108.5
13:44:46	108.0	13:45:11	113.8	13:45:36	108.0	13:46:01	108.0	13:46:26	108.0	13:46:51	108.4
13:44:47	108.1	13:45:12	120.2	13:45:37	108.0	13:46:02	108.1	13:46:27	108.1	13:46:52	108.0
13:44:48	107.7	13:45:13	120.9	13:45:38	107.9	13:46:03	108.0	13:46:28	107.8	13:46:53	107.8
13:44:49	107.9	13:45:14	122.2	13:45:39	108.3	13:46:04	108.1	13:46:29	107.8	13:46:54	107.9
13:44:50	107.9	13:45:15	120.3	13:45:40	108.2	13:46:05	108.3	13:46:30	107.8	13:46:55	108.2
13:44:51	108.1	13:45:16	117.6	13:45:41	108.1	13:46:06	107.7	13:46:31	107.8	13:46:56	107.8
13:44:52	107.9	13:45:17	117.3	13:45:42	108.3	13:46:07	107.8	13:46:32	107.8	13:46:57	107.9
13:44:53	107.9	13:45:18	113.1	13:45:43	108.1	13:46:08	108.2	13:46:33	107.9	13:46:58	108.0
13:44:54	108.1	13:45:19	114.7	13:45:44	108.2	13:46:09	108.0	13:46:34	107.9	13:46:59	107.9
13:44:55	107.9	13:45:20	111.4	13:45:45	108.5	13:46:10	108.1	13:46:35	108.2	13:47:00	107.9
13:44:56	108.0	13:45:21	111.9	13:45:46	108.4	13:46:11	108.3	13:46:36	108.3	13:47:01	107.8
13:44:57	108.1	13:45:22	109.8	13:45:47	107.8	13:46:12	108.0	13:46:37	108.2	13:47:02	107.9
13:44:58	107.9	13:45:23	111.1	13:45:48	109.0	13:46:13	108.2	13:46:38	107.9	13:47:03	107.7
13:44:59	108.0	13:45:24	109.8	13:45:49	116.9	13:46:14	108.4	13:46:39	107.8	13:47:04	107.9
13:45:00	107.9	13:45:25	108.8	13:45:50	109.0	13:46:15	107.7	13:46:40	108.0	13:47:05	108.0
13:45:01	107.9	13:45:26	108.0	13:45:51	107.9	13:46:16	108.3	13:46:41	108.0	13:47:06	108.1
13:45:02	108.1	13:45:27	107.8	13:45:52	107.9	13:46:17	107.7	13:46:42	107.9	13:47:07	108.0
13:45:03	107.9	13:45:28	108.2	13:45:53	108.9	13:46:18	108.2	13:46:43	108.1	13:47:08	108.0
13:45:04	108.2	13:45:29	108.0	13:45:54	108.0	13:46:19	107.9	13:46:44	108.0	13:47:09	108.0
13:45:05	108.0	13:45:30	108.3	13:45:55	108.0	13:46:20	107.7	13:46:45	107.9	13:47:10	107.9

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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13:47:12	108.2	13:47:56	107.8	13:48:40	107.8	13:49:24	107.6	13:50:08	107.9	13:50:52	108.2
13:47:13	108.0	13:47:57	108.0	13:48:41	107.9	13:49:25	108.1	13:50:09	108.2	13:50:53	107.8
13:47:14	107.7	13:47:58	108.0	13:48:42	108.3	13:49:26	108.3	13:50:10	108.3	13:50:54	108.2
13:47:15	108.3	13:47:59	107.8	13:48:43	108.3	13:49:27	108.1	13:50:11	108.1	13:50:55	108.0
13:47:16	107.8	13:48:00	107.9	13:48:44	107.6	13:49:28	108.1	13:50:12	108.0	13:50:56	108.0
13:47:17	107.9	13:48:01	108.1	13:48:45	107.7	13:49:29	108.4	13:50:13	108.6	13:50:57	108.1
13:47:18	108.0	13:48:02	108.1	13:48:46	107.8	13:49:30	108.3	13:50:14	109.7	13:50:58	107.8
13:47:19	107.8	13:48:03	108.4	13:48:47	108.5	13:49:31	108.2	13:50:15	110.7	13:50:59	108.0
13:47:20	108.1	13:48:04	117.8	13:48:48	108.1	13:49:32	108.1	13:50:16	107.8	13:51:00	107.7
13:47:21	107.6	13:48:05	127.0	13:48:49	108.1	13:49:33	108.1	13:50:17	107.9	13:51:01	107.5
13:47:22	108.2	13:48:06	128.3	13:48:50	107.8	13:49:34	108.1	13:50:18	108.1	13:51:02	108.0
13:47:23	108.4	13:48:07	123.1	13:48:51	107.8	13:49:35	107.9	13:50:19	108.1	13:51:03	107.9
13:47:24	107.9	13:48:08	121.1	13:48:52	108.4	13:49:36	108.2	13:50:20	108.2	13:51:04	107.9
13:47:25	107.8	13:48:09	118.7	13:48:53	119.8	13:49:37	107.8	13:50:21	107.8	13:51:05	107.8
13:47:26	107.8	13:48:10	118.6	13:48:54	119.5	13:49:38	108.0	13:50:22	108.6	13:51:06	108.5
13:47:27	108.0	13:48:11	121.2	13:48:55	123.0	13:49:39	107.8	13:50:23	109.2	13:51:07	108.2
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13:47:29	108.1	13:48:13	127.1	13:48:57	121.3	13:49:41	107.9	13:50:25	108.0	13:51:09	108.1
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13:47:41	107.7	13:48:25	108.4	13:49:09	107.8	13:49:53	108.0	13:50:37	107.9	13:51:21	108.2
13:47:42	108.1	13:48:26	107.7	13:49:10	108.0	13:49:54	108.0	13:50:38	108.0	13:51:22	107.9
13:47:43	108.2	13:48:27	108.1	13:49:11	107.7	13:49:55	108.0	13:50:39	107.9	13:51:23	107.8
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13:47:46	108.1	13:48:30	108.1	13:49:14	107.7	13:49:58	108.2	13:50:42	108.2	13:51:26	108.4
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13:47:48	107.9	13:48:32	107.9	13:49:16	107.9	13:50:00	108.1	13:50:44	108.0	13:51:28	108.3
13:47:49	108.0	13:48:33	107.9	13:49:17	107.9	13:50:01	108.3	13:50:45	107.7	13:51:29	108.4
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13:47:52	108.4	13:48:36	107.7	13:49:20	108.2	13:50:04	107.9	13:50:48	108.5	13:51:32	108.0
13:47:53	108.2	13:48:37	107.7	13:49:21	107.7	13:50:05	107.9	13:50:49	108.5	13:51:33	108.2
13:47:54	107.9	13:48:38	107.7	13:49:22	107.8	13:50:06	107.9	13:50:50	108.5	13:51:34	108.0

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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13:51:36	107.8	13:52:20	108.3	13:53:04	108.1	13:53:48	108.2	13:54:32	108.8	13:55:16	107.9
13:51:37	107.7	13:52:21	107.9	13:53:05	107.9	13:53:49	108.0	13:54:33	109.0	13:55:17	107.9
13:51:38	107.8	13:52:22	108.1	13:53:06	108.4	13:53:50	108.3	13:54:34	108.1	13:55:18	108.2
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13:51:53	108.0	13:52:37	108.0	13:53:21	134.2	13:54:05	107.9	13:54:49	107.9	13:55:33	108.3
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13:52:03	108.2	13:52:47	108.0	13:53:31	142.0	13:54:15	107.8	13:54:59	107.9	13:55:43	108.4
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13:52:06	107.9	13:52:50	108.1	13:53:34	140.4	13:54:18	107.9	13:55:02	108.3	13:55:46	108.1
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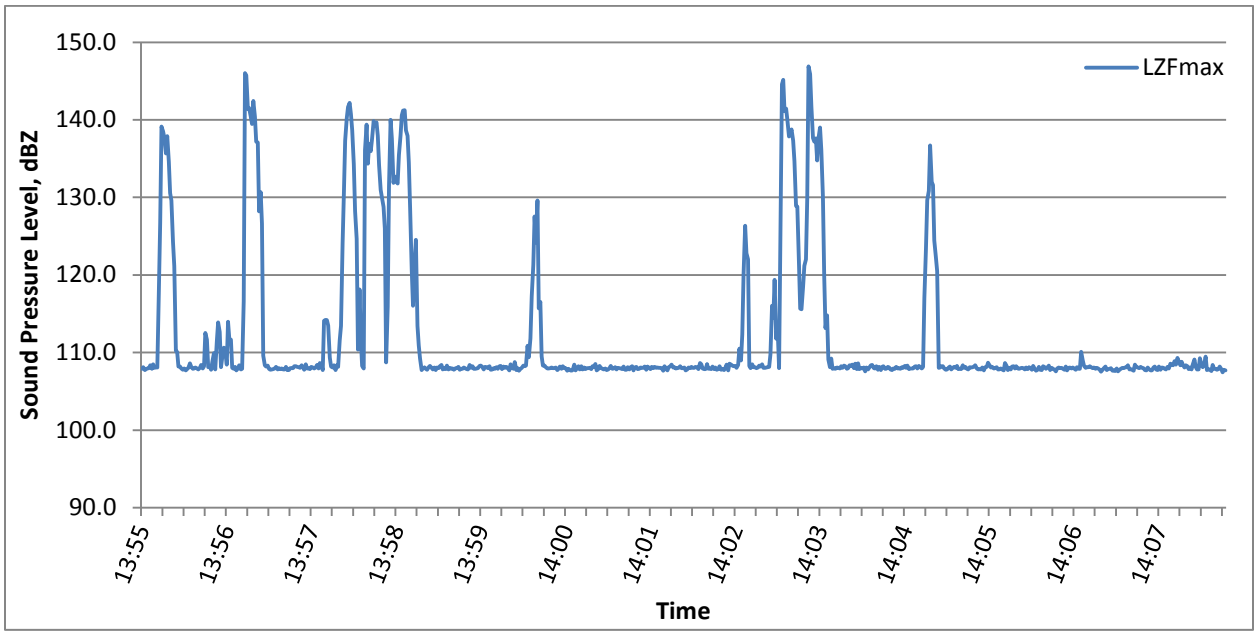
13:52:11	107.9	13:52:55	107.8	13:53:39	129.4	13:54:23	107.9	13:55:07	107.8	13:55:51	108.1
13:52:12	108.1	13:52:56	108.0	13:53:40	127.9	13:54:24	108.1	13:55:08	107.9	13:55:52	107.9
13:52:13	107.9	13:52:57	107.7	13:53:41	130.3	13:54:25	107.8	13:55:09	108.5	13:55:53	108.0
13:52:14	108.1	13:52:58	108.0	13:53:42	126.4	13:54:26	108.3	13:55:10	107.7	13:55:54	108.1
13:52:15	108.0	13:52:59	108.0	13:53:43	121.3	13:54:27	107.9	13:55:11	108.4		
13:52:16	108.1	13:53:00	108.1	13:53:44	114.3	13:54:28	108.0	13:55:12	107.7		
13:52:17	107.8	13:53:01	108.1	13:53:45	111.5	13:54:29	108.1	13:55:13	107.6		
13:52:18	108.0	13:53:02	108.1	13:53:46	108.5	13:54:30	107.9	13:55:14	107.6		

Removing In-Stream Rock from Barrier



Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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13:55:56	108.1	13:56:21	108.2	13:56:46	109.9	13:57:11	141.5	13:57:36	107.8	13:58:01	108.6
13:55:57	107.8	13:56:22	108.2	13:56:47	107.8	13:57:12	140.4	13:57:37	108.2	13:58:02	108.5
13:55:58	107.9	13:56:23	107.9	13:56:48	111.4	13:57:13	139.5	13:57:38	107.7	13:58:03	107.8
13:55:59	107.9	13:56:24	107.8	13:56:49	113.9	13:57:14	142.4	13:57:39	107.8	13:58:04	114.1
13:56:00	108.0	13:56:25	107.9	13:56:50	112.6	13:57:15	140.4	13:57:40	108.0	13:58:05	114.2
13:56:01	108.4	13:56:26	107.7	13:56:51	108.1	13:57:16	137.2	13:57:41	108.0	13:58:06	114.2
13:56:02	107.9	13:56:27	107.9	13:56:52	109.4	13:57:17	137.1	13:57:42	108.0	13:58:07	113.5
13:56:03	108.5	13:56:28	108.0	13:56:53	110.6	13:57:18	128.2	13:57:43	108.2	13:58:08	109.3
13:56:04	108.0	13:56:29	108.6	13:56:54	110.2	13:57:19	130.7	13:57:44	108.2	13:58:09	108.2
13:56:05	108.1	13:56:30	108.2	13:56:55	108.5	13:57:20	126.6	13:57:45	108.1	13:58:10	108.1
13:56:06	108.1	13:56:31	107.9	13:56:56	114.0	13:57:21	109.6	13:57:46	108.1	13:58:11	108.3
13:56:07	118.3	13:56:32	107.9	13:56:57	111.7	13:57:22	108.4	13:57:47	108.0	13:58:12	107.8
13:56:08	126.8	13:56:33	108.1	13:56:58	111.6	13:57:23	108.2	13:57:48	108.3	13:58:13	108.4
13:56:09	139.2	13:56:34	108.0	13:56:59	108.0	13:57:24	108.3	13:57:49	108.1	13:58:14	108.1
13:56:10	138.5	13:56:35	107.8	13:57:00	107.9	13:57:25	107.9	13:57:50	107.8	13:58:15	111.6
13:56:11	137.7	13:56:36	108.0	13:57:01	108.2	13:57:26	107.8	13:57:51	108.5	13:58:16	113.4
13:56:12	135.7	13:56:37	108.4	13:57:02	107.7	13:57:27	107.8	13:57:52	107.9	13:58:17	124.1
13:56:13	137.9	13:56:38	107.9	13:57:03	107.9	13:57:28	107.9	13:57:53	108.0	13:58:18	130.5
13:56:14	134.6	13:56:39	108.2	13:57:04	108.3	13:57:29	107.9	13:57:54	107.8	13:58:19	137.3
13:56:15	130.5	13:56:40	112.5	13:57:05	107.8	13:57:30	108.1	13:57:55	108.1	13:58:20	140.2
13:56:16	129.6	13:56:41	111.6	13:57:06	107.9	13:57:31	107.8	13:57:56	108.1	13:58:21	141.7
13:56:17	124.2	13:56:42	108.1	13:57:07	116.6	13:57:32	108.0	13:57:57	107.9	13:58:22	142.2
13:56:18	121.1	13:56:43	108.2	13:57:08	146.0	13:57:33	107.9	13:57:58	108.1	13:58:23	140.8
13:56:19	110.2	13:56:44	107.8	13:57:09	145.7	13:57:34	108.0	13:57:59	108.4	13:58:24	138.7

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
13:58:25	134.3	13:59:09	124.5	13:59:53	108.0	14:00:37	116.5	14:01:21	107.9	14:02:05	108.2
13:58:26	128.3	13:59:10	113.4	13:59:54	108.3	14:00:38	109.5	14:01:22	107.8	14:02:06	107.9
13:58:27	124.7	13:59:11	110.9	13:59:55	108.3	14:00:39	108.3	14:01:23	107.9	14:02:07	107.7
13:58:28	110.4	13:59:12	109.2	13:59:56	108.1	14:00:40	108.3	14:01:24	107.7	14:02:08	108.1
13:58:29	118.1	13:59:13	107.7	13:59:57	107.8	14:00:41	108.1	14:01:25	107.8	14:02:09	108.2
13:58:30	111.7	13:59:14	108.0	13:59:58	108.2	14:00:42	107.9	14:01:26	108.0	14:02:10	108.4
13:58:31	108.3	13:59:15	108.1	13:59:59	108.1	14:00:43	107.9	14:01:27	108.3	14:02:11	108.1
13:58:32	108.0	13:59:16	107.9	14:00:00	108.0	14:00:44	108.0	14:01:28	107.9	14:02:12	108.1
13:58:33	136.1	13:59:17	107.8	14:00:01	108.2	14:00:45	108.1	14:01:29	107.9	14:02:13	107.9
13:58:34	139.4	13:59:18	108.1	14:00:02	107.8	14:00:46	108.0	14:01:30	108.1	14:02:14	108.0
13:58:35	134.4	13:59:19	108.3	14:00:03	107.8	14:00:47	108.0	14:01:31	107.8	14:02:15	108.0
13:58:36	136.9	13:59:20	108.0	14:00:04	108.0	14:00:48	108.1	14:01:32	108.0	14:02:16	108.2
13:58:37	136.0	13:59:21	107.8	14:00:05	107.9	14:00:49	107.7	14:01:33	108.0	14:02:17	108.0
13:58:38	137.5	13:59:22	108.1	14:00:06	108.1	14:00:50	107.9	14:01:34	107.9	14:02:18	108.0
13:58:39	139.8	13:59:23	107.8	14:00:07	107.9	14:00:51	108.2	14:01:35	107.9	14:02:19	108.1
13:58:40	139.3	13:59:24	108.1	14:00:08	108.2	14:00:52	107.9	14:01:36	108.2	14:02:20	107.7
13:58:41	139.7	13:59:25	108.0	14:00:09	108.3	14:00:53	108.2	14:01:37	107.8	14:02:21	107.8
13:58:42	137.9	13:59:26	108.3	14:00:10	107.8	14:00:54	108.0	14:01:38	107.8	14:02:22	108.1
13:58:43	134.1	13:59:27	108.4	14:00:11	108.2	14:00:55	108.0	14:01:39	108.1	14:02:23	108.0
13:58:44	131.0	13:59:28	107.8	14:00:12	108.0	14:00:56	107.7	14:01:40	107.8	14:02:24	108.1
13:58:45	130.0	13:59:29	108.0	14:00:13	108.1	14:00:57	107.9	14:01:41	108.1	14:02:25	108.0
13:58:46	128.8	13:59:30	107.9	14:00:14	108.0	14:00:58	107.7	14:01:42	108.2	14:02:26	108.0
13:58:47	126.0	13:59:31	108.3	14:00:15	107.7	14:00:59	107.7	14:01:43	107.7	14:02:27	108.2
13:58:48	108.7	13:59:32	107.8	14:00:16	108.5	14:01:00	107.7	14:01:44	108.1	14:02:28	108.1
13:58:49	115.9	13:59:33	108.0	14:00:17	108.1	14:01:01	108.4	14:01:45	108.2	14:02:29	107.9
13:58:50	131.4	13:59:34	107.9	14:00:18	107.9	14:01:02	107.7	14:01:46	107.9	14:02:30	108.6
13:58:51	140.0	13:59:35	108.0	14:00:19	108.8	14:01:03	108.0	14:01:47	107.9	14:02:31	108.5
13:58:52	137.6	13:59:36	107.8	14:00:20	107.8	14:01:04	108.2	14:01:48	108.1	14:02:32	107.9
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13:58:54	132.7	13:59:38	108.0	14:00:22	107.7	14:01:06	108.2	14:01:50	108.0	14:02:34	107.9
13:58:55	132.1	13:59:39	108.2	14:00:23	107.9	14:01:07	107.8	14:01:51	108.2	14:02:35	108.5
13:58:56	131.8	13:59:40	107.8	14:00:24	108.0	14:01:08	108.1	14:01:52	107.8	14:02:36	107.9
13:58:57	135.5	13:59:41	107.9	14:00:25	108.3	14:01:09	107.9	14:01:53	108.2	14:02:37	108.0
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13:58:59	140.6	13:59:43	108.1	14:00:27	108.3	14:01:11	108.0	14:01:55	107.9	14:02:39	108.2
13:59:00	141.2	13:59:44	108.0	14:00:28	110.9	14:01:12	108.0	14:01:56	108.1	14:02:40	107.9
13:59:01	141.2	13:59:45	107.8	14:00:29	109.4	14:01:13	107.8	14:01:57	108.0	14:02:41	108.1
13:59:02	138.6	13:59:46	107.8	14:00:30	111.8	14:01:14	108.2	14:01:58	108.2	14:02:42	107.8
13:59:03	137.9	13:59:47	108.4	14:00:31	117.2	14:01:15	108.1	14:01:59	108.0	14:02:43	107.8
13:59:04	134.5	13:59:48	108.0	14:00:32	121.3	14:01:16	108.5	14:02:00	108.1	14:02:44	108.2
13:59:05	128.6	13:59:49	108.2	14:00:33	127.5	14:01:17	107.7	14:02:01	108.0	14:02:45	107.8
13:59:06	120.7	13:59:50	107.9	14:00:34	124.2	14:01:18	107.8	14:02:02	108.0	14:02:46	107.9
13:59:07	116.1	13:59:51	107.9	14:00:35	129.6	14:01:19	108.3	14:02:03	108.0	14:02:47	107.7
13:59:08	121.5	13:59:52	108.0	14:00:36	115.7	14:01:20	108.0	14:02:04	107.7	14:02:48	108.0

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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14:02:50	107.7	14:03:34	138.3	14:04:18	108.4	14:05:02	108.2	14:05:46	108.0	14:06:30	108.1
14:02:51	108.6	14:03:35	138.8	14:04:19	108.0	14:05:03	108.2	14:05:47	107.8	14:06:31	107.8
14:02:52	108.4	14:03:36	137.3	14:04:20	108.5	14:05:04	108.0	14:05:48	107.9	14:06:32	107.7
14:02:53	108.3	14:03:37	134.7	14:04:21	107.9	14:05:05	108.3	14:05:49	107.8	14:06:33	108.2
14:02:54	108.2	14:03:38	128.9	14:04:22	108.6	14:05:06	108.1	14:05:50	108.1	14:06:34	108.1
14:02:55	108.3	14:03:39	128.8	14:04:23	107.9	14:05:07	107.9	14:05:51	107.7	14:06:35	107.9
14:02:56	108.0	14:03:40	121.7	14:04:24	108.0	14:05:08	108.2	14:05:52	108.1	14:06:36	108.1
14:02:57	108.4	14:03:41	115.7	14:04:25	108.0	14:05:09	117.0	14:05:53	108.2	14:06:37	108.3
14:02:58	110.5	14:03:42	115.6	14:04:26	108.1	14:05:10	123.4	14:05:54	108.7	14:06:38	107.8
14:02:59	109.0	14:03:43	118.5	14:04:27	107.6	14:05:11	129.6	14:05:55	108.3	14:06:39	108.0
14:03:00	112.3	14:03:44	121.2	14:04:28	108.1	14:05:12	130.8	14:05:56	108.1	14:06:40	107.9
14:03:01	120.1	14:03:45	122.0	14:04:29	107.8	14:05:13	136.7	14:05:57	108.2	14:06:41	107.8
14:03:02	126.4	14:03:46	129.8	14:04:30	108.1	14:05:14	132.0	14:05:58	107.9	14:06:42	107.6
14:03:03	122.8	14:03:47	146.9	14:04:31	108.3	14:05:15	131.6	14:05:59	108.0	14:06:43	107.9
14:03:04	122.0	14:03:48	145.9	14:04:32	108.4	14:05:16	124.5	14:06:00	108.1	14:06:44	108.0
14:03:05	108.3	14:03:49	141.7	14:04:33	108.0	14:05:17	122.3	14:06:01	107.8	14:06:45	108.0
14:03:06	108.0	14:03:50	137.6	14:04:34	107.9	14:05:18	120.5	14:06:02	107.8	14:06:46	108.0
14:03:07	108.5	14:03:51	137.2	14:04:35	108.2	14:05:19	108.0	14:06:03	107.9	14:06:47	107.9
14:03:08	108.1	14:03:52	137.6	14:04:36	107.8	14:05:20	108.1	14:06:04	107.8	14:06:48	107.8
14:03:09	108.1	14:03:53	134.8	14:04:37	108.2	14:05:21	108.2	14:06:05	107.7	14:06:49	108.2
14:03:10	108.0	14:03:54	137.6	14:04:38	107.8	14:05:22	108.2	14:06:06	108.7	14:06:50	107.7
14:03:11	108.1	14:03:55	139.0	14:04:39	108.2	14:05:23	107.9	14:06:07	108.3	14:06:51	108.0
14:03:12	108.3	14:03:56	136.1	14:04:40	108.3	14:05:24	107.8	14:06:08	107.7	14:06:52	108.1
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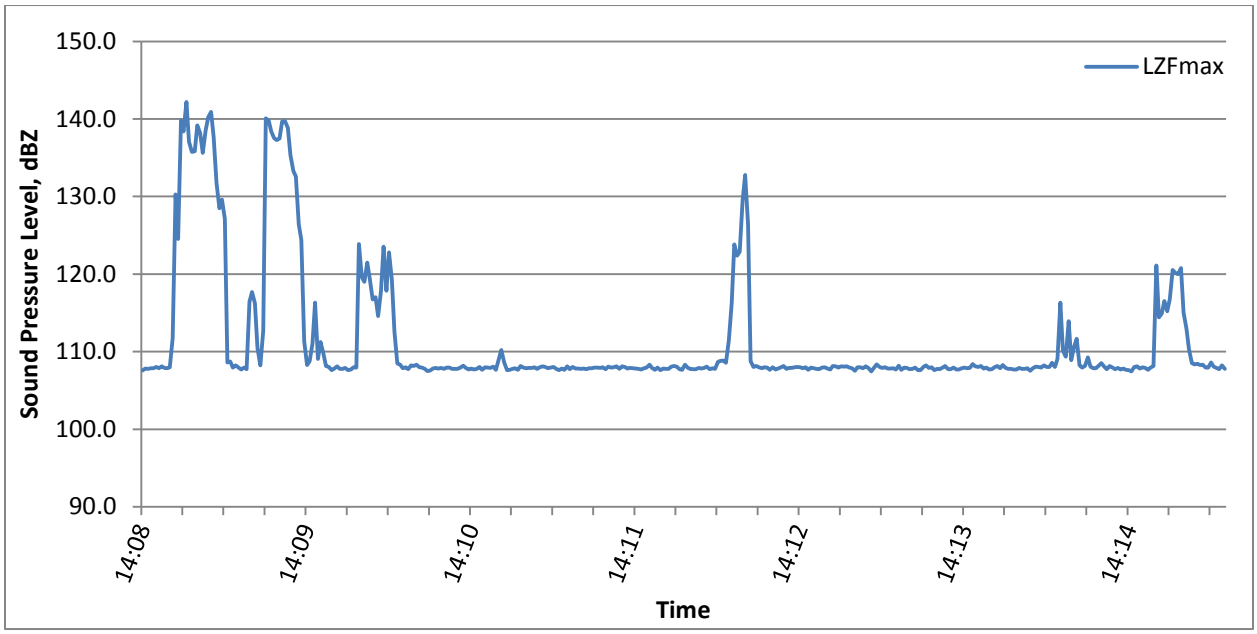
14:03:14	108.5	14:03:58	119.9	14:04:42	107.9	14:05:26	108.1	14:06:10	107.8	14:06:54	108.1
14:03:15	108.0	14:03:59	113.2	14:04:43	108.1	14:05:27	108.2	14:06:11	108.2	14:06:55	107.9
14:03:16	108.0	14:04:00	114.8	14:04:44	108.0	14:05:28	107.8	14:06:12	108.2	14:06:56	107.8
14:03:17	108.1	14:04:01	109.1	14:04:45	107.8	14:05:29	108.0	14:06:13	108.0	14:06:57	108.1
14:03:18	108.1	14:04:02	108.1	14:04:46	107.7	14:05:30	108.1	14:06:14	108.2	14:06:58	107.9
14:03:19	108.2	14:04:03	109.2	14:04:47	108.0	14:05:31	108.0	14:06:15	107.9	14:06:59	107.9
14:03:20	109.8	14:04:04	107.9	14:04:48	107.9	14:05:32	108.3	14:06:16	107.9	14:07:00	110.1
14:03:21	116.0	14:04:05	108.0	14:04:49	108.2	14:05:33	107.9	14:06:17	108.0	14:07:01	109.0
14:03:22	114.5	14:04:06	107.9	14:04:50	107.9	14:05:34	107.9	14:06:18	108.0	14:07:02	108.3
14:03:23	119.4	14:04:07	108.1	14:04:51	108.0	14:05:35	107.9	14:06:19	108.0	14:07:03	108.0
14:03:24	111.8	14:04:08	108.0	14:04:52	107.9	14:05:36	108.4	14:06:20	107.8	14:07:04	108.1
14:03:25	113.7	14:04:09	107.9	14:04:53	108.1	14:05:37	108.0	14:06:21	108.1	14:07:05	108.1
14:03:26	108.0	14:04:10	108.2	14:04:54	108.0	14:05:38	108.1	14:06:22	107.9	14:07:06	108.2
14:03:27	124.3	14:04:11	108.0	14:04:55	108.3	14:05:39	107.9	14:06:23	108.1	14:07:07	108.1
14:03:28	144.6	14:04:12	108.3	14:04:56	108.0	14:05:40	107.8	14:06:24	108.0	14:07:08	108.0
14:03:29	145.2	14:04:13	108.2	14:04:57	108.3	14:05:41	108.1	14:06:25	107.8	14:07:09	108.1
14:03:30	141.1	14:04:14	107.9	14:04:58	107.9	14:05:42	108.1	14:06:26	108.3	14:07:10	107.9
14:03:31	141.4	14:04:15	108.0	14:04:59	107.9	14:05:43	108.1	14:06:27	107.9	14:07:11	108.0
14:03:32	139.9	14:04:16	108.4	14:05:00	107.9	14:05:44	108.2	14:06:28	107.7	14:07:12	107.9

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
14:07:13	107.8	14:07:29	108.0	14:07:45	107.7	14:08:01	108.1	14:08:17	108.1	14:08:33	108.4
14:07:14	107.5	14:07:30	108.0	14:07:46	107.7	14:08:02	108.0	14:08:18	107.8	14:08:34	107.9
14:07:15	107.8	14:07:31	108.1	14:07:47	108.1	14:08:03	108.6	14:08:19	108.5	14:08:35	107.9
14:07:16	108.0	14:07:32	108.1	14:07:48	107.9	14:08:04	108.5	14:08:20	109.1	14:08:36	107.8
14:07:17	108.2	14:07:33	108.3	14:07:49	107.7	14:08:05	108.3	14:08:21	108.1	14:08:37	107.9
14:07:18	107.8	14:07:34	107.8	14:07:50	107.7	14:08:06	108.9	14:08:22	107.8	14:08:38	108.2
14:07:19	107.9	14:07:35	107.9	14:07:51	108.1	14:08:07	108.4	14:08:23	107.8	14:08:39	107.9
14:07:20	107.9	14:07:36	107.8	14:07:52	108.2	14:08:08	109.3	14:08:24	109.3	14:08:40	107.4
14:07:21	108.0	14:07:37	107.7	14:07:53	107.8	14:08:09	108.9	14:08:25	108.4	14:08:41	107.8
14:07:22	107.7	14:07:38	108.4	14:07:54	107.8	14:08:10	108.3	14:08:26	108.1	14:08:42	107.7
14:07:23	107.7	14:07:39	108.1	14:07:55	108.2	14:08:11	108.8	14:08:27	108.6		
14:07:24	107.6	14:07:40	108.1	14:07:56	107.8	14:08:12	108.4	14:08:28	109.5		
14:07:25	107.9	14:07:41	108.0	14:07:57	108.1	14:08:13	108.1	14:08:29	107.7		
14:07:26	107.6	14:07:42	108.1	14:07:58	108.0	14:08:14	108.4	14:08:30	107.8		
14:07:27	107.8	14:07:43	108.0	14:07:59	107.9	14:08:15	108.2	14:08:31	107.8		
14:07:28	107.9	14:07:44	108.0	14:08:00	107.8	14:08:16	107.8	14:08:32	107.6		

Removing In-Stream Rock from Barrier



Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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14:08:44	107.8	14:08:52	107.9	14:09:00	137.1	14:09:08	140.9	14:09:16	107.9	14:09:24	116.3
14:08:45	107.8	14:08:53	108.0	14:09:01	135.8	14:09:09	137.7	14:09:17	108.2	14:09:25	110.5
14:08:46	107.9	14:08:54	111.7	14:09:02	135.8	14:09:10	131.8	14:09:18	108.0	14:09:26	108.2
14:08:47	107.9	14:08:55	130.3	14:09:03	139.2	14:09:11	128.5	14:09:19	107.7	14:09:27	112.7
14:08:48	108.0	14:08:56	124.5	14:09:04	138.1	14:09:12	129.6	14:09:20	108.0	14:09:28	140.1
14:08:49	107.9	14:08:57	139.8	14:09:05	135.6	14:09:13	127.1	14:09:21	107.7	14:09:29	139.8
14:08:50	108.1	14:08:58	138.4	14:09:06	138.5	14:09:14	108.6	14:09:22	116.4	14:09:30	138.4

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
14:09:31	137.5	14:10:15	112.6	14:10:59	107.9	14:11:43	107.8	14:12:27	108.2	14:13:11	108.4
14:09:32	137.3	14:10:16	108.5	14:11:00	107.6	14:11:44	107.8	14:12:28	108.0	14:13:12	108.0
14:09:33	137.5	14:10:17	108.3	14:11:01	108.1	14:11:45	107.7	14:12:29	107.9	14:13:13	107.9
14:09:34	139.7	14:10:18	107.9	14:11:02	108.0	14:11:46	107.8	14:12:30	108.0	14:13:14	108.0
14:09:35	139.7	14:10:19	108.0	14:11:03	107.9	14:11:47	108.0	14:12:31	107.9	14:13:15	107.8
14:09:36	138.9	14:10:20	107.7	14:11:04	107.9	14:11:48	108.3	14:12:32	107.7	14:13:16	107.8
14:09:37	135.4	14:10:21	108.2	14:11:05	107.9	14:11:49	107.9	14:12:33	108.0	14:13:17	107.9
14:09:38	133.3	14:10:22	108.2	14:11:06	108.0	14:11:50	107.7	14:12:34	107.7	14:13:18	107.7
14:09:39	132.6	14:10:23	108.3	14:11:07	107.8	14:11:51	107.9	14:12:35	107.8	14:13:19	108.2
14:09:40	126.4	14:10:24	108.0	14:11:08	108.0	14:11:52	107.6	14:12:36	108.0	14:13:20	107.7
14:09:41	124.4	14:10:25	107.9	14:11:09	108.1	14:11:53	107.8	14:12:37	108.1	14:13:21	107.9
14:09:42	111.3	14:10:26	107.8	14:11:10	108.0	14:11:54	107.8	14:12:38	107.8	14:13:22	107.9
14:09:43	108.3	14:10:27	107.5	14:11:11	107.9	14:11:55	107.8	14:12:39	107.9	14:13:23	107.7
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14:09:45	111.1	14:10:29	107.8	14:11:13	108.0	14:11:57	108.2	14:12:41	108.0	14:13:25	108.0
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14:09:48	111.3	14:10:32	107.9	14:11:16	107.8	14:12:00	107.6	14:12:44	107.9	14:13:28	108.0
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14:09:52	107.6	14:10:36	107.8	14:11:20	108.0	14:12:04	107.7	14:12:48	107.9	14:13:32	107.6
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14:09:56	107.8	14:10:40	108.2	14:11:24	107.8	14:12:08	107.9	14:12:52	108.0	14:13:36	108.2
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14:09:58	107.6	14:10:42	107.7	14:11:26	107.9	14:12:10	107.7	14:12:54	107.7	14:13:38	107.8
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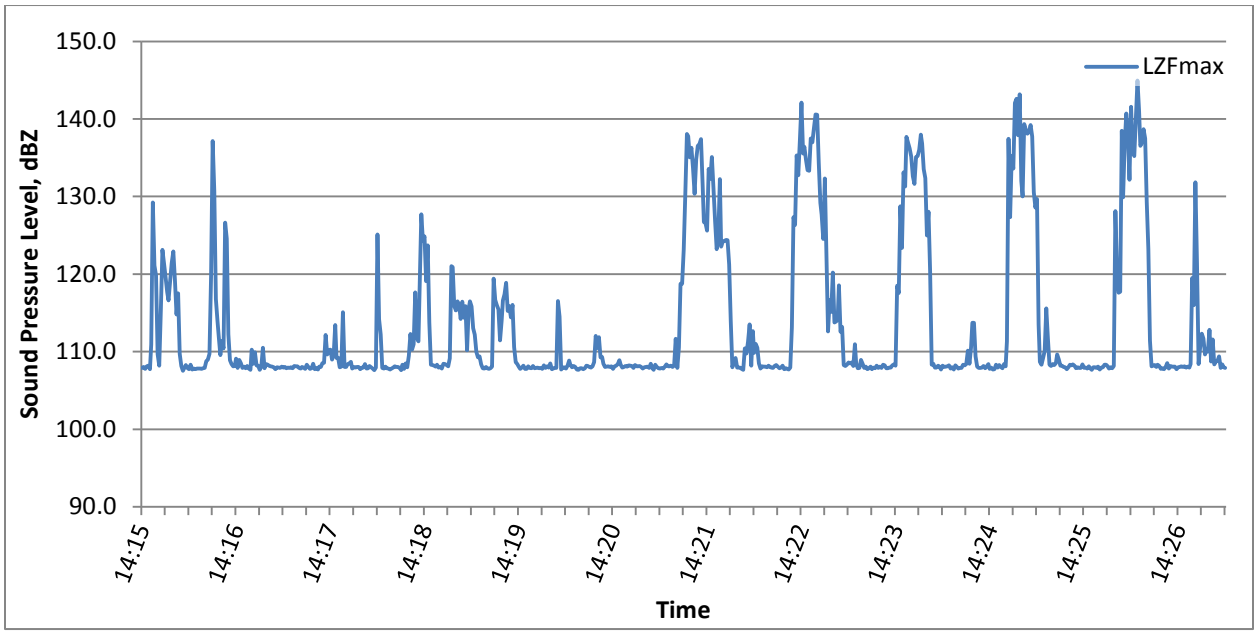
14:10:02	123.9	14:10:46	108.0	14:11:30	107.9	14:12:14	108.8	14:12:58	108.1	14:13:42	107.8
14:10:03	119.6	14:10:47	107.6	14:11:31	108.0	14:12:15	108.9	14:12:59	108.1	14:13:43	108.0
14:10:04	119.0	14:10:48	108.0	14:11:32	107.8	14:12:16	108.5	14:13:00	108.1	14:13:44	107.9
14:10:05	121.5	14:10:49	108.0	14:11:33	108.1	14:12:17	111.5	14:13:01	107.9	14:13:45	107.9
14:10:06	119.4	14:10:50	107.9	14:11:34	107.9	14:12:18	116.3	14:13:02	107.9	14:13:46	108.4
14:10:07	116.7	14:10:51	108.1	14:11:35	108.0	14:12:19	123.8	14:13:03	107.5	14:13:47	108.1
14:10:08	117.0	14:10:52	107.6	14:11:36	108.1	14:12:20	122.4	14:13:04	108.0	14:13:48	108.0
14:10:09	114.6	14:10:53	109.0	14:11:37	107.8	14:12:21	122.9	14:13:05	108.0	14:13:49	108.1
14:10:10	117.8	14:10:54	110.2	14:11:38	108.1	14:12:22	129.5	14:13:06	107.8	14:13:50	107.8
14:10:11	123.5	14:10:55	108.6	14:11:39	108.0	14:12:23	132.8	14:13:07	108.1	14:13:51	108.0
14:10:12	117.8	14:10:56	107.6	14:11:40	107.8	14:12:24	126.4	14:13:08	107.9	14:13:52	107.7
14:10:13	122.8	14:10:57	107.7	14:11:41	107.9	14:12:25	108.8	14:13:09	107.4	14:13:53	107.7
14:10:14	119.2	14:10:58	107.8	14:11:42	107.9	14:12:26	108.0	14:13:10	108.0	14:13:54	108.0

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
14:13:55	108.1	14:14:10	108.0	14:14:25	108.3	14:14:40	107.7	14:14:55	114.9	14:15:10	108.3
14:13:56	107.9	14:14:11	108.0	14:14:26	107.9	14:14:41	107.8	14:14:56	116.5	14:15:11	107.9
14:13:57	108.3	14:14:12	108.2	14:14:27	108.2	14:14:42	107.6	14:14:57	115.2	14:15:12	108.0
14:13:58	107.9	14:14:13	108.0	14:14:28	109.3	14:14:43	107.6	14:14:58	116.8	14:15:13	108.6
14:13:59	107.8	14:14:14	108.0	14:14:29	108.1	14:14:44	107.5	14:14:59	120.5	14:15:14	108.1
14:14:00	107.8	14:14:15	108.6	14:14:30	107.8	14:14:45	108.0	14:15:00	120.2	14:15:15	107.9
14:14:01	107.7	14:14:16	108.0	14:14:31	107.9	14:14:46	108.1	14:15:01	120.0	14:15:16	107.8
14:14:02	107.7	14:14:17	109.0	14:14:32	108.2	14:14:47	107.8	14:15:02	120.8	14:15:17	108.2
14:14:03	107.9	14:14:18	116.3	14:14:33	108.5	14:14:48	108.0	14:15:03	115.1	14:15:18	107.8
14:14:04	107.8	14:14:19	110.1	14:14:34	108.1	14:14:49	107.9	14:15:04	113.0		
14:14:05	107.8	14:14:20	109.3	14:14:35	107.8	14:14:50	107.6	14:15:05	110.3		
14:14:06	107.9	14:14:21	113.9	14:14:36	108.2	14:14:51	108.0	14:15:06	108.5		
14:14:07	107.5	14:14:22	108.9	14:14:37	108.0	14:14:52	108.1	14:15:07	108.4		
14:14:08	107.9	14:14:23	110.6	14:14:38	107.7	14:14:53	121.1	14:15:08	108.5		
14:14:09	108.1	14:14:24	111.7	14:14:39	107.9	14:14:54	114.4	14:15:09	108.3		

Removing In-Stream Rock from Barrier



Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
14:15:19	107.9	14:15:26	129.2	14:15:33	121.4	14:15:40	119.3	14:15:47	108.3	14:15:54	107.8
14:15:20	108.0	14:15:27	121.1	14:15:34	119.5	14:15:41	114.8	14:15:48	107.9	14:15:55	107.8
14:15:21	107.8	14:15:28	119.8	14:15:35	117.7	14:15:42	117.5	14:15:49	107.7	14:15:56	107.8
14:15:22	108.1	14:15:29	109.7	14:15:36	116.6	14:15:43	109.7	14:15:50	108.3	14:15:57	107.8
14:15:23	108.2	14:15:30	108.2	14:15:37	119.1	14:15:44	108.2	14:15:51	107.7	14:15:58	107.9
14:15:24	107.7	14:15:31	115.3	14:15:38	121.4	14:15:45	107.5	14:15:52	107.8	14:15:59	107.9
14:15:25	110.9	14:15:32	123.1	14:15:39	122.9	14:15:46	107.8	14:15:53	107.7	14:16:00	108.8

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
14:16:01	109.0	14:16:45	108.0	14:17:29	108.0	14:18:13	117.7	14:18:57	107.8	14:19:41	107.8
14:16:02	109.7	14:16:46	108.0	14:17:30	108.4	14:18:14	111.8	14:18:58	108.0	14:19:42	107.9
14:16:03	119.8	14:16:47	107.9	14:17:31	108.5	14:18:15	111.3	14:18:59	107.9	14:19:43	107.9
14:16:04	137.2	14:16:48	108.1	14:17:32	108.7	14:18:16	118.7	14:19:00	107.8	14:19:44	116.5
14:16:05	130.7	14:16:49	107.9	14:17:33	107.8	14:18:17	127.7	14:19:01	107.9	14:19:45	114.5
14:16:06	116.8	14:16:50	108.0	14:17:34	108.0	14:18:18	124.3	14:19:02	108.1	14:19:46	107.7
14:16:07	114.0	14:16:51	107.9	14:17:35	107.9	14:18:19	124.9	14:19:03	119.4	14:19:47	107.9
14:16:08	111.9	14:16:52	107.9	14:17:36	108.0	14:18:20	119.1	14:19:04	116.7	14:19:48	108.0
14:16:09	109.5	14:16:53	107.9	14:17:37	108.0	14:18:21	123.7	14:19:05	116.0	14:19:49	107.8
14:16:10	111.4	14:16:54	108.0	14:17:38	107.7	14:18:22	113.8	14:19:06	115.4	14:19:50	108.2
14:16:11	110.4	14:16:55	107.9	14:17:39	108.0	14:18:23	108.3	14:19:07	111.4	14:19:51	108.8
14:16:12	126.6	14:16:56	108.1	14:17:40	107.9	14:18:24	108.3	14:19:08	114.0	14:19:52	108.3
14:16:13	124.6	14:16:57	108.1	14:17:41	108.4	14:18:25	108.2	14:19:09	116.6	14:19:53	108.0
14:16:14	112.2	14:16:58	108.1	14:17:42	107.8	14:18:26	108.1	14:19:10	117.4	14:19:54	108.2
14:16:15	108.9	14:16:59	107.9	14:17:43	107.8	14:18:27	108.3	14:19:11	118.9	14:19:55	108.0
14:16:16	108.4	14:17:00	107.8	14:17:44	108.1	14:18:28	107.9	14:19:12	115.3	14:19:56	107.7
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14:16:18	108.2	14:17:02	107.9	14:17:46	107.8	14:18:30	107.8	14:19:14	114.4	14:19:58	107.9
14:16:19	109.1	14:17:03	107.8	14:17:47	107.6	14:18:31	108.4	14:19:15	116.0	14:19:59	107.9
14:16:20	107.9	14:17:04	108.3	14:17:48	108.0	14:18:32	108.4	14:19:16	110.6	14:20:00	107.7
14:16:21	108.9	14:17:05	108.0	14:17:49	125.1	14:18:33	108.3	14:19:17	108.6	14:20:01	107.9
14:16:22	108.5	14:17:06	107.8	14:17:50	114.2	14:18:34	108.1	14:19:18	108.4	14:20:02	108.2
14:16:23	107.9	14:17:07	107.9	14:17:51	112.3	14:18:35	109.2	14:19:19	108.0	14:20:03	108.1
14:16:24	108.1	14:17:08	108.4	14:17:52	107.9	14:18:36	121.0	14:19:20	107.8	14:20:04	108.0
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14:16:27	107.8	14:17:11	107.7	14:17:55	107.9	14:18:39	115.3	14:19:23	107.8	14:20:07	108.7
14:16:28	107.7	14:17:12	108.1	14:17:56	107.8	14:18:40	116.5	14:19:24	107.8	14:20:08	112.0
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14:16:44	107.7	14:17:28	108.0	14:18:12	111.0	14:18:56	107.9	14:19:40	107.7	14:20:24	108.3

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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14:20:27	108.2	14:21:11	130.4	14:21:55	108.1	14:22:39	120.2	14:23:23	123.4	14:24:07	110.6
14:20:28	108.1	14:21:12	134.8	14:21:56	108.1	14:22:40	113.8	14:23:24	133.1	14:24:08	113.7
14:20:29	108.2	14:21:13	136.5	14:21:57	108.0	14:22:41	113.9	14:23:25	131.3	14:24:09	113.7
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14:20:44	107.9	14:21:28	123.5	14:22:12	108.0	14:22:56	107.9	14:23:40	128.0	14:24:24	107.9
14:20:45	107.6	14:21:29	124.2	14:22:13	113.2	14:22:57	108.9	14:23:41	120.3	14:24:25	108.3
14:20:46	108.3	14:21:30	124.2	14:22:14	127.3	14:22:58	108.4	14:23:42	108.3	14:24:26	108.0
14:20:47	108.0	14:21:31	124.4	14:22:15	126.4	14:22:59	107.9	14:23:43	108.4	14:24:27	107.9
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14:20:49	107.8	14:21:33	121.2	14:22:17	132.8	14:23:01	107.7	14:23:45	108.0	14:24:29	108.1
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14:20:58	108.2	14:21:42	107.6	14:22:26	137.0	14:23:10	107.9	14:23:54	107.8	14:24:38	143.2
14:20:59	111.7	14:21:43	110.4	14:22:27	138.9	14:23:11	108.3	14:23:55	108.0	14:24:39	132.0
14:21:00	107.9	14:21:44	109.8	14:22:28	140.6	14:23:12	108.2	14:23:56	107.7	14:24:40	130.0
14:21:01	110.5	14:21:45	111.3	14:22:29	140.5	14:23:13	107.9	14:23:57	108.2	14:24:41	139.4
14:21:02	118.8	14:21:46	113.5	14:22:30	134.4	14:23:14	107.9	14:23:58	108.1	14:24:42	138.6
14:21:03	118.7	14:21:47	108.2	14:22:31	129.2	14:23:15	107.9	14:23:59	107.8	14:24:43	138.1
14:21:04	123.1	14:21:48	112.6	14:22:32	127.7	14:23:16	107.9	14:24:00	107.9	14:24:44	138.3
14:21:05	130.4	14:21:49	109.8	14:22:33	124.6	14:23:17	108.2	14:24:01	107.9	14:24:45	139.2
14:21:06	138.1	14:21:50	111.0	14:22:34	132.3	14:23:18	108.3	14:24:02	108.3	14:24:46	137.7
14:21:07	137.8	14:21:51	110.5	14:22:35	122.5	14:23:19	108.2	14:24:03	108.2	14:24:47	130.5
14:21:08	135.1	14:21:52	108.5	14:22:36	112.6	14:23:20	118.5	14:24:04	108.4	14:24:48	128.6

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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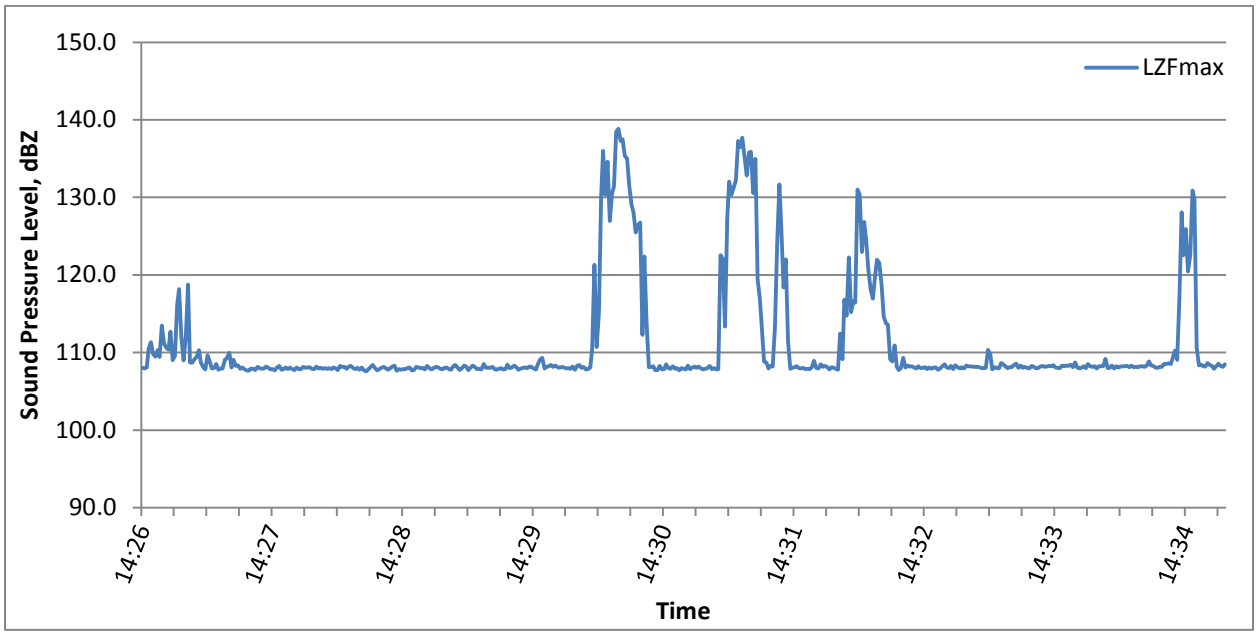
14:24:50	113.5	14:25:11	108.2	14:25:32	108.3	14:25:53	145.0	14:26:14	108.2	14:26:35	111.7
14:24:51	108.7	14:25:12	108.4	14:25:33	108.3	14:25:54	141.0	14:26:15	108.1	14:26:36	109.6
14:24:52	108.3	14:25:13	108.2	14:25:34	108.2	14:25:55	136.5	14:26:16	108.1	14:26:37	110.3
14:24:53	109.2	14:25:14	107.9	14:25:35	107.8	14:25:56	136.9	14:26:17	108.1	14:26:38	110.0
14:24:54	110.1	14:25:15	108.0	14:25:36	108.0	14:25:57	138.7	14:26:18	107.8	14:26:39	112.8
14:24:55	115.6	14:25:16	107.9	14:25:37	107.9	14:25:58	137.5	14:26:19	108.0	14:26:40	108.7
14:24:56	111.7	14:25:17	107.9	14:25:38	108.1	14:25:59	129.2	14:26:20	108.0	14:26:41	111.6
14:24:57	108.3	14:25:18	108.3	14:25:39	128.1	14:26:00	123.2	14:26:21	108.1	14:26:42	108.3
14:24:58	108.2	14:25:19	108.0	14:25:40	120.5	14:26:01	111.4	14:26:22	108.0	14:26:43	108.7
14:24:59	108.4	14:25:20	108.0	14:25:41	117.6	14:26:02	108.1	14:26:23	108.1	14:26:44	108.8
14:25:00	108.3	14:25:21	107.8	14:25:42	117.7	14:26:03	108.2	14:26:24	107.9	14:26:45	109.4
14:25:01	108.5	14:25:22	108.1	14:25:43	138.5	14:26:04	108.3	14:26:25	108.1	14:26:46	107.9
14:25:02	109.6	14:25:23	107.9	14:25:44	129.9	14:26:05	108.0	14:26:26	108.0	14:26:47	108.4
14:25:03	109.0	14:25:24	107.6	14:25:45	136.7	14:26:06	108.3	14:26:27	108.4	14:26:48	108.0
14:25:04	108.2	14:25:25	108.0	14:25:46	140.7	14:26:07	108.2	14:26:28	119.5	14:26:49	107.9
14:25:05	108.2	14:25:26	108.0	14:25:47	138.3	14:26:08	107.8	14:26:29	116.0		
14:25:06	108.0	14:25:27	107.9	14:25:48	132.2	14:26:09	107.9	14:26:30	131.9		
14:25:07	108.0	14:25:28	108.1	14:25:49	141.6	14:26:10	107.7	14:26:31	121.4		
14:25:08	107.7	14:25:29	107.7	14:25:50	135.8	14:26:11	108.0	14:26:32	108.4		
14:25:09	108.0	14:25:30	107.9	14:25:51	135.2	14:26:12	108.5	14:26:33	110.6		

Removing In-Stream Rock from Barrier



Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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14:26:52	108.1	14:27:17	108.7	14:27:42	107.8	14:28:07	108.1	14:28:32	107.7	14:28:57	108.1
14:26:53	110.5	14:27:18	108.1	14:27:43	108.2	14:28:08	107.9	14:28:33	107.6	14:28:58	108.0
14:26:54	111.3	14:27:19	107.8	14:27:44	108.0	14:28:09	107.9	14:28:34	107.9	14:28:59	108.0
14:26:55	109.8	14:27:20	109.7	14:27:45	107.9	14:28:10	108.2	14:28:35	108.1	14:29:00	107.8
14:26:56	109.5	14:27:21	108.8	14:27:46	107.9	14:28:11	107.9	14:28:36	108.4	14:29:01	108.3
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14:26:58	109.4	14:27:23	108.0	14:27:48	108.0	14:28:13	107.9	14:28:38	107.7	14:29:03	107.8
14:26:59	113.5	14:27:24	108.5	14:27:49	107.8	14:28:14	108.0	14:28:39	107.9	14:29:04	108.0
14:27:00	111.2	14:27:25	107.8	14:27:50	107.9	14:28:15	107.9	14:28:40	108.0	14:29:05	108.1
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14:27:06	116.1	14:27:31	108.1	14:27:56	108.1	14:28:21	108.3	14:28:46	108.3	14:29:11	107.9
14:27:07	118.2	14:27:32	109.1	14:27:57	107.9	14:28:22	108.2	14:28:47	107.7	14:29:12	107.8
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14:27:10	112.0	14:27:35	107.9	14:28:00	107.7	14:28:25	108.2	14:28:50	107.9	14:29:15	108.0
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14:27:12	108.7	14:27:37	107.8	14:28:02	107.9	14:28:27	108.0	14:28:52	108.0	14:29:17	108.0
14:27:13	108.7	14:27:38	107.7	14:28:03	107.9	14:28:28	107.9	14:28:53	108.1	14:29:18	108.3
14:27:14	109.1	14:27:39	107.7	14:28:04	108.1	14:28:29	108.0	14:28:54	107.7	14:29:19	108.2

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
14:29:20	107.8	14:30:04	108.1	14:30:48	108.3	14:31:32	135.0	14:32:16	115.2	14:33:00	108.1
14:29:21	108.1	14:30:05	107.9	14:30:49	107.8	14:31:33	119.4	14:32:17	116.6	14:33:01	108.0
14:29:22	108.3	14:30:06	108.0	14:30:50	107.9	14:31:34	116.9	14:32:18	116.4	14:33:02	108.3
14:29:23	108.2	14:30:07	107.9	14:30:51	108.5	14:31:35	113.3	14:32:19	131.0	14:33:03	107.9
14:29:24	107.9	14:30:08	108.2	14:30:52	108.0	14:31:36	108.8	14:32:20	130.3	14:33:04	108.3
14:29:25	107.9	14:30:09	107.8	14:30:53	107.9	14:31:37	108.7	14:32:21	122.9	14:33:05	108.1
14:29:26	107.8	14:30:10	108.3	14:30:54	108.2	14:31:38	107.9	14:32:22	126.8	14:33:06	107.9
14:29:27	108.5	14:30:11	108.4	14:30:55	107.9	14:31:39	108.3	14:32:23	124.6	14:33:07	108.1
14:29:28	108.1	14:30:12	108.0	14:30:56	108.0	14:31:40	108.2	14:32:24	120.6	14:33:08	108.0
14:29:29	108.0	14:30:13	108.1	14:30:57	107.7	14:31:41	113.1	14:32:25	118.2	14:33:09	108.3
14:29:30	108.0	14:30:14	107.8	14:30:58	108.0	14:31:42	124.0	14:32:26	116.9	14:33:10	108.2
14:29:31	108.1	14:30:15	107.9	14:30:59	107.9	14:31:43	131.7	14:32:27	119.8	14:33:11	108.2
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14:29:58	108.4	14:30:42	113.8	14:31:26	137.7	14:32:10	107.8	14:32:54	108.1	14:33:38	108.0
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14:30:01	108.1	14:30:45	108.2	14:31:29	135.8	14:32:13	116.8	14:32:57	107.9	14:33:41	108.0
14:30:02	108.0	14:30:46	107.8	14:31:30	135.9	14:32:14	114.8	14:32:58	108.2	14:33:42	108.0
14:30:03	108.2	14:30:47	107.7	14:31:31	130.5	14:32:15	122.2	14:32:59	108.5	14:33:43	108.2

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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14:33:47	108.3	14:34:02	108.0	14:34:17	107.9	14:34:32	108.3	14:34:47	117.0	14:35:02	108.3
14:33:48	108.2	14:34:03	108.2	14:34:18	108.2	14:34:33	108.9	14:34:48	128.1	14:35:03	107.9
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14:33:51	108.0	14:34:06	108.2	14:34:21	108.2	14:34:36	108.1	14:34:51	120.4	14:35:06	108.3
14:33:52	108.0	14:34:07	108.1	14:34:22	108.3	14:34:37	108.0	14:34:52	122.6	14:35:07	108.1
14:33:53	108.3	14:34:08	108.2	14:34:23	108.3	14:34:38	108.2	14:34:53	130.9	14:35:08	108.5
14:33:54	108.2	14:34:09	108.0	14:34:24	108.1	14:34:39	108.2	14:34:54	129.8		
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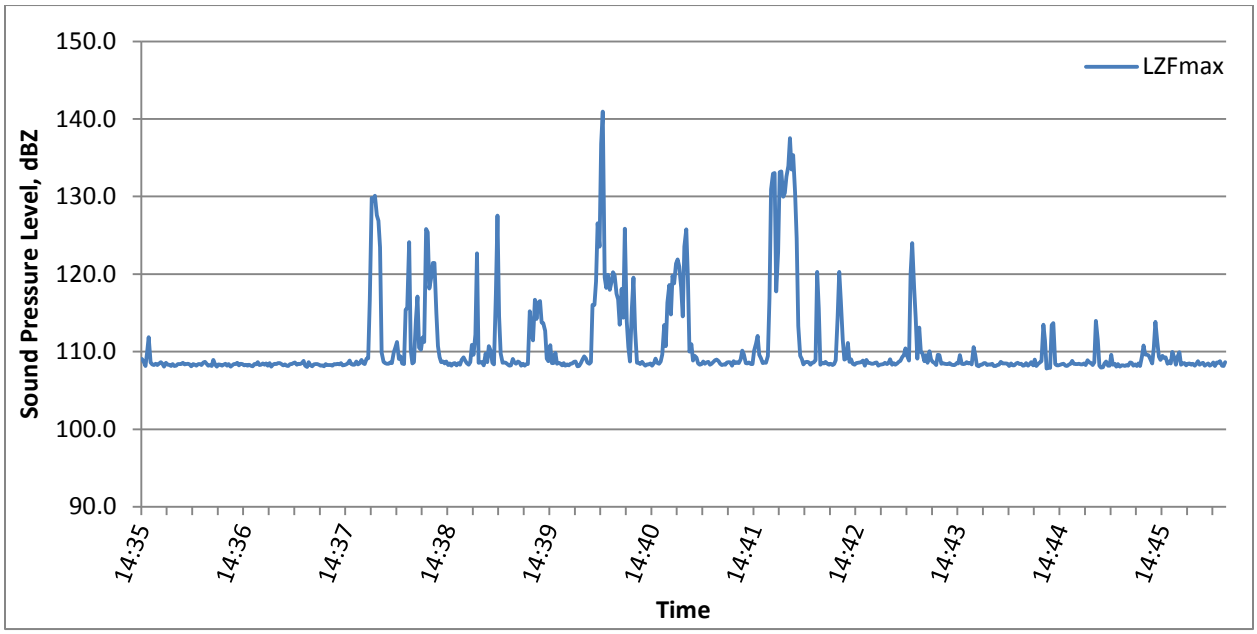
14:33:56	108.3	14:34:11	108.2	14:34:26	108.1	14:34:41	108.5	14:34:56	108.4		
14:33:57	108.4	14:34:12	108.2	14:34:27	108.1	14:34:42	108.6	14:34:57	108.4		
14:33:58	108.1	14:34:13	109.2	14:34:28	108.1	14:34:43	108.5	14:34:58	108.2		

Removing In-Stream Rock from Barrier



Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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14:35:10	108.7	14:35:17	108.4	14:35:24	108.3	14:35:31	108.4	14:35:38	108.1	14:35:45	108.6
14:35:11	108.1	14:35:18	108.3	14:35:25	108.3	14:35:32	108.4	14:35:39	108.4	14:35:46	108.7
14:35:12	109.8	14:35:19	108.4	14:35:26	108.1	14:35:33	108.6	14:35:40	108.3	14:35:47	108.4
14:35:13	111.9	14:35:20	108.6	14:35:27	108.4	14:35:34	108.3	14:35:41	108.2	14:35:48	108.2
14:35:14	108.6	14:35:21	108.5	14:35:28	108.1	14:35:35	108.4	14:35:42	108.4	14:35:49	108.3
14:35:15	108.4	14:35:22	108.1	14:35:29	108.2	14:35:36	108.5	14:35:43	108.4	14:35:50	108.2

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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14:35:52	108.3	14:36:36	108.4	14:37:20	108.4	14:38:04	109.3	14:38:48	108.6	14:39:32	108.4
14:35:53	108.1	14:36:37	108.4	14:37:21	109.1	14:38:05	108.6	14:38:49	108.4	14:39:33	108.6
14:35:54	108.3	14:36:38	108.5	14:37:22	109.1	14:38:06	108.7	14:38:50	108.7	14:39:34	116.0
14:35:55	108.3	14:36:39	108.6	14:37:23	116.7	14:38:07	108.5	14:38:51	108.6	14:39:35	116.0
14:35:56	108.2	14:36:40	108.3	14:37:24	129.8	14:38:08	108.7	14:38:52	108.2	14:39:36	119.1
14:35:57	108.3	14:36:41	108.4	14:37:25	129.4	14:38:09	108.3	14:38:53	108.4	14:39:37	126.5
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14:35:59	108.2	14:36:43	108.5	14:37:27	127.6	14:38:11	108.2	14:38:55	108.4	14:39:39	136.8
14:36:00	108.4	14:36:44	108.8	14:37:28	126.9	14:38:12	108.5	14:38:56	108.4	14:39:40	140.9
14:36:01	108.1	14:36:45	108.2	14:37:29	123.5	14:38:13	108.5	14:38:57	115.2	14:39:41	119.6
14:36:02	108.2	14:36:46	108.0	14:37:30	109.9	14:38:14	108.2	14:38:58	112.6	14:39:42	118.2
14:36:03	108.4	14:36:47	108.6	14:37:31	108.7	14:38:15	108.5	14:38:59	111.4	14:39:43	119.9
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14:36:06	108.2	14:36:50	108.4	14:37:34	108.4	14:38:18	109.3	14:39:02	116.3	14:39:46	120.2
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14:36:08	108.4	14:36:52	108.4	14:37:36	108.5	14:38:20	108.5	14:39:04	113.8	14:39:48	117.5
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14:36:11	108.2	14:36:55	108.2	14:37:39	111.3	14:38:23	110.9	14:39:07	109.1	14:39:51	118.1
14:36:12	108.3	14:36:56	108.1	14:37:40	109.1	14:38:24	109.6	14:39:08	108.8	14:39:52	114.4
14:36:13	108.2	14:36:57	108.4	14:37:41	109.4	14:38:25	112.2	14:39:09	110.8	14:39:53	125.8
14:36:14	108.1	14:36:58	108.3	14:37:42	108.5	14:38:26	122.7	14:39:10	108.5	14:39:54	113.9
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14:36:19	108.3	14:37:03	108.3	14:37:47	110.2	14:38:31	109.8	14:39:15	108.5	14:39:59	112.9
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14:36:28	108.4	14:37:12	108.4	14:37:56	125.8	14:38:40	109.8	14:39:24	108.7	14:40:08	108.5
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14:36:33	108.4	14:37:17	108.5	14:38:01	121.4	14:38:45	108.2	14:39:29	109.4	14:40:13	108.5
14:36:34	108.2	14:37:18	109.0	14:38:02	115.0	14:38:46	108.3	14:39:30	109.2	14:40:14	108.7

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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14:40:17	110.7	14:41:01	109.0	14:41:45	108.9	14:42:29	109.0	14:43:13	108.4	14:43:57	108.6
14:40:18	116.3	14:41:02	110.1	14:41:46	120.3	14:42:30	108.3	14:43:14	108.7	14:43:58	108.8
14:40:19	118.6	14:41:03	109.6	14:41:47	115.6	14:42:31	108.5	14:43:15	108.5	14:43:59	113.5
14:40:20	114.8	14:41:04	108.5	14:41:48	108.3	14:42:32	108.3	14:43:16	108.5	14:44:00	111.4
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14:40:22	118.8	14:41:06	108.6	14:41:50	108.5	14:42:34	108.7	14:43:18	110.6	14:44:02	108.0
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14:40:54	108.6	14:41:38	108.4	14:42:22	108.2	14:43:06	108.3	14:43:50	108.2	14:44:34	108.0
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14:40:58	108.5	14:41:42	108.3	14:42:26	108.6	14:43:10	109.5	14:43:54	109.0	14:44:38	108.2

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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14:44:41	108.5	14:44:53	108.3	14:45:05	113.9	14:45:17	108.3	14:45:29	108.4	14:45:41	108.6
14:44:42	108.1	14:44:54	108.1	14:45:06	111.2	14:45:18	109.3	14:45:30	108.8	14:45:42	108.5
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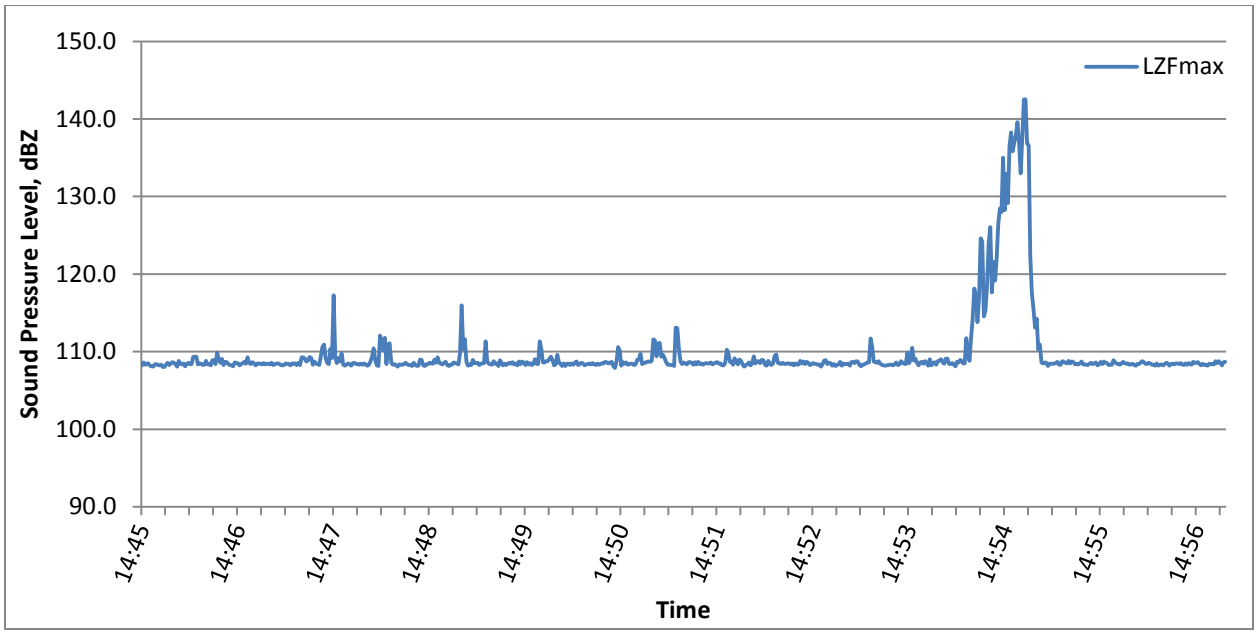
14:44:49	108.2	14:45:01	109.5	14:45:13	108.7	14:45:25	108.5	14:45:37	108.2		
14:44:50	108.6	14:45:02	109.0	14:45:14	108.5	14:45:26	108.3	14:45:38	108.3		

Removing In-Stream Rock from Barrier



Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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14:45:48	108.6	14:45:58	108.2	14:46:08	108.4	14:46:18	108.4	14:46:28	108.4	14:46:38	108.3
14:45:49	108.3	14:45:59	108.3	14:46:09	108.1	14:46:19	109.3	14:46:29	108.4	14:46:39	108.7
14:45:50	108.5	14:46:00	108.0	14:46:10	108.8	14:46:20	109.4	14:46:30	108.2	14:46:40	108.6
14:45:51	108.5	14:46:01	108.0	14:46:11	108.4	14:46:21	109.4	14:46:31	108.9	14:46:41	108.4
14:45:52	108.2	14:46:02	108.3	14:46:12	108.3	14:46:22	108.4	14:46:32	108.9	14:46:42	108.3
14:45:53	108.1	14:46:03	108.6	14:46:13	108.5	14:46:23	108.5	14:46:33	108.4	14:46:43	108.2
14:45:54	108.1	14:46:04	108.3	14:46:14	108.1	14:46:24	108.4	14:46:34	109.9	14:46:44	108.1
14:45:55	108.3	14:46:05	108.5	14:46:15	108.4	14:46:25	108.3	14:46:35	109.1	14:46:45	108.6
14:45:56	108.4	14:46:06	108.6	14:46:16	108.5	14:46:26	108.3	14:46:36	108.6	14:46:46	108.6

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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14:46:51	108.7	14:47:35	108.7	14:48:19	111.8	14:49:03	108.5	14:49:47	108.3	14:50:31	108.3
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14:46:54	108.5	14:47:38	108.3	14:48:22	111.1	14:49:06	109.8	14:49:50	108.5	14:50:34	108.4
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14:46:57	108.5	14:47:41	110.9	14:48:25	108.3	14:49:09	111.6	14:49:53	109.0	14:50:37	108.7
14:46:58	108.3	14:47:42	109.1	14:48:26	108.3	14:49:10	108.7	14:49:54	108.4	14:50:38	108.6
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14:47:01	108.5	14:47:45	110.4	14:48:29	108.3	14:49:13	108.3	14:49:57	110.3	14:50:41	108.7
14:47:02	108.4	14:47:46	109.2	14:48:30	108.3	14:49:14	108.9	14:49:58	108.6	14:50:42	108.2
14:47:03	108.5	14:47:47	117.3	14:48:31	108.4	14:49:15	108.5	14:49:59	108.6	14:50:43	107.9
14:47:04	108.4	14:47:48	109.4	14:48:32	108.6	14:49:16	108.5	14:50:00	108.7	14:50:44	108.7
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14:47:11	108.4	14:47:55	108.3	14:48:39	108.2	14:49:23	108.7	14:50:07	109.6	14:50:51	108.3
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14:47:18	108.4	14:48:02	108.4	14:48:46	108.4	14:49:30	108.1	14:50:14	108.4	14:50:58	109.0
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14:47:27	109.3	14:48:11	109.3	14:48:55	108.4	14:49:39	108.7	14:50:23	108.5	14:51:07	111.6
14:47:28	109.3	14:48:12	110.4	14:48:56	108.6	14:49:40	108.4	14:50:24	108.2	14:51:08	111.4
14:47:29	109.1	14:48:13	108.9	14:48:57	108.7	14:49:41	108.5	14:50:25	108.4	14:51:09	109.4
14:47:30	108.7	14:48:14	108.2	14:48:58	108.3	14:49:42	108.2	14:50:26	108.4	14:51:10	111.1

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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14:51:13	109.6	14:51:57	108.3	14:52:41	108.7	14:53:25	108.7	14:54:09	108.4	14:54:53	136.9
14:51:14	109.2	14:51:58	109.2	14:52:42	108.4	14:53:26	108.7	14:54:10	109.1	14:54:54	137.9
14:51:15	108.7	14:51:59	108.7	14:52:43	108.7	14:53:27	108.5	14:54:11	109.1	14:54:55	139.6
14:51:16	108.3	14:52:00	108.4	14:52:44	108.6	14:53:28	108.8	14:54:12	108.4	14:54:56	136.8
14:51:17	108.3	14:52:01	109.0	14:52:45	108.3	14:53:29	108.5	14:54:13	108.4	14:54:57	133.0
14:51:18	108.3	14:52:02	108.8	14:52:46	108.4	14:53:30	108.3	14:54:14	108.5	14:54:58	137.5
14:51:19	108.3	14:52:03	108.4	14:52:47	108.5	14:53:31	108.2	14:54:15	108.3	14:54:59	142.5
14:51:20	108.1	14:52:04	108.1	14:52:48	108.4	14:53:32	108.2	14:54:16	108.1	14:55:00	142.5
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14:51:22	113.0	14:52:06	108.3	14:52:50	108.3	14:53:34	108.3	14:54:18	108.6	14:55:02	136.6
14:51:23	110.3	14:52:07	108.6	14:52:51	108.3	14:53:35	108.3	14:54:19	108.9	14:55:03	122.3
14:51:24	108.7	14:52:08	108.2	14:52:52	108.1	14:53:36	108.3	14:54:20	108.8	14:55:04	117.5
14:51:25	108.4	14:52:09	108.5	14:52:53	108.4	14:53:37	108.2	14:54:21	108.5	14:55:05	115.5
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14:51:28	108.4	14:52:12	108.7	14:52:56	108.4	14:53:40	108.3	14:54:24	109.7	14:55:08	110.3
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14:51:33	108.6	14:52:17	108.3	14:53:01	108.2	14:53:45	108.4	14:54:29	117.3	14:55:13	108.6
14:51:34	108.4	14:52:18	108.2	14:53:02	108.3	14:53:46	109.9	14:54:30	113.8	14:55:14	108.1
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14:51:43	108.6	14:52:27	108.4	14:53:11	108.7	14:53:55	108.7	14:54:39	117.6	14:55:23	108.8
14:51:44	108.4	14:52:28	108.5	14:53:12	108.7	14:53:56	108.4	14:54:40	121.6	14:55:24	108.7
14:51:45	108.5	14:52:29	108.4	14:53:13	108.5	14:53:57	108.8	14:54:41	119.1	14:55:25	108.6
14:51:46	108.6	14:52:30	108.4	14:53:14	108.8	14:53:58	108.6	14:54:42	122.1	14:55:26	108.5
14:51:47	108.6	14:52:31	108.5	14:53:15	108.7	14:53:59	108.2	14:54:43	126.5	14:55:27	108.8
14:51:48	108.4	14:52:32	108.5	14:53:16	108.3	14:54:00	109.0	14:54:44	128.4	14:55:28	108.5
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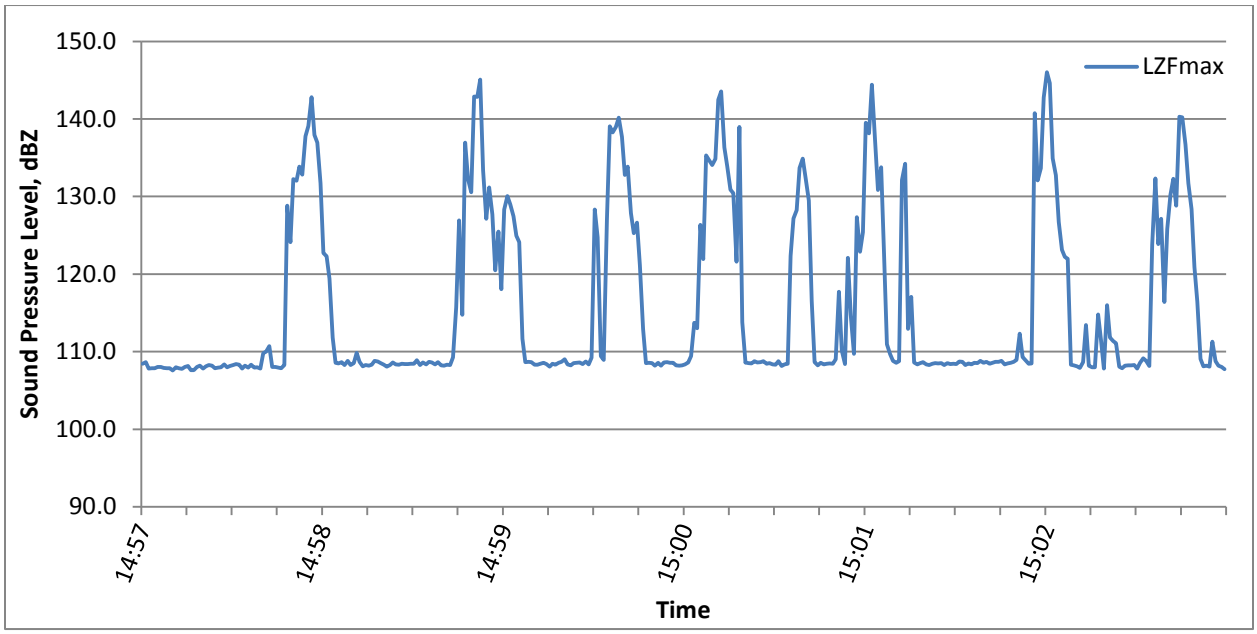
14:51:50	108.2	14:52:34	108.5	14:53:18	108.3	14:54:02	108.5	14:54:46	135.0	14:55:30	108.6
14:51:51	108.2	14:52:35	108.3	14:53:19	108.4	14:54:03	108.7	14:54:47	128.2	14:55:31	108.4
14:51:52	108.6	14:52:36	108.5	14:53:20	108.5	14:54:04	108.3	14:54:48	132.9	14:55:32	108.4
14:51:53	110.3	14:52:37	108.3	14:53:21	108.6	14:54:05	108.8	14:54:49	129.2	14:55:33	108.4
14:51:54	109.7	14:52:38	108.4	14:53:22	108.6	14:54:06	108.8	14:54:50	136.5	14:55:34	108.5

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
14:55:35	108.7	14:55:51	108.5	14:56:07	108.4	14:56:23	108.2	14:56:39	108.3	14:56:55	108.4
14:55:36	108.4	14:55:52	108.3	14:56:08	108.3	14:56:24	108.3	14:56:40	108.5	14:56:56	108.4
14:55:37	108.3	14:55:53	108.3	14:56:09	108.2	14:56:25	108.4	14:56:41	108.3	14:56:57	108.4
14:55:38	108.3	14:55:54	108.3	14:56:10	108.4	14:56:26	108.2	14:56:42	108.5	14:56:58	108.4
14:55:39	108.3	14:55:55	108.9	14:56:11	108.4	14:56:27	108.4	14:56:43	108.4	14:56:59	108.8
14:55:40	108.4	14:55:56	108.6	14:56:12	108.6	14:56:28	108.6	14:56:44	108.3	14:57:00	108.5
14:55:41	108.5	14:55:57	108.5	14:56:13	108.8	14:56:29	108.5	14:56:45	108.7	14:57:01	108.8
14:55:42	108.4	14:55:58	108.4	14:56:14	108.7	14:56:30	108.2	14:56:46	108.5	14:57:02	108.5
14:55:43	108.5	14:55:59	108.3	14:56:15	108.4	14:56:31	108.4	14:56:47	108.6	14:57:03	108.2
14:55:44	108.6	14:56:00	108.5	14:56:16	108.4	14:56:32	108.4	14:56:48	108.6	14:57:04	108.6
14:55:45	108.2	14:56:01	108.7	14:56:17	108.5	14:56:33	108.3	14:56:49	108.4	14:57:05	108.7
14:55:46	108.4	14:56:02	108.5	14:56:18	108.5	14:56:34	108.5	14:56:50	108.2		
14:55:47	108.6	14:56:03	108.4	14:56:19	108.3	14:56:35	108.5	14:56:51	108.4		
14:55:48	108.4	14:56:04	108.5	14:56:20	108.3	14:56:36	108.4	14:56:52	108.3		
14:55:49	108.7	14:56:05	108.3	14:56:21	108.2	14:56:37	108.5	14:56:53	108.3		
14:55:50	108.6	14:56:06	108.4	14:56:22	108.5	14:56:38	108.4	14:56:54	108.2		

Removing In-Stream Rock from Barrier



Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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14:57:07	108.6	14:57:13	107.9	14:57:19	107.8	14:57:25	108.2	14:57:31	107.9	14:57:37	108.4
14:57:08	107.8	14:57:14	107.9	14:57:20	108.0	14:57:26	107.8	14:57:32	108.0	14:57:38	108.3
14:57:09	107.9	14:57:15	107.8	14:57:21	108.2	14:57:27	108.1	14:57:33	108.4	14:57:39	107.8
14:57:10	107.8	14:57:16	107.6	14:57:22	107.6	14:57:28	108.3	14:57:34	108.0	14:57:40	108.2
14:57:11	108.0	14:57:17	108.0	14:57:23	107.6	14:57:29	108.2	14:57:35	108.2	14:57:41	107.9

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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14:57:43	107.9	14:58:27	108.1	14:59:11	124.1	14:59:55	108.5	15:00:39	108.4	15:01:23	108.3
14:57:44	108.0	14:58:28	108.3	14:59:12	111.6	14:59:56	108.2	15:00:40	108.5	15:01:24	108.5
14:57:45	107.8	14:58:29	108.6	14:59:13	108.7	14:59:57	108.6	15:00:41	122.3	15:01:25	108.6
14:57:46	109.8	14:58:30	108.3	14:59:14	108.7	14:59:58	108.2	15:00:42	127.2	15:01:26	108.4
14:57:47	110.0	14:58:31	108.3	14:59:15	108.6	14:59:59	108.6	15:00:43	128.2	15:01:27	108.3
14:57:48	110.7	14:58:32	108.5	14:59:16	108.3	15:00:00	108.6	15:00:44	133.7	15:01:28	108.4
14:57:49	108.0	14:58:33	108.4	14:59:17	108.3	15:00:01	108.6	15:00:45	134.9	15:01:29	108.5
14:57:50	108.0	14:58:34	108.4	14:59:18	108.4	15:00:02	108.6	15:00:46	132.4	15:01:30	108.5
14:57:51	107.9	14:58:35	108.4	14:59:19	108.6	15:00:03	108.2	15:00:47	129.5	15:01:31	108.5
14:57:52	107.8	14:58:36	108.4	14:59:20	108.4	15:00:04	108.2	15:00:48	116.5	15:01:32	108.3
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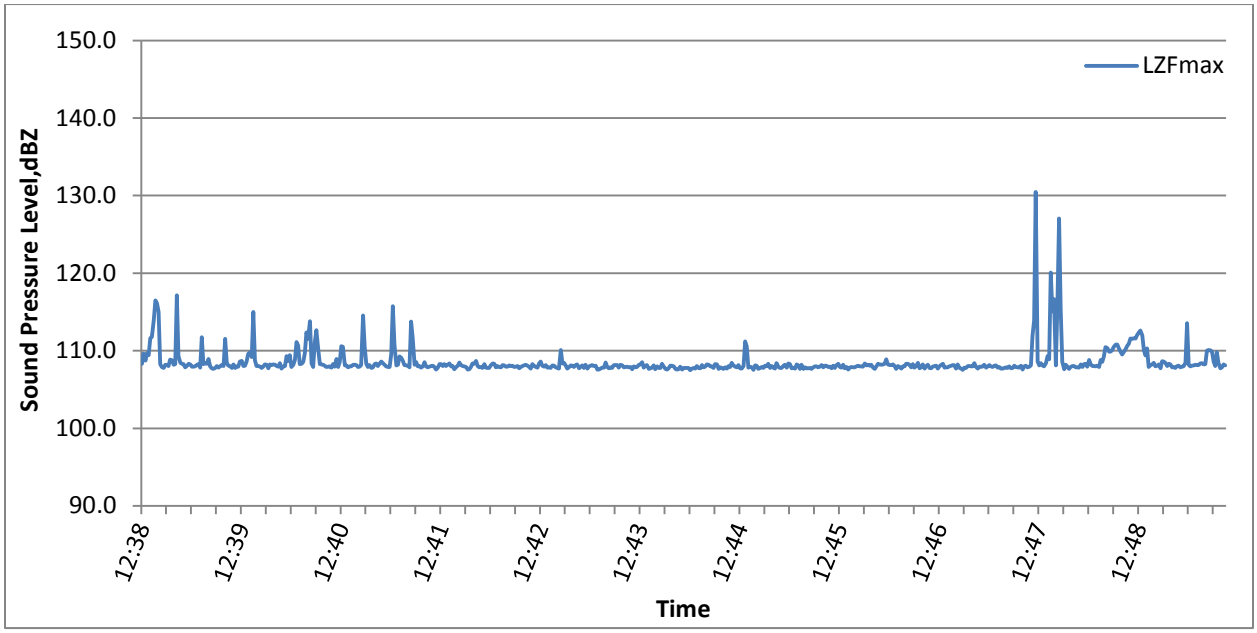
14:57:55	124.1	14:58:39	108.6	14:59:23	108.3	15:00:07	108.6	15:00:51	108.6	15:01:35	108.4
14:57:56	132.3	14:58:40	108.4	14:59:24	108.6	15:00:08	109.4	15:00:52	108.4	15:01:36	108.4
14:57:57	132.0	14:58:41	108.7	14:59:25	108.7	15:00:09	113.7	15:00:53	108.4	15:01:37	108.7
14:57:58	133.9	14:58:42	108.6	14:59:26	109.0	15:00:10	113.0	15:00:54	108.5	15:01:38	108.7
14:57:59	132.8	14:58:43	108.4	14:59:27	108.4	15:00:11	126.3	15:00:55	108.4	15:01:39	108.3
14:58:00	137.8	14:58:44	108.6	14:59:28	108.2	15:00:12	121.9	15:00:56	109.0	15:01:40	108.5
14:58:01	139.1	14:58:45	108.2	14:59:29	108.5	15:00:13	135.3	15:00:57	117.7	15:01:41	108.4
14:58:02	142.8	14:58:46	108.2	14:59:30	108.6	15:00:14	134.6	15:00:58	110.1	15:01:42	108.5
14:58:03	138.0	14:58:47	108.3	14:59:31	108.6	15:00:15	134.1	15:00:59	108.4	15:01:43	108.5
14:58:04	137.0	14:58:48	108.3	14:59:32	108.4	15:00:16	134.9	15:01:00	122.1	15:01:44	108.8
14:58:05	131.7	14:58:49	109.3	14:59:33	108.7	15:00:17	142.5	15:01:01	114.7	15:01:45	108.6
14:58:06	122.7	14:58:50	115.7	14:59:34	108.4	15:00:18	143.6	15:01:02	109.7	15:01:46	108.7
14:58:07	122.3	14:58:51	126.9	14:59:35	109.2	15:00:19	136.3	15:01:03	127.4	15:01:47	108.4
14:58:08	119.4	14:58:52	114.7	14:59:36	128.3	15:00:20	133.9	15:01:04	122.9	15:01:48	108.6
14:58:09	111.8	14:58:53	137.0	14:59:37	124.7	15:00:21	130.9	15:01:05	125.4	15:01:49	108.7
14:58:10	108.6	14:58:54	132.2	14:59:38	109.4	15:00:22	130.4	15:01:06	139.5	15:01:50	108.7
14:58:11	108.5	14:58:55	130.5	14:59:39	108.9	15:00:23	121.6	15:01:07	138.1	15:01:51	108.8
14:58:12	108.7	14:58:56	142.9	14:59:40	127.0	15:00:24	139.0	15:01:08	144.4	15:01:52	108.4
14:58:13	108.3	14:58:57	142.8	14:59:41	139.0	15:00:25	113.8	15:01:09	137.2	15:01:53	108.5
14:58:14	108.8	14:58:58	145.1	14:59:42	138.3	15:00:26	108.6	15:01:10	130.8	15:01:54	108.6
14:58:15	108.3	14:58:59	133.4	14:59:43	139.0	15:00:27	108.5	15:01:11	133.8	15:01:55	108.7
14:58:16	108.5	14:59:00	127.1	14:59:44	140.2	15:00:28	108.5	15:01:12	122.6	15:01:56	108.9
14:58:17	109.8	14:59:01	131.2	14:59:45	137.7	15:00:29	108.8	15:01:13	111.0	15:01:57	112.3
14:58:18	108.7	14:59:02	127.7	14:59:46	132.8	15:00:30	108.6	15:01:14	109.7	15:01:58	109.3
14:58:19	108.1	14:59:03	120.5	14:59:47	133.9	15:00:31	108.6	15:01:15	108.8	15:01:59	108.8
14:58:20	108.3	14:59:04	125.5	14:59:48	127.9	15:00:32	108.8	15:01:16	108.6	15:02:00	108.4
14:58:21	108.2	14:59:05	118.1	14:59:49	125.3	15:00:33	108.4	15:01:17	108.8	15:02:01	108.5
14:58:22	108.3	14:59:06	128.3	14:59:50	126.6	15:00:34	108.5	15:01:18	132.1	15:02:02	140.8
14:58:23	108.8	14:59:07	130.0	14:59:51	121.1	15:00:35	108.3	15:01:19	134.2	15:02:03	132.1
14:58:24	108.7	14:59:08	129.0	14:59:52	112.9	15:00:36	108.3	15:01:20	113.0	15:02:04	133.6
14:58:25	108.5	14:59:09	127.5	14:59:53	108.5	15:00:37	108.8	15:01:21	117.1	15:02:05	142.8

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
15:02:06	146.0	15:02:17	107.9	15:02:28	111.4	15:02:39	108.8	15:02:50	140.3	15:03:01	111.3
15:02:07	144.6	15:02:18	108.6	15:02:29	111.1	15:02:40	108.1	15:02:51	140.2	15:03:02	108.8
15:02:08	134.9	15:02:19	113.4	15:02:30	108.1	15:02:41	123.8	15:02:52	136.7	15:03:03	108.2
15:02:09	132.7	15:02:20	108.2	15:02:31	107.9	15:02:42	132.3	15:02:53	131.7	15:03:04	108.0
15:02:10	126.7	15:02:21	108.0	15:02:32	108.2	15:02:43	123.9	15:02:54	128.4	15:03:05	107.8
15:02:11	123.1	15:02:22	108.0	15:02:33	108.2	15:02:44	127.1	15:02:55	120.9		
15:02:12	122.2	15:02:23	114.8	15:02:34	108.2	15:02:45	116.4	15:02:56	116.4		
15:02:13	122.0	15:02:24	111.5	15:02:35	108.3	15:02:46	125.8	15:02:57	109.1		
15:02:14	108.3	15:02:25	107.8	15:02:36	107.8	15:02:47	130.2	15:02:58	108.1		
15:02:15	108.2	15:02:26	116.0	15:02:37	108.6	15:02:48	132.3	15:02:59	108.2		
15:02:16	108.1	15:02:27	111.8	15:02:38	109.1	15:02:49	128.8	15:03:00	108.1		

Appendix C – Old River at Tracy Monitoring Data

November 04, 2013

Removing Frames from In-Stream Barrier



Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
12:38:49	108.3	12:39:14	108.3	12:39:39	111.5	12:40:04	108.2	12:40:29	111.5	12:40:54	108.0
12:38:50	109.7	12:39:15	107.9	12:39:40	108.4	12:40:05	107.7	12:40:30	113.8	12:40:55	108.0
12:38:51	108.7	12:39:16	108.0	12:39:41	108.1	12:40:06	108.2	12:40:31	108.4	12:40:56	108.2
12:38:52	109.7	12:39:17	108.3	12:39:42	108.0	12:40:07	108.2	12:40:32	107.9	12:40:57	108.2
12:38:53	109.4	12:39:18	108.2	12:39:43	107.8	12:40:08	108.2	12:40:33	111.1	12:40:58	108.2
12:38:54	111.6	12:39:19	108.0	12:39:44	108.3	12:40:09	108.2	12:40:34	112.7	12:40:59	107.9
12:38:55	111.8	12:39:20	107.9	12:39:45	107.8	12:40:10	108.0	12:40:35	110.1	12:41:00	108.0
12:38:56	114.0	12:39:21	108.0	12:39:46	108.0	12:40:11	107.9	12:40:36	108.3	12:41:01	108.1
12:38:57	116.5	12:39:22	108.2	12:39:47	108.0	12:40:12	108.4	12:40:37	108.3	12:41:02	114.5
12:38:58	116.1	12:39:23	108.3	12:39:48	108.6	12:40:13	107.7	12:40:38	108.2	12:41:03	110.5
12:38:59	115.0	12:39:24	107.8	12:39:49	108.7	12:40:14	108.0	12:40:39	108.1	12:41:04	108.3
12:39:00	108.3	12:39:25	111.7	12:39:50	108.0	12:40:15	108.0	12:40:40	107.9	12:41:05	107.9
12:39:01	107.9	12:39:26	108.3	12:39:51	108.1	12:40:16	109.3	12:40:41	107.9	12:41:06	108.2
12:39:02	107.8	12:39:27	108.4	12:39:52	108.6	12:40:17	108.7	12:40:42	108.0	12:41:07	107.8
12:39:03	108.2	12:39:28	108.3	12:39:53	109.6	12:40:18	109.4	12:40:43	107.8	12:41:08	107.9
12:39:04	108.1	12:39:29	108.9	12:39:54	109.8	12:40:19	107.9	12:40:44	108.3	12:41:09	108.3
12:39:05	108.0	12:39:30	108.0	12:39:55	109.2	12:40:20	108.2	12:40:45	107.9	12:41:10	108.4
12:39:06	108.9	12:39:31	107.7	12:39:56	115.0	12:40:21	108.8	12:40:46	108.9	12:41:11	108.0
12:39:07	108.8	12:39:32	107.6	12:39:57	108.8	12:40:22	111.1	12:40:47	107.9	12:41:12	108.4
12:39:08	108.2	12:39:33	107.8	12:39:58	108.0	12:40:23	110.7	12:40:48	108.5	12:41:13	108.6
12:39:09	108.3	12:39:34	108.0	12:39:59	108.0	12:40:24	108.3	12:40:49	110.6	12:41:14	108.4
12:39:10	117.2	12:39:35	107.8	12:40:00	107.9	12:40:25	108.3	12:40:50	110.5	12:41:15	108.2
12:39:11	109.3	12:39:36	108.0	12:40:01	107.8	12:40:26	108.5	12:40:51	108.1	12:41:16	108.0
12:39:12	108.4	12:39:37	108.1	12:40:02	107.9	12:40:27	109.7	12:40:52	108.1	12:41:17	107.9
12:39:13	108.3	12:39:38	108.0	12:40:03	108.3	12:40:28	112.3	12:40:53	107.9	12:41:18	107.9

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
12:41:19	109.5	12:42:03	108.0	12:42:47	107.8	12:43:31	107.8	12:44:15	107.8	12:44:59	108.1
12:41:20	115.8	12:42:04	107.9	12:42:48	108.3	12:43:32	107.8	12:44:16	107.8	12:45:00	107.7
12:41:21	110.8	12:42:05	107.6	12:42:49	108.6	12:43:33	108.2	12:44:17	107.8	12:45:01	107.8
12:41:22	108.1	12:42:06	107.6	12:42:50	108.1	12:43:34	108.1	12:44:18	107.8	12:45:02	107.9
12:41:23	108.2	12:42:07	107.9	12:42:51	108.0	12:43:35	108.2	12:44:19	107.5	12:45:03	107.8
12:41:24	109.3	12:42:08	108.4	12:42:52	108.2	12:43:36	107.8	12:44:20	107.7	12:45:04	108.1
12:41:25	109.1	12:42:09	108.4	12:42:53	107.8	12:43:37	108.2	12:44:21	107.8	12:45:05	108.0
12:41:26	108.7	12:42:10	108.7	12:42:54	107.8	12:43:38	108.1	12:44:22	107.7	12:45:06	108.3
12:41:27	108.2	12:42:11	108.0	12:42:55	107.8	12:43:39	107.9	12:44:23	108.0	12:45:07	107.8
12:41:28	108.1	12:42:12	107.9	12:42:56	108.1	12:43:40	107.9	12:44:24	107.8	12:45:08	108.0
12:41:29	108.1	12:42:13	107.9	12:42:57	108.1	12:43:41	107.9	12:44:25	107.7	12:45:09	107.8
12:41:30	107.9	12:42:14	107.8	12:42:58	107.9	12:43:42	107.9	12:44:26	108.2	12:45:10	107.7
12:41:31	113.7	12:42:15	108.3	12:42:59	107.8	12:43:43	107.9	12:44:27	107.9	12:45:11	108.4
12:41:32	111.6	12:42:16	107.8	12:43:00	107.7	12:43:44	107.6	12:44:28	107.9	12:45:12	107.9
12:41:33	108.2	12:42:17	107.8	12:43:01	110.1	12:43:45	108.0	12:44:29	108.2	12:45:13	107.8
12:41:34	108.5	12:42:18	107.8	12:43:02	108.4	12:43:46	107.9	12:44:30	108.2	12:45:14	107.8
12:41:35	108.0	12:42:19	108.1	12:43:03	108.4	12:43:47	107.9	12:44:31	108.0	12:45:15	108.0
12:41:36	108.0	12:42:20	108.4	12:43:04	108.1	12:43:48	108.2	12:44:32	108.0	12:45:16	108.2
12:41:37	107.8	12:42:21	108.3	12:43:05	107.7	12:43:49	108.2	12:44:33	107.8	12:45:17	107.8
12:41:38	108.0	12:42:22	107.9	12:43:06	107.9	12:43:50	108.5	12:44:34	108.3	12:45:18	108.4
12:41:39	108.5	12:42:23	108.0	12:43:07	108.1	12:43:51	107.8	12:44:35	108.2	12:45:19	108.3
12:41:40	108.0	12:42:24	107.9	12:43:08	108.1	12:43:52	108.1	12:44:36	107.7	12:45:20	107.8
12:41:41	107.8	12:42:25	107.9	12:43:09	107.9	12:43:53	108.2	12:44:37	107.9	12:45:21	107.8
12:41:42	107.9	12:42:26	108.2	12:43:10	108.1	12:43:54	107.7	12:44:38	107.8	12:45:22	107.7
12:41:43	108.0	12:42:27	108.1	12:43:11	108.2	12:43:55	107.8	12:44:39	107.7	12:45:23	108.2
12:41:44	108.1	12:42:28	108.0	12:43:12	107.7	12:43:56	107.8	12:44:40	107.9	12:45:24	108.1
12:41:45	107.9	12:42:29	107.9	12:43:13	108.0	12:43:57	108.1	12:44:41	107.7	12:45:25	107.7
12:41:46	107.6	12:42:30	108.1	12:43:14	108.1	12:43:58	107.6	12:44:42	108.0	12:45:26	108.2
12:41:47	107.8	12:42:31	108.0	12:43:15	107.8	12:43:59	108.0	12:44:43	107.9	12:45:27	107.7
12:41:48	108.3	12:42:32	108.1	12:43:16	108.2	12:44:00	107.8	12:44:44	108.4	12:45:28	107.9
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12:41:52	108.0	12:42:36	107.7	12:43:20	108.1	12:44:04	107.6	12:44:48	108.1	12:45:32	107.6
12:41:53	108.2	12:42:37	107.9	12:43:21	108.0	12:44:05	107.6	12:44:49	107.7	12:45:33	107.9
12:41:54	108.3	12:42:38	108.0	12:43:22	108.1	12:44:06	107.7	12:44:50	107.7	12:45:34	108.0
12:41:55	108.0	12:42:39	108.1	12:43:23	107.6	12:44:07	108.1	12:44:51	108.0	12:45:35	108.0
12:41:56	108.0	12:42:40	108.2	12:43:24	107.6	12:44:08	108.1	12:44:52	111.2	12:45:36	107.8
12:41:57	107.6	12:42:41	108.1	12:43:25	107.7	12:44:09	108.0	12:44:53	110.6	12:45:37	108.0
12:41:58	107.8	12:42:42	107.9	12:43:26	107.8	12:44:10	107.7	12:44:54	107.8	12:45:38	108.2
12:41:59	108.1	12:42:43	107.7	12:43:27	107.8	12:44:11	107.6	12:44:55	108.0	12:45:39	107.8
12:42:00	108.5	12:42:44	108.3	12:43:28	108.5	12:44:12	107.6	12:44:56	107.9	12:45:40	108.1
12:42:01	108.1	12:42:45	108.1	12:43:29	107.9	12:44:13	107.9	12:44:57	107.5	12:45:41	108.1
12:42:02	108.0	12:42:46	107.9	12:43:30	107.7	12:44:14	107.6	12:44:58	108.1	12:45:42	107.9

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
12:45:43	108.0	12:46:23	107.6	12:47:03	107.5	12:47:43	108.0	12:48:23	108.0	12:49:03	108.6
12:45:44	107.7	12:46:24	108.0	12:47:04	107.8	12:47:44	108.1	12:48:24	108.1	12:49:04	108.6
12:45:45	108.1	12:46:25	107.9	12:47:05	107.8	12:47:45	111.9	12:48:25	107.9	12:49:05	108.4
12:45:46	107.8	12:46:26	107.7	12:47:06	108.0	12:47:46	113.9	12:48:26	108.8	12:49:06	108.0
12:45:47	108.1	12:46:27	108.0	12:47:07	108.0	12:47:47	130.5	12:48:27	108.6	12:49:07	108.3
12:45:48	108.3	12:46:28	108.0	12:47:08	108.0	12:47:48	108.6	12:48:28	109.3	12:49:08	108.2
12:45:49	107.9	12:46:29	108.3	12:47:09	108.0	12:47:49	108.1	12:48:29	110.4	12:49:09	107.9
12:45:50	107.8	12:46:30	108.3	12:47:10	108.4	12:47:50	108.4	12:48:30	110.3	12:49:10	107.9
12:45:51	108.2	12:46:31	108.1	12:47:11	107.9	12:47:51	108.1	12:48:31	109.9	12:49:11	107.8
12:45:52	107.7	12:46:32	107.9	12:47:12	107.7	12:47:52	108.0	12:48:32	109.9	12:49:12	108.0
12:45:53	107.9	12:46:33	108.3	12:47:13	108.0	12:47:53	108.4	12:48:33	110.1	12:49:13	108.1
12:45:54	107.6	12:46:34	107.8	12:47:14	107.9	12:47:54	109.3	12:48:34	110.5	12:49:14	107.9
12:45:55	107.8	12:46:35	108.1	12:47:15	108.0	12:47:55	108.9	12:48:35	110.8	12:49:15	107.9
12:45:56	107.9	12:46:36	108.4	12:47:16	108.2	12:47:56	120.1	12:48:36	110.8	12:49:16	108.0
12:45:57	107.8	12:46:37	107.8	12:47:17	107.8	12:47:57	115.1	12:48:37	110.3	12:49:17	108.4
12:45:58	107.9	12:46:38	107.9	12:47:18	108.0	12:47:58	116.6	12:48:38	109.9	12:49:18	113.6
12:45:59	108.0	12:46:39	108.2	12:47:19	108.2	12:47:59	108.1	12:48:39	109.5	12:49:19	108.2
12:46:00	108.1	12:46:40	107.7	12:47:20	108.0	12:48:00	116.3	12:48:40	109.9	12:49:20	108.0
12:46:01	108.0	12:46:41	108.0	12:47:21	107.9	12:48:01	127.0	12:48:41	110.2	12:49:21	108.1
12:46:02	108.0	12:46:42	108.2	12:47:22	108.1	12:48:02	115.4	12:48:42	110.6	12:49:22	108.1
12:46:03	107.9	12:46:43	107.8	12:47:23	108.1	12:48:03	108.5	12:48:43	110.9	12:49:23	108.2
12:46:04	108.4	12:46:44	107.7	12:47:24	107.8	12:48:04	107.6	12:48:44	111.6	12:49:24	108.1
12:46:05	108.1	12:46:45	108.0	12:47:25	107.9	12:48:05	108.2	12:48:45	111.5	12:49:25	108.2
12:46:06	108.2	12:46:46	108.0	12:47:26	107.7	12:48:06	107.9	12:48:46	111.6	12:49:26	108.4
12:46:07	108.1	12:46:47	108.1	12:47:27	107.7	12:48:07	107.7	12:48:47	111.6	12:49:27	108.4
12:46:08	108.2	12:46:48	107.7	12:47:28	107.8	12:48:08	107.9	12:48:48	112.0	12:49:28	108.2
12:46:09	107.8	12:46:49	108.0	12:47:29	107.9	12:48:09	108.0	12:48:49	112.3	12:49:29	108.3
12:46:10	107.6	12:46:50	108.1	12:47:30	107.8	12:48:10	108.0	12:48:50	112.6	12:49:30	110.0
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12:46:12	108.3	12:46:52	107.8	12:47:32	107.8	12:48:12	107.9	12:48:52	110.1	12:49:32	110.1
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12:46:15	108.2	12:46:55	108.0	12:47:35	107.9	12:48:15	107.9	12:48:55	107.9	12:49:35	108.0
12:46:16	108.3	12:46:56	108.1	12:47:36	107.9	12:48:16	108.3	12:48:56	108.1	12:49:36	109.8
12:46:17	108.9	12:46:57	108.1	12:47:37	107.8	12:48:17	108.3	12:48:57	108.2	12:49:37	108.4
12:46:18	108.2	12:46:58	108.1	12:47:38	108.1	12:48:18	107.9	12:48:58	108.4	12:49:38	107.7
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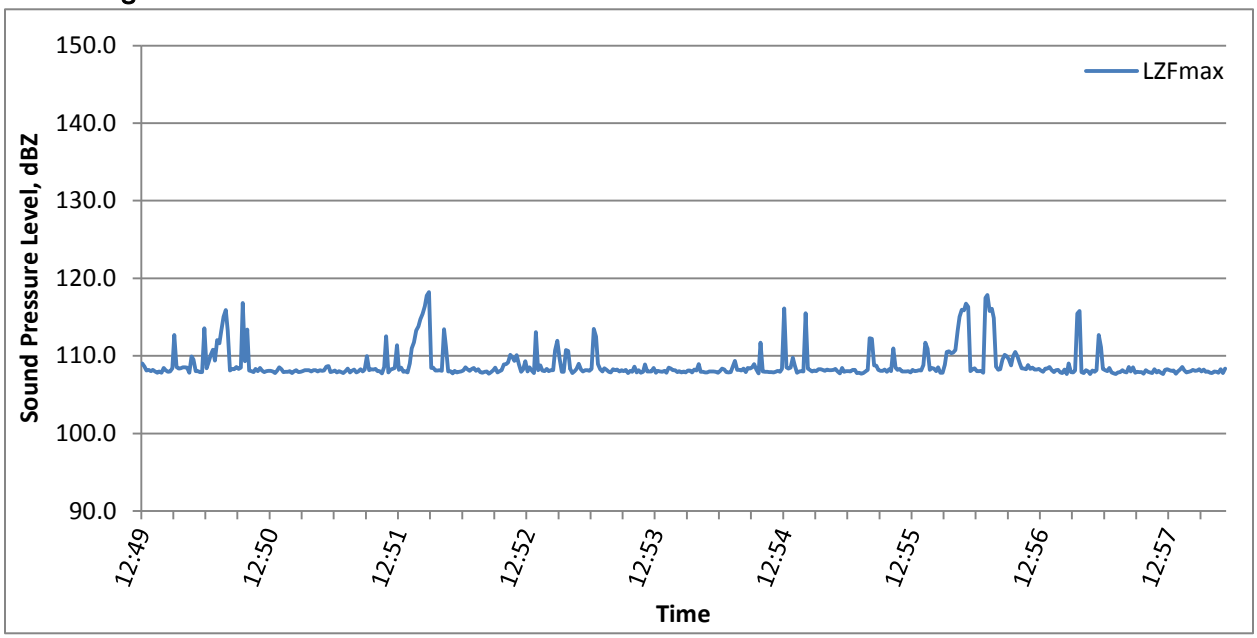
12:46:20	108.2	12:47:00	108.2	12:47:40	108.0	12:48:20	108.2	12:49:00	108.1	12:49:40	108.3
12:46:21	108.2	12:47:01	107.8	12:47:41	108.1	12:48:21	108.0	12:49:01	108.2	12:49:41	108.1
12:46:22	108.0	12:47:02	107.7	12:47:42	107.9	12:48:22	108.0	12:49:02	107.7		

Removing Frames from In-Stream Barrier



Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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12:49:43	108.6	12:50:08	108.0	12:50:33	108.0	12:50:58	108.1	12:51:23	108.0	12:51:48	111.0
12:49:44	108.1	12:50:09	107.9	12:50:34	107.9	12:50:59	108.1	12:51:24	108.3	12:51:49	111.8
12:49:45	108.2	12:50:10	107.9	12:50:35	108.3	12:51:00	108.1	12:51:25	108.0	12:51:50	113.2
12:49:46	108.0	12:50:11	113.6	12:50:36	108.0	12:51:01	108.0	12:51:26	108.2	12:51:51	113.8
12:49:47	108.2	12:50:12	108.4	12:50:37	108.4	12:51:02	108.2	12:51:27	110.0	12:51:52	114.7
12:49:48	108.0	12:50:13	109.1	12:50:38	108.1	12:51:03	108.2	12:51:28	108.1	12:51:53	115.4
12:49:49	107.8	12:50:14	110.1	12:50:39	107.9	12:51:04	108.0	12:51:29	108.3	12:51:54	116.4
12:49:50	108.0	12:50:15	110.8	12:50:40	108.0	12:51:05	108.2	12:51:30	108.2	12:51:55	117.8
12:49:51	107.8	12:50:16	109.4	12:50:41	108.1	12:51:06	108.1	12:51:31	108.3	12:51:56	118.2
12:49:52	108.4	12:50:17	112.0	12:50:42	108.1	12:51:07	108.1	12:51:32	108.0	12:51:57	108.4
12:49:53	108.1	12:50:18	111.6	12:50:43	108.0	12:51:08	108.6	12:51:33	108.0	12:51:58	108.5
12:49:54	107.9	12:50:19	113.3	12:50:44	107.8	12:51:09	108.7	12:51:34	107.8	12:51:59	108.1
12:49:55	108.0	12:50:20	115.0	12:50:45	108.1	12:51:10	107.9	12:51:35	108.6	12:52:00	108.1
12:49:56	108.4	12:50:21	115.9	12:50:46	108.5	12:51:11	108.0	12:51:36	112.5	12:52:01	108.2
12:49:57	112.7	12:50:22	113.3	12:50:47	108.3	12:51:12	108.1	12:51:37	107.8	12:52:02	108.1
12:49:58	108.5	12:50:23	108.1	12:50:48	107.9	12:51:13	107.9	12:51:38	108.2	12:52:03	113.4
12:49:59	108.4	12:50:24	108.3	12:50:49	107.9	12:51:14	108.0	12:51:39	108.3	12:52:04	111.2
12:50:00	108.4	12:50:25	108.3	12:50:50	107.9	12:51:15	107.9	12:51:40	108.4	12:52:05	108.0
12:50:01	108.5	12:50:26	108.6	12:50:51	108.0	12:51:16	107.8	12:51:41	111.4	12:52:06	108.0
12:50:02	108.5	12:50:27	108.3	12:50:52	107.8	12:51:17	108.0	12:51:42	108.2	12:52:07	107.7
12:50:03	108.5	12:50:28	108.5	12:50:53	108.0	12:51:18	108.4	12:51:43	108.5	12:52:08	108.1
12:50:04	107.8	12:50:29	116.8	12:50:54	108.2	12:51:19	107.9	12:51:44	108.0	12:52:09	107.9
12:50:05	109.9	12:50:30	109.3	12:50:55	107.9	12:51:20	108.1	12:51:45	108.0	12:52:10	108.0
12:50:06	109.5	12:50:31	113.4	12:50:56	107.9	12:51:21	108.2	12:51:46	107.9	12:52:11	108.0

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
12:52:12	108.1	12:52:56	112.0	12:53:40	108.0	12:54:24	107.9	12:55:08	107.7	12:55:52	108.3
12:52:13	108.5	12:52:57	109.7	12:53:41	108.4	12:54:25	108.4	12:55:09	108.4	12:55:53	108.0
12:52:14	108.3	12:52:58	107.9	12:53:42	107.8	12:54:26	108.3	12:55:10	107.9	12:55:54	108.5
12:52:15	108.1	12:52:59	107.9	12:53:43	108.1	12:54:27	108.5	12:55:11	108.0	12:55:55	107.8
12:52:16	108.3	12:53:00	110.8	12:53:44	108.0	12:54:28	108.9	12:55:12	108.0	12:55:56	107.8
12:52:17	108.4	12:53:01	110.6	12:53:45	107.9	12:54:29	108.2	12:55:13	108.0	12:55:57	108.9
12:52:18	108.0	12:53:02	108.4	12:53:46	108.1	12:54:30	107.7	12:55:14	108.2	12:55:58	110.5
12:52:19	108.3	12:53:03	107.8	12:53:47	107.8	12:54:31	111.7	12:55:15	108.2	12:55:59	110.6
12:52:20	107.9	12:53:04	108.0	12:53:48	108.5	12:54:32	108.0	12:55:16	107.8	12:56:00	110.3
12:52:21	107.8	12:53:05	108.3	12:53:49	108.3	12:54:33	107.9	12:55:17	107.8	12:56:01	110.4
12:52:22	107.9	12:53:06	109.0	12:53:50	108.2	12:54:34	108.0	12:55:18	107.7	12:56:02	110.8
12:52:23	108.0	12:53:07	108.2	12:53:51	108.2	12:54:35	107.9	12:55:19	107.8	12:56:03	113.2
12:52:24	107.7	12:53:08	108.0	12:53:52	107.9	12:54:36	107.9	12:55:20	108.0	12:56:04	115.0
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12:52:28	107.8	12:53:12	108.3	12:53:56	107.9	12:54:40	107.9	12:55:24	108.8	12:56:08	116.3
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12:52:32	108.9	12:53:16	108.3	12:54:00	108.2	12:54:44	108.4	12:55:28	108.1	12:56:12	108.0
12:52:33	109.1	12:53:17	108.0	12:54:01	108.1	12:54:45	108.5	12:55:29	108.2	12:56:13	108.0
12:52:34	110.1	12:53:18	108.4	12:54:02	109.0	12:54:46	109.8	12:55:30	107.9	12:56:14	108.1
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12:52:41	109.3	12:53:25	108.0	12:54:09	108.0	12:54:53	108.4	12:55:37	108.0	12:56:21	108.6
12:52:42	108.0	12:53:26	108.1	12:54:10	108.0	12:54:54	108.2	12:55:38	108.0	12:56:22	108.2
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12:52:45	107.8	12:53:29	107.8	12:54:13	108.3	12:54:57	108.0	12:55:41	107.8	12:56:25	110.1
12:52:46	113.1	12:53:30	108.1	12:54:14	108.2	12:54:58	108.3	12:55:42	108.2	12:56:26	110.0
12:52:47	108.1	12:53:31	108.0	12:54:15	107.9	12:54:59	108.3	12:55:43	108.0	12:56:27	109.5
12:52:48	108.8	12:53:32	108.6	12:54:16	107.9	12:55:00	108.2	12:55:44	108.1	12:56:28	108.8
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12:52:50	108.0	12:53:34	108.1	12:54:18	108.7	12:55:02	108.2	12:55:46	108.1	12:56:30	110.5
12:52:51	108.3	12:53:35	107.8	12:54:19	109.4	12:55:03	108.2	12:55:47	108.8	12:56:31	109.9
12:52:52	108.0	12:53:36	107.9	12:54:20	108.2	12:55:04	108.1	12:55:48	111.7	12:56:32	109.0
12:52:53	108.1	12:53:37	108.9	12:54:21	108.2	12:55:05	108.2	12:55:49	110.9	12:56:33	108.4
12:52:54	108.2	12:53:38	108.0	12:54:22	108.1	12:55:06	108.3	12:55:50	108.2	12:56:34	108.4
12:52:55	110.7	12:53:39	108.0	12:54:23	108.3	12:55:07	108.0	12:55:51	108.4	12:56:35	108.3

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
12:56:36	108.8	12:56:53	108.2	12:57:10	111.1	12:57:27	107.9	12:57:44	108.1	12:58:01	107.8
12:56:37	108.3	12:56:54	107.7	12:57:11	108.3	12:57:28	107.9	12:57:45	107.7	12:58:02	107.8
12:56:38	108.5	12:56:55	109.0	12:57:12	108.2	12:57:29	107.9	12:57:46	108.0	12:58:03	108.0
12:56:39	108.3	12:56:56	107.9	12:57:13	108.0	12:57:30	107.7	12:57:47	108.2	12:58:04	108.0
12:56:40	108.2	12:56:57	107.9	12:57:14	108.4	12:57:31	108.2	12:57:48	108.6	12:58:05	107.8
12:56:41	108.3	12:56:58	108.1	12:57:15	107.9	12:57:32	107.9	12:57:49	108.1	12:58:06	108.3
12:56:42	108.1	12:56:59	115.5	12:57:16	107.8	12:57:33	107.8	12:57:50	107.9	12:58:07	107.8
12:56:43	108.0	12:57:00	115.8	12:57:17	107.6	12:57:34	107.8	12:57:51	107.9	12:58:08	108.3
12:56:44	108.4	12:57:01	107.9	12:57:18	107.9	12:57:35	108.3	12:57:52	108.0	12:58:09	107.8
12:56:45	108.4	12:57:02	107.8	12:57:19	107.9	12:57:36	107.9	12:57:53	108.2	12:58:10	107.8
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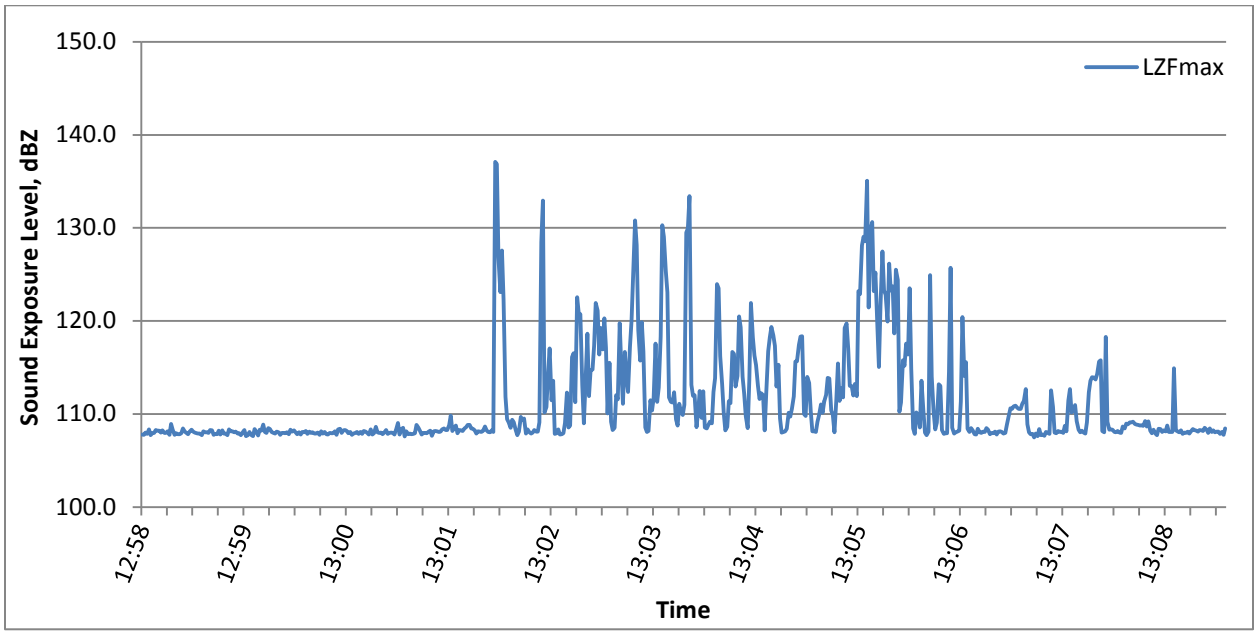
12:56:47	108.1	12:57:04	108.0	12:57:21	107.9	12:57:38	107.8	12:57:55	108.1		
12:56:48	107.9	12:57:05	107.7	12:57:22	107.9	12:57:39	107.7	12:57:56	108.3		
12:56:49	108.1	12:57:06	108.1	12:57:23	108.5	12:57:40	108.2	12:57:57	108.0		
12:56:50	108.2	12:57:07	107.9	12:57:24	108.0	12:57:41	108.3	12:57:58	108.2		
12:56:51	107.9	12:57:08	108.1	12:57:25	108.5	12:57:42	108.2	12:57:59	108.0		
12:56:52	107.8	12:57:09	112.7	12:57:26	107.8	12:57:43	108.1	12:58:00	108.0		

Removing Frames from In-Stream Barrier



Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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12:58:13	107.8	12:58:17	107.7	12:58:21	108.2	12:58:25	108.0	12:58:29	108.9	12:58:33	107.8
12:58:14	108.0	12:58:18	108.0	12:58:22	108.2	12:58:26	108.0	12:58:30	108.3	12:58:34	107.8
12:58:15	107.9	12:58:19	108.0	12:58:23	108.0	12:58:27	108.2	12:58:31	107.8	12:58:35	107.9

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
12:58:36	108.4	12:59:20	107.7	13:00:04	107.9	13:00:48	107.8	13:01:32	108.2	13:02:16	108.4
12:58:37	108.1	12:59:21	108.3	13:00:05	108.2	13:00:49	107.9	13:01:33	108.7	13:02:17	107.8
12:58:38	108.0	12:59:22	108.2	13:00:06	107.8	13:00:50	107.8	13:01:34	108.3	13:02:18	107.8
12:58:39	107.8	12:59:23	108.9	13:00:07	108.3	13:00:51	107.9	13:01:35	108.1	13:02:19	107.9
12:58:40	108.1	12:59:24	108.1	13:00:08	108.4	13:00:52	107.9	13:01:36	108.0	13:02:20	109.1
12:58:41	108.3	12:59:25	108.0	13:00:09	108.0	13:00:53	108.8	13:01:37	108.3	13:02:21	112.3
12:58:42	108.1	12:59:26	108.5	13:00:10	108.2	13:00:54	108.5	13:01:38	108.1	13:02:22	108.6
12:58:43	108.0	12:59:27	108.4	13:00:11	108.3	13:00:55	108.2	13:01:39	137.1	13:02:23	108.8
12:58:44	108.0	12:59:28	108.1	13:00:12	108.2	13:00:56	107.8	13:01:40	136.8	13:02:24	116.1
12:58:45	107.9	12:59:29	108.0	13:00:13	107.9	13:00:57	108.0	13:01:41	126.9	13:02:25	116.5
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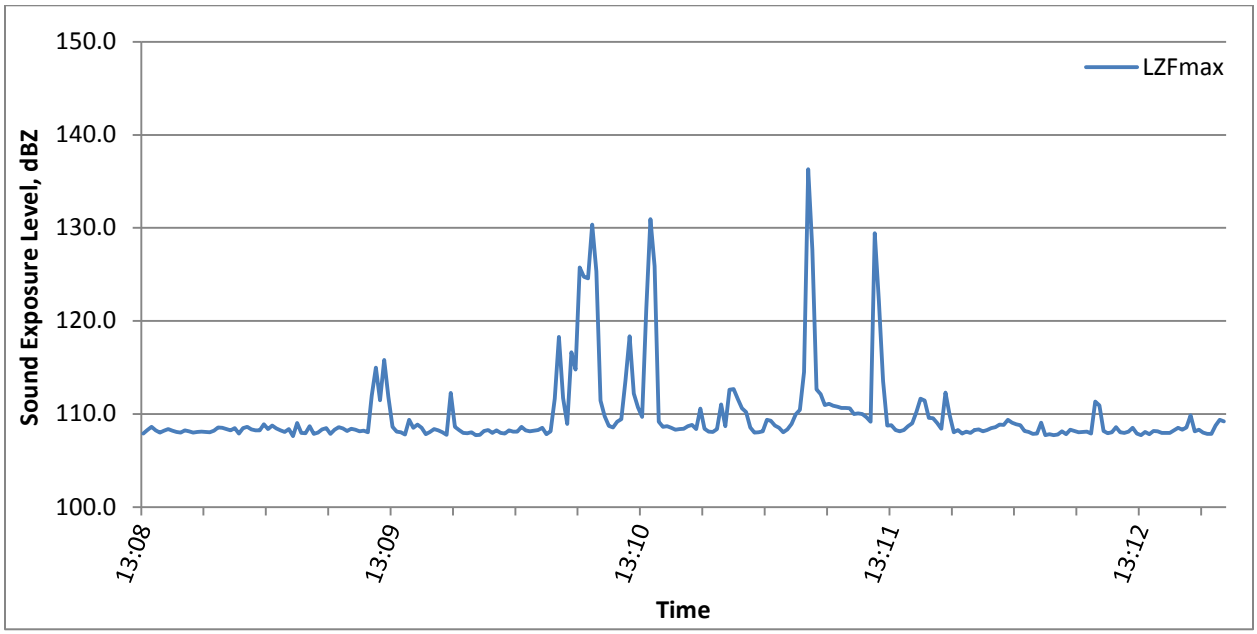
12:58:51	108.0	12:59:35	108.0	13:00:19	107.9	13:01:03	108.1	13:01:47	109.1	13:02:31	109.0
12:58:52	108.3	12:59:36	108.0	13:00:20	108.1	13:01:04	108.2	13:01:48	108.5	13:02:32	113.3
12:58:53	108.2	12:59:37	108.0	13:00:21	107.9	13:01:05	108.1	13:01:49	109.4	13:02:33	118.6
12:58:54	107.8	12:59:38	107.8	13:00:22	108.2	13:01:06	108.1	13:01:50	109.1	13:02:34	111.9
12:58:55	107.9	12:59:39	108.3	13:00:23	108.1	13:01:07	108.1	13:01:51	108.3	13:02:35	114.7
12:58:56	107.8	12:59:40	108.1	13:00:24	108.0	13:01:08	108.4	13:01:52	107.7	13:02:36	114.8
12:58:57	108.2	12:59:41	108.3	13:00:25	107.8	13:01:09	108.5	13:01:53	108.1	13:02:37	117.3
12:58:58	107.8	12:59:42	108.1	13:00:26	108.3	13:01:10	108.3	13:01:54	109.7	13:02:38	121.9
12:58:59	108.2	12:59:43	107.8	13:00:27	107.8	13:01:11	108.3	13:01:55	109.3	13:02:39	121.1
12:59:00	107.9	12:59:44	108.0	13:00:28	107.9	13:01:12	108.8	13:01:56	109.5	13:02:40	116.4
12:59:01	107.9	12:59:45	107.8	13:00:29	108.6	13:01:13	109.8	13:01:57	107.9	13:02:41	119.2
12:59:02	107.7	12:59:46	108.1	13:00:30	108.1	13:01:14	108.2	13:01:58	108.3	13:02:42	117.0
12:59:03	108.4	12:59:47	108.0	13:00:31	108.0	13:01:15	108.5	13:01:59	108.1	13:02:43	120.3
12:59:04	108.2	12:59:48	108.2	13:00:32	108.0	13:01:16	108.8	13:02:00	107.9	13:02:44	117.1
12:59:05	108.1	12:59:49	107.9	13:00:33	107.9	13:01:17	107.9	13:02:01	108.0	13:02:45	110.1
12:59:06	108.0	12:59:50	108.1	13:00:34	108.0	13:01:18	108.3	13:02:02	108.3	13:02:46	115.5
12:59:07	108.1	12:59:51	108.0	13:00:35	108.3	13:01:19	108.2	13:02:03	108.1	13:02:47	109.2
12:59:08	107.9	12:59:52	108.0	13:00:36	107.9	13:01:20	108.2	13:02:04	108.1	13:02:48	108.3
12:59:09	108.0	12:59:53	107.9	13:00:37	108.0	13:01:21	108.4	13:02:05	109.1	13:02:49	108.5
12:59:10	107.7	12:59:54	107.9	13:00:38	108.0	13:01:22	108.6	13:02:06	128.5	13:02:50	112.0
12:59:11	108.0	12:59:55	108.0	13:00:39	108.0	13:01:23	108.9	13:02:07	132.9	13:02:51	111.6
12:59:12	108.3	12:59:56	107.8	13:00:40	107.8	13:01:24	108.8	13:02:08	110.2	13:02:52	119.8
12:59:13	107.6	12:59:57	108.1	13:00:41	108.4	13:01:25	108.5	13:02:09	110.8	13:02:53	115.0
12:59:14	107.7	12:59:58	107.9	13:00:42	109.1	13:01:26	108.4	13:02:10	114.4	13:02:54	111.1
12:59:15	108.1	12:59:59	108.1	13:00:43	107.8	13:01:27	108.3	13:02:11	117.1	13:02:55	116.7
12:59:16	107.8	13:00:00	107.8	13:00:44	108.3	13:01:28	107.9	13:02:12	111.5	13:02:56	114.0
12:59:17	107.6	13:00:01	107.8	13:00:45	108.5	13:01:29	108.1	13:02:13	113.6	13:02:57	112.4
12:59:18	108.4	13:00:02	108.0	13:00:46	107.6	13:01:30	108.1	13:02:14	107.9	13:02:58	117.2
12:59:19	108.1	13:00:03	107.9	13:00:47	108.1	13:01:31	108.1	13:02:15	108.0	13:02:59	120.1

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
13:03:00	125.0	13:03:44	108.8	13:04:28	108.1	13:05:12	123.2	13:05:56	110.2	13:06:40	109.7
13:03:01	130.8	13:03:45	109.2	13:04:29	108.2	13:05:13	122.9	13:05:57	108.4	13:06:41	110.6
13:03:02	128.1	13:03:46	109.0	13:04:30	108.4	13:05:14	128.1	13:05:58	109.1	13:06:42	110.6
13:03:03	119.0	13:03:47	112.4	13:04:31	110.1	13:05:15	129.1	13:05:59	113.2	13:06:43	110.8
13:03:04	115.7	13:03:48	113.8	13:04:32	109.7	13:05:16	128.6	13:06:00	113.0	13:06:44	110.9
13:03:05	119.9	13:03:49	124.0	13:04:33	110.5	13:05:17	135.1	13:06:01	108.3	13:06:45	110.7
13:03:06	116.7	13:03:50	123.5	13:04:34	111.9	13:05:18	121.4	13:06:02	107.9	13:06:46	110.5
13:03:07	108.5	13:03:51	116.2	13:04:35	115.6	13:05:19	129.6	13:06:03	107.9	13:06:47	110.6
13:03:08	108.1	13:03:52	113.2	13:04:36	115.7	13:05:20	130.6	13:06:04	108.0	13:06:48	111.1
13:03:09	108.2	13:03:53	110.2	13:04:37	117.4	13:05:21	123.2	13:06:05	114.5	13:06:49	111.4
13:03:10	111.5	13:03:54	108.2	13:04:38	118.3	13:05:22	125.2	13:06:06	125.7	13:06:50	112.7
13:03:11	110.4	13:03:55	108.6	13:04:39	118.3	13:05:23	119.6	13:06:07	108.5	13:06:51	108.9
13:03:12	111.7	13:03:56	111.4	13:04:40	110.0	13:05:24	115.1	13:06:08	107.9	13:06:52	108.0
13:03:13	117.6	13:03:57	111.2	13:04:41	109.8	13:05:25	121.7	13:06:09	108.0	13:06:53	107.8
13:03:14	111.3	13:03:58	116.7	13:04:42	114.0	13:05:26	127.5	13:06:10	108.1	13:06:54	107.9
13:03:15	112.8	13:03:59	116.5	13:04:43	113.3	13:05:27	123.3	13:06:11	108.2	13:06:55	107.5
13:03:16	118.3	13:04:00	112.9	13:04:44	110.3	13:05:28	122.8	13:06:12	111.4	13:06:56	107.9
13:03:17	130.3	13:04:01	114.1	13:04:45	108.1	13:05:29	119.9	13:06:13	120.4	13:06:57	107.6
13:03:18	129.0	13:04:02	120.5	13:04:46	108.2	13:05:30	126.1	13:06:14	114.1	13:06:58	108.4
13:03:19	125.4	13:04:03	119.3	13:04:47	108.1	13:05:31	123.3	13:06:15	115.6	13:06:59	107.7
13:03:20	123.1	13:04:04	114.0	13:04:48	109.2	13:05:32	123.7	13:06:16	108.4	13:07:00	107.8
13:03:21	111.8	13:04:05	112.2	13:04:49	109.9	13:05:33	118.7	13:06:17	108.1	13:07:01	107.7
13:03:22	111.3	13:04:06	109.7	13:04:50	111.0	13:05:34	125.5	13:06:18	108.5	13:07:02	108.1
13:03:23	111.2	13:04:07	108.5	13:04:51	110.1	13:05:35	124.4	13:06:19	108.3	13:07:03	108.0
13:03:24	112.3	13:04:08	113.7	13:04:52	111.3	13:05:36	110.2	13:06:20	107.8	13:07:04	107.9
13:03:25	109.4	13:04:09	121.9	13:04:53	112.1	13:05:37	111.2	13:06:21	107.8	13:07:05	112.5
13:03:26	108.8	13:04:10	118.3	13:04:54	113.9	13:05:38	115.8	13:06:22	108.4	13:07:06	110.8
13:03:27	111.1	13:04:11	116.3	13:04:55	113.8	13:05:39	115.2	13:06:23	108.0	13:07:07	108.0
13:03:28	110.1	13:04:12	115.3	13:04:56	110.4	13:05:40	117.6	13:06:24	108.0	13:07:08	107.9
13:03:29	109.9	13:04:13	113.0	13:04:57	109.9	13:05:41	116.4	13:06:25	108.1	13:07:09	108.2
13:03:30	111.0	13:04:14	111.6	13:04:58	108.0	13:05:42	123.5	13:06:26	108.1	13:07:10	108.1
13:03:31	129.5	13:04:15	112.2	13:04:59	111.6	13:05:43	114.9	13:06:27	108.5	13:07:11	108.1
13:03:32	129.9	13:04:16	112.0	13:05:00	115.4	13:05:44	108.4	13:06:28	108.3	13:07:12	108.0
13:03:33	133.4	13:04:17	108.3	13:05:01	111.4	13:05:45	107.9	13:06:29	107.8	13:07:13	108.7
13:03:34	113.1	13:04:18	112.3	13:05:02	112.8	13:05:46	110.2	13:06:30	108.0	13:07:14	108.2
13:03:35	111.9	13:04:19	116.7	13:05:03	111.8	13:05:47	109.8	13:06:31	107.9	13:07:15	111.4
13:03:36	112.0	13:04:20	118.2	13:05:04	119.2	13:05:48	108.6	13:06:32	108.1	13:07:16	112.7
13:03:37	108.6	13:04:21	119.4	13:05:05	119.8	13:05:49	113.6	13:06:33	107.8	13:07:17	110.2
13:03:38	110.2	13:04:22	118.5	13:05:06	117.0	13:05:50	110.3	13:06:34	108.1	13:07:18	110.4
13:03:39	112.5	13:04:23	117.3	13:05:07	113.0	13:05:51	108.0	13:06:35	108.2	13:07:19	110.9
13:03:40	109.6	13:04:24	113.0	13:05:08	113.0	13:05:52	107.7	13:06:36	108.1	13:07:20	109.2
13:03:41	112.4	13:04:25	115.3	13:05:09	112.0	13:05:53	108.1	13:06:37	107.9	13:07:21	108.3
13:03:42	108.6	13:04:26	109.5	13:05:10	113.2	13:05:54	124.9	13:06:38	108.0	13:07:22	108.0
13:03:43	108.4	13:04:27	108.0	13:05:11	111.9	13:05:55	114.0	13:06:39	108.9	13:07:23	108.2

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
13:07:24	108.0	13:07:39	108.3	13:07:54	108.9	13:08:09	108.4	13:08:24	108.0	13:08:39	108.1
13:07:25	107.9	13:07:40	108.3	13:07:55	108.9	13:08:10	108.1	13:08:25	108.1	13:08:40	108.3
13:07:26	109.1	13:07:41	108.3	13:07:56	108.8	13:08:11	108.2	13:08:26	107.9	13:08:41	108.0
13:07:27	112.4	13:07:42	108.1	13:07:57	108.8	13:08:12	108.2	13:08:27	108.2	13:08:42	108.1
13:07:28	113.6	13:07:43	108.0	13:07:58	108.8	13:08:13	108.8	13:08:28	108.4	13:08:43	108.1
13:07:29	114.0	13:07:44	108.2	13:07:59	108.7	13:08:14	108.1	13:08:29	108.3	13:08:44	107.9
13:07:30	113.9	13:07:45	108.0	13:08:00	109.3	13:08:15	108.1	13:08:30	108.2	13:08:45	108.1
13:07:31	113.7	13:07:46	108.0	13:08:01	108.7	13:08:16	108.1	13:08:31	108.1	13:08:46	107.8
13:07:32	114.3	13:07:47	108.7	13:08:02	109.2	13:08:17	114.9	13:08:32	108.3	13:08:47	108.4
13:07:33	115.6	13:07:48	108.5	13:08:03	108.2	13:08:18	108.3	13:08:33	108.2	13:08:48	108.1
13:07:34	115.8	13:07:49	109.0	13:08:04	107.9	13:08:19	108.1	13:08:34	108.2		
13:07:35	108.2	13:07:50	108.9	13:08:05	108.3	13:08:20	108.1	13:08:35	108.5		
13:07:36	108.0	13:07:51	109.1	13:08:06	107.9	13:08:21	108.3	13:08:36	108.3		
13:07:37	118.3	13:07:52	109.1	13:08:07	107.7	13:08:22	107.9	13:08:37	108.0		
13:07:38	109.2	13:07:53	109.2	13:08:08	108.4	13:08:23	108.0	13:08:38	108.4		

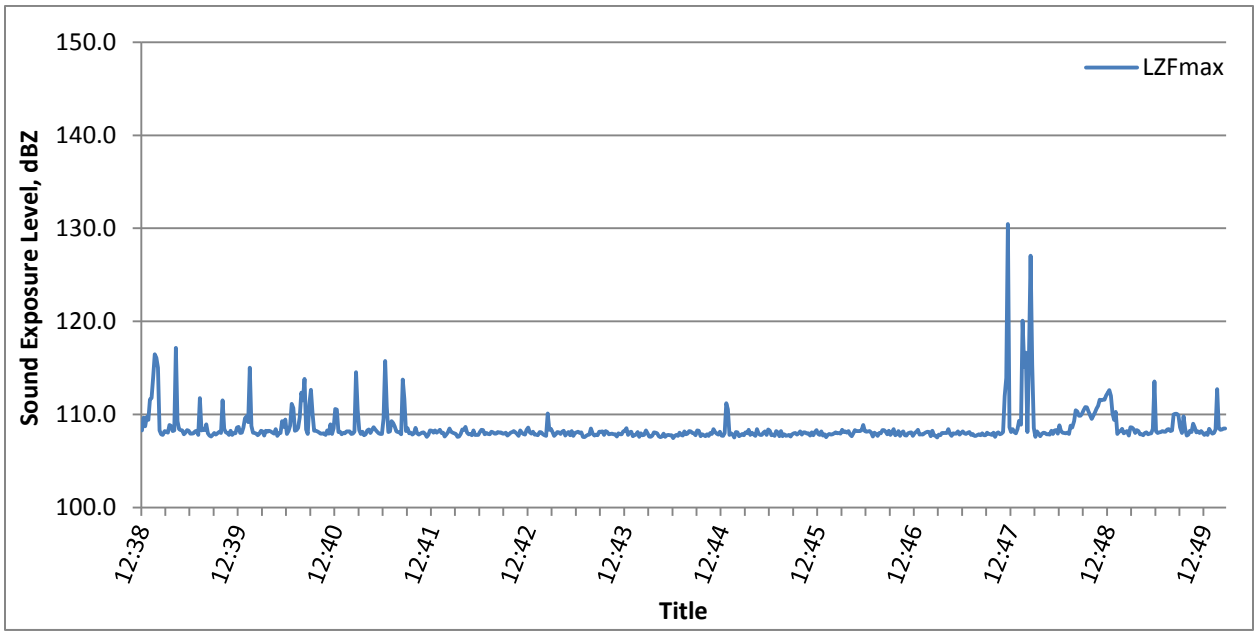
Removing Frames from In-Stream Barrier



Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
13:08:49	107.9	13:08:57	108.1	13:09:05	108.0	13:09:13	108.5	13:09:21	108.5	13:09:29	108.7
13:08:50	108.3	13:08:58	108.0	13:09:06	108.2	13:09:14	108.6	13:09:22	108.3	13:09:30	107.9
13:08:51	108.6	13:08:59	108.3	13:09:07	108.5	13:09:15	108.3	13:09:23	108.1	13:09:31	108.0
13:08:52	108.2	13:09:00	108.1	13:09:08	108.5	13:09:16	108.3	13:09:24	108.4	13:09:32	108.3
13:08:53	108.0	13:09:01	108.0	13:09:09	108.4	13:09:17	108.2	13:09:25	107.6	13:09:33	108.5
13:08:54	108.2	13:09:02	108.1	13:09:10	108.3	13:09:18	108.9	13:09:26	109.0	13:09:34	107.9
13:08:55	108.4	13:09:03	108.1	13:09:11	108.5	13:09:19	108.4	13:09:27	108.0	13:09:35	108.3
13:08:56	108.2	13:09:04	108.1	13:09:12	107.9	13:09:20	108.8	13:09:28	107.9	13:09:36	108.6

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
13:09:37	108.5	13:10:13	108.0	13:10:49	109.7	13:11:25	108.9	13:12:01	108.4	13:12:37	107.9
13:09:38	108.2	13:10:14	108.3	13:10:50	121.3	13:11:26	110.0	13:12:02	112.3	13:12:38	111.3
13:09:39	108.4	13:10:15	108.0	13:10:51	130.9	13:11:27	110.5	13:12:03	109.9	13:12:39	110.9
13:09:40	108.3	13:10:16	107.9	13:10:52	125.9	13:11:28	114.5	13:12:04	108.0	13:12:40	108.2
13:09:41	108.1	13:10:17	108.3	13:10:53	109.2	13:11:29	136.3	13:12:05	108.3	13:12:41	107.9
13:09:42	108.2	13:10:18	108.1	13:10:54	108.6	13:11:30	127.7	13:12:06	107.9	13:12:42	108.0
13:09:43	108.0	13:10:19	108.1	13:10:55	108.7	13:11:31	112.6	13:12:07	108.1	13:12:43	108.6
13:09:44	112.0	13:10:20	108.6	13:10:56	108.5	13:11:32	112.1	13:12:08	108.0	13:12:44	108.0
13:09:45	115.0	13:10:21	108.3	13:10:57	108.3	13:11:33	111.0	13:12:09	108.3	13:12:45	108.0
13:09:46	111.5	13:10:22	108.2	13:10:58	108.4	13:11:34	111.1	13:12:10	108.3	13:12:46	108.1
13:09:47	115.8	13:10:23	108.2	13:10:59	108.4	13:11:35	110.9	13:12:11	108.1	13:12:47	108.5
13:09:48	111.9	13:10:24	108.3	13:11:00	108.7	13:11:36	110.8	13:12:12	108.3	13:12:48	107.9
13:09:49	108.6	13:10:25	108.5	13:11:01	108.8	13:11:37	110.7	13:12:13	108.5	13:12:49	107.7
13:09:50	108.1	13:10:26	107.8	13:11:02	108.4	13:11:38	110.7	13:12:14	108.6	13:12:50	108.1
13:09:51	108.0	13:10:27	108.2	13:11:03	110.6	13:11:39	110.6	13:12:15	108.9	13:12:51	107.8
13:09:52	107.8	13:10:28	111.7	13:11:04	108.4	13:11:40	110.0	13:12:16	108.8	13:12:52	108.2
13:09:53	109.4	13:10:29	118.3	13:11:05	108.1	13:11:41	110.1	13:12:17	109.4	13:12:53	108.1
13:09:54	108.5	13:10:30	111.7	13:11:06	108.1	13:11:42	110.0	13:12:18	109.1	13:12:54	108.0
13:09:55	108.9	13:10:31	108.9	13:11:07	108.4	13:11:43	109.7	13:12:19	108.9	13:12:55	108.0
13:09:56	108.5	13:10:32	116.6	13:11:08	111.0	13:11:44	109.2	13:12:20	108.8	13:12:56	108.0
13:09:57	107.8	13:10:33	114.8	13:11:09	108.7	13:11:45	129.4	13:12:21	108.2	13:12:57	108.3
13:09:58	108.1	13:10:34	125.7	13:11:10	112.6	13:11:46	122.1	13:12:22	108.1	13:12:58	108.5
13:09:59	108.4	13:10:35	124.7	13:11:11	112.7	13:11:47	113.6	13:12:23	107.9	13:12:59	108.3
13:10:00	108.2	13:10:36	124.6	13:11:12	111.6	13:11:48	108.8	13:12:24	107.9	13:13:00	108.5
13:10:01	108.0	13:10:37	130.3	13:11:13	110.6	13:11:49	108.8	13:12:25	109.1	13:13:01	109.9
13:10:02	107.8	13:10:38	125.3	13:11:14	110.2	13:11:50	108.3	13:12:26	107.7	13:13:02	108.1
13:10:03	112.3	13:10:39	111.4	13:11:15	108.6	13:11:51	108.2	13:12:27	107.8	13:13:03	108.3
13:10:04	108.6	13:10:40	109.8	13:11:16	108.0	13:11:52	108.3	13:12:28	107.7	13:13:04	108.0
13:10:05	108.3	13:10:41	108.7	13:11:17	108.0	13:11:53	108.7	13:12:29	107.8	13:13:05	107.9
13:10:06	108.0	13:10:42	108.6	13:11:18	108.1	13:11:54	109.0	13:12:30	108.1	13:13:06	107.9
13:10:07	107.9	13:10:43	109.2	13:11:19	109.4	13:11:55	110.2	13:12:31	107.8	13:13:07	108.7
13:10:08	108.0	13:10:44	109.5	13:11:20	109.3	13:11:56	111.7	13:12:32	108.3	13:13:08	109.4
13:10:09	107.7	13:10:45	113.6	13:11:21	108.8	13:11:57	111.4	13:12:33	108.2	13:13:09	109.2
13:10:10	107.8	13:10:46	118.3	13:11:22	108.5	13:11:58	109.6	13:12:34	108.0		
13:10:11	108.2	13:10:47	112.2	13:11:23	108.0	13:11:59	109.6	13:12:35	108.1		
13:10:12	108.3	13:10:48	110.7	13:11:24	108.4	13:12:00	109.0	13:12:36	108.1		

Removing Frames from In-Stream Barrier



Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
12:38:49	108.3	12:39:13	108.3	12:39:37	108.1	12:40:01	107.8	12:40:25	108.3	12:40:49	110.6
12:38:50	109.7	12:39:14	108.3	12:39:38	108.0	12:40:02	107.9	12:40:26	108.5	12:40:50	110.5
12:38:51	108.7	12:39:15	107.9	12:39:39	111.5	12:40:03	108.3	12:40:27	109.7	12:40:51	108.1
12:38:52	109.7	12:39:16	108.0	12:39:40	108.4	12:40:04	108.2	12:40:28	112.3	12:40:52	108.1
12:38:53	109.4	12:39:17	108.3	12:39:41	108.1	12:40:05	107.7	12:40:29	111.5	12:40:53	107.9
12:38:54	111.6	12:39:18	108.2	12:39:42	108.0	12:40:06	108.2	12:40:30	113.8	12:40:54	108.0
12:38:55	111.8	12:39:19	108.0	12:39:43	107.8	12:40:07	108.2	12:40:31	108.4	12:40:55	108.0
12:38:56	114.0	12:39:20	107.9	12:39:44	108.3	12:40:08	108.2	12:40:32	107.9	12:40:56	108.2
12:38:57	116.5	12:39:21	108.0	12:39:45	107.8	12:40:09	108.2	12:40:33	111.1	12:40:57	108.2
12:38:58	116.1	12:39:22	108.2	12:39:46	108.0	12:40:10	108.0	12:40:34	112.7	12:40:58	108.2
12:38:59	115.0	12:39:23	108.3	12:39:47	108.0	12:40:11	107.9	12:40:35	110.1	12:40:59	107.9
12:39:00	108.3	12:39:24	107.8	12:39:48	108.6	12:40:12	108.4	12:40:36	108.3	12:41:00	108.0
12:39:01	107.9	12:39:25	111.7	12:39:49	108.7	12:40:13	107.7	12:40:37	108.3	12:41:01	108.1
12:39:02	107.8	12:39:26	108.3	12:39:50	108.0	12:40:14	108.0	12:40:38	108.2	12:41:02	114.5
12:39:03	108.2	12:39:27	108.4	12:39:51	108.1	12:40:15	108.0	12:40:39	108.1	12:41:03	110.5
12:39:04	108.1	12:39:28	108.3	12:39:52	108.6	12:40:16	109.3	12:40:40	107.9	12:41:04	108.3
12:39:05	108.0	12:39:29	108.9	12:39:53	109.6	12:40:17	108.7	12:40:41	107.9	12:41:05	107.9
12:39:06	108.9	12:39:30	108.0	12:39:54	109.8	12:40:18	109.4	12:40:42	108.0	12:41:06	108.2
12:39:07	108.8	12:39:31	107.7	12:39:55	109.2	12:40:19	107.9	12:40:43	107.8	12:41:07	107.8
12:39:08	108.2	12:39:32	107.6	12:39:56	115.0	12:40:20	108.2	12:40:44	108.3	12:41:08	107.9
12:39:09	108.3	12:39:33	107.8	12:39:57	108.8	12:40:21	108.8	12:40:45	107.9	12:41:09	108.3
12:39:10	117.2	12:39:34	108.0	12:39:58	108.0	12:40:22	111.1	12:40:46	108.9	12:41:10	108.4
12:39:11	109.3	12:39:35	107.8	12:39:59	108.0	12:40:23	110.7	12:40:47	107.9	12:41:11	108.0
12:39:12	108.4	12:39:36	108.0	12:40:00	107.9	12:40:24	108.3	12:40:48	108.5	12:41:12	108.4

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
12:41:13	108.6	12:41:57	107.6	12:42:41	108.1	12:43:25	107.7	12:44:09	108.0	12:44:53	110.6
12:41:14	108.4	12:41:58	107.8	12:42:42	107.9	12:43:26	107.8	12:44:10	107.7	12:44:54	107.8
12:41:15	108.2	12:41:59	108.1	12:42:43	107.7	12:43:27	107.8	12:44:11	107.6	12:44:55	108.0
12:41:16	108.0	12:42:00	108.5	12:42:44	108.3	12:43:28	108.5	12:44:12	107.6	12:44:56	107.9
12:41:17	107.9	12:42:01	108.1	12:42:45	108.1	12:43:29	107.9	12:44:13	107.9	12:44:57	107.5
12:41:18	107.9	12:42:02	108.0	12:42:46	107.9	12:43:30	107.7	12:44:14	107.6	12:44:58	108.1
12:41:19	109.5	12:42:03	108.0	12:42:47	107.8	12:43:31	107.8	12:44:15	107.8	12:44:59	108.1
12:41:20	115.8	12:42:04	107.9	12:42:48	108.3	12:43:32	107.8	12:44:16	107.8	12:45:00	107.7
12:41:21	110.8	12:42:05	107.6	12:42:49	108.6	12:43:33	108.2	12:44:17	107.8	12:45:01	107.8
12:41:22	108.1	12:42:06	107.6	12:42:50	108.1	12:43:34	108.1	12:44:18	107.8	12:45:02	107.9
12:41:23	108.2	12:42:07	107.9	12:42:51	108.0	12:43:35	108.2	12:44:19	107.5	12:45:03	107.8
12:41:24	109.3	12:42:08	108.4	12:42:52	108.2	12:43:36	107.8	12:44:20	107.7	12:45:04	108.1
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12:41:27	108.2	12:42:11	108.0	12:42:55	107.8	12:43:39	107.9	12:44:23	108.0	12:45:07	107.8
12:41:28	108.1	12:42:12	107.9	12:42:56	108.1	12:43:40	107.9	12:44:24	107.8	12:45:08	108.0
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12:41:31	113.7	12:42:15	108.3	12:42:59	107.8	12:43:43	107.9	12:44:27	107.9	12:45:11	108.4
12:41:32	111.6	12:42:16	107.8	12:43:00	107.7	12:43:44	107.6	12:44:28	107.9	12:45:12	107.9
12:41:33	108.2	12:42:17	107.8	12:43:01	110.1	12:43:45	108.0	12:44:29	108.2	12:45:13	107.8
12:41:34	108.5	12:42:18	107.8	12:43:02	108.4	12:43:46	107.9	12:44:30	108.2	12:45:14	107.8
12:41:35	108.0	12:42:19	108.1	12:43:03	108.4	12:43:47	107.9	12:44:31	108.0	12:45:15	108.0
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12:41:38	108.0	12:42:22	107.9	12:43:06	107.9	12:43:50	108.5	12:44:34	108.3	12:45:18	108.4
12:41:39	108.5	12:42:23	108.0	12:43:07	108.1	12:43:51	107.8	12:44:35	108.2	12:45:19	108.3
12:41:40	108.0	12:42:24	107.9	12:43:08	108.1	12:43:52	108.1	12:44:36	107.7	12:45:20	107.8
12:41:41	107.8	12:42:25	107.9	12:43:09	107.9	12:43:53	108.2	12:44:37	107.9	12:45:21	107.8
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12:41:43	108.0	12:42:27	108.1	12:43:11	108.2	12:43:55	107.8	12:44:39	107.7	12:45:23	108.2
12:41:44	108.1	12:42:28	108.0	12:43:12	107.7	12:43:56	107.8	12:44:40	107.9	12:45:24	108.1
12:41:45	107.9	12:42:29	107.9	12:43:13	108.0	12:43:57	108.1	12:44:41	107.7	12:45:25	107.7
12:41:46	107.6	12:42:30	108.1	12:43:14	108.1	12:43:58	107.6	12:44:42	108.0	12:45:26	108.2
12:41:47	107.8	12:42:31	108.0	12:43:15	107.8	12:43:59	108.0	12:44:43	107.9	12:45:27	107.7
12:41:48	108.3	12:42:32	108.1	12:43:16	108.2	12:44:00	107.8	12:44:44	108.4	12:45:28	107.9
12:41:49	108.3	12:42:33	107.9	12:43:17	107.7	12:44:01	107.8	12:44:45	108.1	12:45:29	107.7
12:41:50	108.0	12:42:34	108.0	12:43:18	108.0	12:44:02	108.3	12:44:46	108.0	12:45:30	107.7
12:41:51	108.3	12:42:35	108.0	12:43:19	108.1	12:44:03	108.0	12:44:47	107.9	12:45:31	107.8
12:41:52	108.0	12:42:36	107.7	12:43:20	108.1	12:44:04	107.6	12:44:48	108.1	12:45:32	107.6
12:41:53	108.2	12:42:37	107.9	12:43:21	108.0	12:44:05	107.6	12:44:49	107.7	12:45:33	107.9
12:41:54	108.3	12:42:38	108.0	12:43:22	108.1	12:44:06	107.7	12:44:50	107.7	12:45:34	108.0
12:41:55	108.0	12:42:39	108.1	12:43:23	107.6	12:44:07	108.1	12:44:51	108.0	12:45:35	108.0
12:41:56	108.0	12:42:40	108.2	12:43:24	107.6	12:44:08	108.1	12:44:52	111.2	12:45:36	107.8

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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12:45:38	108.2	12:46:22	108.0	12:47:06	108.0	12:47:50	108.4	12:48:34	110.5	12:49:18	113.6
12:45:39	107.8	12:46:23	107.6	12:47:07	108.0	12:47:51	108.1	12:48:35	110.8	12:49:19	108.2
12:45:40	108.1	12:46:24	108.0	12:47:08	108.0	12:47:52	108.0	12:48:36	110.8	12:49:20	108.0
12:45:41	108.1	12:46:25	107.9	12:47:09	108.0	12:47:53	108.4	12:48:37	110.3	12:49:21	108.1
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12:45:43	108.0	12:46:27	108.0	12:47:11	107.9	12:47:55	108.9	12:48:39	109.5	12:49:23	108.2
12:45:44	107.7	12:46:28	108.0	12:47:12	107.7	12:47:56	120.1	12:48:40	109.9	12:49:24	108.1
12:45:45	108.1	12:46:29	108.3	12:47:13	108.0	12:47:57	115.1	12:48:41	110.2	12:49:25	108.2
12:45:46	107.8	12:46:30	108.3	12:47:14	107.9	12:47:58	116.6	12:48:42	110.6	12:49:26	108.4
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12:45:50	107.8	12:46:34	107.8	12:47:18	108.0	12:48:02	115.4	12:48:46	111.6	12:49:30	110.0
12:45:51	108.2	12:46:35	108.1	12:47:19	108.2	12:48:03	108.5	12:48:47	111.6	12:49:31	110.1
12:45:52	107.7	12:46:36	108.4	12:47:20	108.0	12:48:04	107.6	12:48:48	112.0	12:49:32	110.1
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12:45:57	107.8	12:46:41	108.0	12:47:25	107.9	12:48:09	108.0	12:48:53	109.4	12:49:37	108.4
12:45:58	107.9	12:46:42	108.2	12:47:26	107.7	12:48:10	108.0	12:48:54	110.3	12:49:38	107.7
12:45:59	108.0	12:46:43	107.8	12:47:27	107.7	12:48:11	107.9	12:48:55	107.9	12:49:39	107.8
12:46:00	108.1	12:46:44	107.7	12:47:28	107.8	12:48:12	107.9	12:48:56	108.1	12:49:40	108.3
12:46:01	108.0	12:46:45	108.0	12:47:29	107.9	12:48:13	107.8	12:48:57	108.2	12:49:41	108.1
12:46:02	108.0	12:46:46	108.0	12:47:30	107.8	12:48:14	108.2	12:48:58	108.4	12:49:42	109.0
12:46:03	107.9	12:46:47	108.1	12:47:31	108.0	12:48:15	107.9	12:48:59	108.0	12:49:43	108.6
12:46:04	108.4	12:46:48	107.7	12:47:32	107.8	12:48:16	108.3	12:49:00	108.1	12:49:44	108.1
12:46:05	108.1	12:46:49	108.0	12:47:33	107.8	12:48:17	108.3	12:49:01	108.2	12:49:45	108.2
12:46:06	108.2	12:46:50	108.1	12:47:34	108.1	12:48:18	107.9	12:49:02	107.7	12:49:46	108.0
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12:46:08	108.2	12:46:52	107.8	12:47:36	107.9	12:48:20	108.2	12:49:04	108.6	12:49:48	108.0
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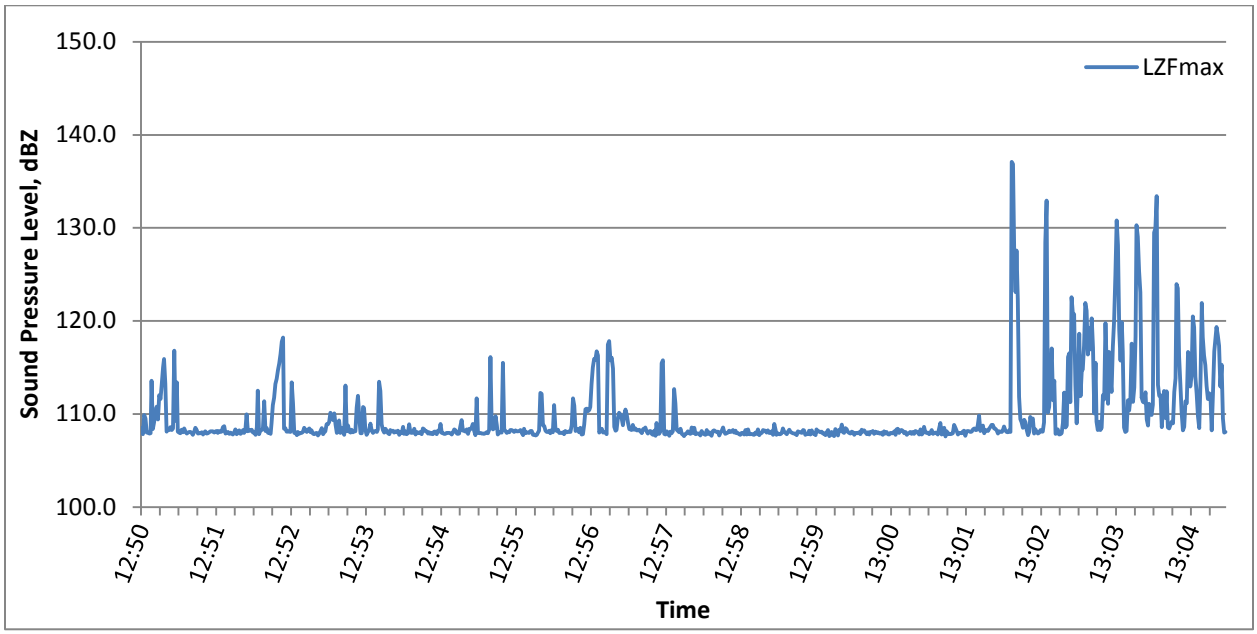
12:46:11	108.0	12:46:55	108.0	12:47:39	107.6	12:48:23	108.0	12:49:07	108.3	12:49:51	107.8
12:46:12	108.3	12:46:56	108.1	12:47:40	108.0	12:48:24	108.1	12:49:08	108.2	12:49:52	108.4
12:46:13	108.2	12:46:57	108.1	12:47:41	108.1	12:48:25	107.9	12:49:09	107.9	12:49:53	108.1
12:46:14	108.2	12:46:58	108.1	12:47:42	107.9	12:48:26	108.8	12:49:10	107.9	12:49:54	107.9
12:46:15	108.2	12:46:59	107.7	12:47:43	108.0	12:48:27	108.6	12:49:11	107.8	12:49:55	108.0
12:46:16	108.3	12:47:00	108.2	12:47:44	108.1	12:48:28	109.3	12:49:12	108.0	12:49:56	108.4
12:46:17	108.9	12:47:01	107.8	12:47:45	111.9	12:48:29	110.4	12:49:13	108.1	12:49:57	112.7
12:46:18	108.2	12:47:02	107.7	12:47:46	113.9	12:48:30	110.3	12:49:14	107.9	12:49:58	108.5
12:46:19	108.1	12:47:03	107.5	12:47:47	130.5	12:48:31	109.9	12:49:15	107.9	12:49:59	108.4
12:46:20	108.2	12:47:04	107.8	12:47:48	108.6	12:48:32	109.9	12:49:16	108.0	12:50:00	108.4

Time	LZFmax	Time	LZFmax
12:50:01	108.5	12:50:02	108.5

Removing Frames from In-Stream Barrier



Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
12:50:03	108.5	12:50:23	108.1	12:50:43	108.0	12:51:03	108.2	12:51:23	108.0	12:51:43	108.5
12:50:04	107.8	12:50:24	108.3	12:50:44	107.8	12:51:04	108.0	12:51:24	108.3	12:51:44	108.0
12:50:05	109.9	12:50:25	108.3	12:50:45	108.1	12:51:05	108.2	12:51:25	108.0	12:51:45	108.0
12:50:06	109.5	12:50:26	108.6	12:50:46	108.5	12:51:06	108.1	12:51:26	108.2	12:51:46	107.9
12:50:07	108.0	12:50:27	108.3	12:50:47	108.3	12:51:07	108.1	12:51:27	110.0	12:51:47	109.0
12:50:08	108.0	12:50:28	108.5	12:50:48	107.9	12:51:08	108.6	12:51:28	108.1	12:51:48	111.0
12:50:09	107.9	12:50:29	116.8	12:50:49	107.9	12:51:09	108.7	12:51:29	108.3	12:51:49	111.8
12:50:10	107.9	12:50:30	109.3	12:50:50	107.9	12:51:10	107.9	12:51:30	108.2	12:51:50	113.2
12:50:11	113.6	12:50:31	113.4	12:50:51	108.0	12:51:11	108.0	12:51:31	108.3	12:51:51	113.8
12:50:12	108.4	12:50:32	108.1	12:50:52	107.8	12:51:12	108.1	12:51:32	108.0	12:51:52	114.7
12:50:13	109.1	12:50:33	108.0	12:50:53	108.0	12:51:13	107.9	12:51:33	108.0	12:51:53	115.4
12:50:14	110.1	12:50:34	107.9	12:50:54	108.2	12:51:14	108.0	12:51:34	107.8	12:51:54	116.4
12:50:15	110.8	12:50:35	108.3	12:50:55	107.9	12:51:15	107.9	12:51:35	108.6	12:51:55	117.8
12:50:16	109.4	12:50:36	108.0	12:50:56	107.9	12:51:16	107.8	12:51:36	112.5	12:51:56	118.2
12:50:17	112.0	12:50:37	108.4	12:50:57	108.0	12:51:17	108.0	12:51:37	107.8	12:51:57	108.4
12:50:18	111.6	12:50:38	108.1	12:50:58	108.1	12:51:18	108.4	12:51:38	108.2	12:51:58	108.5
12:50:19	113.3	12:50:39	107.9	12:50:59	108.1	12:51:19	107.9	12:51:39	108.3	12:51:59	108.1
12:50:20	115.0	12:50:40	108.0	12:51:00	108.1	12:51:20	108.1	12:51:40	108.4	12:52:00	108.1
12:50:21	115.9	12:50:41	108.1	12:51:01	108.0	12:51:21	108.2	12:51:41	111.4	12:52:01	108.2
12:50:22	113.3	12:50:42	108.1	12:51:02	108.2	12:51:22	107.9	12:51:42	108.2	12:52:02	108.1

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
12:52:03	113.4	12:52:47	108.1	12:53:31	108.0	12:54:15	107.9	12:54:59	108.3	12:55:43	108.0
12:52:04	111.2	12:52:48	108.8	12:53:32	108.6	12:54:16	107.9	12:55:00	108.2	12:55:44	108.1
12:52:05	108.0	12:52:49	108.1	12:53:33	107.9	12:54:17	107.9	12:55:01	108.1	12:55:45	108.1
12:52:06	108.0	12:52:50	108.0	12:53:34	108.1	12:54:18	108.7	12:55:02	108.2	12:55:46	108.1
12:52:07	107.7	12:52:51	108.3	12:53:35	107.8	12:54:19	109.4	12:55:03	108.2	12:55:47	108.8
12:52:08	108.1	12:52:52	108.0	12:53:36	107.9	12:54:20	108.2	12:55:04	108.1	12:55:48	111.7
12:52:09	107.9	12:52:53	108.1	12:53:37	108.9	12:54:21	108.2	12:55:05	108.2	12:55:49	110.9
12:52:10	108.0	12:52:54	108.2	12:53:38	108.0	12:54:22	108.1	12:55:06	108.3	12:55:50	108.2
12:52:11	108.0	12:52:55	110.7	12:53:39	108.0	12:54:23	108.3	12:55:07	108.0	12:55:51	108.4
12:52:12	108.1	12:52:56	112.0	12:53:40	108.0	12:54:24	107.9	12:55:08	107.7	12:55:52	108.3
12:52:13	108.5	12:52:57	109.7	12:53:41	108.4	12:54:25	108.4	12:55:09	108.4	12:55:53	108.0
12:52:14	108.3	12:52:58	107.9	12:53:42	107.8	12:54:26	108.3	12:55:10	107.9	12:55:54	108.5
12:52:15	108.1	12:52:59	107.9	12:53:43	108.1	12:54:27	108.5	12:55:11	108.0	12:55:55	107.8
12:52:16	108.3	12:53:00	110.8	12:53:44	108.0	12:54:28	108.9	12:55:12	108.0	12:55:56	107.8
12:52:17	108.4	12:53:01	110.6	12:53:45	107.9	12:54:29	108.2	12:55:13	108.0	12:55:57	108.9
12:52:18	108.0	12:53:02	108.4	12:53:46	108.1	12:54:30	107.7	12:55:14	108.2	12:55:58	110.5
12:52:19	108.3	12:53:03	107.8	12:53:47	107.8	12:54:31	111.7	12:55:15	108.2	12:55:59	110.6
12:52:20	107.9	12:53:04	108.0	12:53:48	108.5	12:54:32	108.0	12:55:16	107.8	12:56:00	110.3
12:52:21	107.8	12:53:05	108.3	12:53:49	108.3	12:54:33	107.9	12:55:17	107.8	12:56:01	110.4
12:52:22	107.9	12:53:06	109.0	12:53:50	108.2	12:54:34	108.0	12:55:18	107.7	12:56:02	110.8
12:52:23	108.0	12:53:07	108.2	12:53:51	108.2	12:54:35	107.9	12:55:19	107.8	12:56:03	113.2
12:52:24	107.7	12:53:08	108.0	12:53:52	107.9	12:54:36	107.9	12:55:20	108.0	12:56:04	115.0
12:52:25	107.9	12:53:09	108.1	12:53:53	108.0	12:54:37	107.9	12:55:21	108.2	12:56:05	115.9
12:52:26	108.2	12:53:10	108.2	12:53:54	107.9	12:54:38	107.9	12:55:22	112.3	12:56:06	115.9
12:52:27	108.5	12:53:11	108.1	12:53:55	108.0	12:54:39	108.1	12:55:23	112.2	12:56:07	116.8
12:52:28	107.8	12:53:12	108.3	12:53:56	107.9	12:54:40	107.9	12:55:24	108.8	12:56:08	116.3
12:52:29	108.0	12:53:13	113.5	12:53:57	108.1	12:54:41	108.3	12:55:25	108.7	12:56:09	108.0
12:52:30	108.1	12:53:14	112.5	12:53:58	108.1	12:54:42	116.1	12:55:26	108.2	12:56:10	108.2
12:52:31	108.9	12:53:15	108.9	12:53:59	107.8	12:54:43	108.5	12:55:27	108.1	12:56:11	108.4
12:52:32	108.9	12:53:16	108.3	12:54:00	108.2	12:54:44	108.4	12:55:28	108.1	12:56:12	108.0
12:52:33	109.1	12:53:17	108.0	12:54:01	108.1	12:54:45	108.5	12:55:29	108.2	12:56:13	108.0
12:52:34	110.1	12:53:18	108.4	12:54:02	109.0	12:54:46	109.8	12:55:30	107.9	12:56:14	108.1
12:52:35	109.8	12:53:19	108.2	12:54:03	108.0	12:54:47	108.8	12:55:31	108.3	12:56:15	107.8
12:52:36	109.3	12:53:20	107.9	12:54:04	107.9	12:54:48	107.8	12:55:32	108.0	12:56:16	117.5
12:52:37	110.1	12:53:21	107.9	12:54:05	107.9	12:54:49	108.0	12:55:33	110.9	12:56:17	117.9
12:52:38	108.9	12:53:22	108.3	12:54:06	107.9	12:54:50	108.0	12:55:34	108.5	12:56:18	115.8
12:52:39	108.0	12:53:23	108.1	12:54:07	108.0	12:54:51	108.0	12:55:35	108.2	12:56:19	116.1
12:52:40	108.2	12:53:24	108.2	12:54:08	108.0	12:54:52	115.5	12:55:36	108.3	12:56:20	114.9
12:52:41	109.3	12:53:25	108.0	12:54:09	108.0	12:54:53	108.4	12:55:37	108.0	12:56:21	108.6
12:52:42	108.0	12:53:26	108.1	12:54:10	108.0	12:54:54	108.2	12:55:38	108.0	12:56:22	108.2
12:52:43	108.5	12:53:27	108.0	12:54:11	107.8	12:54:55	108.0	12:55:39	108.0	12:56:23	108.3
12:52:44	108.1	12:53:28	108.2	12:54:12	108.0	12:54:56	108.1	12:55:40	108.0	12:56:24	109.5
12:52:45	107.8	12:53:29	107.8	12:54:13	108.3	12:54:57	108.0	12:55:41	107.8	12:56:25	110.1
12:52:46	113.1	12:53:30	108.1	12:54:14	108.2	12:54:58	108.3	12:55:42	108.2	12:56:26	110.0

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
12:56:27	109.5	12:57:11	108.3	12:57:55	108.1	12:58:39	107.8	12:59:23	108.9	13:00:07	108.3
12:56:28	108.8	12:57:12	108.2	12:57:56	108.3	12:58:40	108.1	12:59:24	108.1	13:00:08	108.4
12:56:29	109.9	12:57:13	108.0	12:57:57	108.0	12:58:41	108.3	12:59:25	108.0	13:00:09	108.0
12:56:30	110.5	12:57:14	108.4	12:57:58	108.2	12:58:42	108.1	12:59:26	108.5	13:00:10	108.2
12:56:31	109.9	12:57:15	107.9	12:57:59	108.0	12:58:43	108.0	12:59:27	108.4	13:00:11	108.3
12:56:32	109.0	12:57:16	107.8	12:58:00	108.0	12:58:44	108.0	12:59:28	108.1	13:00:12	108.2
12:56:33	108.4	12:57:17	107.6	12:58:01	107.8	12:58:45	107.9	12:59:29	108.0	13:00:13	107.9
12:56:34	108.4	12:57:18	107.9	12:58:02	107.8	12:58:46	107.9	12:59:30	107.9	13:00:14	108.1
12:56:35	108.3	12:57:19	107.9	12:58:03	108.0	12:58:47	107.7	12:59:31	108.1	13:00:15	107.8
12:56:36	108.8	12:57:20	108.1	12:58:04	108.0	12:58:48	108.2	12:59:32	108.0	13:00:16	107.9
12:56:37	108.3	12:57:21	107.9	12:58:05	107.8	12:58:49	108.0	12:59:33	107.8	13:00:17	108.0
12:56:38	108.5	12:57:22	107.9	12:58:06	108.3	12:58:50	108.0	12:59:34	108.0	13:00:18	108.1
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12:56:40	108.2	12:57:24	108.0	12:58:08	108.3	12:58:52	108.3	12:59:36	108.0	13:00:20	108.1
12:56:41	108.3	12:57:25	108.5	12:58:09	107.8	12:58:53	108.2	12:59:37	108.0	13:00:21	107.9
12:56:42	108.1	12:57:26	107.8	12:58:10	107.8	12:58:54	107.8	12:59:38	107.8	13:00:22	108.2
12:56:43	108.0	12:57:27	107.9	12:58:11	107.9	12:58:55	107.9	12:59:39	108.3	13:00:23	108.1
12:56:44	108.4	12:57:28	107.9	12:58:12	107.8	12:58:56	107.8	12:59:40	108.1	13:00:24	108.0
12:56:45	108.4	12:57:29	107.9	12:58:13	107.8	12:58:57	108.2	12:59:41	108.3	13:00:25	107.8
12:56:46	108.6	12:57:30	107.7	12:58:14	108.0	12:58:58	107.8	12:59:42	108.1	13:00:26	108.3
12:56:47	108.1	12:57:31	108.2	12:58:15	107.9	12:58:59	108.2	12:59:43	107.8	13:00:27	107.8
12:56:48	107.9	12:57:32	107.9	12:58:16	108.3	12:59:00	107.9	12:59:44	108.0	13:00:28	107.9
12:56:49	108.1	12:57:33	107.8	12:58:17	107.7	12:59:01	107.9	12:59:45	107.8	13:00:29	108.6
12:56:50	108.2	12:57:34	107.8	12:58:18	108.0	12:59:02	107.7	12:59:46	108.1	13:00:30	108.1
12:56:51	107.9	12:57:35	108.3	12:58:19	108.0	12:59:03	108.4	12:59:47	108.0	13:00:31	108.0
12:56:52	107.8	12:57:36	107.9	12:58:20	108.3	12:59:04	108.2	12:59:48	108.2	13:00:32	108.0
12:56:53	108.2	12:57:37	108.1	12:58:21	108.2	12:59:05	108.1	12:59:49	107.9	13:00:33	107.9
12:56:54	107.7	12:57:38	107.8	12:58:22	108.2	12:59:06	108.0	12:59:50	108.1	13:00:34	108.0
12:56:55	109.0	12:57:39	107.7	12:58:23	108.0	12:59:07	108.1	12:59:51	108.0	13:00:35	108.3
12:56:56	107.9	12:57:40	108.2	12:58:24	108.3	12:59:08	107.9	12:59:52	108.0	13:00:36	107.9
12:56:57	107.9	12:57:41	108.3	12:58:25	108.0	12:59:09	108.0	12:59:53	107.9	13:00:37	108.0
12:56:58	108.1	12:57:42	108.2	12:58:26	108.0	12:59:10	107.7	12:59:54	107.9	13:00:38	108.0
12:56:59	115.5	12:57:43	108.1	12:58:27	108.2	12:59:11	108.0	12:59:55	108.0	13:00:39	108.0
12:57:00	115.8	12:57:44	108.1	12:58:28	107.8	12:59:12	108.3	12:59:56	107.8	13:00:40	107.8
12:57:01	107.9	12:57:45	107.7	12:58:29	108.9	12:59:13	107.6	12:59:57	108.1	13:00:41	108.4
12:57:02	107.8	12:57:46	108.0	12:58:30	108.3	12:59:14	107.7	12:59:58	107.9	13:00:42	109.1
12:57:03	108.1	12:57:47	108.2	12:58:31	107.8	12:59:15	108.1	12:59:59	108.1	13:00:43	107.8
12:57:04	108.0	12:57:48	108.6	12:58:32	107.9	12:59:16	107.8	13:00:00	107.8	13:00:44	108.3
12:57:05	107.7	12:57:49	108.1	12:58:33	107.8	12:59:17	107.6	13:00:01	107.8	13:00:45	108.5
12:57:06	108.1	12:57:50	107.9	12:58:34	107.8	12:59:18	108.4	13:00:02	108.0	13:00:46	107.6
12:57:07	107.9	12:57:51	107.9	12:58:35	107.9	12:59:19	108.1	13:00:03	107.9	13:00:47	108.1
12:57:08	108.1	12:57:52	108.0	12:58:36	108.4	12:59:20	107.7	13:00:04	107.9	13:00:48	107.8
12:57:09	112.7	12:57:53	108.2	12:58:37	108.1	12:59:21	108.3	13:00:05	108.2	13:00:49	107.9
12:57:10	111.1	12:57:54	108.1	12:58:38	108.0	12:59:22	108.2	13:00:06	107.8	13:00:50	107.8

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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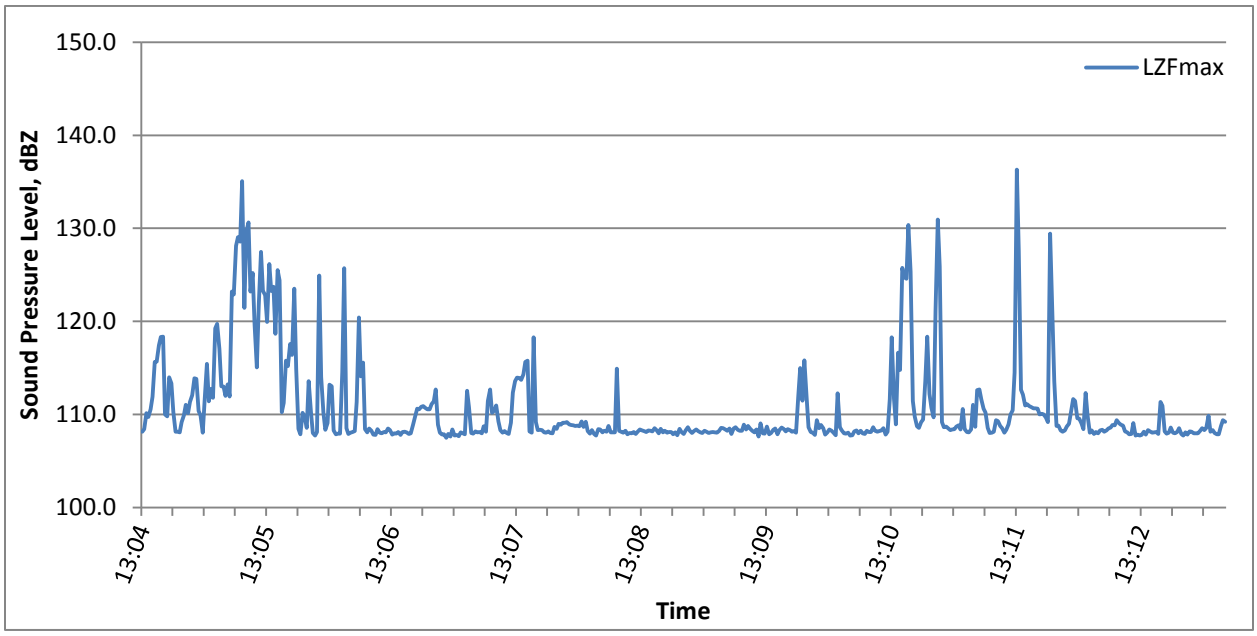
13:00:52	107.9	13:01:29	108.1	13:02:06	128.5	13:02:43	120.3	13:03:18	129.0	13:03:55	108.6
13:00:53	108.8	13:01:30	108.1	13:02:07	132.9	13:02:44	117.1	13:03:19	125.4	13:03:56	111.4
13:00:54	108.5	13:01:31	108.1	13:02:08	110.2	13:02:45	110.1	13:03:20	123.1	13:03:57	111.2
13:00:55	108.2	13:01:32	108.2	13:02:09	110.8	13:02:46	115.5	13:03:21	111.8	13:03:58	116.7
13:00:56	107.8	13:01:33	108.7	13:02:10	114.4	13:02:47	109.2	13:03:22	111.3	13:03:59	116.5
13:00:57	108.0	13:01:34	108.3	13:02:11	117.1	13:02:48	108.3	13:03:23	111.2	13:04:00	112.9
13:00:58	108.0	13:01:35	108.1	13:02:12	111.5	13:02:47	109.2	13:03:24	112.3	13:04:01	114.1
13:00:59	107.9	13:01:36	108.0	13:02:13	113.6	13:02:48	108.3	13:03:25	109.4	13:04:02	120.5
13:01:00	108.1	13:01:37	108.3	13:02:14	107.9	13:02:49	108.5	13:03:26	108.8	13:04:03	119.3
13:01:01	108.2	13:01:38	108.1	13:02:15	108.0	13:02:50	112.0	13:03:27	111.1	13:04:04	114.0
13:01:02	107.7	13:01:39	137.1	13:02:16	108.4	13:02:51	111.6	13:03:28	110.1	13:04:05	112.2
13:01:03	108.1	13:01:40	136.8	13:02:17	107.8	13:02:52	119.8	13:03:29	109.9	13:04:06	109.7
13:01:04	108.2	13:01:41	126.9	13:02:18	107.8	13:02:53	115.0	13:03:30	111.0	13:04:07	108.5
13:01:05	108.1	13:01:42	123.1	13:02:19	107.9	13:02:54	111.1	13:03:31	129.5	13:04:08	113.7
13:01:06	108.1	13:01:43	127.6	13:02:20	109.1	13:02:55	116.7	13:03:32	129.9	13:04:09	121.9
13:01:07	108.1	13:01:44	122.3	13:02:21	112.3	13:02:56	114.0	13:03:33	133.4	13:04:10	118.3
13:01:08	108.4	13:01:45	111.9	13:02:22	108.6	13:02:57	112.4	13:03:34	113.1	13:04:11	116.3
13:01:09	108.5	13:01:46	109.4	13:02:23	108.8	13:02:58	117.2	13:03:35	111.9	13:04:12	115.3
13:01:10	108.3	13:01:47	109.1	13:02:24	116.1	13:02:59	120.1	13:03:36	112.0	13:04:13	113.0
13:01:11	108.3	13:01:48	108.5	13:02:25	116.5	13:03:00	125.0	13:03:37	108.6	13:04:14	111.6
13:01:12	108.8	13:01:49	109.4	13:02:26	111.3	13:03:01	130.8	13:03:38	110.2	13:04:15	112.2
13:01:13	109.8	13:01:50	109.1	13:02:27	122.5	13:03:02	128.1	13:03:39	112.5	13:04:16	112.0
13:01:14	108.2	13:01:51	108.3	13:02:28	120.8	13:03:03	119.0	13:03:40	109.6	13:04:17	108.3
13:01:15	108.5	13:01:52	107.7	13:02:29	120.7	13:03:04	115.7	13:03:41	112.4	13:04:18	112.3
13:01:16	108.8	13:01:53	108.1	13:02:30	113.1	13:03:05	119.9	13:03:42	108.6	13:04:19	116.7
13:01:17	107.9	13:01:54	109.7	13:02:31	109.0	13:03:06	116.7	13:03:43	108.4	13:04:20	118.2
13:01:18	108.3	13:01:55	109.3	13:02:32	113.3	13:03:07	108.5	13:03:44	108.8	13:04:21	119.4
13:01:19	108.2	13:01:56	109.5	13:02:33	118.6	13:03:08	108.1	13:03:45	109.2	13:04:22	118.5
13:01:20	108.2	13:01:57	107.9	13:02:34	111.9	13:03:09	108.2	13:03:46	109.0	13:04:23	117.3
13:01:21	108.4	13:01:58	108.3	13:02:35	114.7	13:03:10	111.5	13:03:47	112.4	13:04:24	113.0
13:01:22	108.6	13:01:59	108.1	13:02:36	114.8	13:03:11	110.4	13:03:48	113.8	13:04:25	115.3
13:01:23	108.9	13:02:00	107.9	13:02:37	117.3	13:03:12	111.7	13:03:49	124.0	13:04:26	109.5
13:01:24	108.8	13:02:01	108.0	13:02:38	121.9	13:03:13	117.6	13:03:50	123.5	13:04:27	108.0
13:01:25	108.5	13:02:02	108.3	13:02:39	121.1	13:03:14	111.3	13:03:51	116.2	13:04:28	108.1
13:01:26	108.4	13:02:03	108.1	13:02:40	116.4	13:03:15	112.8	13:03:52	113.2		
13:01:27	108.3	13:02:04	108.1	13:02:41	119.2	13:03:16	118.3	13:03:53	110.2		

Removing Frames from In-Stream Barrier



Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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13:04:30	108.4	13:04:52	111.3	13:05:14	128.1	13:05:36	110.2	13:05:58	109.1	13:06:20	107.8
13:04:31	110.1	13:04:53	112.1	13:05:15	129.1	13:05:37	111.2	13:05:59	113.2	13:06:21	107.8
13:04:32	109.7	13:04:54	113.9	13:05:16	128.6	13:05:38	115.8	13:06:00	113.0	13:06:22	108.4
13:04:33	110.5	13:04:55	113.8	13:05:17	135.1	13:05:39	115.2	13:06:01	108.3	13:06:23	108.0
13:04:34	111.9	13:04:56	110.4	13:05:18	121.4	13:05:40	117.6	13:06:02	107.9	13:06:24	108.0
13:04:35	115.6	13:04:57	109.9	13:05:19	129.6	13:05:41	116.4	13:06:03	107.9	13:06:25	108.1
13:04:36	115.7	13:04:58	108.0	13:05:20	130.6	13:05:42	123.5	13:06:04	108.0	13:06:26	108.1
13:04:37	117.4	13:04:59	111.6	13:05:21	123.2	13:05:43	114.9	13:06:05	114.5	13:06:27	108.5
13:04:38	118.3	13:05:00	115.4	13:05:22	125.2	13:05:44	108.4	13:06:06	125.7	13:06:28	108.3
13:04:39	118.3	13:05:01	111.4	13:05:23	119.6	13:05:45	107.9	13:06:07	108.5	13:06:29	107.8
13:04:40	110.0	13:05:02	112.8	13:05:24	115.1	13:05:46	110.2	13:06:08	107.9	13:06:30	108.0
13:04:41	109.8	13:05:03	111.8	13:05:25	121.7	13:05:47	109.8	13:06:09	108.0	13:06:31	107.9
13:04:42	114.0	13:05:04	119.2	13:05:26	127.5	13:05:48	108.6	13:06:10	108.1	13:06:32	108.1
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13:04:47	108.1	13:05:09	112.0	13:05:31	123.3	13:05:53	108.1	13:06:15	115.6	13:06:37	107.9
13:04:48	109.2	13:05:10	113.2	13:05:32	123.7	13:05:54	124.9	13:06:16	108.4	13:06:38	108.0
13:04:49	109.9	13:05:11	111.9	13:05:33	118.7	13:05:55	114.0	13:06:17	108.1	13:06:39	108.9
13:04:50	111.0	13:05:12	123.2	13:05:34	125.5	13:05:56	110.2	13:06:18	108.5	13:06:40	109.7

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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13:06:42	110.6	13:07:26	109.1	13:08:10	108.1	13:08:54	108.2	13:09:38	108.2	13:10:22	108.2
13:06:43	110.8	13:07:27	112.4	13:08:11	108.2	13:08:55	108.4	13:09:39	108.4	13:10:23	108.2
13:06:44	110.9	13:07:28	113.6	13:08:12	108.2	13:08:56	108.2	13:09:40	108.3	13:10:24	108.3
13:06:45	110.7	13:07:29	114.0	13:08:13	108.8	13:08:57	108.1	13:09:41	108.1	13:10:25	108.5
13:06:46	110.5	13:07:30	113.9	13:08:14	108.1	13:08:58	108.0	13:09:42	108.2	13:10:26	107.8
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13:06:48	111.1	13:07:32	114.3	13:08:16	108.1	13:09:00	108.1	13:09:44	112.0	13:10:28	111.7
13:06:49	111.4	13:07:33	115.6	13:08:17	114.9	13:09:01	108.0	13:09:45	115.0	13:10:29	118.3
13:06:50	112.7	13:07:34	115.8	13:08:18	108.3	13:09:02	108.1	13:09:46	111.5	13:10:30	111.7
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13:06:55	107.5	13:07:39	108.3	13:08:23	108.0	13:09:07	108.5	13:09:51	108.0	13:10:35	124.7
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13:06:57	107.6	13:07:41	108.3	13:08:25	108.1	13:09:09	108.4	13:09:53	109.4	13:10:37	130.3
13:06:58	108.4	13:07:42	108.1	13:08:26	107.9	13:09:10	108.3	13:09:54	108.5	13:10:38	125.3
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13:07:22	108.0	13:08:06	107.9	13:08:50	108.3	13:09:34	107.9	13:10:18	108.1	13:11:02	108.4
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13:07:24	108.0	13:08:08	108.4	13:08:52	108.2	13:09:36	108.6	13:10:20	108.6	13:11:04	108.4

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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13:11:06	108.1	13:11:27	110.5	13:11:48	108.8	13:12:09	108.3	13:12:30	108.1	13:12:51	107.8
13:11:07	108.4	13:11:28	114.5	13:11:49	108.8	13:12:10	108.3	13:12:31	107.8	13:12:52	108.2
13:11:08	111.0	13:11:29	136.3	13:11:50	108.3	13:12:11	108.1	13:12:32	108.3	13:12:53	108.1
13:11:09	108.7	13:11:30	127.7	13:11:51	108.2	13:12:12	108.3	13:12:33	108.2	13:12:54	108.0
13:11:10	112.6	13:11:31	112.6	13:11:52	108.3	13:12:13	108.5	13:12:34	108.0	13:12:55	108.0
13:11:11	112.7	13:11:32	112.1	13:11:53	108.7	13:12:14	108.6	13:12:35	108.1	13:12:56	108.0
13:11:12	111.6	13:11:33	111.0	13:11:54	109.0	13:12:15	108.9	13:12:36	108.1	13:12:57	108.3
13:11:13	110.6	13:11:34	111.1	13:11:55	110.2	13:12:16	108.8	13:12:37	107.9	13:12:58	108.5
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13:11:15	108.6	13:11:36	110.8	13:11:57	111.4	13:12:18	109.1	13:12:39	110.9	13:13:00	108.5
13:11:16	108.0	13:11:37	110.7	13:11:58	109.6	13:12:19	108.9	13:12:40	108.2	13:13:01	109.9
13:11:17	108.0	13:11:38	110.7	13:11:59	109.6	13:12:20	108.8	13:12:41	107.9	13:13:02	108.1
13:11:18	108.1	13:11:39	110.6	13:12:00	109.0	13:12:21	108.2	13:12:42	108.0	13:13:03	108.3
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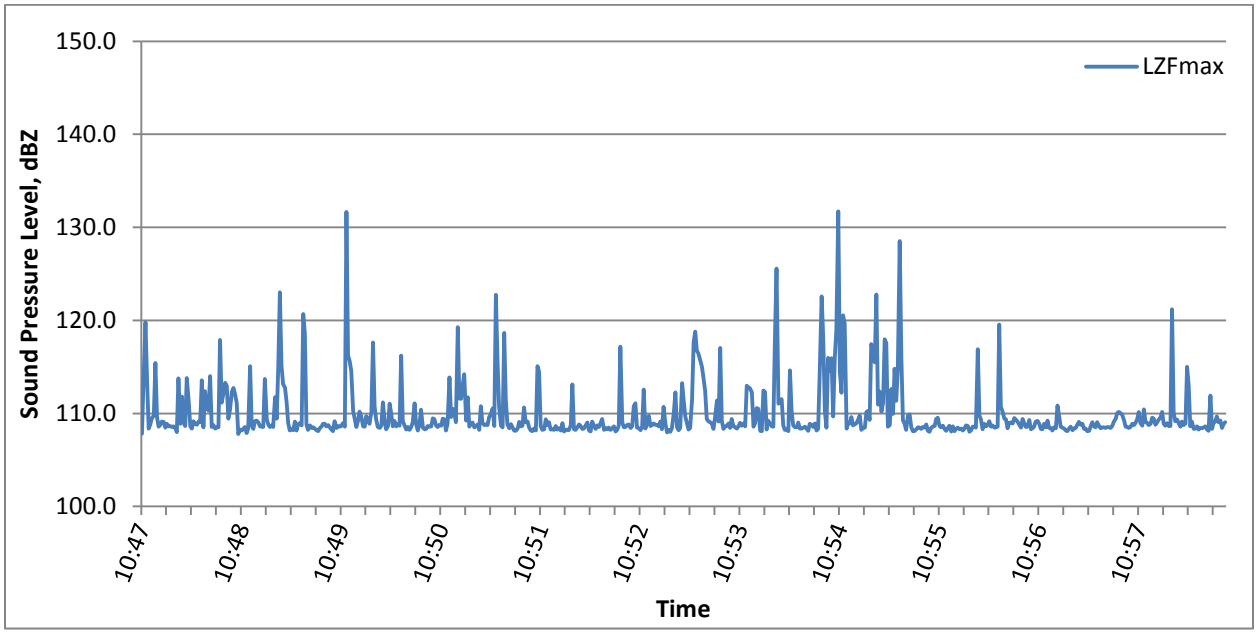
13:11:22	108.5	13:11:43	109.7	13:12:04	108.0	13:12:25	109.1	13:12:46	108.1	13:13:07	108.7
13:11:23	108.0	13:11:44	109.2	13:12:05	108.3	13:12:26	107.7	13:12:47	108.5	13:13:08	109.4
13:11:24	108.4	13:11:45	129.4	13:12:06	107.9	13:12:27	107.8	13:12:48	107.9	13:13:09	109.2
13:11:25	108.9	13:11:46	122.1	13:12:07	108.1	13:12:28	107.7	13:12:49	107.7		

Removing Frames from In-Stream Barrier



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10:47:38	113.7	10:48:02	109.0	10:48:26	112.2	10:48:50	108.5	10:49:14	120.7	10:49:38	108.9
10:47:39	119.8	10:48:03	108.6	10:48:27	113.3	10:48:51	113.7	10:49:15	118.6	10:49:39	108.6
10:47:40	113.6	10:48:04	113.8	10:48:28	113.0	10:48:52	109.4	10:49:16	108.8	10:49:40	131.6
10:47:41	108.4	10:48:05	111.3	10:48:29	109.4	10:48:53	108.8	10:49:17	108.2	10:49:41	116.2
10:47:42	108.8	10:48:06	108.6	10:48:30	110.4	10:48:54	108.6	10:49:18	108.7	10:49:42	115.6
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10:47:47	108.6	10:48:11	109.1	10:48:35	107.8	10:48:59	115.1	10:49:23	108.1	10:49:47	109.2
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10:47:54	108.6	10:48:18	114.0	10:48:42	115.1	10:49:06	108.2	10:49:30	108.5	10:49:54	108.9
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10:47:59	113.8	10:48:23	108.5	10:48:47	109.0	10:49:11	108.8	10:49:35	108.7	10:49:59	108.5
10:48:00	108.9	10:48:24	117.9	10:48:48	108.6	10:49:12	109.0	10:49:36	108.6	10:50:00	108.4

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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10:50:02	111.2	10:50:46	109.0	10:51:30	108.5	10:52:14	109.4	10:52:58	112.2	10:53:42	112.8
10:50:03	109.3	10:50:47	119.3	10:51:31	108.2	10:52:15	108.2	10:52:59	108.5	10:53:43	112.7
10:50:04	108.3	10:50:48	111.6	10:51:32	108.1	10:52:16	108.4	10:53:00	108.2	10:53:44	112.3
10:50:05	108.6	10:50:49	111.6	10:51:33	108.4	10:52:17	108.3	10:53:01	108.4	10:53:45	108.6
10:50:06	111.0	10:50:50	113.0	10:51:34	108.1	10:52:18	108.5	10:53:02	113.2	10:53:46	108.9
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10:50:13	116.2	10:50:57	108.5	10:51:41	108.8	10:52:25	117.2	10:53:09	117.6	10:53:53	108.3
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10:50:16	108.3	10:51:00	108.2	10:51:44	108.3	10:52:28	108.6	10:53:12	116.4	10:53:56	108.6
10:50:17	108.5	10:51:01	110.8	10:51:45	108.2	10:52:29	108.8	10:53:13	115.6	10:53:57	108.6
10:50:18	108.2	10:51:02	109.0	10:51:46	108.7	10:52:30	108.8	10:53:14	115.0	10:53:58	118.0
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10:50:22	108.8	10:51:06	109.6	10:51:50	109.0	10:52:34	111.1	10:53:18	109.1	10:54:02	111.5
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10:50:24	108.7	10:51:08	110.5	10:51:52	108.2	10:52:36	108.4	10:53:20	108.9	10:54:04	108.2
10:50:25	110.4	10:51:09	108.6	10:51:53	108.3	10:52:37	108.2	10:53:21	108.3	10:54:05	108.3
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10:50:27	108.3	10:51:11	115.8	10:51:55	108.7	10:52:39	112.6	10:53:23	111.4	10:54:07	114.6
10:50:28	108.3	10:51:12	110.7	10:51:56	113.1	10:52:40	108.4	10:53:24	109.1	10:54:08	110.3
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Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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10:54:29	108.5	10:55:10	114.8	10:55:51	108.1	10:56:32	108.3	10:57:13	108.6	10:57:54	109.0
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10:54:32	115.9	10:55:13	128.5	10:55:54	108.6	10:56:35	109.1	10:57:16	108.5	10:57:57	121.2
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10:54:56	117.5	10:55:37	108.7	10:56:18	108.4	10:56:59	108.4	10:57:40	110.4	10:58:21	108.3
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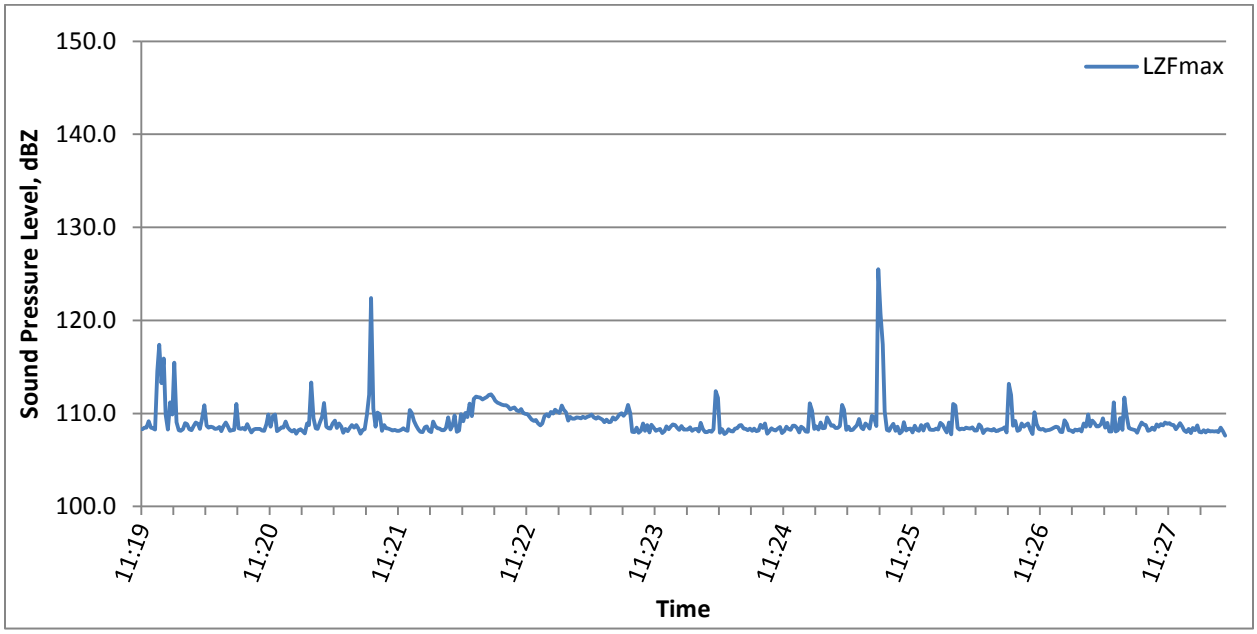
10:54:58	115.5	10:55:39	108.7	10:56:20	109.0	10:57:01	109.1	10:57:42	109.0	10:58:23	109.1
10:54:59	122.8	10:55:40	108.3	10:56:21	108.9	10:57:02	108.8	10:57:43	108.7	10:58:24	109.7
10:55:00	110.9	10:55:41	108.1	10:56:22	109.5	10:57:03	108.9	10:57:44	108.9	10:58:25	109.1
10:55:01	112.4	10:55:42	108.4	10:56:23	109.3	10:57:04	108.3	10:57:45	109.5	10:58:26	109.2
10:55:02	110.2	10:55:43	108.7	10:56:24	109.1	10:57:05	108.4	10:57:46	109.4	10:58:27	108.4
10:55:03	111.2	10:55:44	108.1	10:56:25	108.8	10:57:06	108.1	10:57:47	108.8	10:58:28	108.9
10:55:04	118.0	10:55:45	108.6	10:56:26	108.5	10:57:07	108.1	10:57:48	109.0	10:58:29	109.0
10:55:05	117.6	10:55:46	108.1	10:56:27	109.4	10:57:08	108.7	10:57:49	109.4		

Removing Frames from In-Stream Barrier



Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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11:19:38	108.5	11:20:02	109.0	11:20:26	108.9	11:20:50	108.2	11:21:14	108.5	11:21:38	108.2
11:19:39	108.5	11:20:03	108.9	11:20:27	108.4	11:20:51	108.3	11:21:15	108.7	11:21:39	108.4
11:19:40	109.2	11:20:04	108.3	11:20:28	107.9	11:20:52	108.1	11:21:16	108.5	11:21:40	108.2
11:19:41	108.5	11:20:05	109.5	11:20:29	108.3	11:20:53	107.9	11:21:17	108.7	11:21:41	108.1
11:19:42	108.4	11:20:06	110.9	11:20:30	108.3	11:20:54	108.9	11:21:18	108.4	11:21:42	110.4
11:19:43	108.3	11:20:07	108.7	11:20:31	108.3	11:20:55	108.7	11:21:19	107.8	11:21:43	110.1
11:19:44	114.5	11:20:08	108.5	11:20:32	108.3	11:20:56	113.3	11:21:20	108.2	11:21:44	109.2
11:19:45	117.4	11:20:09	108.6	11:20:33	108.2	11:20:57	109.5	11:21:21	108.3	11:21:45	108.7
11:19:46	113.2	11:20:10	108.5	11:20:34	108.1	11:20:58	108.4	11:21:22	109.8	11:21:46	108.3
11:19:47	115.9	11:20:11	108.3	11:20:35	108.9	11:20:59	108.3	11:21:23	112.0	11:21:47	108.0
11:19:48	109.9	11:20:12	108.4	11:20:36	109.9	11:21:00	109.0	11:21:24	122.4	11:21:48	108.0
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Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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11:22:04	108.0	11:22:48	110.2	11:23:32	108.1	11:24:16	108.7	11:25:00	108.7	11:25:44	108.8
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11:22:39	109.3	11:23:23	110.0	11:24:07	107.9	11:24:51	108.3	11:25:35	108.3	11:26:19	108.3
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11:22:43	108.7	11:23:27	108.0	11:24:11	108.3	11:24:55	108.4	11:25:39	108.2	11:26:23	112.0
11:22:44	108.9	11:23:28	108.5	11:24:12	108.1	11:24:56	108.4	11:25:40	108.1	11:26:24	108.7

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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11:26:28	108.9	11:26:46	108.0	11:27:04	108.6	11:27:22	107.9	11:27:40	108.3	11:27:58	108.0
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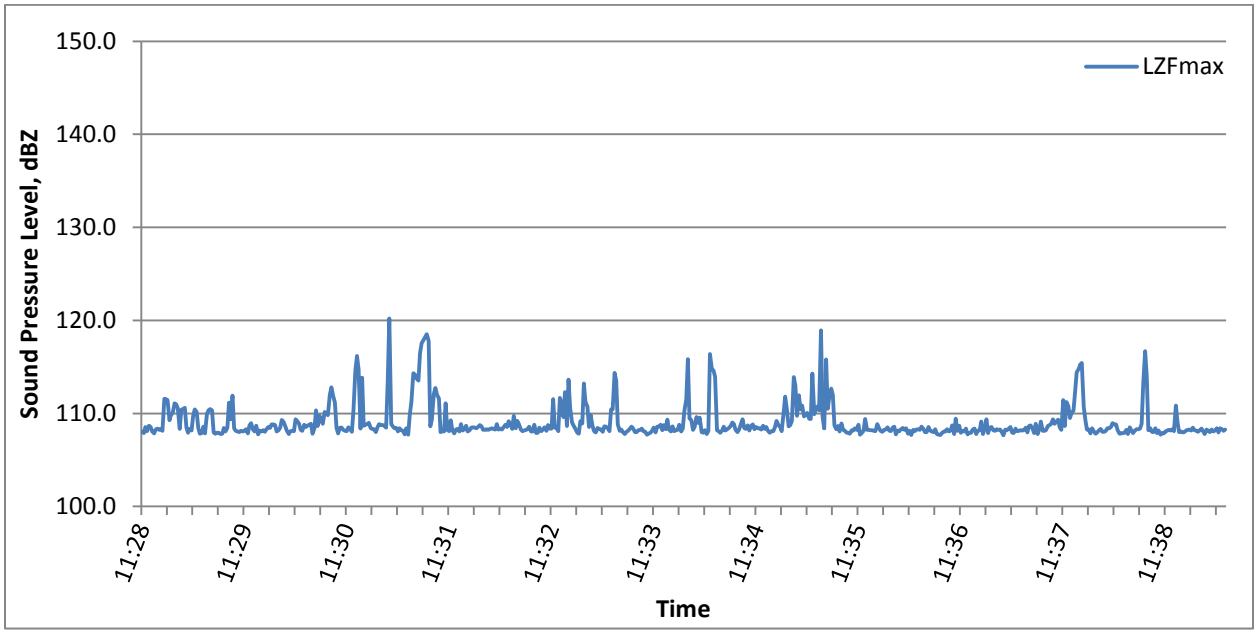
11:26:40	108.2	11:26:58	108.6	11:27:16	111.7	11:27:34	108.7	11:27:52	107.9		
11:26:41	108.2	11:26:59	109.9	11:27:17	109.8	11:27:35	109.0	11:27:53	108.2		
11:26:42	108.3	11:27:00	108.6	11:27:18	108.4	11:27:36	108.9	11:27:54	107.9		

Removing Frames from In-Stream Barrier



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Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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11:31:14	108.8	11:31:58	107.9	11:32:42	110.4	11:33:26	111.5	11:34:10	108.3	11:34:54	108.3

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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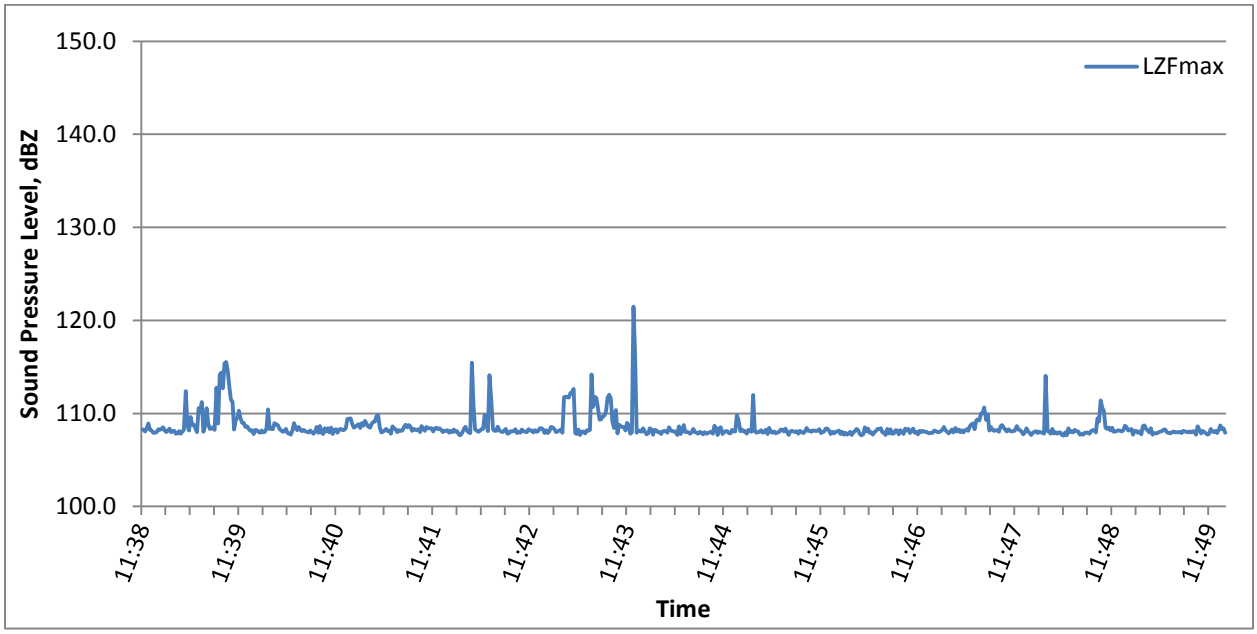
11:35:22	108.2	11:36:01	108.2	11:36:40	108.1	11:37:19	110.7	11:37:58	108.4	11:38:37	108.4
11:35:23	108.3	11:36:02	108.7	11:36:41	108.1	11:37:20	109.3	11:37:59	108.0	11:38:38	108.0
11:35:24	108.5	11:36:03	107.8	11:36:42	108.2	11:37:21	108.3	11:38:00	108.0	11:38:39	108.4
11:35:25	108.2	11:36:04	109.4	11:36:43	108.2	11:37:22	108.3	11:38:01	108.4	11:38:40	108.3
11:35:26	108.1	11:36:05	108.1	11:36:44	108.2	11:37:23	107.8	11:38:02	107.9	11:38:41	108.1
11:35:27	108.5	11:36:06	108.7	11:36:45	108.5	11:37:24	108.4	11:38:03	108.2	11:38:42	108.3
11:35:28	108.6	11:36:07	107.9	11:36:46	108.0	11:37:25	108.0	11:38:04	107.7	11:38:43	108.4
11:35:29	107.8	11:36:08	108.1	11:36:47	108.6	11:37:26	107.8	11:38:05	107.9		
11:35:30	108.2	11:36:09	108.0	11:36:48	108.7	11:37:27	108.0	11:38:06	107.8		
11:35:31	108.1	11:36:10	108.4	11:36:49	108.4	11:37:28	108.2	11:38:07	108.0		
11:35:32	108.3	11:36:11	107.8	11:36:50	107.9	11:37:29	108.3	11:38:08	108.1		
11:35:33	108.4	11:36:12	107.9	11:36:51	108.9	11:37:30	108.0	11:38:09	108.2		

Removing Frames from In-Stream Barrier



Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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11:38:45	108.2	11:39:09	108.0	11:39:33	114.4	11:39:57	107.9	11:40:21	108.5	11:40:45	107.9
11:38:46	108.1	11:39:10	108.3	11:39:34	112.7	11:39:58	108.2	11:40:22	108.2	11:40:46	108.3
11:38:47	108.4	11:39:11	112.4	11:39:35	115.4	11:39:59	108.0	11:40:23	108.1	11:40:47	108.3
11:38:48	108.9	11:39:12	108.7	11:39:36	115.5	11:40:00	108.0	11:40:24	108.2	11:40:48	108.2
11:38:49	108.2	11:39:13	108.1	11:39:37	114.6	11:40:01	108.3	11:40:25	108.1	11:40:49	108.2
11:38:50	108.2	11:39:14	109.6	11:39:38	112.9	11:40:02	110.4	11:40:26	108.0	11:40:50	108.4
11:38:51	107.9	11:39:15	108.8	11:39:39	111.5	11:40:03	108.3	11:40:27	108.0	11:40:51	109.4
11:38:52	107.9	11:39:16	108.8	11:39:40	111.3	11:40:04	108.4	11:40:28	108.2	11:40:52	109.4
11:38:53	108.0	11:39:17	108.4	11:39:41	108.3	11:40:05	108.3	11:40:29	108.0	11:40:53	109.5
11:38:54	108.3	11:39:18	108.0	11:39:42	109.2	11:40:06	108.9	11:40:30	107.8	11:40:54	108.9
11:38:55	108.2	11:39:19	110.6	11:39:43	109.5	11:40:07	108.9	11:40:31	108.1	11:40:55	108.5
11:38:56	108.3	11:39:20	110.2	11:39:44	110.3	11:40:08	108.7	11:40:32	108.5	11:40:56	108.6
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11:39:04	108.1	11:39:28	108.5	11:39:52	108.2	11:40:16	107.7	11:40:40	107.9	11:41:04	108.6
11:39:05	107.8	11:39:29	108.2	11:39:53	107.8	11:40:17	108.1	11:40:41	108.5	11:41:05	108.5
11:39:06	107.9	11:39:30	112.8	11:39:54	108.2	11:40:18	108.9	11:40:42	107.8	11:41:06	108.9
11:39:07	108.1	11:39:31	108.9	11:39:55	108.2	11:40:19	108.5	11:40:43	108.2	11:41:07	109.1

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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11:41:09	109.7	11:41:53	108.2	11:42:37	108.0	11:43:21	108.2	11:44:05	107.8	11:44:49	108.2
11:41:10	109.9	11:41:54	107.9	11:42:38	107.9	11:43:22	114.2	11:44:06	108.1	11:44:50	108.1
11:41:11	108.5	11:41:55	108.1	11:42:39	108.3	11:43:23	110.7	11:44:07	108.1	11:44:51	108.0
11:41:12	108.0	11:41:56	108.0	11:42:40	108.1	11:43:24	111.8	11:44:08	108.1	11:44:52	109.8
11:41:13	108.0	11:41:57	108.3	11:42:41	108.0	11:43:25	111.7	11:44:09	107.9	11:44:53	109.3
11:41:14	108.2	11:41:58	108.0	11:42:42	108.0	11:43:26	110.6	11:44:10	108.5	11:44:54	108.1
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11:41:16	108.1	11:42:00	107.7	11:42:44	108.2	11:43:28	109.4	11:44:12	108.1	11:44:56	108.1
11:41:17	108.2	11:42:01	107.6	11:42:45	108.2	11:43:29	109.7	11:44:13	108.1	11:44:57	108.1
11:41:18	107.8	11:42:02	107.9	11:42:46	108.0	11:43:30	109.7	11:44:14	108.0	11:44:58	107.8
11:41:19	108.6	11:42:03	108.3	11:42:47	108.2	11:43:31	110.2	11:44:15	107.7	11:44:59	108.2
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11:41:32	108.3	11:42:16	109.9	11:43:00	108.0	11:43:44	109.0	11:44:28	107.8	11:45:12	108.4
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11:41:34	108.2	11:42:18	108.1	11:43:02	108.1	11:43:46	107.8	11:44:30	107.9	11:45:14	107.9
11:41:35	108.3	11:42:19	114.1	11:43:03	108.3	11:43:47	108.0	11:44:31	107.8	11:45:15	108.1
11:41:36	108.0	11:42:20	111.7	11:43:04	107.9	11:43:48	121.5	11:44:32	108.0	11:45:16	107.9
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11:41:38	108.3	11:42:22	108.1	11:43:06	111.8	11:43:50	107.9	11:44:34	107.9	11:45:18	108.0
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11:41:40	108.5	11:42:24	108.6	11:43:08	111.7	11:43:52	108.1	11:44:36	108.0	11:45:20	108.3
11:41:41	108.4	11:42:25	108.2	11:43:09	112.2	11:43:53	108.0	11:44:37	107.8	11:45:21	108.1
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11:41:44	108.1	11:42:28	108.2	11:43:12	107.9	11:43:56	107.8	11:44:40	107.7	11:45:24	107.7
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11:41:46	108.5	11:42:30	107.8	11:43:14	108.3	11:43:58	108.4	11:44:42	108.5	11:45:26	108.1
11:41:47	108.3	11:42:31	107.9	11:43:15	107.7	11:43:59	108.3	11:44:43	107.8	11:45:27	108.1
11:41:48	108.4	11:42:32	108.1	11:43:16	108.0	11:44:00	107.7	11:44:44	108.0	11:45:28	108.0
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11:41:50	108.0	11:42:34	108.1	11:43:18	107.9	11:44:02	108.2	11:44:46	108.1	11:45:30	107.8
11:41:51	108.1	11:42:35	108.3	11:43:19	108.2	11:44:03	108.0	11:44:47	107.9	11:45:31	108.1

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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11:45:33	107.9	11:46:17	108.0	11:47:01	108.2	11:47:45	108.6	11:48:29	107.9	11:49:13	108.0
11:45:34	108.1	11:46:18	108.1	11:47:02	108.0	11:47:46	108.3	11:48:30	107.8	11:49:14	108.0
11:45:35	108.4	11:46:19	108.3	11:47:03	107.8	11:47:47	108.2	11:48:31	108.1	11:49:15	108.1
11:45:36	108.1	11:46:20	108.3	11:47:04	108.0	11:47:48	108.0	11:48:32	108.2	11:49:16	108.3
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11:45:38	108.0	11:46:22	107.9	11:47:06	107.9	11:47:50	108.0	11:48:34	108.0	11:49:18	108.0
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11:46:12	108.1	11:46:56	108.0	11:47:40	108.3	11:48:24	107.7	11:49:08	108.4	11:49:52	108.3
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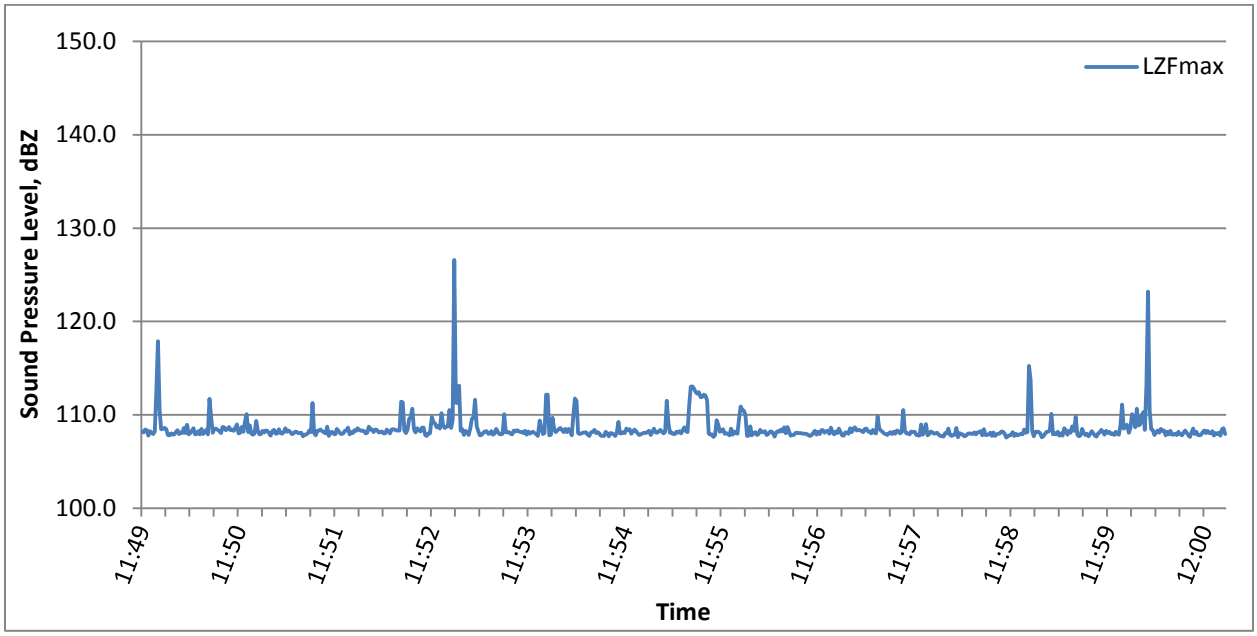
11:46:14	107.9	11:46:58	108.1	11:47:42	108.1	11:48:26	107.7	11:49:10	107.9	11:49:54	107.9
11:46:15	108.0	11:46:59	108.2	11:47:43	108.1	11:48:27	107.9	11:49:11	107.8		

Removing Frames from In-Stream Barrier



Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
11:49:55	108.2	11:50:21	108.6	11:50:47	108.4	11:51:13	108.3	11:51:39	108.3	11:52:05	108.2
11:49:56	108.1	11:50:22	108.1	11:50:48	108.5	11:51:14	108.1	11:51:40	108.1	11:52:06	108.1
11:49:57	108.4	11:50:23	108.9	11:50:49	108.7	11:51:15	107.8	11:51:41	111.3	11:52:07	108.4
11:49:58	108.3	11:50:24	107.9	11:50:50	108.4	11:51:16	108.3	11:51:42	108.1	11:52:08	108.3
11:49:59	107.8	11:50:25	108.1	11:50:51	108.4	11:51:17	108.4	11:51:43	107.8	11:52:09	108.6
11:50:00	108.3	11:50:26	108.3	11:50:52	108.3	11:51:18	108.0	11:51:44	108.3	11:52:10	108.4
11:50:01	108.1	11:50:27	108.6	11:50:53	108.6	11:51:19	108.0	11:51:45	108.3	11:52:11	108.3
11:50:02	107.9	11:50:28	107.9	11:50:54	109.0	11:51:20	108.5	11:51:46	108.4	11:52:12	108.3
11:50:03	108.2	11:50:29	107.9	11:50:55	108.0	11:51:21	108.1	11:51:47	108.3	11:52:13	108.3
11:50:04	112.5	11:50:30	108.3	11:50:56	108.1	11:51:22	108.0	11:51:48	108.1	11:52:14	108.0
11:50:05	117.9	11:50:31	107.9	11:50:57	108.7	11:51:23	108.2	11:51:49	108.0	11:52:15	108.1
11:50:06	110.6	11:50:32	108.5	11:50:58	108.2	11:51:24	108.6	11:51:50	108.7	11:52:16	108.7
11:50:07	108.5	11:50:33	107.9	11:50:59	109.3	11:51:25	108.2	11:51:51	107.8	11:52:17	108.4
11:50:08	108.5	11:50:34	108.2	11:51:00	110.1	11:51:26	108.3	11:51:52	108.1	11:52:18	108.4
11:50:09	108.6	11:50:35	108.4	11:51:01	108.1	11:51:27	108.2	11:51:53	108.2	11:52:19	108.1
11:50:10	108.5	11:50:36	107.9	11:51:02	108.9	11:51:28	107.9	11:51:54	108.0	11:52:20	108.4
11:50:11	107.8	11:50:37	111.7	11:51:03	108.0	11:51:29	108.0	11:51:55	107.9	11:52:21	108.4
11:50:12	107.8	11:50:38	109.9	11:51:04	107.9	11:51:30	108.2	11:51:56	108.5	11:52:22	108.1
11:50:13	108.0	11:50:39	108.1	11:51:05	108.0	11:51:31	108.2	11:51:57	108.3	11:52:23	108.2
11:50:14	107.9	11:50:40	108.5	11:51:06	109.3	11:51:32	108.1	11:51:58	108.0	11:52:24	108.2
11:50:15	107.9	11:50:41	108.5	11:51:07	108.3	11:51:33	108.1	11:51:59	108.0	11:52:25	108.0
11:50:16	108.2	11:50:42	108.4	11:51:08	107.9	11:51:34	108.1	11:52:00	108.0	11:52:26	108.0
11:50:17	108.4	11:50:43	108.2	11:51:09	108.0	11:51:35	107.7	11:52:01	108.3	11:52:27	108.4
11:50:18	108.0	11:50:44	108.0	11:51:10	108.3	11:51:36	107.9	11:52:02	108.3	11:52:28	108.2
11:50:19	108.1	11:50:45	108.7	11:51:11	108.1	11:51:37	107.9	11:52:03	108.6	11:52:29	108.0
11:50:20	108.0	11:50:46	108.7	11:51:12	108.3	11:51:38	108.0	11:52:04	107.9	11:52:30	108.4

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
11:52:31	108.5	11:53:15	107.9	11:53:59	108.0	11:54:43	108.2	11:55:27	108.2	11:56:11	107.8
11:52:32	108.4	11:53:16	108.3	11:54:00	108.0	11:54:44	108.0	11:55:28	108.1	11:56:12	107.8
11:52:33	108.3	11:53:17	108.2	11:54:01	107.7	11:54:45	107.7	11:55:29	108.3	11:56:13	108.8
11:52:34	108.3	11:53:18	107.9	11:54:02	109.4	11:54:46	108.1	11:55:30	108.0	11:56:14	107.8
11:52:35	108.3	11:53:19	108.5	11:54:03	108.6	11:54:47	108.0	11:55:31	108.4	11:56:15	108.1
11:52:36	111.4	11:53:20	109.6	11:54:04	107.9	11:54:48	107.9	11:55:32	108.7	11:56:16	108.1
11:52:37	111.4	11:53:21	109.7	11:54:05	108.1	11:54:49	107.8	11:55:33	108.2	11:56:17	107.8
11:52:38	108.3	11:53:22	111.6	11:54:06	112.2	11:54:50	108.1	11:55:34	108.1	11:56:18	108.0
11:52:39	108.1	11:53:23	108.8	11:54:07	112.2	11:54:51	109.3	11:55:35	111.0	11:56:19	108.4
11:52:40	108.4	11:53:24	108.3	11:54:08	107.8	11:54:52	108.0	11:55:36	113.0	11:56:20	108.2
11:52:41	109.6	11:53:25	107.8	11:54:09	107.9	11:54:53	108.0	11:55:37	113.1	11:56:21	108.2
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11:52:43	110.6	11:53:27	108.1	11:54:11	108.5	11:54:55	108.1	11:55:39	112.5	11:56:23	107.8
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11:52:47	108.4	11:53:31	108.0	11:54:15	108.6	11:54:59	108.0	11:55:43	111.9	11:56:27	108.0
11:52:48	108.2	11:53:32	108.3	11:54:16	108.4	11:55:00	108.2	11:55:44	112.2	11:56:28	107.7
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11:52:50	108.6	11:53:34	108.0	11:54:18	108.5	11:55:02	108.3	11:55:46	111.6	11:56:30	108.3
11:52:51	107.8	11:53:35	108.5	11:54:19	108.2	11:55:03	108.0	11:55:47	108.0	11:56:31	108.2
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11:52:53	108.0	11:53:37	107.9	11:54:21	108.2	11:55:05	107.9	11:55:49	107.9	11:56:33	108.2
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11:52:59	108.8	11:53:43	108.2	11:54:27	108.0	11:55:11	107.9	11:55:55	108.3	11:56:39	107.8
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11:53:01	110.2	11:53:45	107.9	11:54:29	108.1	11:55:13	108.5	11:55:57	108.0	11:56:41	108.0
11:53:02	108.9	11:53:46	108.3	11:54:30	108.1	11:55:14	108.1	11:55:58	108.0	11:56:42	108.1
11:53:03	108.6	11:53:47	108.2	11:54:31	108.1	11:55:15	108.1	11:55:59	107.9	11:56:43	108.0
11:53:04	108.7	11:53:48	108.3	11:54:32	107.9	11:55:16	108.2	11:56:00	107.8	11:56:44	108.0
11:53:05	108.8	11:53:49	108.3	11:54:33	107.8	11:55:17	108.4	11:56:01	108.5	11:56:45	108.0
11:53:06	110.5	11:53:50	108.2	11:54:34	108.1	11:55:18	108.2	11:56:02	107.9	11:56:46	108.0
11:53:07	108.6	11:53:51	108.2	11:54:35	108.2	11:55:19	108.0	11:56:03	108.2	11:56:47	108.0
11:53:08	109.4	11:53:52	108.0	11:54:36	108.4	11:55:20	108.2	11:56:04	108.1	11:56:48	108.0
11:53:09	126.6	11:53:53	108.3	11:54:37	108.0	11:55:21	111.5	11:56:05	108.0	11:56:49	107.8
11:53:10	111.3	11:53:54	107.9	11:54:38	108.1	11:55:22	109.2	11:56:06	109.6	11:56:50	107.7
11:53:11	111.3	11:53:55	108.2	11:54:39	108.0	11:55:23	108.1	11:56:07	110.9	11:56:51	107.9
11:53:12	113.1	11:53:56	108.0	11:54:40	107.8	11:55:24	108.1	11:56:08	110.5	11:56:52	108.1
11:53:13	108.3	11:53:57	108.1	11:54:41	107.7	11:55:25	108.0	11:56:09	110.5	11:56:53	108.3
11:53:14	108.4	11:53:58	108.2	11:54:42	107.8	11:55:26	107.9	11:56:10	109.9	11:56:54	107.9

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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11:56:56	107.9	11:57:39	108.0	11:58:22	107.6	11:59:05	108.2	11:59:48	107.7	12:00:31	107.8
11:56:57	108.3	11:57:40	108.2	11:58:23	108.1	11:59:06	115.3	11:59:49	108.0	12:00:32	108.2
11:56:58	108.3	11:57:41	108.0	11:58:24	107.9	11:59:07	113.7	11:59:50	108.1	12:00:33	107.9
11:56:59	108.1	11:57:42	108.2	11:58:25	107.9	11:59:08	108.2	11:59:51	108.4	12:00:34	108.3
11:57:00	108.3	11:57:43	108.0	11:58:26	107.7	11:59:09	107.7	11:59:52	108.2	12:00:35	107.9
11:57:01	108.3	11:57:44	108.3	11:58:27	107.8	11:59:10	108.2	11:59:53	107.9	12:00:36	107.9
11:57:02	108.0	11:57:45	108.3	11:58:28	108.0	11:59:11	108.2	11:59:54	108.3	12:00:37	108.0
11:57:03	108.6	11:57:46	108.0	11:58:29	108.0	11:59:12	108.2	11:59:55	108.1	12:00:38	107.8
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11:57:05	107.9	11:57:48	110.5	11:58:31	108.0	11:59:14	107.6	11:59:57	107.9	12:00:40	108.0
11:57:06	108.2	11:57:49	108.3	11:58:32	108.1	11:59:15	107.7	11:59:58	108.0	12:00:41	107.8
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11:57:14	108.0	11:57:57	107.8	11:58:40	107.8	11:59:23	107.9	12:00:06	108.7	12:00:49	107.9
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11:57:18	108.7	11:58:01	108.3	11:58:44	108.1	11:59:27	107.8	12:00:10	110.1	12:00:53	107.9
11:57:19	108.3	11:58:02	109.0	11:58:45	107.7	11:59:28	108.6	12:00:11	109.7	12:00:54	108.2
11:57:20	108.4	11:58:03	107.8	11:58:46	107.9	11:59:29	108.3	12:00:12	108.7	12:00:55	108.3
11:57:21	108.4	11:58:04	107.9	11:58:47	108.0	11:59:30	107.9	12:00:13	110.7	12:00:56	108.1
11:57:22	108.3	11:58:05	108.2	11:58:48	108.0	11:59:31	108.3	12:00:14	108.9	12:00:57	108.3
11:57:23	108.1	11:58:06	108.1	11:58:49	108.2	11:59:32	108.1	12:00:15	109.0	12:00:58	108.1
11:57:24	108.5	11:58:07	108.0	11:58:50	108.2	11:59:33	108.8	12:00:16	109.9	12:00:59	108.0
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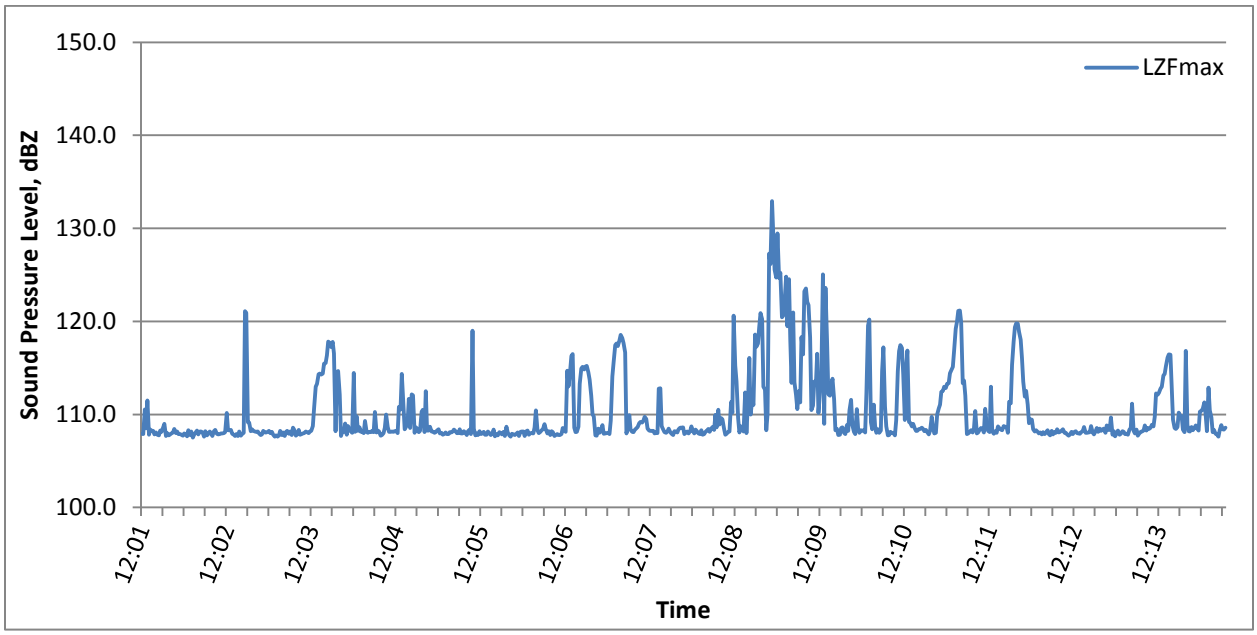
11:57:27	108.2	11:58:10	107.9	11:58:53	107.7	11:59:36	107.9	12:00:19	113.2	12:01:02	108.0
11:57:28	108.0	11:58:11	107.8	11:58:54	107.8	11:59:37	107.7	12:00:20	123.2	12:01:03	108.0
11:57:29	108.4	11:58:12	107.8	11:58:55	107.8	11:59:38	107.8	12:00:21	110.5	12:01:04	108.1
11:57:30	108.1	11:58:13	107.7	11:58:56	108.2	11:59:39	108.5	12:00:22	108.5	12:01:05	107.8
11:57:31	108.0	11:58:14	108.0	11:58:57	107.8	11:59:40	108.1	12:00:23	108.4	12:01:06	108.4
11:57:32	109.8	11:58:15	108.0	11:58:58	108.0	11:59:41	107.9	12:00:24	107.8	12:01:07	108.6
11:57:33	108.6	11:58:16	108.5	11:58:59	107.8	11:59:42	108.0	12:00:25	108.1	12:01:08	107.9
11:57:34	108.3	11:58:17	107.9	11:59:00	107.9	11:59:43	107.7	12:00:26	108.3		
11:57:35	108.2	11:58:18	107.7	11:59:01	108.0	11:59:44	108.0	12:00:27	108.1		
11:57:36	108.0	11:58:19	107.8	11:59:02	107.9	11:59:45	108.3	12:00:28	108.5		
11:57:37	108.0	11:58:20	107.9	11:59:03	108.4	11:59:46	108.0	12:00:29	108.3		

Removing Frames from In-Stream Barrier



Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
12:01:09	107.9	12:01:34	108.2	12:01:59	107.7	12:02:24	109.2	12:02:49	108.1	12:03:14	114.3
12:01:10	107.9	12:01:35	107.9	12:02:00	108.2	12:02:25	109.1	12:02:50	107.7	12:03:15	114.4
12:01:11	110.5	12:01:36	107.9	12:02:01	108.3	12:02:26	108.2	12:02:51	108.1	12:03:16	114.3
12:01:12	108.5	12:01:37	107.8	12:02:02	107.9	12:02:27	108.4	12:02:52	108.2	12:03:17	114.4
12:01:13	111.5	12:01:38	107.7	12:02:03	107.8	12:02:28	108.2	12:02:53	107.9	12:03:18	115.4
12:01:14	107.8	12:01:39	108.0	12:02:04	107.9	12:02:29	108.2	12:02:54	108.2	12:03:19	115.5
12:01:15	108.4	12:01:40	107.8	12:02:05	107.9	12:02:30	108.1	12:02:55	107.8	12:03:20	116.4
12:01:16	108.2	12:01:41	107.7	12:02:06	108.0	12:02:31	108.2	12:02:56	108.6	12:03:21	117.8
12:01:17	108.2	12:01:42	108.3	12:02:07	108.0	12:02:32	107.9	12:02:57	108.3	12:03:22	117.7
12:01:18	107.8	12:01:43	107.8	12:02:08	108.1	12:02:33	107.8	12:02:58	107.7	12:03:23	117.2
12:01:19	108.1	12:01:44	108.2	12:02:09	110.2	12:02:34	107.8	12:02:59	107.9	12:03:24	117.8
12:01:20	107.8	12:01:45	107.5	12:02:10	108.3	12:02:35	108.2	12:03:00	108.3	12:03:25	116.6
12:01:21	107.7	12:01:46	107.8	12:02:11	108.3	12:02:36	108.0	12:03:01	107.8	12:03:26	108.2
12:01:22	108.3	12:01:47	108.0	12:02:12	108.3	12:02:37	108.1	12:03:02	107.9	12:03:27	114.5
12:01:23	108.1	12:01:48	108.3	12:02:13	107.9	12:02:38	108.1	12:03:03	108.0	12:03:28	114.7
12:01:24	108.6	12:01:49	107.8	12:02:14	107.8	12:02:39	108.2	12:03:04	108.0	12:03:29	112.1
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12:01:26	107.7	12:01:51	108.2	12:02:16	107.9	12:02:41	108.1	12:03:06	108.1	12:03:31	108.3
12:01:27	108.0	12:01:52	108.0	12:02:17	107.7	12:02:42	107.8	12:03:07	108.0	12:03:32	108.1
12:01:28	107.7	12:01:53	107.6	12:02:18	108.2	12:02:43	107.6	12:03:08	108.2	12:03:33	109.0
12:01:29	107.8	12:01:54	108.2	12:02:19	107.7	12:02:44	107.8	12:03:09	108.2	12:03:34	107.8
12:01:30	108.0	12:01:55	107.7	12:02:20	107.9	12:02:45	107.6	12:03:10	108.7	12:03:35	108.7
12:01:31	108.1	12:01:56	107.9	12:02:21	108.0	12:02:46	107.7	12:03:11	110.7	12:03:36	108.3
12:01:32	108.4	12:01:57	108.2	12:02:22	121.1	12:02:47	108.2	12:03:12	113.0	12:03:37	108.2
12:01:33	108.0	12:01:58	108.0	12:02:23	120.9	12:02:48	107.8	12:03:13	113.3	12:03:38	108.0

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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12:03:40	108.1	12:04:23	108.6	12:05:06	107.9	12:05:49	108.3	12:06:32	108.5	12:07:15	112.8
12:03:41	109.8	12:04:24	108.4	12:05:07	107.8	12:05:50	108.0	12:06:33	108.0	12:07:16	112.8
12:03:42	108.2	12:04:25	108.1	12:05:08	108.2	12:05:51	108.1	12:06:34	108.2	12:07:17	108.7
12:03:43	108.6	12:04:26	108.2	12:05:09	107.9	12:05:52	108.3	12:06:35	108.9	12:07:18	108.4
12:03:44	108.1	12:04:27	110.3	12:05:10	108.0	12:05:53	108.4	12:06:36	107.9	12:07:19	108.1
12:03:45	108.2	12:04:28	110.5	12:05:11	108.1	12:05:54	108.9	12:06:37	108.0	12:07:20	108.0
12:03:46	108.0	12:04:29	108.1	12:05:12	107.8	12:05:55	108.4	12:06:38	108.0	12:07:21	108.2
12:03:47	109.3	12:04:30	112.5	12:05:13	107.8	12:05:56	108.0	12:06:39	108.0	12:07:22	108.5
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12:03:49	108.0	12:04:32	108.3	12:05:15	108.0	12:05:58	107.8	12:06:41	109.3	12:07:24	107.9
12:03:50	108.1	12:04:33	108.7	12:05:16	107.8	12:05:59	108.2	12:06:42	114.1	12:07:25	107.8
12:03:51	108.1	12:04:34	108.2	12:05:17	108.0	12:06:00	108.1	12:06:43	115.6	12:07:26	108.2
12:03:52	108.2	12:04:35	108.2	12:05:18	108.4	12:06:01	107.7	12:06:44	117.4	12:07:27	108.2
12:03:53	108.1	12:04:36	108.0	12:05:19	107.6	12:06:02	107.8	12:06:45	117.6	12:07:28	108.0
12:03:54	110.3	12:04:37	108.1	12:05:20	107.9	12:06:03	107.9	12:06:46	117.4	12:07:29	108.4
12:03:55	108.1	12:04:38	108.2	12:05:21	107.7	12:06:04	107.8	12:06:47	117.9	12:07:30	108.6
12:03:56	108.3	12:04:39	108.4	12:05:22	108.1	12:06:05	107.8	12:06:48	118.5	12:07:31	108.6
12:03:57	108.1	12:04:40	108.0	12:05:23	108.0	12:06:06	107.9	12:06:49	118.2	12:07:32	108.6
12:03:58	107.7	12:04:41	108.0	12:05:24	107.8	12:06:07	108.5	12:06:50	117.6	12:07:33	107.9
12:03:59	107.8	12:04:42	107.8	12:05:25	108.1	12:06:08	108.3	12:06:51	116.7	12:07:34	108.0
12:04:00	108.0	12:04:43	107.9	12:05:26	107.7	12:06:09	108.1	12:06:52	108.0	12:07:35	108.2
12:04:01	108.6	12:04:44	108.0	12:05:27	108.7	12:06:10	114.7	12:06:53	108.6	12:07:36	108.0
12:04:02	110.0	12:04:45	107.9	12:05:28	108.1	12:06:11	113.0	12:06:54	109.9	12:07:37	108.2
12:04:03	108.6	12:04:46	107.9	12:05:29	107.8	12:06:12	114.2	12:06:55	108.3	12:07:38	108.7
12:04:04	108.1	12:04:47	108.1	12:05:30	107.6	12:06:13	116.3	12:06:56	108.1	12:07:39	108.3
12:04:05	108.1	12:04:48	108.1	12:05:31	107.9	12:06:14	116.5	12:06:57	108.1	12:07:40	108.0
12:04:06	108.1	12:04:49	108.2	12:05:32	107.9	12:06:15	108.6	12:06:58	108.3	12:07:41	108.4
12:04:07	108.1	12:04:50	108.4	12:05:33	107.8	12:06:16	108.1	12:06:59	108.5	12:07:42	108.2
12:04:08	108.2	12:04:51	108.2	12:05:34	107.9	12:06:17	108.1	12:07:00	108.6	12:07:43	107.9
12:04:09	108.2	12:04:52	108.0	12:05:35	108.0	12:06:18	108.7	12:07:01	109.1	12:07:44	107.9
12:04:10	108.0	12:04:53	108.0	12:05:36	107.7	12:06:19	113.3	12:07:02	109.2	12:07:45	108.3
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12:04:13	114.4	12:04:56	108.0	12:05:39	108.2	12:06:22	114.8	12:07:05	109.7	12:07:48	108.1
12:04:14	111.7	12:04:57	108.2	12:05:40	107.7	12:06:23	115.1	12:07:06	109.5	12:07:49	108.3
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12:04:16	108.6	12:04:59	107.8	12:05:42	108.3	12:06:25	114.5	12:07:08	108.3	12:07:51	108.1
12:04:17	109.1	12:05:00	108.2	12:05:43	107.8	12:06:26	113.7	12:07:09	108.2	12:07:52	108.5
12:04:18	111.7	12:05:01	108.4	12:05:44	108.0	12:06:27	112.0	12:07:10	108.2	12:07:53	108.6
12:04:19	108.5	12:05:02	107.9	12:05:45	108.0	12:06:28	110.0	12:07:11	108.2	12:07:54	108.3
12:04:20	112.2	12:05:03	119.0	12:05:46	108.0	12:06:29	109.8	12:07:12	108.0	12:07:55	109.9
12:04:21	112.0	12:05:04	108.5	12:05:47	108.6	12:06:30	107.8	12:07:13	108.1	12:07:56	108.6

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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12:07:58	108.9	12:08:41	125.2	12:09:24	108.5	12:10:07	117.1	12:10:50	113.4	12:11:33	113.5
12:07:59	109.6	12:08:42	120.4	12:09:25	108.6	12:10:08	114.3	12:10:51	113.6	12:11:34	111.9
12:08:00	109.5	12:08:43	120.6	12:09:26	108.0	12:10:09	109.4	12:10:52	112.0	12:11:35	112.5
12:08:01	108.5	12:08:44	122.0	12:09:27	107.9	12:10:10	114.9	12:10:53	107.9	12:11:36	111.1
12:08:02	107.8	12:08:45	124.8	12:09:28	108.9	12:10:11	116.9	12:10:54	108.0	12:11:37	109.0
12:08:03	107.9	12:08:46	119.5	12:09:29	108.2	12:10:12	109.2	12:10:55	108.1	12:11:38	109.5
12:08:04	108.1	12:08:47	124.5	12:09:30	110.4	12:10:13	109.1	12:10:56	108.3	12:11:39	109.4
12:08:05	108.2	12:08:48	118.0	12:09:31	111.6	12:10:14	108.7	12:10:57	108.1	12:11:40	108.4
12:08:06	111.3	12:08:49	113.4	12:09:32	108.8	12:10:15	109.0	12:10:58	108.5	12:11:41	108.2
12:08:07	110.2	12:08:50	120.9	12:09:33	108.1	12:10:16	108.5	12:10:59	110.4	12:11:42	108.3
12:08:08	120.6	12:08:51	113.5	12:09:34	107.9	12:10:17	108.2	12:11:00	108.0	12:11:43	108.1
12:08:09	115.2	12:08:52	112.1	12:09:35	110.6	12:10:18	108.2	12:11:01	108.1	12:11:44	107.9
12:08:10	113.5	12:08:53	110.6	12:09:36	108.5	12:10:19	108.4	12:11:02	108.4	12:11:45	108.1
12:08:11	109.6	12:08:54	112.5	12:09:37	108.0	12:10:20	108.4	12:11:03	108.5	12:11:46	107.9
12:08:12	108.1	12:08:55	111.3	12:09:38	108.3	12:10:21	108.6	12:11:04	108.5	12:11:47	108.1
12:08:13	108.7	12:08:56	118.3	12:09:39	108.2	12:10:22	108.4	12:11:05	108.1	12:11:48	107.9
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12:08:15	108.1	12:08:58	123.2	12:09:41	108.1	12:10:24	108.3	12:11:07	109.0	12:11:50	108.3
12:08:16	112.4	12:08:59	123.5	12:09:42	112.4	12:10:25	108.1	12:11:08	108.2	12:11:51	107.9
12:08:17	108.0	12:09:00	122.1	12:09:43	119.6	12:10:26	107.8	12:11:09	108.1	12:11:52	107.7
12:08:18	111.4	12:09:01	121.7	12:09:44	120.2	12:10:27	108.3	12:11:10	113.0	12:11:53	108.2
12:08:19	116.1	12:09:02	118.3	12:09:45	109.2	12:10:28	109.7	12:11:11	108.2	12:11:54	107.8
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12:08:26	119.4	12:09:09	112.4	12:09:52	108.3	12:10:35	112.4	12:11:18	108.3	12:12:01	108.4
12:08:27	120.9	12:09:10	114.0	12:09:53	114.7	12:10:36	112.5	12:11:19	108.7	12:12:02	108.0
12:08:28	120.3	12:09:11	125.0	12:09:54	117.2	12:10:37	113.0	12:11:20	108.7	12:12:03	108.0
12:08:29	113.0	12:09:12	109.0	12:09:55	110.8	12:10:38	112.8	12:11:21	108.6	12:12:04	107.8
12:08:30	112.7	12:09:13	123.6	12:09:56	108.7	12:10:39	113.3	12:11:22	108.0	12:12:05	107.7
12:08:31	108.3	12:09:14	117.8	12:09:57	107.8	12:10:40	113.4	12:11:23	111.4	12:12:06	107.8
12:08:32	110.0	12:09:15	112.2	12:09:58	107.8	12:10:41	114.4	12:11:24	111.2	12:12:07	108.1
12:08:33	127.3	12:09:16	112.0	12:09:59	108.1	12:10:42	114.7	12:11:25	115.3	12:12:08	107.9
12:08:34	126.1	12:09:17	113.2	12:10:00	108.0	12:10:43	115.1	12:11:26	117.8	12:12:09	108.1
12:08:35	132.9	12:09:18	113.8	12:10:01	108.0	12:10:44	116.9	12:11:27	119.4	12:12:10	108.2
12:08:36	129.2	12:09:19	111.6	12:10:02	107.7	12:10:45	119.2	12:11:28	119.8	12:12:11	108.0
12:08:37	125.6	12:09:20	108.3	12:10:03	109.4	12:10:46	120.0	12:11:29	119.8	12:12:12	108.0
12:08:38	124.7	12:09:21	108.4	12:10:04	114.6	12:10:47	121.1	12:11:30	118.9	12:12:13	107.9
12:08:39	129.5	12:09:22	107.8	12:10:05	116.8	12:10:48	121.2	12:11:31	118.0	12:12:14	108.1

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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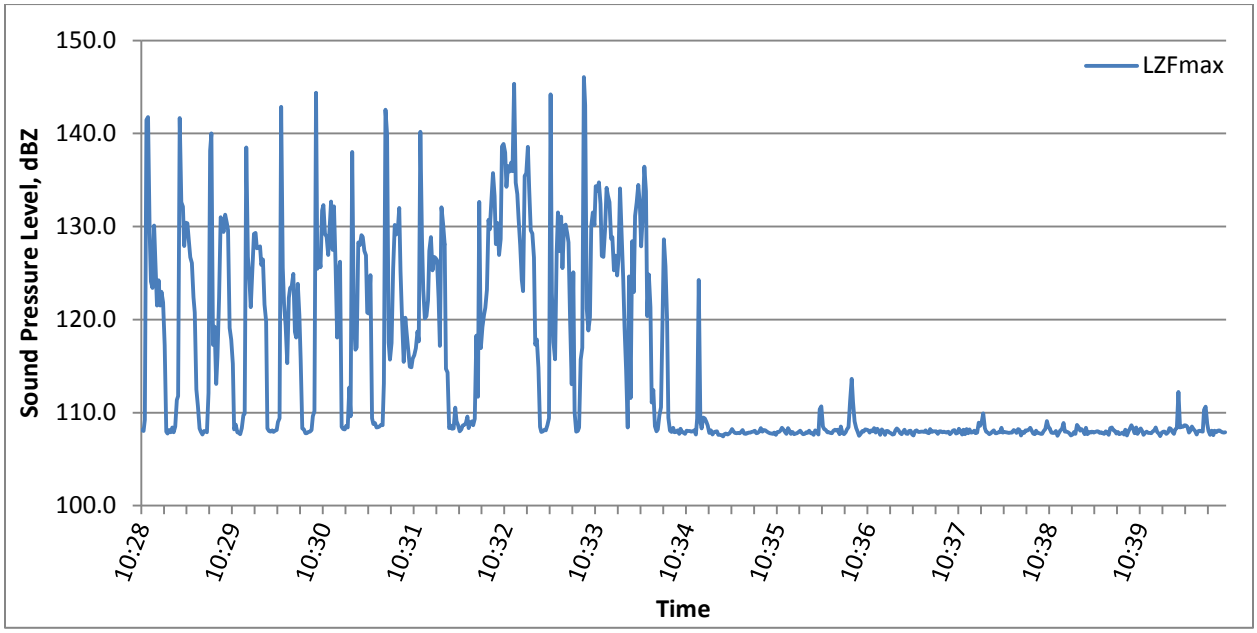
12:12:16	108.6	12:12:34	108.3	12:12:52	108.0	12:13:10	112.8	12:13:28	116.8	12:13:46	109.7
12:12:17	108.0	12:12:35	109.7	12:12:53	108.4	12:13:11	113.0	12:13:29	108.9	12:13:47	108.1
12:12:18	108.0	12:12:36	107.8	12:12:54	107.7	12:13:12	114.2	12:13:30	108.2	12:13:48	108.3
12:12:19	108.0	12:12:37	108.2	12:12:55	107.9	12:13:13	114.3	12:13:31	108.2	12:13:49	107.9
12:12:20	108.1	12:12:38	107.7	12:12:56	108.1	12:13:14	115.2	12:13:32	108.7	12:13:50	107.9
12:12:21	108.8	12:12:39	108.0	12:12:57	108.2	12:13:15	116.1	12:13:33	108.3	12:13:51	107.6
12:12:22	108.1	12:12:40	108.3	12:12:58	108.3	12:13:16	116.4	12:13:34	108.5	12:13:52	108.3
12:12:23	107.8	12:12:41	107.8	12:12:59	108.8	12:13:17	116.4	12:13:35	108.8	12:13:53	108.8
12:12:24	108.2	12:12:42	107.9	12:13:00	108.3	12:13:18	112.9	12:13:36	108.5	12:13:54	108.4
12:12:25	108.6	12:12:43	108.2	12:13:01	108.5	12:13:19	109.4	12:13:37	108.3	12:13:55	108.4
12:12:26	108.1	12:12:44	108.1	12:13:02	108.4	12:13:20	108.5	12:13:38	110.3	12:13:56	108.6
12:12:27	108.5	12:12:45	107.9	12:13:03	108.6	12:13:21	108.5	12:13:39	110.4		
12:12:28	108.2	12:12:46	107.9	12:13:04	108.9	12:13:22	108.7	12:13:40	110.6		
12:12:29	108.4	12:12:47	107.8	12:13:05	108.7	12:13:23	110.2	12:13:41	111.3		
12:12:30	108.5	12:12:48	108.4	12:13:06	109.7	12:13:24	109.8	12:13:42	110.0		
12:12:31	108.0	12:12:49	108.5	12:13:07	112.2	12:13:25	109.8	12:13:43	108.2		
12:12:32	108.8	12:12:50	111.1	12:13:08	112.1	12:13:26	108.4	12:13:44	112.9		

Appendix D – Grant Line Canal

November 07, 2013

Removing In-Stream Rock from Barrier



Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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10:28:28	108.0	10:28:53	132.6	10:29:18	122.3	10:29:43	127.6	10:30:08	118.7	10:30:33	127.5
10:28:29	109.2	10:28:54	132.1	10:29:19	131.0	10:29:44	127.7	10:30:09	118.1	10:30:34	132.2
10:28:30	141.5	10:28:55	127.9	10:29:20	130.4	10:29:45	127.9	10:30:10	123.9	10:30:35	126.0
10:28:31	141.8	10:28:56	130.4	10:29:21	129.4	10:29:46	125.9	10:30:11	120.4	10:30:36	118.1
10:28:32	129.5	10:28:57	130.3	10:29:22	131.3	10:29:47	126.5	10:30:12	115.7	10:30:37	125.3
10:28:33	124.1	10:28:58	128.3	10:29:23	130.4	10:29:48	121.6	10:30:13	108.3	10:30:38	126.2
10:28:34	123.4	10:28:59	126.7	10:29:24	129.6	10:29:49	119.8	10:30:14	108.2	10:30:39	108.5
10:28:35	130.1	10:29:00	126.1	10:29:25	119.1	10:29:50	108.3	10:30:15	107.8	10:30:40	108.2
10:28:36	126.2	10:29:01	122.4	10:29:26	117.8	10:29:51	108.0	10:30:16	107.8	10:30:41	108.2
10:28:37	121.5	10:29:02	120.7	10:29:27	115.3	10:29:52	108.0	10:30:17	107.9	10:30:42	108.6
10:28:38	124.2	10:29:03	112.5	10:29:28	108.2	10:29:53	108.1	10:30:18	108.0	10:30:43	108.4
10:28:39	121.5	10:29:04	110.6	10:29:29	108.7	10:29:54	107.9	10:30:19	108.1	10:30:44	112.7
10:28:40	123.0	10:29:05	108.3	10:29:30	107.9	10:29:55	108.1	10:30:20	109.6	10:30:45	109.6
10:28:41	121.8	10:29:06	108.0	10:29:31	107.8	10:29:56	108.1	10:30:21	110.2	10:30:46	138.0
10:28:42	117.2	10:29:07	107.7	10:29:32	107.7	10:29:57	109.0	10:30:22	144.4	10:30:47	120.7
10:28:43	107.9	10:29:08	108.0	10:29:33	108.3	10:29:58	109.4	10:30:23	125.5	10:30:48	116.7
10:28:44	107.7	10:29:09	108.0	10:29:34	109.8	10:29:59	142.9	10:30:24	127.1	10:30:49	117.0
10:28:45	108.1	10:29:10	107.9	10:29:35	109.9	10:30:00	125.6	10:30:25	125.6	10:30:50	128.3
10:28:46	107.9	10:29:11	112.1	10:29:36	138.5	10:30:01	121.7	10:30:26	131.7	10:30:51	128.0
10:28:47	108.4	10:29:12	138.2	10:29:37	126.8	10:30:02	119.4	10:30:27	132.3	10:30:52	129.1
10:28:48	107.9	10:29:13	140.0	10:29:38	124.2	10:30:03	115.3	10:30:28	129.2	10:30:53	128.9
10:28:49	108.5	10:29:14	117.3	10:29:39	121.3	10:30:04	122.3	10:30:29	128.9	10:30:54	127.4
10:28:50	111.4	10:29:15	119.2	10:29:40	125.3	10:30:05	123.4	10:30:30	126.9	10:30:55	126.9
10:28:51	111.8	10:29:16	113.1	10:29:41	129.2	10:30:06	123.6	10:30:31	129.6	10:30:56	120.7

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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10:30:58	124.8	10:31:42	126.4	10:32:26	138.9	10:33:10	119.9	10:33:54	132.6	10:34:38	109.5
10:30:59	109.4	10:31:43	122.3	10:32:27	138.0	10:33:11	113.1	10:33:55	134.5	10:34:39	109.4
10:31:00	108.8	10:31:44	117.2	10:32:28	134.3	10:33:12	125.1	10:33:56	132.3	10:34:40	109.0
10:31:01	108.9	10:31:45	132.1	10:32:29	136.5	10:33:13	110.0	10:33:57	127.9	10:34:41	108.6
10:31:02	108.4	10:31:46	130.3	10:32:30	135.9	10:33:14	108.0	10:33:58	131.1	10:34:42	107.8
10:31:03	108.4	10:31:47	128.1	10:32:31	136.9	10:33:15	108.0	10:33:59	136.5	10:34:43	108.1
10:31:04	108.5	10:31:48	114.7	10:32:32	136.0	10:33:16	108.4	10:34:00	133.8	10:34:44	107.7
10:31:05	108.7	10:31:49	114.3	10:32:33	145.3	10:33:17	115.7	10:34:01	120.4	10:34:45	107.9
10:31:06	108.6	10:31:50	108.3	10:32:34	134.7	10:33:18	117.0	10:34:02	124.8	10:34:46	107.9
10:31:07	113.1	10:31:51	108.6	10:32:35	133.5	10:33:19	146.1	10:34:03	121.3	10:34:47	108.0
10:31:08	142.6	10:31:52	108.3	10:32:36	130.8	10:33:20	143.0	10:34:04	111.1	10:34:48	107.6
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10:31:10	117.5	10:31:54	110.5	10:32:38	124.2	10:33:22	118.8	10:34:06	108.5	10:34:50	107.6
10:31:11	115.7	10:31:55	109.1	10:32:39	123.0	10:33:23	120.3	10:34:07	108.0	10:34:51	107.4
10:31:12	117.5	10:31:56	108.7	10:32:40	135.4	10:33:24	130.0	10:34:08	108.2	10:34:52	107.7
10:31:13	125.5	10:31:57	108.0	10:32:41	135.7	10:33:25	131.5	10:34:09	109.7	10:34:53	107.7
10:31:14	130.2	10:31:58	108.2	10:32:42	138.6	10:33:26	130.2	10:34:10	110.6	10:34:54	107.6
10:31:15	129.2	10:31:59	108.6	10:32:43	134.1	10:33:27	134.3	10:34:11	120.3	10:34:55	107.7
10:31:16	129.4	10:32:00	108.7	10:32:44	129.6	10:33:28	133.9	10:34:12	128.6	10:34:56	107.9
10:31:17	132.0	10:32:01	108.9	10:32:45	129.3	10:33:29	134.7	10:34:13	125.8	10:34:57	108.2
10:31:18	125.2	10:32:02	109.6	10:32:46	126.7	10:33:30	132.4	10:34:14	120.0	10:34:58	107.9
10:31:19	119.8	10:32:03	108.3	10:32:47	117.3	10:33:31	126.8	10:34:15	109.4	10:34:59	107.8
10:31:20	115.5	10:32:04	108.9	10:32:48	117.9	10:33:32	126.8	10:34:16	108.1	10:35:00	107.8
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10:31:25	114.9	10:32:09	111.7	10:32:53	108.2	10:33:37	128.7	10:34:21	108.1	10:35:05	107.8
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10:31:28	116.9	10:32:12	119.2	10:32:56	109.4	10:33:40	126.9	10:34:24	107.9	10:35:08	107.8
10:31:29	118.7	10:32:13	120.5	10:32:57	144.2	10:33:41	124.7	10:34:25	107.9	10:35:09	107.8
10:31:30	117.6	10:32:14	121.3	10:32:58	122.8	10:33:42	126.5	10:34:26	107.7	10:35:10	107.9
10:31:31	140.2	10:32:15	123.2	10:32:59	117.5	10:33:43	134.1	10:34:27	108.1	10:35:11	108.0
10:31:32	128.8	10:32:16	130.7	10:33:00	115.7	10:33:44	129.1	10:34:28	108.0	10:35:12	108.1
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10:31:34	120.1	10:32:18	132.8	10:33:02	131.5	10:33:46	119.2	10:34:30	107.9	10:35:14	107.8
10:31:35	120.4	10:32:19	135.8	10:33:03	127.3	10:33:47	114.6	10:34:31	108.0	10:35:15	108.0
10:31:36	122.1	10:32:20	133.3	10:33:04	131.1	10:33:48	108.4	10:34:32	108.1	10:35:16	108.3
10:31:37	127.4	10:32:21	128.1	10:33:05	125.5	10:33:49	124.6	10:34:33	107.6	10:35:17	108.0
10:31:38	128.9	10:32:22	130.4	10:33:06	130.0	10:33:50	111.6	10:34:34	109.4	10:35:18	108.1
10:31:39	125.3	10:32:23	126.9	10:33:07	130.2	10:33:51	128.4	10:34:35	124.2	10:35:19	108.1
10:31:40	126.7	10:32:24	128.7	10:33:08	129.3	10:33:52	122.9	10:34:36	109.0	10:35:20	108.0

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
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10:35:22	107.8	10:36:06	108.0	10:36:50	107.9	10:37:34	108.2	10:38:18	108.1	10:39:02	107.8
10:35:23	107.8	10:36:07	108.2	10:36:51	108.2	10:37:35	107.8	10:38:19	107.8	10:39:03	107.7
10:35:24	107.7	10:36:08	107.7	10:36:52	107.7	10:37:36	107.9	10:38:20	107.8	10:39:04	108.0
10:35:25	107.8	10:36:09	108.5	10:36:53	107.7	10:37:37	108.1	10:38:21	107.7	10:39:05	107.8
10:35:26	107.6	10:36:10	107.8	10:36:54	108.0	10:37:38	107.8	10:38:22	107.7	10:39:06	107.6
10:35:27	107.9	10:36:11	107.7	10:36:55	108.1	10:37:39	107.8	10:38:23	108.0	10:39:07	108.3
10:35:28	107.9	10:36:12	107.9	10:36:56	107.7	10:37:40	108.9	10:38:24	108.2	10:39:08	108.4
10:35:29	108.1	10:36:13	108.2	10:36:57	107.6	10:37:41	108.6	10:38:25	109.1	10:39:09	108.1
10:35:30	108.4	10:36:14	108.4	10:36:58	108.0	10:37:42	108.9	10:38:26	108.5	10:39:10	108.1
10:35:31	108.1	10:36:15	111.2	10:36:59	108.1	10:37:43	109.9	10:38:27	108.3	10:39:11	107.8
10:35:32	107.9	10:36:16	113.6	10:37:00	107.9	10:37:44	108.3	10:38:28	107.8	10:39:12	107.9
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10:35:47	107.8	10:36:31	108.3	10:37:15	108.0	10:37:59	107.9	10:38:43	107.9	10:39:27	108.3
10:35:48	108.0	10:36:32	107.9	10:37:16	107.9	10:38:00	107.8	10:38:44	107.7	10:39:28	108.0
10:35:49	107.8	10:36:33	108.3	10:37:17	108.0	10:38:01	107.8	10:38:45	108.7	10:39:29	107.6
10:35:50	107.8	10:36:34	108.0	10:37:18	107.9	10:38:02	107.9	10:38:46	108.4	10:39:30	107.9
10:35:51	107.6	10:36:35	107.6	10:37:19	107.9	10:38:03	108.1	10:38:47	108.1	10:39:31	107.9
10:35:52	108.1	10:36:36	108.2	10:37:20	108.0	10:38:04	108.1	10:38:48	108.2	10:39:32	107.8
10:35:53	108.0	10:36:37	108.0	10:37:21	107.7	10:38:05	107.8	10:38:49	108.0	10:39:33	107.8
10:35:54	107.6	10:36:38	107.6	10:37:22	107.8	10:38:06	108.2	10:38:50	107.7	10:39:34	107.8
10:35:55	110.4	10:36:39	108.0	10:37:23	108.1	10:38:07	108.2	10:38:51	108.4	10:39:35	108.0
10:35:56	110.7	10:36:40	108.0	10:37:24	108.1	10:38:08	107.6	10:38:52	107.7	10:39:36	108.0
10:35:57	108.5	10:36:41	107.8	10:37:25	107.8	10:38:09	107.9	10:38:53	107.9	10:39:37	108.4
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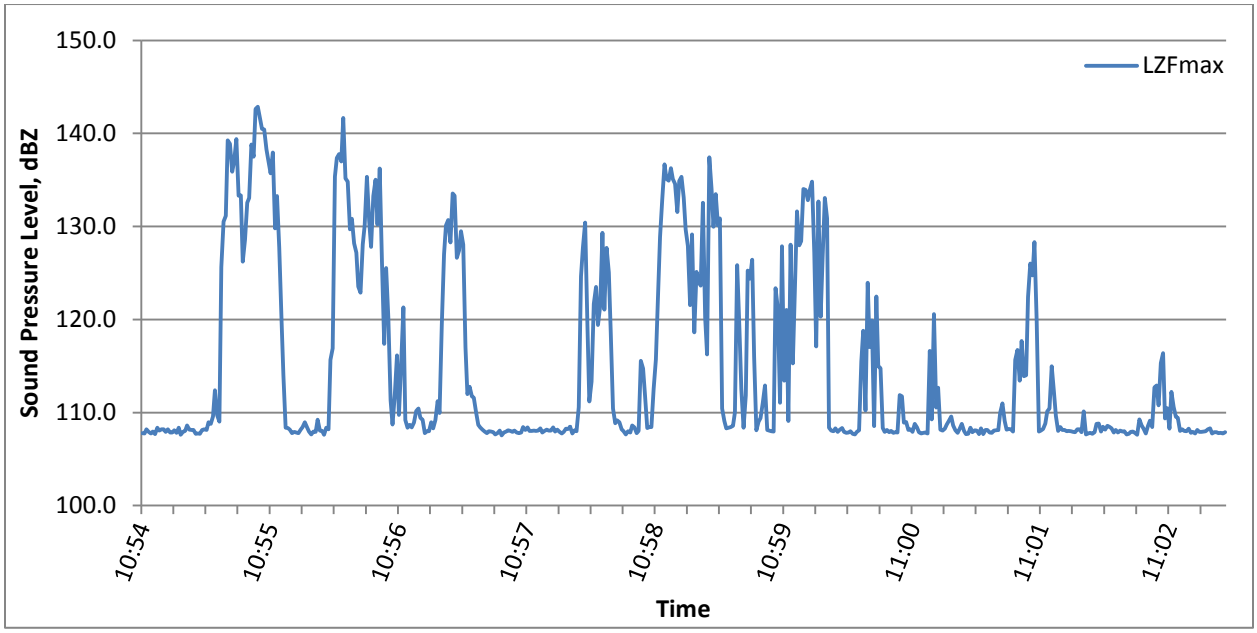
10:35:59	108.1	10:36:43	107.6	10:37:27	108.2	10:38:11	108.1	10:38:55	108.0	10:39:39	107.8
10:36:00	107.9	10:36:44	107.7	10:37:28	108.0	10:38:12	108.1	10:38:56	107.8	10:39:40	107.5
10:36:01	107.9	10:36:45	108.1	10:37:29	107.6	10:38:13	108.2	10:38:57	107.9	10:39:41	107.8
10:36:02	107.8	10:36:46	108.3	10:37:30	108.2	10:38:14	108.4	10:38:58	108.0	10:39:42	108.0
10:36:03	107.8	10:36:47	108.1	10:37:31	107.7	10:38:15	108.1	10:38:59	108.0	10:39:43	108.0
10:36:04	108.1	10:36:48	107.8	10:37:32	108.2	10:38:16	107.7	10:39:00	107.8	10:39:44	107.7

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
10:39:45	107.9	10:39:52	112.2	10:39:59	107.8	10:40:06	108.0	10:40:13	107.6	10:40:20	108.0
10:39:46	108.3	10:39:53	108.4	10:40:00	108.1	10:40:07	108.0	10:40:14	108.1	10:40:21	107.9
10:39:47	108.3	10:39:54	108.5	10:40:01	108.5	10:40:08	107.9	10:40:15	107.6	10:40:22	107.8
10:39:48	107.9	10:39:55	108.5	10:40:02	108.2	10:40:09	110.3	10:40:16	108.1	10:40:23	107.9
10:39:49	107.7	10:39:56	108.7	10:40:03	108.0	10:40:10	110.6	10:40:17	107.9		
10:39:50	108.2	10:39:57	108.6	10:40:04	107.6	10:40:11	108.8	10:40:18	108.1		
10:39:51	108.3	10:39:58	108.5	10:40:05	108.0	10:40:12	108.0	10:40:19	108.1		

Removing In-Stream Rock from Barrier

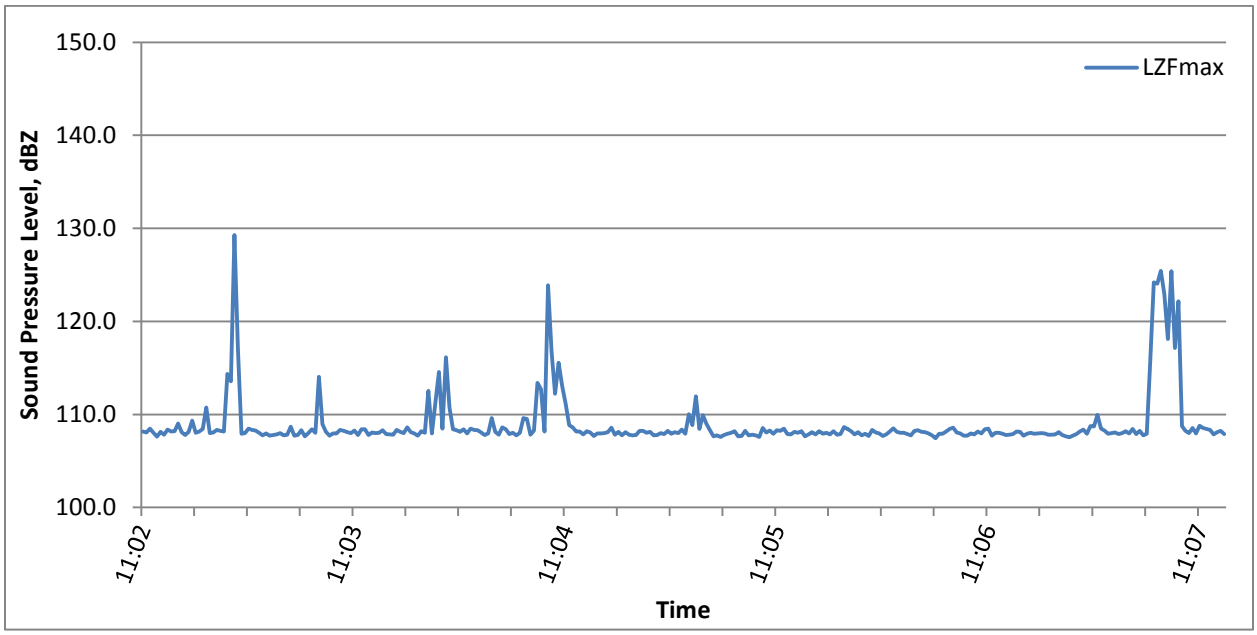


Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
10:54:16	107.8	10:54:32	107.8	10:54:48	108.8	10:55:04	128.6	10:55:20	127.7	10:55:36	108.0
10:54:17	107.7	10:54:33	108.3	10:54:49	109.6	10:55:05	132.5	10:55:21	120.1	10:55:37	107.9
10:54:18	108.2	10:54:34	107.6	10:54:50	112.4	10:55:06	133.1	10:55:22	114.0	10:55:38	109.2
10:54:19	107.9	10:54:35	107.9	10:54:51	109.7	10:55:07	138.8	10:55:23	108.4	10:55:39	108.1
10:54:20	107.8	10:54:36	108.0	10:54:52	109.0	10:55:08	137.5	10:55:24	108.3	10:55:40	108.0
10:54:21	107.9	10:54:37	108.6	10:54:53	125.6	10:55:09	142.6	10:55:25	108.1	10:55:41	107.6
10:54:22	107.7	10:54:38	108.2	10:54:54	130.5	10:55:10	142.9	10:55:26	107.8	10:55:42	108.4
10:54:23	108.4	10:54:39	108.1	10:54:55	131.1	10:55:11	141.6	10:55:27	107.9	10:55:43	108.2
10:54:24	108.1	10:54:40	108.1	10:54:56	139.3	10:55:12	140.5	10:55:28	107.9	10:55:44	115.7
10:54:25	108.2	10:54:41	107.7	10:54:57	138.9	10:55:13	140.4	10:55:29	107.8	10:55:45	116.9
10:54:26	108.2	10:54:42	107.7	10:54:58	135.9	10:55:14	138.3	10:55:30	108.2	10:55:46	135.4
10:54:27	107.9	10:54:43	107.7	10:54:59	137.0	10:55:15	137.1	10:55:31	108.4	10:55:47	137.4
10:54:28	108.2	10:54:44	108.1	10:55:00	139.4	10:55:16	135.7	10:55:32	109.0	10:55:48	137.8
10:54:29	107.9	10:54:45	108.2	10:55:01	133.3	10:55:17	137.9	10:55:33	108.4	10:55:49	137.0
10:54:30	107.8	10:54:46	108.1	10:55:02	133.3	10:55:18	129.8	10:55:34	108.0	10:55:50	141.7
10:54:31	108.1	10:54:47	109.0	10:55:03	126.2	10:55:19	133.3	10:55:35	107.6	10:55:51	135.1

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
10:55:52	134.8	10:56:35	110.0	10:57:18	108.0	10:58:01	108.0	10:58:44	133.5	10:59:27	132.8
10:55:53	129.7	10:56:36	119.4	10:57:19	108.1	10:58:02	107.6	10:58:45	130.1	10:59:28	133.9
10:55:54	130.8	10:56:37	127.0	10:57:20	108.0	10:58:03	108.0	10:58:46	130.9	10:59:29	134.8
10:55:55	128.2	10:56:38	130.1	10:57:21	108.1	10:58:04	107.8	10:58:47	110.4	10:59:30	127.2
10:55:56	127.2	10:56:39	130.7	10:57:22	108.3	10:58:05	108.6	10:58:48	109.1	10:59:31	117.1
10:55:57	123.6	10:56:40	128.3	10:57:23	107.8	10:58:06	108.4	10:58:49	108.3	10:59:32	132.7
10:55:58	122.9	10:56:41	133.5	10:57:24	108.0	10:58:07	107.8	10:58:50	108.4	10:59:33	120.3
10:55:59	128.1	10:56:42	133.3	10:57:25	108.2	10:58:08	108.0	10:58:51	108.4	10:59:34	126.6
10:56:00	130.1	10:56:43	126.6	10:57:26	108.1	10:58:09	115.6	10:58:52	108.6	10:59:35	133.1
10:56:01	135.3	10:56:44	127.4	10:57:27	108.1	10:58:10	114.7	10:58:53	110.0	10:59:36	130.9
10:56:02	130.6	10:56:45	129.5	10:57:28	108.4	10:58:11	111.9	10:58:54	125.9	10:59:37	108.4
10:56:03	127.8	10:56:46	128.1	10:57:29	108.0	10:58:12	108.3	10:58:55	119.1	10:59:38	108.0
10:56:04	133.3	10:56:47	117.0	10:57:30	108.2	10:58:13	108.4	10:58:56	112.5	10:59:39	108.0
10:56:05	135.0	10:56:48	112.0	10:57:31	107.9	10:58:14	108.4	10:58:57	108.4	10:59:40	108.3
10:56:06	130.2	10:56:49	112.8	10:57:32	107.8	10:58:15	112.5	10:58:58	111.8	10:59:41	107.9
10:56:07	136.2	10:56:50	111.7	10:57:33	107.9	10:58:16	115.7	10:58:59	125.3	10:59:42	108.2
10:56:08	126.2	10:56:51	111.6	10:57:34	108.3	10:58:17	121.8	10:59:00	124.4	10:59:43	108.3
10:56:09	117.4	10:56:52	110.1	10:57:35	108.2	10:58:18	128.9	10:59:01	126.4	10:59:44	107.9
10:56:10	125.5	10:56:53	108.7	10:57:36	108.5	10:58:19	132.9	10:59:02	116.0	10:59:45	107.8
10:56:11	120.1	10:56:54	108.4	10:57:37	107.8	10:58:20	136.7	10:59:03	108.1	10:59:46	107.9
10:56:12	111.3	10:56:55	108.1	10:57:38	108.1	10:58:21	135.1	10:59:04	109.0	10:59:47	108.0
10:56:13	108.7	10:56:56	108.0	10:57:39	108.0	10:58:22	134.9	10:59:05	109.4	10:59:48	107.7
10:56:14	111.8	10:56:57	107.8	10:57:40	110.6	10:58:23	136.3	10:59:06	111.0	10:59:49	107.7
10:56:15	116.1	10:56:58	108.0	10:57:41	124.6	10:58:24	135.1	10:59:07	112.9	10:59:50	107.9
10:56:16	109.7	10:56:59	108.0	10:57:42	127.7	10:58:25	134.6	10:59:08	108.1	10:59:51	108.1
10:56:17	115.2	10:57:00	107.9	10:57:43	130.4	10:58:26	131.5	10:59:09	108.1	10:59:52	115.5
10:56:18	121.3	10:57:01	107.6	10:57:44	119.5	10:58:27	134.9	10:59:10	108.0	10:59:53	118.8
10:56:19	109.2	10:57:02	107.8	10:57:45	111.2	10:58:28	135.3	10:59:11	108.0	10:59:54	110.2
10:56:20	108.4	10:57:03	108.1	10:57:46	113.3	10:58:29	133.1	10:59:12	123.4	10:59:55	124.0
10:56:21	108.7	10:57:04	107.5	10:57:47	121.7	10:58:30	129.7	10:59:13	121.2	10:59:56	117.0
10:56:22	108.4	10:57:05	107.8	10:57:48	123.5	10:58:31	127.9	10:59:14	111.1	10:59:57	119.9
10:56:23	108.9	10:57:06	108.0	10:57:49	119.4	10:58:32	121.6	10:59:15	127.9	10:59:58	108.6
10:56:24	110.2	10:57:07	108.1	10:57:50	121.5	10:58:33	129.1	10:59:16	113.4	10:59:59	122.5
10:56:25	110.4	10:57:08	108.0	10:57:51	129.3	10:58:34	118.6	10:59:17	121.0	11:00:00	115.0
10:56:26	109.4	10:57:09	107.9	10:57:52	121.1	10:58:35	125.1	10:59:18	109.1	11:00:01	114.8
10:56:27	109.2	10:57:10	108.1	10:57:53	127.7	10:58:36	124.1	10:59:19	128.0	11:00:02	108.3
10:56:28	107.8	10:57:11	107.8	10:57:54	125.1	10:58:37	123.6	10:59:20	115.3	11:00:03	107.9
10:56:29	108.0	10:57:12	107.8	10:57:55	118.6	10:58:38	132.6	10:59:21	122.7	11:00:04	108.1
10:56:30	108.0	10:57:13	107.8	10:57:56	110.4	10:58:39	120.2	10:59:22	131.6	11:00:05	107.9
10:56:31	109.0	10:57:14	108.4	10:57:57	108.8	10:58:40	116.3	10:59:23	128.0	11:00:06	108.0
10:56:32	108.3	10:57:15	108.1	10:57:58	109.2	10:58:41	137.4	10:59:24	128.4	11:00:07	107.8
10:56:33	109.2	10:57:16	108.4	10:57:59	108.9	10:58:42	134.0	10:59:25	134.0	11:00:08	107.9
10:56:34	111.2	10:57:17	108.0	10:58:00	108.2	10:58:43	130.0	10:59:26	133.9	11:00:09	107.9

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
11:00:10	111.9	11:00:36	108.1	11:01:02	108.2	11:01:28	108.0	11:01:54	108.0	11:02:20	109.4
11:00:11	111.7	11:00:37	107.8	11:01:03	107.9	11:01:29	108.0	11:01:55	108.0	11:02:21	108.0
11:00:12	108.9	11:00:38	108.2	11:01:04	115.7	11:01:30	108.0	11:01:56	107.7	11:02:22	108.2
11:00:13	109.0	11:00:39	108.8	11:01:05	116.7	11:01:31	107.9	11:01:57	107.7	11:02:23	108.0
11:00:14	108.1	11:00:40	108.0	11:01:06	113.4	11:01:32	107.9	11:01:58	107.9	11:02:24	108.0
11:00:15	108.2	11:00:41	107.7	11:01:07	117.7	11:01:33	108.2	11:01:59	108.0	11:02:25	108.3
11:00:16	107.9	11:00:42	107.7	11:01:08	113.9	11:01:34	108.2	11:02:00	107.8	11:02:26	107.8
11:00:17	108.8	11:00:43	108.4	11:01:09	114.0	11:01:35	107.9	11:02:01	107.6	11:02:27	107.9
11:00:18	108.4	11:00:44	107.9	11:01:10	122.4	11:01:36	110.1	11:02:02	109.3	11:02:28	107.8
11:00:19	107.9	11:00:45	108.1	11:01:11	126.0	11:01:37	107.6	11:02:03	108.6	11:02:29	108.1
11:00:20	107.8	11:00:46	108.0	11:01:12	124.7	11:01:38	107.8	11:02:04	108.3	11:02:30	107.9
11:00:21	107.8	11:00:47	107.7	11:01:13	128.3	11:01:39	107.8	11:02:05	107.8	11:02:31	107.9
11:00:22	107.9	11:00:48	108.3	11:01:14	119.9	11:01:40	107.7	11:02:06	108.6	11:02:32	107.9
11:00:23	107.8	11:00:49	107.7	11:01:15	107.9	11:01:41	107.9	11:02:07	109.1	11:02:33	108.0
11:00:24	116.6	11:00:50	108.1	11:01:16	108.1	11:01:42	108.8	11:02:08	108.4	11:02:34	108.2
11:00:25	109.3	11:00:51	108.1	11:01:17	108.2	11:01:43	108.8	11:02:09	112.7	11:02:35	108.3
11:00:26	120.6	11:00:52	107.8	11:01:18	108.8	11:01:44	107.9	11:02:10	112.9	11:02:36	107.7
11:00:27	110.5	11:00:53	107.8	11:01:19	110.1	11:01:45	108.5	11:02:11	110.8	11:02:37	107.9
11:00:28	112.7	11:00:54	108.0	11:01:20	110.4	11:01:46	108.2	11:02:12	115.3	11:02:38	107.9
11:00:29	108.2	11:00:55	108.1	11:01:21	115.0	11:01:47	108.6	11:02:13	116.4	11:02:39	107.8
11:00:30	108.1	11:00:56	108.1	11:01:22	112.2	11:01:48	108.5	11:02:14	109.4	11:02:40	107.8
11:00:31	108.3	11:00:57	110.0	11:01:23	109.6	11:01:49	108.3	11:02:15	110.5	11:02:41	107.8
11:00:32	108.7	11:00:58	111.0	11:01:24	108.0	11:01:50	107.8	11:02:16	108.3	11:02:42	107.9
11:00:33	109.1	11:00:59	109.1	11:01:25	108.4	11:01:51	108.1	11:02:17	112.2		
11:00:34	109.6	11:01:00	108.2	11:01:26	108.1	11:01:52	107.9	11:02:18	110.6		
11:00:35	108.6	11:01:01	108.2	11:01:27	108.1	11:01:53	108.0	11:02:19	109.6		

Removing In-Stream Rock from Barrier



Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
11:02:43	108.2	11:03:09	129.3	11:03:35	108.1	11:04:01	107.7	11:04:27	107.9	11:04:53	108.0
11:02:44	108.1	11:03:10	116.9	11:03:36	107.7	11:04:02	108.2	11:04:28	108.0	11:04:54	108.0
11:02:45	108.5	11:03:11	107.9	11:03:37	108.0	11:04:03	108.0	11:04:29	107.7	11:04:55	108.1
11:02:46	108.0	11:03:12	108.0	11:03:38	107.9	11:04:04	112.5	11:04:30	108.0	11:04:56	108.6
11:02:47	107.6	11:03:13	108.5	11:03:39	108.3	11:04:05	108.0	11:04:31	109.6	11:04:57	107.8
11:02:48	108.1	11:03:14	108.3	11:03:40	108.2	11:04:06	111.3	11:04:32	109.5	11:04:58	108.1
11:02:49	107.8	11:03:15	108.3	11:03:41	108.1	11:04:07	114.6	11:04:33	107.8	11:04:59	107.8
11:02:50	108.4	11:03:16	108.0	11:03:42	108.0	11:04:08	108.5	11:04:34	108.2	11:05:00	108.1
11:02:51	108.2	11:03:17	107.7	11:03:43	108.3	11:04:09	116.1	11:04:35	113.4	11:05:01	107.8
11:02:52	108.2	11:03:18	107.9	11:03:44	107.8	11:04:10	110.8	11:04:36	112.7	11:05:02	107.7
11:02:53	109.0	11:03:19	107.7	11:03:45	108.4	11:04:11	108.4	11:04:37	108.2	11:05:03	107.8
11:02:54	108.1	11:03:20	107.8	11:03:46	108.4	11:04:12	108.3	11:04:38	123.9	11:05:04	108.2
11:02:55	107.8	11:03:21	107.9	11:03:47	107.8	11:04:13	108.1	11:04:39	116.8	11:05:05	108.2
11:02:56	108.1	11:03:22	108.0	11:03:48	108.0	11:04:14	108.4	11:04:40	112.2	11:05:06	108.0
11:02:57	109.3	11:03:23	107.8	11:03:49	108.0	11:04:15	108.0	11:04:41	115.5	11:05:07	108.1
11:02:58	108.0	11:03:24	107.8	11:03:50	108.0	11:04:16	108.5	11:04:42	113.1	11:05:08	107.7
11:02:59	108.2	11:03:25	108.7	11:03:51	108.3	11:04:17	108.3	11:04:43	111.2	11:05:09	107.8
11:03:00	108.4	11:03:26	107.7	11:03:52	107.9	11:04:18	108.3	11:04:44	108.9	11:05:10	108.0
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11:03:03	108.1	11:03:29	107.6	11:03:55	108.3	11:04:21	108.0	11:04:47	108.2	11:05:13	107.9
11:03:04	108.3	11:03:30	108.0	11:03:56	108.1	11:04:22	109.6	11:04:48	107.9	11:05:14	108.1
11:03:05	108.2	11:03:31	108.4	11:03:57	108.0	11:04:23	108.1	11:04:49	108.2	11:05:15	108.0
11:03:06	108.2	11:03:32	108.0	11:03:58	108.6	11:04:24	107.8	11:04:50	108.1	11:05:16	108.4
11:03:07	114.3	11:03:33	114.0	11:03:59	108.1	11:04:25	108.6	11:04:51	107.7	11:05:17	107.9
11:03:08	113.6	11:03:34	109.0	11:04:00	108.0	11:04:26	108.4	11:04:52	108.0	11:05:18	110.0

Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax	Time	LZFmax
11:05:19	108.8	11:05:45	108.5	11:06:11	108.0	11:06:37	107.7	11:07:03	108.1	11:07:29	115.8
11:05:20	111.9	11:05:46	107.9	11:06:12	107.9	11:06:38	108.0	11:07:04	107.8	11:07:30	124.2
11:05:21	108.4	11:05:47	107.9	11:06:13	107.7	11:06:39	107.8	11:07:05	107.6	11:07:31	124.1
11:05:22	109.9	11:05:48	108.1	11:06:14	107.9	11:06:40	108.1	11:07:06	107.6	11:07:32	125.4
11:05:23	109.0	11:05:49	108.0	11:06:15	108.1	11:06:41	107.9	11:07:07	107.7	11:07:33	122.9
11:05:24	108.3	11:05:50	108.2	11:06:16	108.5	11:06:42	108.4	11:07:08	107.9	11:07:34	118.1
11:05:25	107.7	11:05:51	107.6	11:06:17	108.1	11:06:43	108.5	11:07:09	108.2	11:07:35	125.4
11:05:26	107.7	11:05:52	107.8	11:06:18	108.0	11:06:44	107.7	11:07:10	108.4	11:07:36	117.1
11:05:27	107.6	11:05:53	108.1	11:06:19	108.0	11:06:45	108.0	11:07:11	107.9	11:07:37	122.2
11:05:28	107.8	11:05:54	107.9	11:06:20	107.9	11:06:46	108.0	11:07:12	108.8	11:07:38	108.7
11:05:29	107.9	11:05:55	108.2	11:06:21	107.7	11:06:47	107.9	11:07:13	108.7	11:07:39	108.2
11:05:30	108.0	11:05:56	107.9	11:06:22	108.2	11:06:48	107.8	11:07:14	110.0	11:07:40	108.0
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11:05:32	107.6	11:05:58	107.8	11:06:24	108.1	11:06:50	107.9	11:07:16	108.3	11:07:42	108.0
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11:05:34	108.2	11:06:00	107.8	11:06:26	107.9	11:06:52	108.1	11:07:18	108.0	11:07:44	108.5
11:05:35	107.8	11:06:01	107.9	11:06:27	107.8	11:06:53	107.7	11:07:19	108.0	11:07:45	108.4
11:05:36	107.8	11:06:02	108.6	11:06:28	107.5	11:06:54	107.9	11:07:20	107.9	11:07:46	108.3
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11:05:38	107.6	11:06:04	108.2	11:06:30	107.9	11:06:56	107.9	11:07:22	108.2	11:07:48	108.1
11:05:39	108.5	11:06:05	107.9	11:06:31	108.2	11:06:57	107.9	11:07:23	108.0	11:07:49	108.2
11:05:40	108.0	11:06:06	108.1	11:06:32	108.4	11:06:58	108.0	11:07:24	108.4	11:07:50	107.9
11:05:41	108.2	11:06:07	107.7	11:06:33	108.6	11:06:59	107.9	11:07:25	107.9		
11:05:42	107.9	11:06:08	107.9	11:06:34	108.0	11:07:00	107.8	11:07:26	108.2		
11:05:43	108.3	11:06:09	107.7	11:06:35	108.0	11:07:01	107.8	11:07:27	107.7		
11:05:44	108.2	11:06:10	108.3	11:06:36	107.7	11:07:02	107.9	11:07:28	107.9		

Appendix 8: MMRP Table

CALIFORNIA DEPARTMENT OF FISH AND GAME
MITIGATION MONITORING AND REPORTING PROGRAM (MMRP)
CALIFORNIA ENDANGERED SPECIES ACT

Incidental Take Permit No. 2081-2011-019-03

PERMITTEE: **California Department of Water Resources (DWR)**

PROJECT: **2013 South Delta Temporary Barriers Project**

PURPOSE OF THE MMRP

The purpose of the MMRP is to ensure that the impact minimization and mitigation measures required by the Department of Fish and Wildlife (DFW) for the above-referenced Project are properly implemented, and thereby to ensure compliance with section 2081(b) of the Fish and Game Code and section 21081.6 of the Public Resources Code. A table summarizing the mitigation measures required by DFW is attached. This table is a tool for use in monitoring and reporting on implementation of mitigation measures, but the descriptions in the table do not supersede the mitigation measures set forth in the California Incidental Take Permit (ITP) and in attachments to the ITP, and the omission of a permit requirement from the attached table does not relieve the Permittee of the obligation to ensure the requirement is performed.

OBLIGATIONS OF PERMITTEE

Mitigation measures must be implemented within the time periods indicated in the table that appears below. Permittee has the primary responsibility for monitoring compliance of all mitigation measures and for reporting to DFW on the progress in implementing those measures. These monitoring and reporting requirements are set forth in the ITP itself and are summarized at the front of the attached table.

VERIFICATION OF COMPLIANCE, EFFECTIVENESS

DFW may, at its sole discretion, verify compliance with any mitigation measure or independently assess the effectiveness of any mitigation measure.

TABLE OF MITIGATION MEASURES

The following items are identified for each mitigation measure: Mitigation Measure, Source, Implementation Schedule, Responsible Party, and Status/Date/Initials. The Mitigation Measure column summarizes the mitigation requirements of the ITP. The Source column identifies the ITP condition that sets forth the mitigation measure. The Implementation Schedule column shows the date or phase when each mitigation measure will be implemented. The Responsible Party column identifies the person or agency that is primarily responsible for implementing the mitigation measure. The Status/Date/Initials column shall be completed by the Permittee during preparation of each Status Report and the Final Mitigation Report, and must identify the implementation status of each mitigation measure, the date that status was determined, and the initials of the person determining the status.

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
BEFORE DISTURBING SOIL OR VEGETATION					
1	Before initiating ground- or vegetation-disturbing Project activities, Permittee shall designate a representative (Designated Representative) responsible for communications with DFG and overseeing compliance with the ITP. The Permittee shall notify DFG in writing prior to commencement of ground- or vegetation-disturbing activities of the Designated Representative's name, business address, and contact information, and shall notify DFG in writing if a substitute Designated Representative is selected or identified at any time during the term of the ITP.	ITP Condition # 6.1	Before commencing ground- or vegetation-disturbing activities/ Entire Project	Permittee	Complied Designated Representative: Mike Abiouli
2	At least 30 days before initiating in-water, ground- or vegetation-disturbing activities, Permittee shall submit to DFG in writing the name, qualifications, business address, and contact information for a biological monitor (Designated Biologist). The Designated Biologist shall be knowledgeable and experienced in the biology and natural history of the Covered Species. The Designated Biologist shall be responsible for monitoring Project activities and/or in-water, ground- or vegetation-disturbing activities in areas of Covered Species' habitat to help minimize or avoid the incidental take of individual Covered Species and to minimize disturbance of Covered Species' habitat. Permittee shall obtain DFG approval of the Designated Biologist prior to the commencement of Project-related activities that may result in the incidental take of the Covered Species.	ITP Condition # 6.2	Before commencing ground- or vegetation-disturbing activities/ Entire Project	Permittee	Complied 5/02/13 Designated biologist: Mike Cane
3	Permittee shall conduct an education program for all persons employed or otherwise working on the Project site prior to performing any work on-site. The program shall consist of a presentation from the Designated Biologist that includes a discussion of the biology and general behavior of the Covered Species, information about the distribution and habitat needs of the Covered Species, sensitivity of the Covered Species to human activities, its status under CESA including legal protection, recovery efforts, penalties for violations and Project-specific protective measures described in the ITP. Interpretation shall be provided for non-English speaking workers, and the same instruction shall be provided for any new workers prior to their performing work on-site. Copies of the ITP shall be maintained at the worksite. Permittee shall prepare and distribute wallet-sized cards or a fact sheet handout containing this information for workers to carry on-site. Upon completion of the program, employees shall sign a form stating they attended the program and understand all protection measures. These forms shall be filed at the worksite offices and be available to DFG upon request.	ITP Condition # 6.4	Before commencing ground- or vegetation-disturbing activities / Entire Project	Permittee	Completed 5/08/2013 Mike Bradbury
4	Permittee shall initiate a trash abatement program prior to initiation of Project activities and shall continue the program throughout the duration of the Project. Trash and food items shall be contained in closed (animal proof) containers and removed regularly (at least once a week) to avoid attracting opportunistic predators such as ravens, coyotes, and feral dogs.	ITP Condition # 6.6	Before commencing ground- or vegetation-disturbing activities / Entire Project	Permittee	Complied Dumpster at ORT site dumped weekly Trash cans at MR and GLC transported to dumpster daily Division of Engineering Constructio Inspector (DOE) / Construction Contractor (Cal Neva)

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
5	Permittee shall implement dust control measures during Project activities to facilitate visibility for monitoring of the Covered Species by the Designated Biologist.	ITP Condition # 6.7	Before commencing ground- or vegetation-disturbing activities/ Entire Project	Permittee	Complied Water truck was used for dust control. On several days, dust was noted as an issue, however, the dust never inhibited visibility of the Designated Biologist. DOE / Cal Neva
6	Prior to initiating ground- or vegetation-disturbing Project activities, Permittee shall clearly delineate property boundaries of the Project site with fencing, stakes or flags and shall similarly delineate the limits of Project activities. Permittee shall restrict all project activities to within the fenced, staked or flagged Project boundaries. Permittee shall maintain all fencing, stakes and flags until the completion of Project activities.	ITP Condition # 6.9	Before commencing ground- or vegetation-disturbing activities / Entire Project	Permittee	Complied All project activities were conducted within the delineate project boundaries as described in the project description. Areas were not staked or flagged as the project area includes miles of haul roads and this would be infeasible. DOE / Cal Neva
7	Permittee shall clearly delineate habitat of the Covered Species on the Project site with posted signs, posting stakes, flags, and/or rope or cord, and place fencing as necessary to minimize the disturbance of Covered Species' habitat.	ITP Condition # 6.10	Before commencing ground- or vegetation-disturbing activities / Entire Project	Permittee	Complied Construction personnel were instructed on parking restriction areas and complete restriction areas for each project site by the Designated Biologist. Mike Cane, DOE and Cal Neva
8	Permittee shall notify DFG 3 calendar days before initiating in-water, ground- or vegetation-disturbing activities and shall document compliance with all pre-Project Conditions of Approval before initiating in-water, ground- or vegetation-disturbing activities.	ITP Condition # 7.1	Before commencing ground- or vegetation-disturbing activities/ Entire Project	Permittee	Complied Mike Abiouli
9	The Designated Biologist shall survey all potential Swainson's hawks nest trees within ½ mile of the project sites, all staging and storage areas, transportation routes, work areas, and soil stockpile areas five (5) days prior to construction. A second monitoring shall be conducted 72 hours prior to construction. Results of each survey/monitoring effort shall be documented and submitted to DFG.	ITP Condition # 8.48	Before commencing ground- or vegetation-disturbing activities	Permittee	Completed Surveys Initiated 4/3/2013 Surveys and monitoring continued until 6/26/2013 after the completion of all barriers and the fledging of all SWHA chicks near the construction sites. Mike Bradbury
10	DWR shall prepare a spill prevention and control plan prior to the start of construction to minimize the potential for hazardous, toxic, or petroleum substance release into the project area during construction and project operation.	ITP Condition # 8.1	Before commencing ground- or vegetation-disturbing activities/ Entire Project	Permittee	Complied Spill kits at every site while equipment is present DOE / Cal Neva

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
DURING CONSTRUCTION					
11	The Designated Biologist shall be on-site daily while Project activities including all in-water or surface-disturbing activities are taking place to: (1) minimize incidental take of the Covered Species; (2) check for compliance with all mitigation and avoidance measures; (3) check all exclusion zones; and (4) ensure that signs, stakes, and fencing are intact, and that human activities are restricted outside of these protective zones. The Designated Representative or Designated Biologist shall prepare daily written observation and inspection records summarizing: oversight activities and compliance inspections, observations of Covered Species and their sign, survey results, and monitoring activities required by the ITP.	ITP Condition # 7.3	Entire Project	Permittee	Completed 5/08/13 to 11/18/13 Mike Cane
12	Permittee shall provide DFG with an Annual Status Report (ASR) no later than January 31 of every year beginning with issuance of this ITP and continuing until DFG accepts the Final Mitigation Report identified below. Each ASR shall include, at a minimum: (1) a general description of the status of the Project Area and Covered Activities, including actual or projected completion dates, if known; 2) a copy of the table in the MMRP with notes showing the current implementation status of each mitigation measure; (3) an assessment of the effectiveness of each completed or partially completed mitigation measure in avoiding, minimizing and mitigating Project impacts; (4) all available information about Project-related incidental take of the Covered Species; and (5) information about other Project impacts on the Covered Species.	ITP Condition # 7.4	Entire Project	Permittee	Complied Mike Cane
13	Permittee shall immediately notify DFG in writing if it determines that it is not in compliance with any condition of approval of the ITP, including but not limited to any actual or anticipated failure to implement mitigation measures within the time periods indicated in the ITP and/or this MMRP. Permittee shall report any non-compliance with the ITP during Project activities to DFG within 24 hours.	ITP Condition # 7.2	Entire Project	Permittee	None noted Mike Cane
14	Permittee shall prohibit use of erosion control materials potentially harmful to Covered Species, such as mono-filament netting (erosion control matting) or similar material, in potential Covered Species' habitat.	ITP Condition # 6.8	Entire Project	Permittee	None used Mike Cane
15	Project-related personnel shall access the Project site during Project activities using existing routes and shall not cross Covered Species' habitat outside of or in route to the Project site. Project-related vehicle traffic shall be restricted to established roads, staging, and parking areas. Vehicle speeds shall not exceed 20 mph in order to avoid Covered Species on or traversing the roads. If Permittee determines construction of off-site routes for travel are necessary, Permittee shall contact DFG prior to carrying out such an activity. DFG may require an amendment to the ITP if additional take of Covered Species may result from Project modification.	ITP Condition # 6.11	Entire Project	Permittee	Complied Mike Cane
16	Permittee shall confine all Project-related parking, storage areas, laydown sites, equipment storage, and any other surface-disturbing activities to the Project site using, to the extent possible, previously disturbed areas. Additionally, Permittee shall not use or cross Covered Species' habitat outside of the marked Project boundaries unless specifically provided for in Condition 6.10 of the ITP.	ITP Condition # 6.12	Entire Project	Permittee	Complied Mike Cane
17	Permittee shall immediately stop/repair and clean up any fuel or hazardous waste leaks or spills on the Project site during Project activities at the time of occurrence. Permittee shall exclude the storage and handling of hazardous materials from construction zones and shall properly contain and dispose of any unused or leftover hazardous products off-site.	ITP Condition # 6.13	Entire Project	Permittee	Complied Mike Cane

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
18	Permittee shall provide DFG staff with reasonable access to the Project site and mitigation lands under Permittee control, and shall otherwise fully cooperate with DFG efforts to verify compliance with or effectiveness of mitigation measures set forth in the ITP.	ITP Condition # 6.14	Entire Project	Permittee	Complied Mike Cane
19	The Designated Biologist shall maintain a construction monitoring notebook on-site throughout the construction period which shall include a copy of the ITP with attachments and a list of signatures of all personnel who have successfully completed the education program. Permittee shall ensure a copy of the construction monitoring notebook is available for review at the Project site upon request by DFG.	ITP Condition # 6.5	Entire Project	Permittee	Complied Mike Cane
20	The Designated Biologist shall submit all observations of Covered Species to DFG's California Natural Diversity Database (CNDDB) and the Designated Biologist shall include copies of the submitted forms with the next Annual Status Report.	ITP Condition # 7.5	Entire Project	Permittee	Not complete Mike Bradbury
21	DWR shall conduct all pile driving using a vibratory hammer to minimize the extent possible the noise generated from pile-driving activities. Compared to the standard impact driving method, vibratory driving substantially reduces the distance that noise exceeds NMFS thresholds, thereby substantially reducing or avoiding the potential to cause take of listed species. The steel piles shall be less than 16 inches in diameter. The accumulated sound exposure level (SEL) shall not exceed 187 decibels (dB) for all listed fish, except those that are two grams or less. SEL for fish two grams or less shall not exceed 183 dB.	ITP Condition # 8.2	Entire Project	Permittee	N/A No pile driving activities were conducted in 2013 Simon Kwan
22	DWR shall monitor turbidity levels in the San Joaquin River, Old River, Middle River, and Grant Line Canal during ground-disturbing activities, including pile-driving. Monitoring will be conducted by measuring upstream and downstream of the disturbance area to determine if the change exceeds 20%, a threshold derived from the Sacramento and San Joaquin Rivers Basins Plan (Central Valley Regional Water Quality Control Board 1998). If so, DWR contractors will adjust work to ensure that turbidity levels do not exceed the 20% threshold.	ITP Condition # 8.3	Entire Project	Permittee	Complied Water quality monitoring was conducted as specified in our 401 WQ Certification. Water quality data were sent to RWQCB bi-weekly in 2013. Mike Abiouli
23	DFG shall review California Data Exchange Center (CDEC) data to determine impacts to dissolved oxygen (DO) levels upstream of the temporary barriers. DFG will review Regional Water Quality Control Board (RWQCB) required standards for dissolved oxygen levels in the area of the temporary barriers. If the dissolved oxygen levels are shown to fall below RWQCB required levels, DFG shall require water circulation to increase through modifying barrier operations by implementing one of the following measures: creating a notch, lowering weir height, or tying open flap gates to increase circulation until DO levels are above the RWQCB required levels for three consecutive days.	ITP Condition # 8.4	Entire Project	DFG	Ongoing Olin

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
24	All equipment used in or near the stream zone shall be free of leaks. Equipment shall be checked and maintained daily to prevent leaks of materials that, if introduced to water, could be deleterious to aquatic life, wildlife, or riparian habitat. Staging/storage areas for equipment, materials, fuels, and lubricants, will be located outside of the stream's normal high water area. Stationary equipment such as motors, pumps, generators, compressors, and welders, located within the dry portion of the stream channel or adjacent to the stream will be positioned over drip pans. Equipment parked for the night shall have drip pans placed under the engine.	ITP Condition # 8.6	Entire Project	Permittee	Complied Mike Cane
25	Barrier installation shall begin no earlier than March 1 of each year at Middle River Barrier and April 1 at Old River at Tracy, Grant Line Canal, and Head of Old River barriers.	ITP Conditions # 8.10, 8.18, 8.26, 8.41(1)	Entire Project	Permittee	Complied Mike Cane
26	Barrier removal shall be completed no later than 14 days after November 20 at Middle River barrier, no later than 14 days after October 31 if Head of Old River Barrier has not been installed and no later than 14 days after November 20 if Head of Old River Barrier has been installed for Grant Line Canal barrier, no later than 14 days after October 31 if Head of Old River Barrier has been installed and no later than 14 days after November 20 if Head of Old River Barrier has been installed for Old River at Tracy barrier, and November 30 at Head of Old River Barrier.	ITP Condition # 8.16, 8.35, 8.36, 8.23, 8.24, 8.41(2)	Entire Project	Permittee	Not Complied Eva Olin was contacted and gave an extension via e-mail on 11-14-13 to allow for work at ORT to continue until 11-30-13. GLC and MR were removed before 11-14-13 and ORT was removed by November 18, 2013 No HORB was installed Kwan
27	Non-Physical Barrier: The Permittee shall fund, plan, and conduct a study to find out if the presence of the non-physical barrier creates predatory fish habitat and to analyze the effects of the non-physical barrier on the predation of salmon and steelhead smolts. The study shall address predator accumulation at the non-physical barrier when the non-physical barrier is installed and operating during the term of this ITP. The study plan shall be developed and provided by February 1, 2012 to DFG for review and approval. Yearly non-physical barrier predatory reports are due by February 1 of the year following the installation and operation of the non-physical barrier occurs.	ITP Condition # 8.8	Entire Project	Permittee	N/A The NPB was not installed in 2013, but predatory fish studies with the rock barrier were conducted. Kwan
28	Construction shall be limited to the greatest extent possible between March 1 and August 31 where Swainson's hawk nest sites exist within ½ mile of proposed construction activities.	ITP Condition # 8.47	Entire Project	Permittee	Complied Mike Cane
29	Construction activities within ¼ mile of an active Swainson's hawk nest should be limited to the greatest extent possible from egg-laying to post-hatching; and, if construction must occur in that time frame, to the greatest extent possible initiate construction prior to egg-laying.	ITP Condition # 8.49	Entire Project	Permittee	Complied Mike Bradbury
30	Where construction can not be sufficiently limited to avoid disturbance to Swainson's hawks while nesting, a "sliding scale" of monitoring shall be implemented as detailed in the ITP.	ITP Condition #8.50, 8.50.1-6	Entire Project	Permittee	Complied Mike Bradbury

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
31	Physical contact with an active Swainson's hawk nest tree shall be prohibited from the time of egg-laying to fledging. Construction personnel outside vehicles shall be restricted to greater than 200 meters from the nest tree unless construction activities require them to be closer.	ITP Condition # 8.51	Entire Project	Permittee	Complied Mike Bradbury
32	If personnel must approach closer than 25 meters to an active Swainson's hawk nest tree for more than 15 minutes while adults are brooding, the nesting adults shall be monitored for stressed behavior. If stressed behavior is identified, personnel shall be removed until behavior normalizes. If personnel must approach closer than 50 meters greater than 1 hour, the same applies.	ITP Condition # 8.51.1	Entire Project	Permittee	Did not occur Mike Bradbury
33	All personnel shall be out of the line of sight of the Swainson's hawk nest during breaks.	ITP Condition # 8.51.2	Entire Project	Permittee	Complied Mike Bradbury
34	If the Permittee cannot complete all barrier construction within ¼ mile of an active Swainson's hawk nest site by April 1 or after June 1, the Permittee shall also implement the following measures to minimize the impacts of late construction: For the Grant Line Canal (GLC) site: a) All equipment and vehicles driven and/or operated shall be limited to the north levee road. Staging areas for equipment, materials, and work personnel lunch time shall be at a site 0.5 mile away. These areas shall be flagged and identified to all work personnel during employee orientation. b) During construction, the height of the crane arm during the placement of rock or culverts shall be limited to the extent possible above the water surface. Furthermore, if eggs are present in the nest prior to construction of the barrier, the Permittee shall construct the barrier beginning at the north end and proceed to the south.	ITP Condition # 8.52, 8.52.1	Entire Project	Permittee	Complied Mike Bradbury

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
35	For all barrier sites: a) The Permittee shall not disturb or remove any tree. If trees cannot be avoided, compensation for permanent losses is required and shall be at the rate of 3:1. To protect trees adjacent to the project, all trees (4" or greater DBH) from the water edge to the crown of the levee shall be flagged prior to any work. b) If construction occurs within 328 feet (100 meters) of a Swainson's hawk nest, no construction shall occur prior to 0800 (8:00 AM), and shall be discontinued by 1700 (5:00 PM) each day. c) There shall be a biologist at the site at all times during the project construction work. d) If there is abandonment of a nest with eggs or young fledglings (take of the species) during barrier construction, the Permittee shall notify DFG and initiate action to salvage any abandoned eggs and return the young to the wild. If the young have already hatched, they shall be retrieved and returned to the wild using methods acceptable to DFG. Persons handling eggs and/or young birds shall have in their possession the appropriate scientific collecting permits from DFG.	ITP Condition # 8.52.2	Entire Project	Permittee	a) No trees or woody vegetation was removed during this project. b) Complied c) A designated Biologist conducted daily checks to ensure permit compliance. d) No "take" was identified. Complied: Mike Cane Mike Bradbury
36	If a Covered Species is killed by a Project-related activity, or if a Covered Species is otherwise found dead within the Project boundary, Permittee shall immediately notify the Designated Biologist. The Designated Biologist or Designated Representative shall provide initial notification to DFG by calling the Regional Office at (707)944-5500. The initial notification to DFG shall include information regarding the location, species, number of animals injured or killed, and the ITP Number. Following initial notification, Permittee shall send DFG a written report within 2 calendar days. The report shall include the date and time of the finding or incident, location of the carcass, and if possible provide a photograph, explanation as to cause of death, and any other pertinent information.	ITP Condition # 7.7	Entire Project	Permittee	No covered species were killed and no "take" was identified. Complied: Mike Cane
37	To ensure compliance with the Conditions of Approval of the ITP, the Designated Biologist shall have authority to immediately stop any activity that is not in compliance with the ITP, and/or to order any reasonable measure to avoid the unauthorized take of an individual of the Covered Species or fully protected species. Neither the Designated Biologist nor DFG shall be liable for any costs incurred in complying with the Conditions of Approval, including cease-work orders issued by DFG.	ITP Condition # 6.3	Entire Project	Permittee	No work stoppages were required Mike Cane
38	Swainson's hawk: If a nest is abandoned and nestlings are still alive, DWR shall fund the recovery and hacking (controlled release) of the nestlings. If a nest is abandoned and the nestlings do not survive, DWR shall develop 1 acre of riparian forest and provide for permanent protection and management over that riparian forest and over 50 acres of suitable Swainson's hawk foraging habitat in a location and in a form acceptable to DFG. The site shall be identified and protected within 12 months after nest abandonment.	ITP Condition # 9.1	Entire Project	Permittee	No abandonment Mike Bradbury

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
39	Swainson's Hawk: To offset the potential impact of reduced productivity due to construction activities, the Permittee shall provide $10,000 per construction year to the Swainson's Hawk Technical Advisory Committee (TAC) in each year that an active Swainson's hawk nest is within a ½ mile of an active barrier construction site or active storage/staging site. The funds shall be utilized to enhance habitat or for research to improve management opportunities of the species. Use of this fund will be overseen by DFG in consultation with the TAC.	ITP Condition # 9.2	Entire Project	Permittee	Mike Bradbury
40	No live trees with trunks in excess of four (4) inches in Diameter at Breast Height (DBH) shall be removed. To protect trees adjacent to the project, all trees (4" or greater DBH) from the water edge to the crown of the levee shall be flagged prior to any work. If these trees can not be avoided, compensation for permanent losses is required and shall be at the ratio of 3:1. Location of tree replacements shall be approved by DFG. The Permittee shall maintain an 80% survival rate of each species by the third year after replacement. The Permittee is responsible for replacement planting to achieve these requirements.	ITP Condition # 9.3	Entire Project	Permittee	No trees were removed Mike Cane
41	To mitigate for the impacts of project related construction to Swainson's Hawks during the breeding season of March 1 to August 31, 2011 – 2016, the Permittee shall protect in perpetuity 1 acre of riparian forest at a site approved by DFG.	ITP Condition # 10.1	During Project	Permittee	Mitigation land was purchased from Westervelt LLC on May 4, 2012 Simon Kwan
42	To mitigate for the impact associated with the construction of the temporary barriers on Delta smelt and longfin smelt, the Permittee shall create, protect and provide for the long-term management of a total of 6 acres of subtidal or intertidal habitat.	ITP Condition # 10.2	During Project	Permittee	4.75 acres of mitigation land was purchased from Wildlands Inc. on July 20, 2012. The remaining 1.25 acres was credited from DWR's Kimball Island account. Simon Kwan
43	No later than 18 months from the issuance of this ITP, the Permittee shall complete the actions identified in 10.1 and 10.2.	ITP Condition # 10.3	During Project	Permittee	Please see 41, and 42 above Simon Kwan
44	The Security, in the form of a letter from the Chief of the Bay-Delta Office from the Permittee to the Regional Manager of the Bay Delta Region, shall state the Permittee's commitment and assurance that the conditions outlined in Condition 10 shall be completed within the time frame outlined in Condition 10.3.	ITP Condition # 11.1	During Project	Permittee	An assurance letter was sent to DFG on 6/16/2011 Simon Kwan
45	The Security shall be provided to DFG no later than one month after the issuance of this permit. The Security shall be in the form described in 11.1.	ITP Condition # 11.2	During Project	Permittee	An assurance letter was sent to DFG on 6/16/2011 Simon Kwan
46	The Security (or any portion of the Security then remaining) shall be released to the Permittee after all secured requirements have been met as evidenced by: • Documentation that habitat has been created, protected and long-term management is assured; and • An on-site inspection by DFG	ITP Condition # 11.3	During Project	Permittee	Complied Simon Kwan
POST-CONSTRUCTION					

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
47	Upon completion of Project activities, Permittee shall remove from the Project site and properly dispose of all construction refuse, including, but not limited to, broken equipment parts, wrapping material, cords, cables, wire, rope, strapping, twine, buckets, metal or plastic containers, and boxes.	ITP Condition # 6.15	Post-construction	Permittee	Complied Mike Cane
48	A final report for the non-physical barrier predatory fish study shall summarize the previous studies conducted during the life of this ITP and will be due on February 1, 2017.	ITP Condition # 8.8	Post-construction	Permittee	The final report is due after the expiration of the ITP and the SSA permits in 2016
49	Final Mitigation Report: No later than 45 days after completion of the Project, including completion of all mitigation measures, Permittee shall provide DFG with a Final Mitigation Report. The Final Mitigation Report shall be prepared by the Designated Biologist and shall include, at a minimum: 1) a summary of all Monthly/Quarterly Compliance Reports and all ASRs, 2) a copy of this table with notes showing when each of the mitigation measures was implemented; 3) all available information about Project-related incidental take of the Covered Species; 4) information about other Project impacts on the Covered Species; 5) dates of Project activities; 6) an assessment of the effectiveness of the ITP's Conditions of Approval in minimizing and fully mitigating Project impacts of the taking on Covered Species; 7) recommendations on how mitigation measures might be changed to more effectively minimize take and mitigate the impacts of future projects on the Covered Species; and 8) any other pertinent information.	ITP Condition # 7.6	Post-construction and after completion of mitigation	Permittee	The final report is due after the expiration of the ITP and the SSA permits in 2016

Appendix 9: Mitigation Purchase Receipts

Exhibit "B"

BILL OF SALE

In consideration of **$75,000**, receipt of which is hereby acknowledged, *Cosumnes Floodplain Mitigation Bank* Sponsor does hereby bargain, sell and transfer to the CALIFORNIA DEPARTMENT OF WATER RESOURCES, **1.00 Floodplain Riparian Habitat credit** in the *Cosumnes Floodplain Mitigation Bank* in Sacramento County, California, developed, and approved by the U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, and California Department of Fish and Game.

Westervelt Ecological Services represents and warrants that it has good title to the credits, has good right to sell the same, and that they are free and clear of all claims, liens, or encumbrances.

Westervelt Ecological Services covenants and agrees with the buyer to warrant and defend the sale of the credits hereinbefore described against all and every person and persons whomsoever lawfully claiming or to claim the same.

DATED: 5/4/2012

Cosumnes Floodplain Mitigation Bank Sponsor

By: _____

Exhibit "C"

Cosumnes Floodplain Mitigation Bank
FLOODPLAIN RIPARIAN HABITAT CREDIT: PAYMENT RECEIPT

PARTICIPANT INFORMATION

Name: California Department of Water Resources

Address: 1416 Ninth Street
Sacramento, CA 95814

Telephone: (916) 653-9883

Contact: Jacob McQuirk

PROJECT INFORMATION

Project Description: South Delta Temporary Barriers Project

Permit File Number: 2081-2011-019-03

Species/Habitat Affected: Swainson's Hawk

Credits to be Purchased: **1.00 Floodplain Riparian Habitat**

Payment Amount: $75,000

Project Location: San Joaquin County

County/Address: San Joaquin County

PAYMENT INFORMATION

Payee: Westervelt Ecological Services, LLC

Payer: California Department of Water Resources

Amount: Sixty Five Thousand ($75,000)

Method of payment: Cash Check No. Money Order No.

Received by: _____ Date: 5/4/2012
(Signature)

Name: Travis Hemmen Title: Project Manager

WILDLANDS

TRANSMITTAL

TO: Brian Bustos	FROM: Julie Maddox
COMPANY: Department of Water Resources	VIA: U.S. Mail
ADDRESS: 1416 Ninth Street Sacramento, CA 95814	PROJECT: South Delta Temporary Barriers Project Contract No. 4600009737
RE: Conservation Credit Purchase (Liberty Island Conservation Bank)	DATE: July 20, 2012

☐ URGENT ☐ FOR REVIEW ☒ FOR YOUR USE ☐ PLEASE REPLY ☐ ACTION REQUIRED

Enclosed for your records please find the original executed Bill of Sale and Payment Receipt for DWR's purchase of 4.75 Conservation Credits from the Liberty Island Conservation Bank.

A notification of this transaction will also be provided to the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and California Department of Fish and Game for their records.

Thank you for your business; it has been a pleasure serving you. Please let me know if there are any questions, or if there is anything else you need.

Thank you,

Julie Maddox
WILDLANDS

Enclosure

cc: Mr. Jacob McQuirk, DWR (via Electronic Mail)

RECEIVED
DWR PCO
2012 JUL 25 PM 1:56
HEADQUARTERS

WILDLANDS ◆ 3855 Atherton Road ◆ Rocklin, CA 95765 ◆ p: 916.435.3555 ◆ f: 916.435.3578

BILL OF SALE

Contract # LICB-12-15

CDFG ITP No. 2081-2011-019-03

In consideration of $593,750.00, receipt of which is hereby acknowledged, LIBERTY ISLAND HOLDINGS I, LLC (Bank Owner) does hereby bargain, sell and transfer to CALIFORNIA DEPARTMENT OF WATER RESOURCES 4.75 Salmonid/Smelt Restoration Conservation Credits in the Liberty Island Conservation Bank in Yolo County, California, developed, and approved by the National Marine Fisheries Service, the U.S. Fish and Wildlife Service, and the California Department of Fish and Game.

Bank Owner represents and warrants that it has good title to the credits, has good right to sell the same, and that they are free and clear of all claims, liens, or encumbrances.

Bank Owner covenants and agrees with the buyer to warrant and defend the sale of the credits hereinbefore described against all and every person and persons whomsoever lawfully claiming or to claim the same.

DATED: 7-20-2012

LIBERTY ISLAND HOLDINGS I, LLC

By: _____

Name: **Wildlands, Manager**

Its: **Mark Heintz, Manager**

LIBERTY ISLAND CONSERVATION BANK
CONSERVATION CREDITS: PAYMENT RECEIPT

PARTICIPANT INFORMATION

Name: CALIFORNIA DEPARTMENT OF WATER RESOURCES

Address: Bay-Delta Office
1416 Ninth Street
Sacramento, CA 95814

Telephone: (916) 653-9883

Contact: Jacob McQuirk

PROJECT INFORMATION

Project Description:	South Delta Temporary Barriers Project
CDFG File Number:	2081-2011-019-03
Species/Habitat Affected:	Delta smelt and longfin smelt
Credits to be Purchased:	4.75
Payment Amount:	$593,750
Project Location:	South Delta

PAYMENT INFORMATION

Payee: LIBERTY ISLAND HOLDINGS I, LLC

Payer: CALIFORNIA DEPARTMENT OF WATER RESOURCES

Amount: Five Hundred Ninety-Three Thousand Seven Hundred Fifty and No/100ths Dollars ($593,750.00)

Method of payment: Cash Check No. 09-146523 Money Order No.

Received by: _____ Date: 7-20-2012
Name: Wildlands, Manager
Title: Mark Heintz, Manager