*Deepwater Horizon*

NRDA Early Restoration Project Progress Report:

# Louisiana Oyster Cultch Project

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## Introduction

The Louisiana Natural Resource Trustees (Trustees) selected the Louisiana Oyster Cultch Project (project) as a Phase I *Deepwater Horizon* (DWH) early restoration project to compensate the public for injury to oysters (*Deepwater Horizon* Oil Spill Natural Resource Trustees, 2012). The project involves (1) placing oyster cultch onto public oyster areas at six locations in coastal Louisiana, (2) monitoring oyster recruitment and production in restored areas to assess performance against specific criteria, and (3) constructing an oyster hatchery facility to improve existing oyster hatchery capabilities and produce supplemental larvae and seed to help facilitate success of the cultch plantings, if necessary. This document provides the status and performance of this project based on project-specific monitoring activities conducted through October 2014.

This document describes cultch placement activities in more detail. This includes a summary of the Louisiana Department of Wildlife and Fisheries (LDWF)-led project-specific sampling methods to monitor the cultch plant sites, followed by project-specific monitoring data results of oyster recruitment and production at project cultch sites. An update on the status of the oyster hatchery facility is also included.

## Project Summary and Background

The project is intended to compensate the public for injury to oysters by (1) placing cultch material onto Louisiana public oyster areas, including public oyster seed grounds (POSGs) and public oyster seed reservations (POSRs), and (2) constructing an oyster hatchery facility (*Deepwater Horizon* Oil Spill Natural Resource Trustees, 2012).

Cultch material consists of limestone rock, crushed concrete, oyster shell, and other similar material. Cultch material in oyster-spawning areas provides a substrate on which free-swimming oyster larvae can attach as spat (less than 25-mm long), then grow first into “seed” oysters (25–74 mm), then adult sack-

sized oysters (≥ 75 mm; LDWF, 2012b). Over time, cultch material degrades, gets buried, or is removed during oyster harvest and new cultch needs to be added. New cultch material is an excellent substrate for larval oyster spat settlement and harbors fewer oyster predators. Under ideal conditions, oyster spat that settle on cultch can survive and grow into seed oysters within one year (Soniat et al., 2012). In Louisiana, oysters can grow to sack size by approximately 2 years of age (Eastern Oyster Biological Review Team, 2007).

Successful oyster larvae colonization onto planted cultch material requires adult oysters on nearby reefs, natural oyster spawning events, and favorable environmental conditions. When natural larval oyster production is limited, oyster production in a hatchery has the potential to expedite recruitment success in project cultch sites. Once oyster larvae reach the proper age and size in the hatchery, personnel can broadcast the larvae directly over underperforming cultch sites. A hatchery can also be used to grow spat on small pieces of shell (or "micro-cultch"). Personnel can place hatchery-produced micro-cultch with spat on project cultch sites, where the spat grow into seed- and sack-sized oysters. Finally, spat can be reared in the hatchery or in a similar nursery area, such as the LDWF remote setting facility in Buras, Louisiana. Personnel can then place hatchery-produced spat oysters in locations where they are expected to grow successfully into seed and sack-sized oysters.

## Cultch Site Identification and Cultch Placement

LDWF identified candidate cultch placement sites at six public oyster areas across coastal Louisiana with known current or historical oyster production. The sites were chosen to maximize diversity of habitat conditions in an effort to optimize the potential for success. Because oyster production throughout the region is spatially and temporally variable, diverse site placement helped increase the likelihood of project success compared to an approach of placing all the cultch in areas with similar conditions. Before approving cultch placement in specific locations, the Trustees evaluated proposed oyster cultch areas for the presence/ongoing impacts from contaminants that would preclude successful cultivation. The Trustees also considered proximity to areas of cultural significance, oil and gas operations, and other infrastructure as additional factors when selecting final cultch placement sites (LDWF, 2012a). After considering the results of these investigations, the Trustees identified six sites that were suitable for cultch deployment.

LDWF initiated contracts for oyster cultch material placement in May 2012; contractors completed placement activities at all six sites by June 2013. Planted cultch material consisted of limestone rock and crushed concrete. Contractors deployed cultch over a total of 1,421 acres (Table 1) of existing public oyster areas at six sites: Hackberry Bay, Sister Lake, Bay Crab, Lake Fortuna, 3-Mile Pass, and Drum Bay (Figure 1). The volume of cultch material deployed across all six sites was 171,384 cubic yards. Depending on water-bottom characteristics at the time of implementation, cultch-planting density ranged from 91 cubic yards per acre at Drum Bay to 255 cubic yards per acre at 3-Mile Pass (Table 1). Lower planting densities occurred at project sites that contained older cultch materials from existing natural reef or previous cultch planting activities not associated with this project. LDWF required higher

planting densities to achieve desired cultch thickness at sites with little or no basement substrate. LDWF monitored the contractors' cultch placement during deployment and verified coverage over planned-upon acreage using poling surveys.

**Table 1. Summary of Louisiana Oyster Cultch Project cultch placement sites.**

| Cultch site name | Date completed | Cultch material | Area of cultch plant (acres) | Volume of cultch planted (cubic yards) | Cultch-planting density (cubic yards/acre) |
|---|---|---|---|---|---|
| Hackberry Bay | 5/21/2012 | Limestone | 201 | 26,086 | 130 |
| Sister Lake | 6/2/2012 | Limestone | 358 | 37,681 | 105 |
| Bay Crab | 10/6/2012 | Limestone | 201 | 20,172 | 100 |
| Lake Fortuna | 11/19/2012 | Concrete | 301 | 28,630 | 95 |
| 3-Mile Pass | 5/9/2013 | Limestone | 159 | 40,504 | 255 |
| Drum Bay | 6/2/2013 | Limestone | 201 | 18,311 | 91 |
| | | Totals: | 1,421 | 171,384 | |

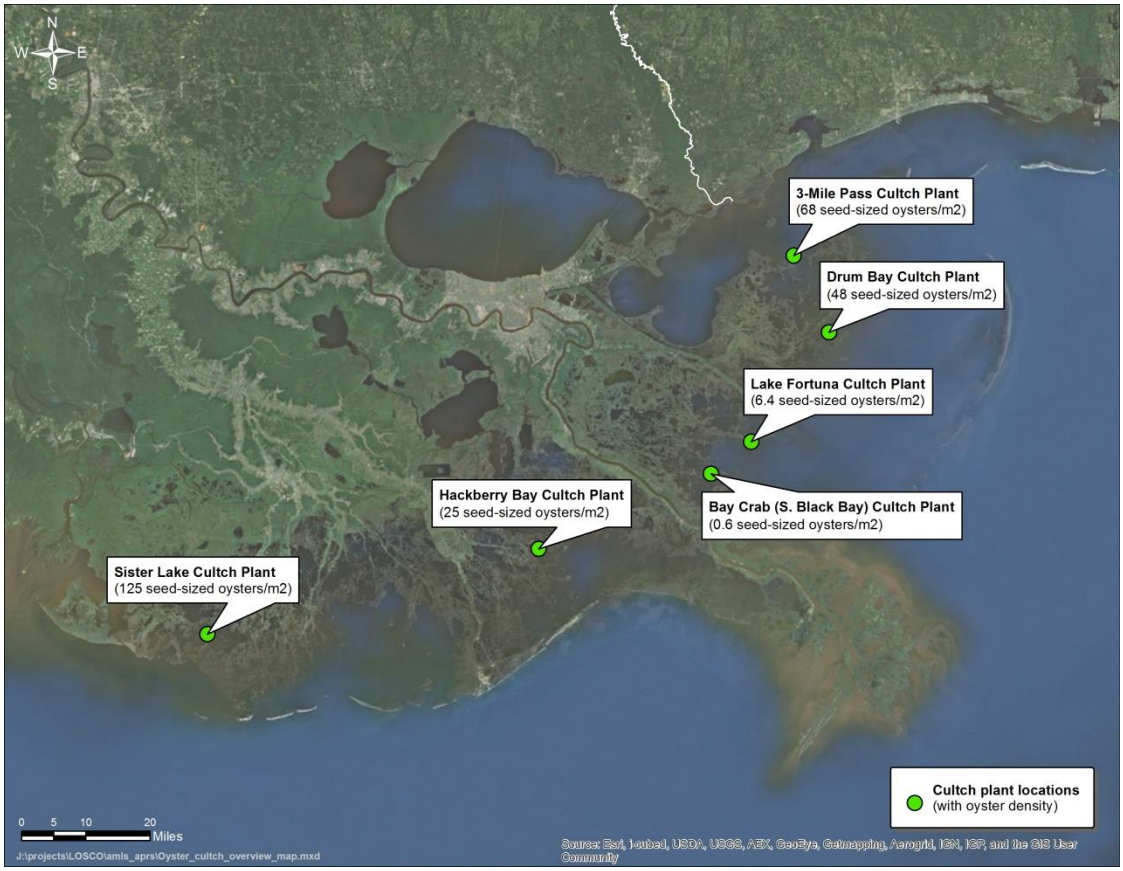


**Figure 1. Location of cultch plants and mean density of seed-sized oysters from summer 2014 project-specific sampling.**

## Project-specific Monitoring

Project-specific (performance) monitoring began during the summer of 2014, with each site sampled in either June or July 2014 using quantitative quadrat surveys, and again in October 2014 using semi-quantitative oyster dredge surveys (Louisiana Natural Resource Trustees, 2014). Trustees used project-specific monitoring data obtained from quadrat surveys to quantitatively estimate oyster settlement and densities at each cultch plant site. Project-specific dredge surveys were used to monitor oyster mortality and growth between quadrat sampling events.

Prior to summer 2014, LDWF conducted precursory monitoring at each site using standard LDWF protocols for new cultch plants (LDWF, 2012a). LDWF used standard monitoring results to guide the development of project-specific monitoring protocols (Louisiana Natural Resource Trustees, 2014).

Quadrat survey methods consisted of dividing each site into equally sized, consecutively numbered grid squares and randomly selecting 20 grids for sampling. Within each randomly selected grid, field crews tossed one 0.25-square-meter polyvinyl chloride (PVC) pipe quadrat off of the sampling vessel onto the cultch plant site bottom. SCUBA divers collected all oysters, surficial shell/cultch, and associated reef organisms from the quadrat area for enumeration and analysis. Field crews counted and measured all live and recently dead oysters within each sample before returning them to the water. Crew members also recorded observations of cultch condition.

Dredge survey methods also consisted of dividing each site into equally sized, consecutively numbered grid squares and randomly selecting 20 grids for sampling. Within each randomly selected grid, field crews collected bottom samples using a 24-inch-wide oyster dredge with 10 teeth that was deployed for 3 minutes. The dredge collected oysters, fouling organisms, and other sessile marine organisms. Dredge samples were evaluated in a manner similar to the quadrats: all oysters within each sample were measured and counted prior to returning all organisms to the water. However, oyster density estimates were not derived from dredge samples, because dredges do not sample a defined area. Even without density data, the dredge sampling data provided important information on oyster recruitment, mortality, growth, and the presence or absence of reef-associated animals between quadrat sampling events.

Project-specific monitoring will continue until the project meets or exceeds the performance criteria outlined below.

## Performance Criteria

This section provides a summary of the performance to date of the project with reference to the established project performance criteria [see Louisiana Natural Resource Trustees (2014) for a

discussion of the performance criteria]. The data used as the basis for this summary evaluation are presented for each cultch plant site in the subsequent section.

- Cultch Plant Construction and Maintenance: Cover a minimum of 850 acres of public oyster areas with suitable cultch material among 6 separate cultch placement sites.
    - Status: Achieved. To date, all six proposed cultch placement sites have been constructed. Cultch plant construction monitoring results indicate that cultch material covered 1,421 acres of water bottom (see Table 1).
- Hatchery Construction and Operation: Design, construct, and operate an oyster hatchery capable of producing oyster larvae as needed during project implementation.
    - Status: In progress. As of winter 2014, the project hatchery is in its final phase of construction with a planned startup in May 2015. To date, none of the project cultch plants have received supplemental oyster larvae or been stocked with hatchery-reared oysters.
- Oyster Resource Development: Achieve average oyster density at or above 20 seed oysters/$m^2$ across 850 acres of cultch at project sites within 3 years of cultch placement.
    - Status: Achieved (pending dredge tow results in winter/spring 2015). To develop a density estimate across all sites, the density at each site was multiplied by its area, summed to attain the number of seed-sized oysters present across all sites, and divided by the area of all sites combined. In summer 2014, project cultch plants were between 2.2 and 1.1 years old (post-cultch placement).The area-weighted average density of seed oysters across all project sites was 51 seed oysters/$m^2$ (Table 2), with a weighted 95th percentile confidence interval of 32 to 70 oysters/$m^2$ (Table 2), which exceeds the performance criterion of 20 oysters/$m^2$. Four of the six cultch sites, covering a total of 919 acres, had mean densities substantially higher than 20 oysters/$m^2$ (Table 2). Details on individual cultch plant performance are provided in the next section.

**Table 2. Comparison of summer 2014 project-specific monitoring results to performance criterion for oyster resource development.**

| Site (see Figure 1) | Cultch area (acres) | Density of live seed-sized oysters (#/$m^2$) Mean | Std. dev. (SD) |
|---|---|---|---|
| Hackberry Bay | 201 | 25.4 | 38.39 |
| Sister Lake | 358 | 125.2 | 149.50 |
| Bay Crab | 201 | 0.6 | 1.47 |
| Lake Fortuna | 301 | 6.4 | 9.39 |
| 3-Mile Pass | 159 | 68.2 | 61.93 |
| Drum Bay | 201 | 48.0 | 145.39 |
| Total | 1,421 | 51.0 (31.6, 70.4)[a] | |

a. Seed-sized oyster density across all sites (area-weighted mean and 95% confidence interval)

## Status of Cultch Placement Sites

This section provides a summary of project-specific monitoring data, including oyster density, size, and mortality, that LDWF has collected to date at each cultch plant site.

### Hackberry Bay

The Hackberry Bay cultch plant site is located in Louisiana's Coastal Study Area 3 (CSA 3; Figure 2). This CSA includes three public oyster areas. The oldest, Hackberry Bay, became a POSR in 1944 (LDWF, 2012b). LDWF has conducted cultch plantings in this area since 1943 to bolster oyster production. Little natural reef exists in the Hackberry Bay POSR; production depends on when and where cultch plants were placed in the bay. The addition of the Hackberry Bay cultch plant site in May 2012 effectively tripled the available oyster reef acreage of the Hackberry Bay POSR from 99.7 to 299.7 acres (LDWF, 2014). The project cultch site was in the northwest portion of Hackberry Bay (Figure 2) and has not been open for harvest since cultch placement.

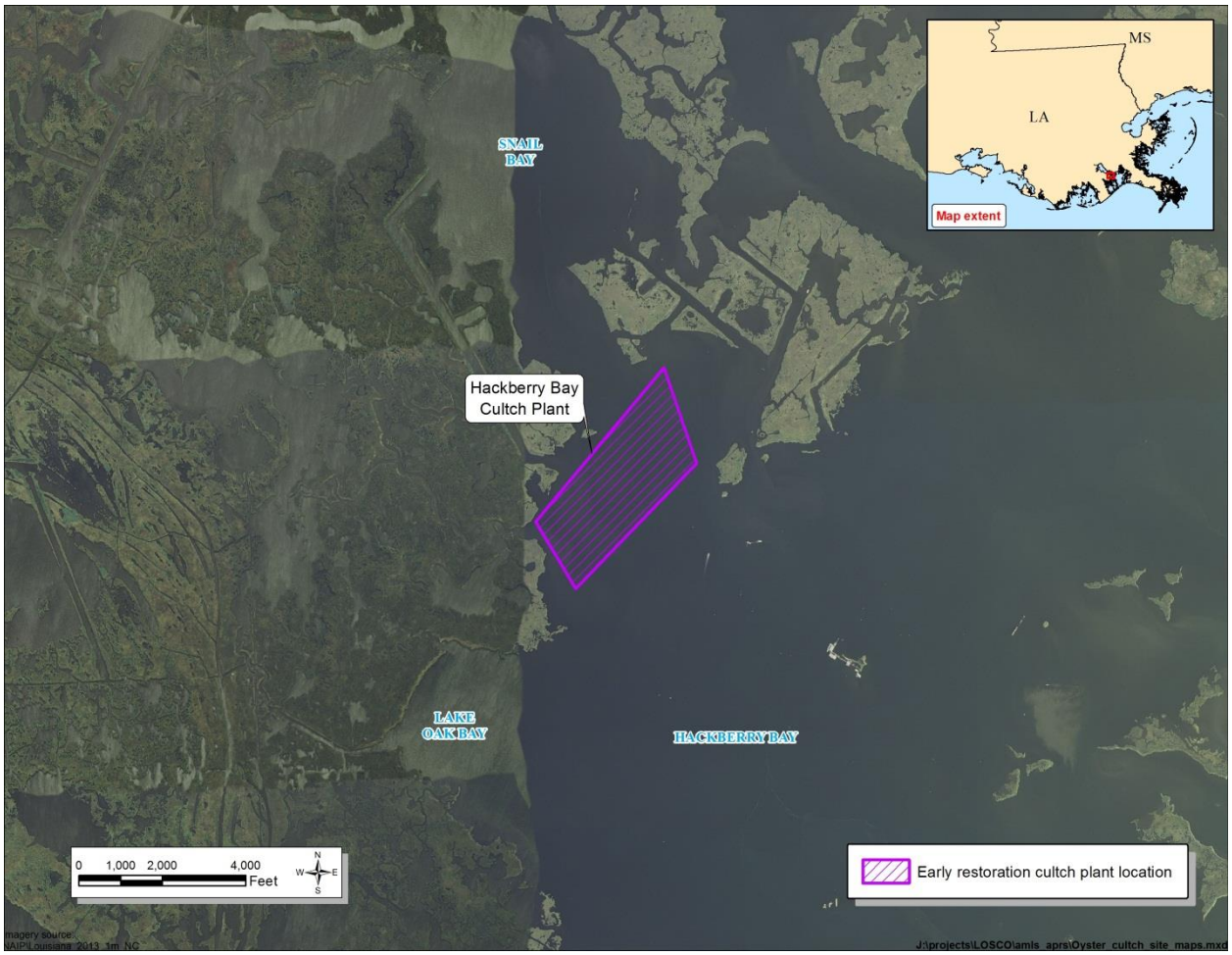


**Figure 2. Hackberry Bay cultch plant placement site.**

Project-specific sampling conducted in summer and fall 2014 showed good recruitment of seed oysters with low mortality throughout the project cultch site. At 26 months post-cultch placement, the average density of seed oysters on the cultch plant was 25.4 seed-sized oysters/$m^2$ (Table 3). Oysters were evenly distributed throughout most of the Hackberry Bay cultch plant. LDWF conducted the first project-specific dredge sampling event at this site in October 2014 at 29 months post-placement. Live oysters were observed in 13 of the 20 replicates. A large cohort of live seed- and sack-sized oysters and a few dead oysters were observed (Table 3). The majority of live seed oysters ranged from 42.5 to 72.5 mm in shell length. The majority of sack-sized oysters were just over the 75-mm sack-size classification threshold.

**Table 3. Hackberry Bay cultch site project-specific monitoring results.** Note that dredge surveys do not provide oyster-density estimates.

| Survey month/year (survey method) | July 014 (quadrat) | October 2014 (dredge) |
|---|---|---|
| Live spat density (#/$m^2$) | 3.2 | – |
| Live spat count[a] | 16 | 12 |
| Spat mortality | 30.0% | 14.0% |
| Live seed density (#/$m^2$) | 25.4 | – |
| Live seed count[a] | 127 | 1,270 |
| Seed mortality | 11.0% | 0.5% |
| Live sack density (#/$m^2$) | 0.2 | – |
| Live sack count[a] | 1 | 159 |
| Sack mortality | 0.0% | 1.2% |

a. Counts refer to the total number of live oysters sampled in 20 replicate samples.

## Sister Lake

The Sister Lake cultch site is in Louisiana's CSA 5. Similar to Hackberry Bay, Sister Lake is in a State POSR established in 1940. Historically, Sister Lake is the most productive oyster area in the Terrebonne basin, with successful cultch plants dating back to the early 1900s (LDWF, 2012b).

Sister Lake is the largest project cultch plant site, totaling 358 acres. Before cultch placement, side-scan sonar surveys of the Sister Lake POSR area showed that the reef covered approximately 2,280 acres in 2012 (LDWF, 2012b). The estimated total reef covered in the Sister Lake POSR after project cultch placement increased by approximately 100 acres to 2,375 acres, indicating that the majority of project cultch was placed atop existing reef (LDWF, 2013). The project cultch plant site is in the middle of the Sister Lake POSR (Figure 3).

LDWF conducted the first project-specific quadrat sampling event approximately 26 months after cultch placement and observed high densities of seed-sized oysters (125 seed-sized oysters/$m^2$; Table 4). Moderate densities of sack-sized oysters were also observed (approximately 6 sack-sized oysters/$m^2$; Table 4). These sack-sized oysters may have grown from spat settlement on the project cultch in the two years after cultch placement, or they may have grown from functioning cultch that existed within the footprint of the site prior to project cutch placement activities. October 2014 dredge sampling results indicated that seed- and sack-sized oysters continue to survive and grow at this site. Replicate sample results showed that oyster densities were evenly distributed throughout most of the Sister Lake cultch plant (Table 4).

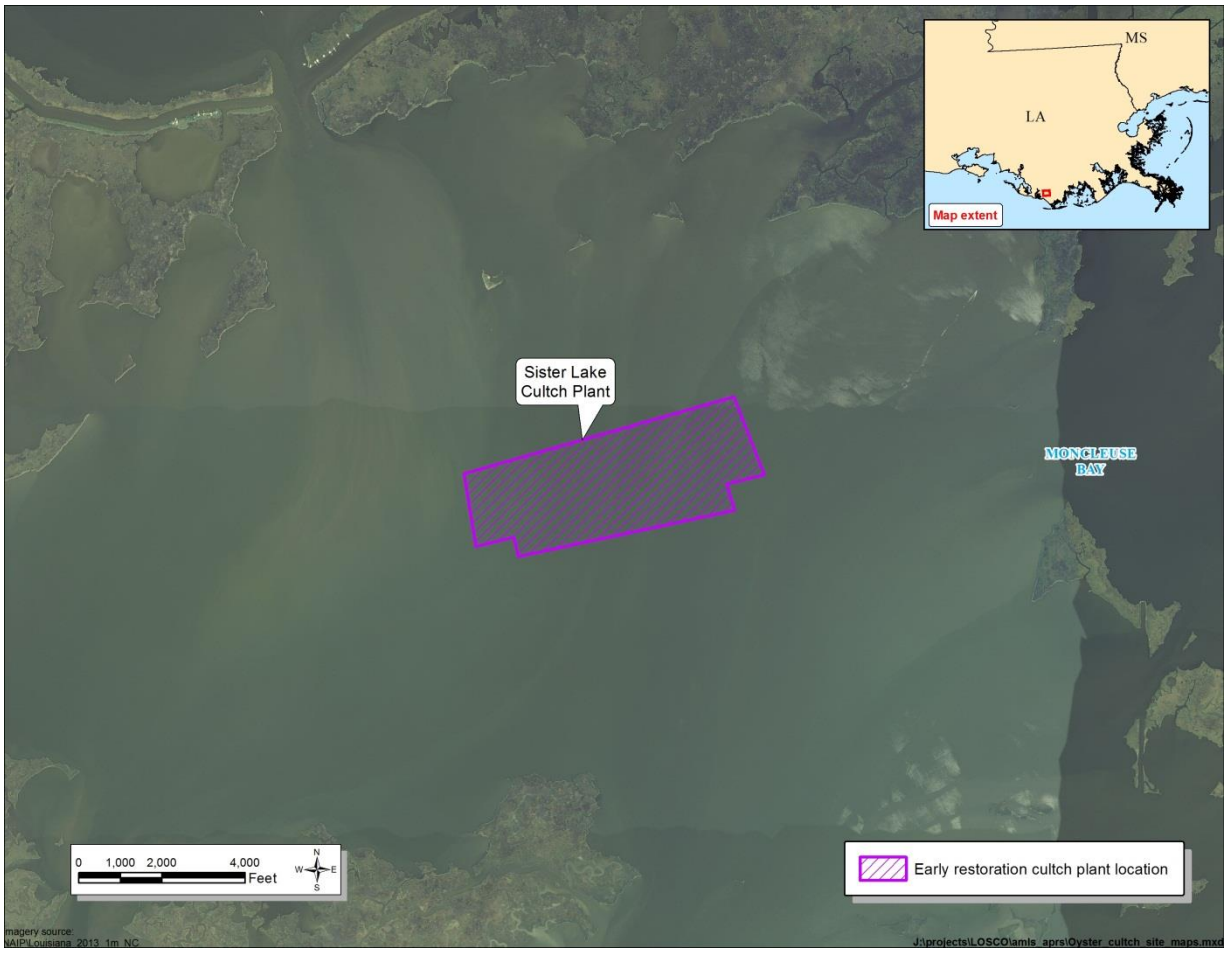


**Figure 3. Sister Lake cultch plant placement site.**

**Table 4. Sister Lake cultch site project-specific monitoring results.** Note that dredge surveys do not provide oyster-density estimates.

| Survey month/year (survey method) | July 2014 (quadrat) | October 2014 (dredge) |
|---|---|---|
| Live spat density (#/$m^2$) | 2.4 | – |
| Live spat count[a] | 12 | 341 |
| Spat mortality | 0.0% | 4.7% |
| Live seed density (#/$m^2$) | 125.0 | – |
| Live seed count[a] | 626 | 1,090 |
| Seed mortality | 0.2% | 0.5% |
| Live sack density (#/$m^2$) | 5.8 | – |
| Live sack count[a] | 29 | 252 |
| Sack mortality | 0.0% | 0.0% |

a. Counts refer to the total number of live oysters sampled in 20 replicate samples.

## Bay Crab

The Bay Crab (or South Black Bay) cultch plant is located in CSA 1 South Pontchartrain Basin POSG (Figure 4). LDWF has operated an active cultch planting program in this area since the early 1900s. In this CSA, oyster recruitment and survival are heavily influenced by Mississippi River discharge via levee gaps, freshwater diversion structures, and mainstem distributaries (LDWF, 2012b). Previous stock assessments in this area, prior to the fall 2012 Bay Crab cultch placement, showed substantial declines of oyster abundance – down 95% to 98% compared to long-term averages. LDWF reported that oyster stocks in this POSG showed improvement in 2013 surveys compared to the extremely low abundance estimated in 2012 (LDWF, 2013).


**Figure 4. Bay Crab cultch plant placement site.**

LDWF observed low oyster densities during the first summer 2014 project-specific sampling event, roughly 20 months after cultch placement. In the 20 replicates that LDWF sampled throughout the entire Bay Crab cultch plant, only 3 replicates had 1 seed oyster each. In addition, LDWF did not observe

any spat or sack-sized oysters. LDWF observed similar trends of low oyster recruitment during the October 2014 dredge sampling (Table 5). Live oysters were observed in 11 of the 20 replicate samples.

**Table 5. Bay Crab cultch site project-specific monitoring results.** Note that dredge surveys do not provide oyster density estimates.

| Survey month/year (survey method) | July 2014 (quadrat) | October 2014 (dredge) |
|---|---|---|
| Live spat density (#/$m^2$) | – | – |
| Live spat count[a] | 0 | 1 |
| Spat mortality | – | 0.0% |
| Live seed density (#/$m^2$) | 0.6 | – |
| Live seed count[a] | 3 | 15 |
| Seed mortality | 0.0% | 0.0% |
| Live sack density (#/$m^2$) | – | – |
| Live sack count[a] | 0 | 14 |
| Sack mortality | – | 0.0% |

a. Counts refer to the total number of live oysters sampled in 20 replicate samples.

In summary, LDWF's monitoring indicates that oyster recruitment has been poor at the Bay Crab cultch plant. This observation is consistent with results from historical sampling on nearby natural reefs, which have also shown little to no spat settlement in the area since fall of 2009 (LDWF, 2013).

## Lake Fortuna

Similar to Bay Crab, the Lake Fortuna cultch plant (Figure 5) is in the Pontchartrain Basin POSG (CSA 1 South) about eight miles northeast of the Bay Crab cultch plant. The same environmental stressors and recent declines in oyster stocks that LDWF has observed near Bay Crab may influence oyster performance in and near the Lake Fortuna cultch plant (LDWF, 2013).

LDWF conducted project-specific quadrat sampling at the Lake Fortuna cultch plant, approximately 20 months post-cultch placement. Although oysters in all size classes were observed, densities of spat (1.4 oysters/$m^2$), seed (6.4 oysters/$m^2$), and sack (0.2 oysters/$m^2$) oysters were low (Table 6). LDWF conducted the second round of project-specific sampling during the October 2014 dredge survey. Dredge survey results showed that spat-sized oysters were nearly nonexistent, with only 1 spat-sized oyster collected over 20 replicate sample locations. Relatively low numbers of seed- and sack-sized oysters were also observed during the October 2014 dredge survey (Table 6).


**Figure 5. Lake Fortuna cultch plant placement site.**

**Table 6. Lake Fortuna cultch site project-specific monitoring results.** Note that dredge surveys do not provide oyster-density estimates.

| Survey month/year (survey method) | July 2014 (quadrat) | October 2014 (dredge) |
|---|---|---|
| Live spat density (#/m$^2$) | 1.4 | – |
| Live spat count[a] | 7 | 1 |
| Spat mortality | 13.0% | 0.0% |
| Live seed density (#/m$^2$) | 6.4 | – |
| Live seed count[a] | 32 | 20 |
| Seed mortality | 8.6% | 9.1% |
| Live sack density (#/m$^2$) | 0.2 | – |
| Live sack count[a] | 1 | 3 |
| Sack mortality | 0.0% | 0.0% |

a. Counts refer to the total number of live oysters sampled in 20 replicate samples.

## 3-Mile Pass

The 3-Mile Pass cultch plant is located in the North Pontchartrain Basin POSG (CSA 1 North; Figure 6). Unlike most other Louisiana public oyster grounds, this area did not become a public oyster area until the late 1980s. The State of Louisiana has continually expanded and enhanced oyster reefs in this area through cultch placement activities. Historically, CSA 1 North has had high oyster production. However, similar to other nearby CSAs, oyster stocks near 3-Mile Pass have declined in recent years. The lowest recorded oyster stock sizes at CSA 1 North occurred in 2011 (LDWF, 2012b). While the 2012 stocks showed an increase in oyster production from 2011, stock sizes were still a fraction of historical averages and densities were highly variable. LDWF (2012b) attributed recently observed declines in seed and sack oysters to several years of heavy harvest, high recent mortalities, strong tropical storms, and impacts from the DWH spill and related response activities.

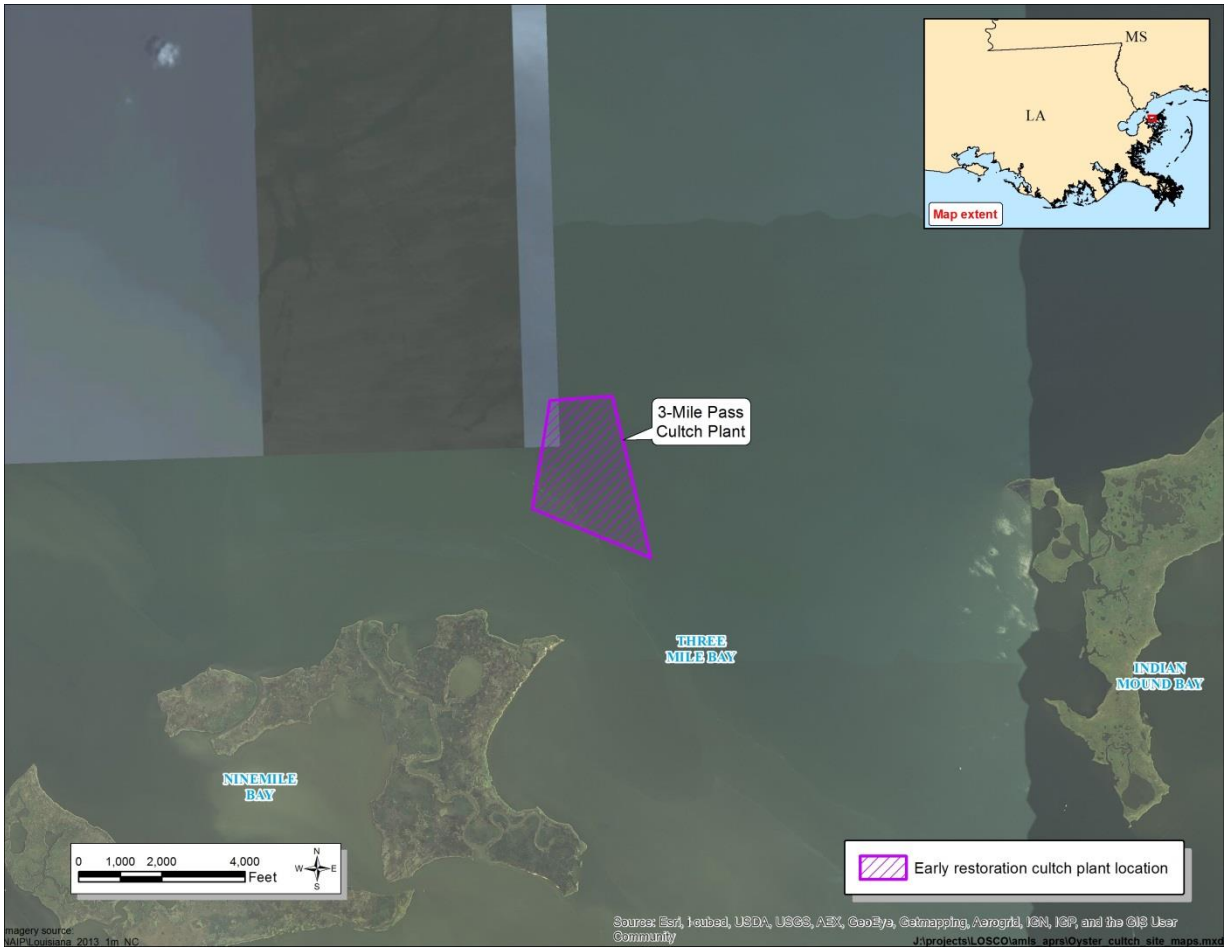


**Figure 6. 3-Mile Pass cultch plant placement site.**

Poor cultch condition was also noted as being a cause of poor spat settlement. For example, in 2012 LDWF noted that cultch was covered with silt and fouling organisms, and it had deteriorated into small "hash" particles in many areas within the CSA. As such, LDWF needed a greater volume and thickness of cultch material compared to other restoration sites to re-establish a functioning substrate for oyster recruitment. The 3-Mile Pass cultch plant covered approximately 160 acres of the CSA-1 North water bottom at a rate of 255 cubic yards of cultch per acre. Contractors completed the 3-Mile Pass cultch plant in May 2013, near the beginning of the 2013 oyster spawning season.

LDWF conducted project-specific monitoring in July 2014, approximately 14 months post-cultch placement. July 2014 quadrat sampling revealed high densities of seed-sized oysters (Table 7). LDWF observed oysters in almost all of the 20 randomly selected sampling replicates, with a generally even distribution across the entire cultch plant. Additionally, no recently dead oysters were found during the summer 2014 survey.

**Table 7. 3-Mile Pass cultch site project-specific monitoring results.** Note that dredge surveys do not provide oyster-density estimates.

| Survey month/year (survey method) | July 2014 (quadrat) | October 2014 (dredge) |
|---|---|---|
| Live spat density (#/$m^2$) | 3.8 | – |
| Live spat count[a] | 19 | 409 |
| Spat mortality | 0.0% | 3.3% |
| Live seed density (#/$m^2$) | 68.2 | – |
| Live seed count[a] | 341 | 886 |
| Seed mortality | 0.0% | 0.4% |
| Live sack density (#/$m^2$) | 0 | – |
| Live sack count[a] | 0 | 27 |
| Sack mortality | – | 0.0% |

a. Counts refer to the total number of live oysters sampled in 20 replicate samples.

LDWF continued to observe oyster growth in all size classes with low mortality during the October 2014 dredge survey (Table 7). Similar to the summer 2014 project-specific sampling, live oysters were observed in replicate samples collected throughout the entire site.

## Drum Bay

The Drum Bay cultch site (Figure 7) is located in the North Pontchartrain Basin POSG (CSA 1 North), approximately 13 miles south of the 3-Mile Pass project cultch plant. The Drum Bay location experienced similar recent declines in oyster stocks, environmental stressors, and cultch condition as has occurred in other CSA 1 North locations.


**Figure 7. Drum Bay cultch plant placement site.**

In summer 2014, LDWF conducted the first project-specific monitoring event at the Drum Bay cultch plant site, approximately 13 months after cultch placement. LDWF observed relatively high densities of seed-sized oysters during this sampling event (48 seed oysters/$m^2$; Table 8) with high spatial variability. A single replicate sample accounted for 66% of the total oysters observed at the cultch plant site. Oysters were found in only 7 of the 20 replicates.

LDWF conducted a project-specific dredge sampling event approximately three months after the summer quadrat survey and observed moderate numbers of live seed- and sack-sized oysters (Table 8). They also observed little to no mortality, indicating that younger oysters were surviving and growing over the 2014 oyster season. Live oysters were sampled in 13 of the 20 replicate dredge locations, which was an improvement from the seemingly patchy distribution observed in the previous summer quadrat sampling event.

**Table 8. Drum Bay cultch site project-specific monitoring results.** Note that dredge surveys do not provide oyster density estimates.

| Survey month/year (survey method) | July 2014 (quadrat) | October 2014 (dredge) |
|---|---|---|
| Live spat density (#/$m^2$) | 0.8 | – |
| Live spat count[a] | 4 | 17 |
| Spat mortality | 0.0% | 0.0% |
| Live seed density (#/$m^2$) | 48.0 | – |
| Live seed count[a] | 240 | 189 |
| Seed mortality | 0.4% | 0.0% |
| Live sack density (#/$m^2$) | 0.2 | – |
| Live sack count[a] | 1 | 92 |
| Sack mortality | 0.0% | 1.1% |

a. Counts refer to the total number of live oysters sampled in 20 replicate samples.

## Monitoring Summary

Across all the cultch sites, the following trends were observed based on project-specific monitoring data:

- Overall, project-specific performance monitoring conducted during summer and fall of 2014 showed cultch placement has increased oyster production and oyster recruitment from pre-project conditions.
- Oyster spat settlement, growth, seed production, and mortality were highly variable between project cultch sites. However, spatial trends in oyster performance are apparent. For example, cultch placement sites located in Terrebonne, Barataria, and North Pontchartrain basins are substantially outperforming sites located in the South Pontchartrain Basin.
- As of July 2014, the average area-weighted density of seed-sized oysters across all of the project cultch plant sites exceeds the performance criterion of 20 oysters/$m^2$.
- October 2014 dredge sampling results confirmed trends observed in July 2014, with continued settlement of spat onto cultch materials and good spat and seed survival at most of the cultch placement sites. Moderate numbers of sack-sized oysters were also observed at the more mature Hackberry Bay and Sister Lake sites constructed in spring 2012. South Pontchartrain sites continued to produce low numbers of oysters in all size classes.
- The Trustees anticipate releasing a follow-up report later this year summarizing the results of dredge sampling to be conducted in January and April 2015.

## Status of Oyster Hatchery

The State of Louisiana started construction of the oyster hatchery for this project in 2013 and anticipates its completion in early 2015.

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