Commission on Marine Resources
February Meeting

February 19, 2019
Employment, Contracts and Procurement Updates
February 19, 2019
Employment Updates

- 01.16.19 – Eric Gigli – Finfish Contractor
- 02.01.19 – Adam Terrell - Permitter
# Contracts and Procurements
## January 2019

<table>
<thead>
<tr>
<th>Contract Worker Contracts</th>
<th></th>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Employee</strong></td>
<td><strong>Office</strong></td>
<td><strong>Amount</strong></td>
<td><strong>Term</strong></td>
<td><strong>Board Approval (if needed)</strong></td>
<td><strong>Funding Source</strong></td>
</tr>
<tr>
<td>Eric Gigli</td>
<td>Fisheries - Finfish</td>
<td>$20,324.32</td>
<td>01.16.2019 - 06.30.2019</td>
<td>New Procurement, no board action required</td>
<td>100% NFWF</td>
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<tr>
<td>Michael Reid</td>
<td>Property Management</td>
<td>$24,624.94</td>
<td>02.01.2019 - 06.30.2019</td>
<td>New Procurement, no board action required</td>
<td>100% State</td>
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</table>

<table>
<thead>
<tr>
<th>Commodity Contracts</th>
<th></th>
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<tbody>
<tr>
<td><strong>Vendor</strong></td>
<td><strong>Procurement Method</strong></td>
<td><strong>Amount</strong></td>
<td><strong>Term</strong></td>
<td><strong>Funding Source / Bureau Receiving</strong></td>
<td><strong>Commodity/Service Description</strong></td>
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<tr>
<td>Seven C's Marine, Inc.</td>
<td>Reverse Auction</td>
<td>$115,980.00</td>
<td>01.08.2019 - 01.07.2020</td>
<td>100% JEA / Marine Patrol</td>
<td>Two (2) NauticStar 265XTS</td>
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<td>Seven C's Marine, Inc.</td>
<td>Reverse Auction</td>
<td>$83,220.00</td>
<td>12.27.2018 - 12.26.2019</td>
<td>100% Bond / Artificial Reef</td>
<td>NauticStar 28 XS</td>
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<tr>
<td>Office Requesting</td>
<td>Procurement Method</td>
<td>Estimated Amount</td>
<td>Commodity/Service Description</td>
<td>Board Approval</td>
<td>Funding Source</td>
</tr>
<tr>
<td>-----------------------------------------</td>
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<td>----------------</td>
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<tr>
<td>Coastal Zone Management, Coastal Preserves</td>
<td>Request for Proposals</td>
<td>unknown</td>
<td>Small Parcel Invasive Vegetation Treatment</td>
<td>PPRB</td>
<td>NFWF</td>
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<td>Marine Patrol</td>
<td>Reverse Auction</td>
<td>$ 550,000.00 (est)</td>
<td>Two (2) Vessels 30-33ft</td>
<td>OPTFM</td>
<td>FEMA</td>
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<tr>
<td>Aquaculture</td>
<td>Request for Applications</td>
<td>$ 24,415.02 for six months</td>
<td>Aquaculture Technician</td>
<td>OPSCR (Staff Approval)</td>
<td>Restore Grant / Tidelands</td>
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CMR Peer Review Committees

Financial Review
Contract Review
Program Review
Financial Review

- **Proposed Members** - Steve Bosarge & Mark Havard

- **Purpose:** To review the financial status of the MDMR. The committee will review monthly reports, yearly audits and conduct periodic meetings with MDMR Executive Director to assess the agency’s financial stability and that expenditures on programs and facilities are adequately justified and that the expenditures further the policy of the State as it relates to management of the marine resources and coastal wetlands.
Contract Review

- Proposed Members - Mark Havard & Natalie Guess

Purpose: Review contracts with a value in excess of ten thousand dollars, entered into by the MDMR. The committee will review monthly reports, yearly audits and conduct periodic meetings with MDMR Executive Director to assess whether the contract is adequately justified and was not inappropriately awarded to a family member, or business associate of other MDMR employees, or awarded as a result of undue influence from elected, appointed or public figures.
Program Review

- Proposed Members - Richard Gollott & Ronnie Daniels

- Purpose: Review MDMR land acquisition and land management programs of the MDMR. The committee will review bi-annual reports and conduct periodic meetings with MDMR Executive Director and assess whether the established programs have justifiable criteria for identifying properties for inclusion in the programs and provisions for long-term management of properties acquired.
Meetings

• The committees will meet twice a year – called by the MDMR Executive Director - or at other times as deemed necessary by the CMR or the Director.
Tarpon Research in Mississippi Coastal Waters

Mississippi Commission on Marine Resources – February 19, 2019
• Tropical/sub-tropical Atlantic Ocean
• Adults are seasonally migratory
• Juveniles are estuarine-dependent
• Maximum length: 9 feet total length
• Maximum weight: 280+ pounds
• Age up to 75 years
• Age at first maturity:
  • Males 7 years, females 10 years
• Economic impact of Tarpon recreational fishing in Florida $2B/year; Carolinas to Texas $5B/year (Jacksonville.com, 2018)
• Not a commercial fishery species in US waters
Tarpon Fishing on the Mississippi Coast: Historic Perspective

- Pass Christian Tarpon Club (1929, Cat Island); Tarpon fish camps; ‘Hole’
- Tarpon rodeos (1930’s - 1950’s; July - October)
- “Large schools (1,000s of tarpon) in MS Sound and bays; more tarpon here than any other section of the Gulf between Texas and Florida” (Daily Herald, 1930).
TWIN "SILVER KINGS" AND A QUEEN

Taken in the same hour in the main Biloxi channel just off the Old Spanish Trail boulevard in Mississippi, this fine pair was kept to adorn a clubhouse wall. Among channels and islands of the Gulf Coast, tarpon are caught in considerable numbers during a long fishing season from May to November. In October the sea fighters "school up" and then, anglers say, thousands have been seen in a single school. Near Pass Christian is a famous tarpon-fishing hole.
Decline in the Atlantic Tarpon Population (including the Gulf of Mexico)

- “Multiple lines of evidence indicate that Tarpon populations have radically declined from historical levels throughout the species’ range; noticeable declines in the Florida population since the 1960’s” (FAO 2011, Adams et al. 2012).
- Factors believed associated with the decline include:
  - Loss and degradation of nursery habitats; water quality issues
  - Fishing pressure in countries harvesting Tarpon for consumption
  - Reduction in juveniles recruiting to the spawning population
- Tarpon is assigned *Vulnerable status* (IUCN List 2012)

A formal stock assessment of the Tarpon population has not been conducted in any portion of the species’ range.
Juvenile Tarpon
2006 - 2018

Early Juveniles
• 368 collections; cast nets
• 2 - 14 inches total length
• Less than 1 year old
• August - December
• Opportunistic sampling

Length Distribution

Collections by Month
Juvenile Tarpon
2006 - 2018

Large Juveniles
• 2-3 feet total length
• 3-4 years old
• Apr., Nov., Dec.
• Reported catches of large juveniles
Larval Tarpon

Tarpon larvae (leptocephali) collected (n = 117) • Spawned where?
- 2006 - 2018, June- October; opportunistic sampling
- 16.0 - 27.8 mm standard length
- Collected along sandy beaches and fringing marsh
- First documented occurrence of Tarpon larvae in Mississippi coastal waters

Leptocephali Collections by Month

<table>
<thead>
<tr>
<th>Month</th>
<th>Number</th>
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<tbody>
<tr>
<td>JUN</td>
<td>5</td>
</tr>
<tr>
<td>JUL</td>
<td>10</td>
</tr>
<tr>
<td>AUG</td>
<td>30</td>
</tr>
<tr>
<td>SEPT</td>
<td>20</td>
</tr>
<tr>
<td>OCT</td>
<td>5</td>
</tr>
</tbody>
</table>

SHORT COMMUNICATION

OCCURRENCE OF ATLANTIC TARPON, MEGALOPS ATLANTICUS, LEPTOCEPHALI IN THE MISSISSIPPI SOUND ESTUARY

Patrick M. Graham*, James S. Franko, Jason D. Tilley, Dyna P. Gibson, and Evan J. Anderson
The University of Southern Mississippi, School of Ocean Science and Technology, Center for Patients Research and Development, Gulf Coast Research Laboratory, 703 East Beach Dr., Ocean Springs, MS 39564, USA. *Corresponding author, email: Patrick.M.Graham@usm.edu

KEY WORDS: Megalopsidae, Elasmobranchii, leptocephali, Gulf of Mexico, metamorphosis

INTRODUCTION
Atlantic Tarpon, Megalops atlanticus, Family Megalopsidae, are large, migratory elasmobranch fish that occur in tropical, subtropical, and temperate waters of the Atlantic Ocean, including the Gulf of Mexico (GOM) (Wade 1962, de Monet and others from the OOM consisted only of offshore samples (Smith 1980, Crabtree et al. 1992, Crabtree 1995, Stein et al. 2016) and a single individual (27 mm SL) from coastal Louisiana (Tulane University Museum collection, accession...
Larval Tarpon Age

- Otoliths removed from 101 larvae were analyzed for daily age.
- Age ranged 19-38 days (mean age 27.3 days).

Larval tarpon otolith 400X magnification
Daily rings; 23 days old
Based on larval ages, hatch dates extended from May to September.

Hatch dates correspond with the July 2012 catch of two female Tarpon from the north-central Gulf that were in spawning condition (Stein et al. 2013).

Spawning. Ongoing work with ocean current model: combine larval ages, collection dates & collection locations to back-track (hind-cast) their movements (drift) from inshore to estimated offshore spawning sites (off Mississippi?)
Satellite Tagging Adult Tarpon

- Pop-up Satellite Archival Tags (PSAT) (Microwave Telemetry, Inc.)
- Purpose: collect data on seasonal movement patterns and environmental preferences
- 4 adult Tarpon tagged south of Cat Isl.
  - August, September 2018
  - Fork length: 58 - 65 inches
  - Est. weight: 100 - 115 lbs.
- PSAT programmed time deployments
- PSAT deployment in summer 2019

Photos credit: Kyle Johnson
Summary

• Mississippi coastal estuaries provide habitat for Tarpon larvae and juveniles; prior occurrence?
• Larvae collected from local waters were spawned during summer (May - September).
• Work is ongoing to identify Tarpon offshore spawning locations; inshore/offshore connectivity.
• Satellite tagging study is ongoing.

Next steps:
• Contribution of Mississippi juvenile Tarpon to the Gulf adult Tarpon population; recruitment
• Public outreach:
  • Identification of young Tarpon and best handling practices for successful release
  • Instructions for anglers on reporting their catch and release of Tarpon
Current Management of Tarpon in the Gulf of Mexico

Florida
- Catch and release fishery only; no minimum size limit
- Larger than 40 inches Total Length, fish must remain in the water
- One tarpon tag ($50)/per person/year may be purchased to harvest a Tarpon when in pursuit of an IGFA world record.

Alabama
- Minimum size limit: 60 inches Total Length
- $61 tag required to harvest a Tarpon

Texas
- Minimum size limit: 85 inches Total Length
- Daily bag limit: 1/person; 2 possession

Mississippi
- No regulations

Louisiana
- No regulations
Acknowledgments

Mississippi Department of Marine Resources
• Tidelands Trust Fund Program

Donations by Historic Ocean Springs Fly Fishing Club (HOSSFLY) and Fly Fishers International

Donation by Robert Meaher - Fairhope, AL

GCRL-CFRD fisheries biologists: Patrick Graham, Jason Tilley, John Anderson, Chris Lapniewski, Paul Grammar, Jeremy Higgs, Steven Curran, Dyan Gibson

Captains Jeremy Mchugh, Kyle Johnson, Mark McDonald
Mississippi Department of Marine Resources

Coastal Resources Management
February 2019
Request for Permit Extension by:
City of Diamondhead
File: DMR-040491

- Location: Rotten Bayou near the south end of Devil’s Elbow in Diamondhead, Hancock County, Mississippi.

- Use District: (G) General Use District

- Agent: James J. Chiniche, P.A., Inc.
Project Description

- **Dredging/Excavation:**
- 200’ x 40’ (8,000 square feet)
- Current depth: 0’ – 4’ below MLW
- Proposed depth: 4’ below MLW
- No more than 1,200 cubic yards of material will be removed
- Approximately 3,400 square feet of the area to be excavated is vegetated. The native vegetation in this area will be transplanted to an area just north of the project site. A detailed transplant plan that conforms to DMR’s Marsh Restoration and Creation Success Guidelines shall be submitted to and approved by the staff of the Bureau of Wetlands Permitting prior to commencement of dredging/excavation operations.
Project Chronology

- **Project Chronology:**

- March 18, 2014: Project was presented to the CMR and was approved as recommended.

- August 22, 2018: A Permit Modification was issued to change the ownership of the permit to the City of Diamondhead.

- January 31, 2019: The City of Diamondhead requested a Permit Extension.
Recommendation

• Based upon departmental review and evaluation, staff recommends that the CMR approve the applicant’s request
Update on Grand Bay Land Acquisition & Habitat Management Project

Funded by Natural Resource Damage Assessment (NRDA)
Grand Bay National Estuarine Research Reserve (NERR) & National Wildlife Refuge (NWR)
Grand Bay is the largest area in the state of natural emergent marshlands and wet pine savanna habitats.
This estuary and marshlands function as important nurseries for fish and shellfish.
The functions of the estuary and marshlands are supported by the upland wet pine savannas.
The Grand Bay Land Acquisition and Management Project is a long-term partnership between:

- Grand Bay NWR
- MS Department of Environmental Quality
- Grand Bay NERR
- MS Secretary of State’s Office
- MS Trustee Implementation Group (TIG)

to restore native wet pine savanna habitats within the Grand Bay NERR/NWR boundary.
Habitat is restored by acquiring and managing land:

- Mechanical clearing
- Herbicide treatment
- Prescribed fire
Scientific monitoring determines results of management treatments.

Photo Credits: Jonathan Pitchford
First acquisition was completed on December 28, 2018 and added more than 1,500 acres to the Grand Bay area. Acquired lands will be incorporated into project area.
Project will provide tremendous benefit to Mississippi coastal habitats and vast opportunities for science and outreach at the Grand Bay NERR.
Questions?
Key Metrics:
- State Revenue of $4.4M
- Agency Revenue of $17.9M
- State Net Income of $382K
- Agency Net Income of $4.5M

### MISSISSIPPI DEPARTMENT OF MARINE RESOURCES

**Income Statement - Fiscal Year 2019**

*As of January 31, 2019*

<table>
<thead>
<tr>
<th></th>
<th>Federal:</th>
<th>Operating Subtotal</th>
<th>Tidelands</th>
<th>Total DMR</th>
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<tr>
<td></td>
<td>State</td>
<td>NFWF:</td>
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<tr>
<td><strong>Revenue:</strong></td>
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<tr>
<td>Transfer in from Other Governments</td>
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<td>Off-road Fuel Tax</td>
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<tr>
<td>Federal/Non-Federal Grants</td>
<td>3,200</td>
<td>2,950,961</td>
<td>2,954,161</td>
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<td>Sales Revenue</td>
<td>527,333</td>
<td>147</td>
<td>527,480</td>
<td>1,188</td>
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<tr>
<td>Indirect Cost Recovery</td>
<td>403,907</td>
<td>-</td>
<td>403,907</td>
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<tr>
<td>Other Revenue</td>
<td>464,365</td>
<td>330,548</td>
<td>794,913</td>
<td>218,584</td>
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<td><strong>Current Budget Year Revenue:</strong></td>
<td>4,448,805</td>
<td>3,319,493</td>
<td>7,768,298</td>
<td>10,219,772</td>
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<td><strong>Expenditures:</strong></td>
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<td></td>
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<td>Salaries, Wages, Fringe</td>
<td>3,052,880</td>
<td>1,275,237</td>
<td>4,328,116</td>
<td>589,555</td>
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<td>Travel</td>
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<td>26,037</td>
<td>38,298</td>
<td>17,030</td>
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<td>947,831</td>
<td>1,365,635</td>
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<td>Commodities</td>
<td>187,586</td>
<td>1,353,334</td>
<td>1,540,920</td>
<td>102,783</td>
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<tr>
<td>Other than Equipment</td>
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<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Equipment</td>
<td>308,047</td>
<td>104,869</td>
<td>412,916</td>
<td>14,949</td>
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<td>Vehicles</td>
<td>-</td>
<td>65,578</td>
<td>65,578</td>
<td>-</td>
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<td>Wireless Devices</td>
<td>351</td>
<td>433</td>
<td>785</td>
<td>274</td>
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<td>Subsidies, Loans, and Grants</td>
<td>87,155</td>
<td>1,201,514</td>
<td>1,288,669</td>
<td>3,262,748</td>
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<td><strong>Current Budget Year Expenditures:</strong></td>
<td>4,066,082</td>
<td>4,974,834</td>
<td>9,040,916</td>
<td>4,422,847</td>
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<td><strong>Current Budget Year Net Income/(Loss):</strong></td>
<td>$382,723</td>
<td>$(1,655,341)</td>
<td>$(1,272,618)</td>
<td>$5,796,925</td>
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Financial Budget Comparison

- After seven months of Fiscal Year 2019:
  
  | Expenditures               | Operating  | Tidelands | Total    | Operating  | Tidelands | Total    | Operating  | Tidelands | Total    | Percent Remaining |
  |----------------------------|------------|-----------|----------|------------|-----------|----------|------------|-----------|-----------|----------|-------------------|
  | Salaries, Wages, Fringe    | $4,328,116 | $589,555  | $4,917,671| $10,897,765| $1,012,526| $11,910,291| $325,487   | 30,000    | 355,487  | 60.3%              |
  | Travel                     | 38,298     | 17,030    | 55,328   | 9,601,848  | 1,627,590 | 11,229,438| 3,355,674  | 450,000   | 3,805,674| 85.8%              |
  | Contractual Services       | 1,365,635  | 435,507   | 1,801,142| 1,109,408  | 225,000   | 1,334,408| 170,000    | -         | 170,000  | 54.1%              |
  | Commodities                | 1,540,920  | 102,783   | 1,643,703| 13,456,150 | 6,654,384 | 20,110,534| 6,250      | 500       | 6,750    | 62.8%              |
  | Equipment                  | 412,916    | 14,939    | 427,865  | 412,916    | 14,939    | 427,865  | 412,916    | 14,939    | 427,865  | 61.4%              |
  | Vehicles                   | 65,578     | 14,939    | 65,578   | 65,578     | 14,939    | 65,578   | 65,578     | 14,939    | 65,578   | 87.4%              |
  | Wireless Devices           | 785        | 108       | 893      | 785        | 108       | 893      | 785        | 108       | 893      | 90.4%              |
  | Subsidies, Loans, and Grants| 1,288,669  | 3,262,748 | 4,551,418| 1,288,669  | 3,262,748 | 4,551,418| 1,288,669  | 3,262,748 | 4,551,418| 90.4%              |
  | Total Expenditures:        | $9,040,916 | $4,422,847| $13,463,763| $38,992,667| $10,000,000| $48,992,667| $38,992,667| $10,000,000| $48,992,667| 76.8% |

- Operating Funds have 76.8% of Budget remaining
- Tidelands Trust Fund has 55.8% of Budget remaining
Oyster Task Force

Joe Jewell
February 19, 2019
Overview

• The Oyster Task Force held its inaugural meeting February 5th with the following goals:
  • Review of SOP
  • Election of Chair/Vice Chair
• The following items were discussed by the task force:
  • 2019 Cultch Plant Update
  • Bonnet Carré Spillway
  • Proposed Legislation
Oyster Task Force Motions Report

The following motions were made and adopted by the task force:

1. Motion to accept Oyster Task Force SOP passed unanimously 9-0
2. Task Force motioned and adopted support House Bill 1261/Senate Bill 2285 that increases the shell retention fee from $0.30 to $1.00. Motion passed 8-1.
3. Task Force motioned and adopted opposition to House Bill 1262/Senate Bill 2783 which would allow limited leasing of public oyster reefs. Motion passed unanimously 9-0.
4. Task Force motioned and adopted that the Task Force representative present to the CMR the adopted motions in 2 and 3 above.
Questions?
CMR Passed Notice of Intent(s) on January 24, 2019

Notice of Intent(s) Filed with the SOS on January 24, 2019

January 24, 2019 MDMR Web Page Notice

Legal Notice Appeared in the Sun Herald on January 26, 2019

Public Hearing held on February 14, 2019
Public Hearing February 14, 2019

- Public attendance – 6
- MDMR Employees – 13
- TOTAL in Attendance: **19**

Public Comment period January 24th through February 18, 2019 (25 days)

- To date, **five** public comments have been received
- Number of Oral Comments: 3
- Email Comments: 1
- Written Comments: 1 (CCA Letter)
  - Support the proposed changes – 4
  - Oppose the proposed changes – 0
  - Miscellaneous comment – 1
Summary of Public Comments

Three oral comments received at public hearing:

• FJ Eicke (CCA Mississippi): Commends the Gear Task Force as a positive move to clarify the ambiguity that had existed in defining methods of fishing and CCA lends its support to the proposed regulatory changes. The proposed changes should allow MDMR enforcement to effectively monitor methods of fishing that will be in the best interest of sustaining our marine resources.

• Steve Shepard (MS Chapter of the Sierra Club) – Mr. Shepard, as well as the Sierra Club, supports the changes.

• Ralph Humphrey – Thanks the MDMR for making these changes; it is a positive step and a step in the right direction.
Email comment: submitted by Don Balius noting that haul seine was not included in Title 22 Part 5 Chapter 4, Subsection 101.08

Written Comment: Submitted by CCA supporting the recommended changes to Title 22 Parts 5 and 8
Title 22 Part 8 Chapter 4 (Definitions)

116 ENTANGLEMENT – a method in which fish are primarily ensnared or entangled by the gills or other boney projections through interaction with gear

117 ENTRAPMENT - a method in which fish are primarily surrounded and confined, not entangled by the gills or other boney projections, within a space through interaction with gear

118 EXECUTIVE DIRECTOR - shall mean the Executive Director of MDMR.

119 FIELD TEST - Shall mean (1) a test used to determine whether materials used in a gill or trammel net meet the definition of approved degradable material or are manufactured of cotton or linen, or (2) a test accepted by the MDMR as a scientifically valid test of degradability, devised by manufacturers of degradable gill or trammel net materials. Where the MDMR has accepted a manufacturer’s test and results thereon with regard to degradable materials, the MDMR must receive from any such manufacturer a certification by the manufacturer that the material constructed by it meets the definition of an approved degradable materials as well as a copy of the manufacturers test. Any gill or trammel net to be used in the marine waters of the State of Mississippi, manufactured from any approved degradable material or cotton or linen shall be certified by the MDMR where:
   119.01 The material used in the net has been shown to be constructed of such materials by either form of field test described herein and that the MCMR has previously approved the material; and
   119.02 The net and a certificate by the net manufacturer demonstrating that the materials were used in the manufacture or construction of the net were of those approved by the MCMR are presented to the MDMR for inspection.
Upon such proof, the MDMR shall permanently affix an identifying placard or other marker of the net.

120 FINAL DESTINATION - shall be defined as a place on the mainland or a barrier island, not including piers or jetties, where the fishermen finally lands his catch and does not further transport the fish by boat.

121 FOOTROPE - shall mean leadline, footline, groundrope or that lower part of the trawl that the webbing is first attached, that also provides for the weighing down of the trawl by means of lead weights, chain or other means.
122120 GIG – shall be defined as any hand held shaft with one or more points which may or may not be barbed.

123121 GILL NET - shall be defined as any net, of one or more layers, not customarily used for shrimp or menhaden fishing, with a mesh of such size and design as to be used primarily to catch or entangle fish by the gills or other boney projections.

124 HAUL SEINE – A net set vertically in the water column and pulled by hand or by power to capture fish by entrapment through encircling and confining fish within itself, the shore or bank as a result of mesh size and construction. Haul seines shall be constructed of a mesh size not to exceed fifteen sixteenths (15/16”) bar and one inch and seven eighths (1 7/8”) stretch and shall not be constructed of monofilament.

125122 HEADROPE - shall mean corkline, headline, floatline or that upper part of the trawl that the webbing is first attached, that also provides flotation by means of corks, floats or other means.

126123 INTEREST IN COMMERCIAL SHRIMP OPERATION - shall mean having any direct or indirect pecuniary or financial interest in any commercial shrimp vessel, shrimp processing facility or sale of shrimp for human consumption.

127124 INTEREST IN LIVE BAIT OPERATIONS - shall mean having any direct or indirect pecuniary or financial interest in any live bait catcher boat, live bait shrimp transport vehicle or live bait camp.

128125 KING MACKEREL FISHING - shall be defined as a fishing activity where the sole purpose is to catch king mackerel (Scomberomorus cavalla). It shall be unlawful for any person, firm, or corporation, while engaged in any net fishing activity or "set" to catch in excess of ten percent (10%) by weight of species other than king mackerel while king mackerel fishing.

129126 LANDED – When seafood is first brought to a point of land after being harvested and is no longer transported by boat or vessel.

130127 LIVE BAIT CAMP - shall mean any business of a live bait dealer that deals in the selling of live and dead shrimp to recreational fishermen within the State of Mississippi for bait use and has been duly inspected and permitted as a "live bait camp" by the MDMR.
13128 **LIVE BAIT CATCHER BOAT** - shall mean any watercraft having suitable equipment aboard to properly harvest and retain aboard, in a live condition, shrimp which are intended solely for use as live bait to be sold or dispensed to recreational fishermen within the State of Mississippi and said boat having been duly inspected, permitted and licensed by the MCMR as a "live bait catcher boat" to a particular live bait camp.

132128 **LIVE BAIT SHRIMP TRANSPORT VEHICLE** - shall mean any motorized vehicle having suitable equipment to properly transport, in a live condition, shrimp which are intended solely for use as live bait to be sold or dispensed to recreational fishermen and said vehicle having been duly inspected and permitted as a "live bait shrimp transport vehicle" by the MDMR.

133129 **MISBRANDED** - Shucked shellfish shall be deemed to be misbranded if its labeling is false or misleading in any way, or if it does not bear a label containing (1) the name and place of business of the processor or packer (2) an accurate statement of the quantity of the contents in terms of weight, measure, numerical count or size of container, (3) the permit number of the processor or packer (4) net drained weight when packed (5) on packages of sixty-four (64) fluid ounces or more of fresh product, labeled with the date shucked with the wording "DATE SHUCKED" followed by the date expressed as the month, day, and year, or (6) on packages of less than sixty-four (64) fluid ounces of fresh product labeled with the wording "SELL BY" followed by a date expressed as a month, day, and year, not to exceed fourteen (14) days from the date shucked. (7) Containers of frozen shucked shellfish shall show the date the product was shucked and the date frozen, labeled as "DATE SHUCKED" and "DATE FROZEN" followed by the date expressed as the month, day, and year. Shucked product previously frozen must be labeled with the wording "PREVIOUSLY FROZEN"

134130 **MULLET FISHING** - shall be defined as a fishing activity where the sole purpose is to catch mullet (*Mugil* sp.). It shall be unlawful for any person, firm, or corporation, while engaged in any mullet fishing activity or "set" to catch in excess of ten percent (10%) by weight of species other than mullet.

135131 **PLACARD** - Marking or identification permanently attached to nets or fishing devices that verifies that they meet specified requirements such as an approved degradable material.

136132 **PROHIBITED AREA** - Waters that are prohibited for the harvest of shellfish for any purpose except depletion. A prohibited shellfish growing area is a closed area for the harvesting of shellfish at all times.
1371 PURSE SEINE - shall be defined as any net or device commonly known as a purse seine and/or ring net that can be pursed or closed by means of a drawstring or other device that can be drawn to close the bottom of the net, or the top of the net, or both. Such nets are constructed of mesh of such size and design as not to be used primarily to entangle commercial size fish by the gills or other boney projections.

1383 PUSH TRAWL - shall mean a trawl that is spread by poles suspended in a "V" configuration from the bow of the trawler.

1394 RECREATIONAL FISHERMAN - shall be defined as those individuals taking and/or catching seafood for recreational or personal consumption, and who does not sell, trade, barter or otherwise exchange or offer to exchange any part of his catch for monetary or personal gain.

1404 REPACKER –RP—A person other than the original certified shucker-packer who repacks shucked shellfish into other containers. A repacker may also repack and ship shellstock. A repacker shall not shuck shellfish.

1414 RESHIPPER -RS- A person who purchases shucked shellfish or shellstock from other certified shippers and sells the product without repacking or relabeling to other certified shippers, wholesalers, or retailers.

1424 RESTRICTED AREA - Closed area waters from which shellfish may be harvested only if permitted and subjected to a suitable and effective purification process as determined and permitted by the MCMR.

1434 ROE MULLET SEASON - shall be defined as occurring on and between October 15 through December 15 of each year.

1444 SALTBOX - shall mean any container or similar device in which the salinity is greater than one hundred (100) parts per thousand and is used to aid in separating the shrimp from the bycatch.

1454 SANITARY SURVEY – The evaluation of all actual and potential pollution sources and environmental factors having a bearing on shellfish growing area water quality.

1464 SEAFOOD PRIVILEGE TAX LICENSE DECAL - A decal issued to a commercial harvester at the time the fisherman purchases a license for the vessel to harvest seafood.
SEINE - shall be defined as any net used to enclose or entrap fish either in a bag or where its ends are pulled together on a vessel or a shore and constructed with a mesh of such size and design as not to be used primarily to ensnare or entangle commercial size fish by the gills or other boney projections.

SHELLFISH - All edible species of oysters, clams, mussels, or scallops; either shucked or in the shell; fresh or frozen; whole or in part.

SHELLSTOCK - Shellfish in the shell.

SHELL STOCK SHIPPER –SS – A person who grows, harvests, buys, or repacks and sells shellstock. They are not authorized to shuck shellfish or to repack shucked shellfish. A shellstock shipper may also ship shucked shellfish.

SHUCKER-PACKER –SP – A person who shucks and packs shellfish. A shucker-packer may act as a shellstock shipper or reshipper or may repack shellfish originating from other certified dealers.

SIAMESE TRAWL - shall mean a trawl that has two tongues one on the headrope and one on the footrope at or near the center of the net which requires additional line(s), other than the lines attached to the trawl boards, which run from the bridle, outrigger or boat to the tongues.

SKIMMER TRAWL - shall mean a trawl that extends from the outrigger of a vessel with a cable and a lead weight holding the trawl mouth open.

TRAMMEL NET - shall be defined as any device composed of layers of netting material attached to one or more float lines or one or more weighted bottom lines, with the layers of netting being constructed of fine mesh and of larger mesh so that a fish attempting to pass through the device pushes the smaller mesh through the larger mesh creating a pocket or compartment in which the fish is entrapped, entangled, or restricted.

UNCLASSIFIED AREA - Waters that are presently unclassified and from which the harvest of shellfish is prohibited pending classification of the area as prohibited, restricted, conditionally approved, or approved based on a sanitary survey of the area and granting of permission to harvest shellfish in accordance with the respective classification by the MCMR or as hereby authorized the MDMR, its Executive Director, Deputy Director, Director of Marine Fisheries or Biological Program Coordinator.

WING NET - (Butterfly trawl) shall mean a trawl with a rigid frame holding open the trawl mouth rather than using trawl doors.
Required:

A motion to proceed with Final Adoption for regulatory changes to Title 22 Part 8 Chapter 4 regarding the addition of new definitions developed by the Gear Type Task Force
100 It shall be unlawful for any person, firm, or corporation to catch, take, or carry away any saltwater fish by or with any gill nets, trammel nets, purse seines, seines, haul seines, fish traps, except permitted eel traps, or any other like contrivances, in the territorial waters of the State of Mississippi within twelve hundred feet (1200) of any public pier or any pier owned and operated by hotels or motels for the use of their patrons and guests for swimming and fishing or any harbor or within twelve hundred (1200) feet of the shoreline of Deer Island.

101 It shall be unlawful for any person, firm, or corporation to catch, take or carry away any saltwater fish by or with any gill nets, trammel nets, purse seines, seines, haul seines, fish traps, and other like contrivances except permitted eel traps in the following areas of the State of Mississippi:
Title 22 Part 5 Chapter 4 Commercial Net Closure Areas and Gear Size Restrictions

101.08 It shall be unlawful for any person, firm, or corporation to use at any time trammel nets, gill nets, seines, haul seine, or any other like contrivances in excess of twelve-hundred (1200) feet in length. Except when fishing gill and trammel nets between October 15 through December 15 of each year, nets must be of a mesh size of one and one half (1-1/2) inch square, three (3) inch stretch or larger, and it shall be unlawful for any boat to use more than one (1) such net. Between October 15 through December 15 of each year, gill and trammel nets must be of a mesh size of one and three-fourths (1 3/4) inch square, three and one-half (3 ½) inch stretch or larger, and it shall be unlawful for any boat to use more than one (1) such net.

101.10 It shall be unlawful for any person, firm, or corporation to leave a gill net, trammel net, purse seine, seine, haul seine, or any other net like contrivance governed by the restrictions set forth in this Part unattended in the waters of this state, and at least one person shall be required to stand by, within one boat length of the boat using said net, at all times the net is in the water. It shall further be unlawful for any person, firm, or corporation to use or have in their possession a gill net, trammel net, seine, haul seine, or like contrivance on the waters of this state without a visible buoy attached every one hundred (100) feet clearly marked with the license number or owner's full name thereon.
Required:

A motion to proceed with a Final Adoption for regulatory changes to Title 22 Part 5 Chapter 4 regarding the inclusion of haul seine in regulation and modification to language in subsection 101.08 and 101.10.
Update on the Charter For-Hire Task Force Meeting

Carly Somerset
February 19, 2019
Overview

The For-Hire Task Force meeting was held jointly with a Gulf Council For-Hire Reporting workshop

- The Charter For-Hire Task Force met February 13th with the following agenda:
  - Electronic reporting requirements for federal for-hire vessels
    - Presentation by Gulf Council’s Emily Muehlstein
  - Mississippi Charter For-Hire electronic reporting
  - Recent Gulf Council Meeting Update (Orange Beach, AL)
  - Federal/State Compliance (Sharks)
  - Other Business
    - Sheepshead/Black Drum
  - This presentation provides a summary of the discussion on agenda items above and any actions or recommendations that resulted from the Charter For-Hire Task Force meeting
Gulf Council Federal For-Hire Reporting Workshop

- Vessels with federal reef fish and/or coastal pelagic permits will be required to report species retained and discarded.
- Goal of new requirements - to have a better understanding of species, more accurate models, and more informed management decisions.
- Failure to report regularly will result in loss of fishing privileges during season then revocation of federal permit(s).
- Vessels will choose reporting devices/equipment through approved vendors.
- Reporting program will be implemented in two phases:
  - Phase 1: Hail out and electronic reporting (Tentative: August 15)
  - Phase 2: GPS tracking (Tentative: October 1)
Mississippi For-Hire Reporting Survey

• For-Hire Electronic Logbook built in-house to record targeted species
  - Spotted Seatrout
  - Red Drum
  - Black Drum
  - Flounder
  - Sheepshead
  - Tripletail
  - Sand Seatrout (White Trout)
  - Kingfish (Ground Mullet)
  - Any additional species (Sharks etc.)

• Information collected – captains most interested in collecting data on where fish are harvested
Federal/State Compliance (Sharks)

If your vessel has an active HMS permit, you must follow federal regulations for sharks no matter where you are fishing:
- Length and bag limits
- Shark Endorsement

If your vessel **does not** have an active HMS permit, shark regulations are dictated by **where** you are fishing:
- If in state waters (within 3 miles), your vessel falls under state regulations
- If federal waters (beyond 3 miles), you are prohibited from fishing for or retaining sharks and any other species regulated by the HMS permit
Additional Recommendations

- Motion – For Chairman of task force to come before the Commission in March to advocate for keeping state shark regulations at status quo
Recommendations for Development of a Fish Tagging Program

Wade Hardy
February 19, 2019
Background

• At the January 2019 CMR meeting the following motion was made regarding recommendations for a fish tagging program in Mississippi coastal waters:

  • Motion: For Marine Fisheries to bring back a format of a possible tagging program for Spotted Seatrout, Red Drum, and potentially other species as noted by the staff.

• This presentation will outline the procedures involved in initiating and managing a tag and recapture program.
Option A – DMR Management

- Secure annual funding for the program.
- Initiate and manage a tag and recapture program targeting Spotted Seatrout, Red Drum, and other species as necessary.
- Recruit up to 200 Mississippi anglers (for-hire and private) to participate in the program.
- Provide enough tags for 3,500 Spotted Seatrout and Red Drum (combined) each year.
- Tagging activities will only occur in Mississippi state waters.
Option A – DMR Management

• Initial Staffing Requirements
  • Designate two fisheries scientists to manage the program.
  • Fisheries staff will be responsible for the following:
    • Recruit volunteer anglers into the program.
    • Obtain all tagging supplies and promotional materials.
    • Distribute tagging packets to participating anglers.
    • Create a reward system for participating anglers.
    • Perform all data analysis.
    • Produce annual reports from tag and recapture data.

• Funding Requirements
  • $48,600 approximate annual cost.
Option B – GCRL Management

- Add Spotted Seatrout and Red Drum to their existing Sport Fish Tag and Release Program funded through a USFWS Sport Fish Restoration (SFR) grant.

- This option would be more cost effective as GCRL already has an infrastructure (which includes reporting platforms and staff) in place.

- All tagging data and angler reporting would flow through GCRL and would minimize angler confusion.

- Funding Requirements
  - $14,000 approximate annual cost.
Assessment of Species for Consideration for Compliance with Federal Guidelines

Trevor Moncrief
February 19, 2019
In the January 2019 CMR meeting the following motion was made regarding state and federal compliance:

- **Motion**: For staff to come back next month with an assessment of species for consideration for compliance with federal guidelines.

This presentation will outline specific changes to ensure compliance in Mississippi’s fisheries.
State Water Designation

- The territorial line for state and federal waters is three miles south of the barrier islands and follows the curvature of the islands.
- This line does not include reef fishes (9 nautical miles south) and Red Snapper (200 nautical miles south under the current EFP).
### Commercial

<table>
<thead>
<tr>
<th></th>
<th>State</th>
<th>Federal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spanish Mackerel</td>
<td>14”</td>
<td>12”</td>
</tr>
<tr>
<td>Cobia*</td>
<td>No Take</td>
<td>2pp-33”FL</td>
</tr>
<tr>
<td>Red Drum</td>
<td>60,000 lbs. annually</td>
<td>No Take</td>
</tr>
<tr>
<td>Hogfish</td>
<td>12”</td>
<td>14”</td>
</tr>
</tbody>
</table>

### Recreational

<table>
<thead>
<tr>
<th></th>
<th>State</th>
<th>Federal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Drum</td>
<td>3pp-18” - 30” (1 over 30”)</td>
<td>No Take</td>
</tr>
<tr>
<td>Vermilion Snapper</td>
<td>20 in aggregate</td>
<td>10pp (within 20 reef fish aggregate)</td>
</tr>
<tr>
<td>Red Grouper</td>
<td>4 in aggregate</td>
<td>2pp</td>
</tr>
<tr>
<td>Hogfish</td>
<td>12”</td>
<td>14”</td>
</tr>
<tr>
<td>Spanish Mackerel</td>
<td>No min. size limit</td>
<td>12”</td>
</tr>
<tr>
<td>Swordfish</td>
<td>No Regulations</td>
<td>47” Lower jaw fork length (LJFL)</td>
</tr>
</tbody>
</table>
Species of Non-Compliance

• Option 1. Status Quo
• Option 2. Compliance with exceptions
  • Red Drum – Currently in a federal moratorium, but provides a viable recreational and commercial fishery for the state.
  • Cobia – Designated as a Gamefish per state statute 49-15-76 and thus cannot be commercially harvested.
• Option 3. Comply with all federal regulations
QUESTIONS?
Response to Environmental Conditions

Jan 2019 Motion: MDMR staff to present a proposed Notice of Intent for the Commission to take emergency-type measures in response to environmental conditions.
§ 49-15-38
The commission may authorize culling of oysters less than 3” in response to special circumstances or extreme natural conditions affecting the habitat, including but not limited to flooding.

§ 49-15-64.1
If a natural or man-made disaster has the potential of adversely affecting the shrimp fishery, the commission, may by majority vote, open legal shrimping areas.
• 25-43-3.113
• A regulation may become effective immediately upon filing or on a date earlier than the required 30 days after filing of the final adoption by the commission, if the agency finds:
  • (i) required by Constitution, statute or court order
  • (ii) confers a benefit or removes a restriction on the public
  • (iii) only delays the effective date of another rule that is not yet effective
  • (iv) imminent peril to public health, safety or welfare
Propose legislation for the 2020 session to grant the commission the authority to modify all fisheries programs in response to environmental conditions.
MS Red Snapper EFP Update 2019
Season Update

Commission of Marine Resources Meeting

Trevor Moncrief
February 19, 2019

K.7.
Exempted Fishing Permit (EFP)

- EFPs are permits issued by NOAA that allow harvest of certain species that would otherwise not be allowed under federal regulations.
- Typically, these permits are used for scientific purposes.

2019 will be the second year of the approved EFP for State Red Snapper management.
Mississippi Red Snapper EFP

- Revised EFPs have been submitted to NOAA by all gulf states and approved for the 2019 recreational Red Snapper season
- Mississippi’s EFP allows the state to control harvest for both the state for-hire and private recreational components of the recreational sector (Federally permitted for-hire vessels are federally managed under Mississippi’s EFP)
Mississippi Red Snapper EFP

• **Purpose**
  - Determine if a recreational Mississippi landed annual catch limit (ACL) can be accurately attained
  - Gather region-specific scientific data that is currently limited on Red Snapper in the Gulf of Mexico

• **Data Collection**
  - MDMR will utilize the Tails n’ Scales Program to collect data on Red Snapper harvest, angler effort, and biological samples in Mississippi state and federal waters out to 200 nautical miles
EFP Annual Catch Limit (ACL) for Mississippi

- In 2018, Mississippi’s harvest for the two components was 137,949 pounds
  - Private Recreational – 135,149 pounds
  - State For-Hire – 2,800 pounds
- Due to an increase in the Gulf ACL for the Red Snapper fishery, Mississippi’s 2019 allocation will be 151,584 pounds
  - Private Recreational – 148,507 pounds
  - State For-Hire – 3,077 pounds
    - Accounting for the SFH overage in 2018 (435 pounds), allocation will be 2,642 pounds
- A required 10% buffer will be applied to ensure Mississippi does not exceed its ACL
- Mississippi will manage to the ACT to ensure we do not exceed our ACL
Potential Red Snapper Season

- Recreational season will begin Memorial Day Weekend (May 24\textsuperscript{th}) and end Labor Day (September 2\textsuperscript{nd}).
  - 81 days is projected to meet our ACT (annual catch target) as listed in Mississippi’s Red Snapper EFP (exempted fishing permit)
  - Additionally, we request to have the ability to set a mid-season closure, as was done in 2018, to ensure our ACL is not met before Labor Day. This request will allow the Red Snapper season to be closed for a brief time to project harvest to ensure Mississippi stays within its ACL.
Mid-Season Closure

- Would occur from July 8th through July 28th
- This closure would allow MDMR staff to analyze all data from the first segment of the season and run projections based on harvest up to this date.
- Also, this closure will increase the possibility of the season to run through Labor Day
Required:

A motion granting the Executive Director authority to manage Mississippi’s 2019 Recreational Red Snapper season under the guidelines established in the MS EFP granted by NOAA
Oyster Depuration Feasibility Study

Paul F. Mickle Ph.D.
Chief Scientific Officer
The Mississippi Department of Marine Resources
Presentation a response from CMR Motion: Direct staff to come back with a presentation which includes a oyster depuration feasibility study.

- Present
  - Past efforts
  - Hurdles
    - Operational costs
    - Federal regulations
  - Strategies
Depuration Review

- Ruth Posadas presented background (September CMR meeting)
- Interest in a feasibility study
- Production strategies for depuration or similar method
- Identify production hurdles
- Identify regulatory strategies

Oyster Depuration Program Needs

- Guidelines to Build a Program – (Rules and Regulations)
- Site Selection – (Technology, Water and Resource)
- Facility – (Plant Design, Construction, Equipment and Operating System)
- Labor – (Expertise for Management and Trained Manpower)
- Utilities – (Power and Potable Water)
- Laboratory – (In-house/Independent FDA Certified Lab)
- Regulatory Concerns – (Inspector, Permits, Licenses and Certifications)
- Feasibility Study – (Cost Benefits and Returns)

Standards for Depuration

- Flow Rate: 1 gal/minute/bushel (0.026 sack)
- Volume of Water: 59.84 gallons/bushel
- Salinity: 10 ppt to 30 ppt
- Temperature: ≤ 60.7°F / ≥ 77°F
- pH: 7.0 – 8.4
- Dissolved Oxygen: 5.0 mg/L to saturation
- Bacteriological: (Total Coliform/100 ml): 0 to <1
- Minimum Depuration Time: ≥ 44 hours
Past/Present Depuration Efforts

• Internationally
• Nationally
• Mississippi
  • Long history of interest and effort
    • Large areas prohibited from harvest
    • Small tidal swings
    • Poor water quality
## Feasibility Analyses

### Start-up cost enterprise budget

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>Quantity of units</th>
<th>Cost per unit ($)</th>
<th>Total ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business entity structuring fees</td>
<td>One-time fee</td>
<td>1</td>
<td>110</td>
<td>110</td>
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<tr>
<td><strong>Equipment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boat hull</td>
<td>Used 4.3 m (14 feet) boat</td>
<td>1</td>
<td>2500</td>
<td>2500</td>
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<tr>
<td>Boat engine</td>
<td>11.2 kW (15 horsepower) unit</td>
<td>1</td>
<td>3500</td>
<td>3500</td>
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<tr>
<td>Truck</td>
<td>Used truck</td>
<td>1</td>
<td>5000</td>
<td>5000</td>
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<tr>
<td>Cages</td>
<td>25.4 mm (1 in.) wired cage</td>
<td>5400</td>
<td>20</td>
<td>108,000.00</td>
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<td>Refrigerator</td>
<td>780 W refrigerator</td>
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<td>Sorting table</td>
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<td>Depuration tank</td>
<td>Custom-made tank</td>
<td>18</td>
<td>2500</td>
<td>45,000.00</td>
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<td>Depuration tank equipment (UV sterilizers, pumps, etc.)</td>
<td>1 set of materials</td>
<td>18</td>
<td>1035.4</td>
<td>18,637.20</td>
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<td>Driveway</td>
<td>Paved driveway</td>
<td>1</td>
<td>3500</td>
<td>3,500.00</td>
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<td>Air conditioning unit (cold room)</td>
<td>1330 W household air conditioning unit</td>
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<td>239.00</td>
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<td>Air conditioner converter unit</td>
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<td>Cold room building materials</td>
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<td>Metal trailer (office)</td>
<td>Commercial trailer</td>
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<td>Tent frame</td>
<td>9.1 m × 18.3 m (30 × 60 feet) tent</td>
<td>1</td>
<td>1833</td>
<td>1,833.00</td>
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<tr>
<td><strong>Total equipment expenses</strong></td>
<td></td>
<td></td>
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<td>199,159.20</td>
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</table>

Customized model from: Chen et al. 2017
### Annualized cost enterprise budget

<table>
<thead>
<tr>
<th>Item (1 million oysters)</th>
<th>Unit</th>
<th>Quantity of units</th>
<th>Cost per unit ($)</th>
<th>Total ($)</th>
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<tbody>
<tr>
<td><strong>Gross receipts</strong></td>
<td></td>
<td></td>
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<tr>
<td>Market oyster revenue</td>
<td>Sack</td>
<td>3,636</td>
<td>50</td>
<td>181,818</td>
</tr>
<tr>
<td>Tax collected on sales</td>
<td>Per dollar sales</td>
<td>181,818</td>
<td>0.70%</td>
<td>1272.73</td>
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<tr>
<td><strong>Operating expenses</strong></td>
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<tr>
<td>Full-time labor (Owner/operator)</td>
<td>Hour</td>
<td>2080</td>
<td>15</td>
<td>32000.00</td>
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<tr>
<td>Part-time labor</td>
<td>Hour</td>
<td>2808</td>
<td>13</td>
<td>35904.00</td>
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<td>Fringe benefits</td>
<td>Proportion of wage</td>
<td>67,704</td>
<td>49.93%</td>
<td>33804.61</td>
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<td>Shipping</td>
<td>Per 30,000 spat</td>
<td>11</td>
<td>50</td>
<td>550.00</td>
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<td>Fuel (truck and boat)</td>
<td>1 L</td>
<td>2726.21</td>
<td>1.97</td>
<td>5370.63</td>
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<tr>
<td>Artificial seawater</td>
<td>1000 L</td>
<td>31.49</td>
<td>107.32</td>
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<td>1266.67</td>
<td>1266.67</td>
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<td>Expendable suppliesc</td>
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<td>70</td>
<td>70.00</td>
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<tr>
<td>Miscellaneous suppliesc</td>
<td>Annual expense</td>
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<td>1300</td>
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<tr>
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<td>545.22</td>
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<tr>
<td>General excise taxb</td>
<td>Per dollar sales</td>
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<td>0.50%</td>
<td>975.00</td>
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<tr>
<td>Rent on gross receipts</td>
<td>Per dollar sales</td>
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<td>1.50%</td>
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<tr>
<td><strong>Total operating expenses</strong></td>
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<td><strong>Return over operating expenses</strong></td>
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<tr>
<td><strong>Fixed costs</strong></td>
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<td>Other taxes and fees</td>
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<tr>
<td>Rent</td>
<td>1 ha per year</td>
<td>20.23</td>
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<td>Annualized start-up cost</td>
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<td><strong>Total fixed costs</strong></td>
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<td>Permits and testing costs</td>
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<td>Private lab testingc</td>
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<td>DOH certification testingc</td>
<td>Total Annual cost (includes year 0)</td>
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<td><strong>Total permits and testing costs</strong></td>
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<td><strong>Total annual costs</strong></td>
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<td>Estimated pre-tax return</td>
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Customized model from: Chen et al. 2017
Feasability by Strategy

**Land Based Depuration**
- High startup costs
- Annual permits and regulatory testing
- High equipment costs
- Large staff requirements
- Constrained by size of facility
- Constrained by amount of oysters
- No control on constant supply of oysters needed

**Aquatic Based Wet Storage**
- High startup costs (Cultch)
- Extended start up time
- Bottom leasing ($5/Acre)
- Low equipment costs
- Small staff requirements
- Currently, no regulatory changes needed
- Low operational costs
- Control of constant supply of oysters
Wet Storage Recommendation

- Current FDA regulatory harvest zones allow this strategy
- Lower operational costs
- Leasing based operation
  - Oysters are cultivated in restricted areas on private leases
  - Oysters are transported into approved private lease areas for wet storage to adhere to federal depuration regulation
  - Final processing/harvesting can occur 14-60 days after transport
Questions