

## Management Strategies and Actions

1. Evaluate a suite of management approaches that in combination achieve the goal of maintaining a sustainable wild oyster fishery as measured in relation to relevant performance metrics for determining success.
  - *Action 1-A.):* Evaluate and develop standards for a potential limited-entry fishery that would be managed adaptively with the number of entrants in the fishery based on the current sustainable harvest level. Evaluate the potential for establishing a limited-entry oyster fishery program and various management strategies through a transparent representative stakeholder driven consensus-building process that includes vetting the plan with local oystermen and FWC law enforcement.
  - *Action 1-B.):* Implement a Bay-wide summer wild harvest fishery closure.
  - *Action 1-C.):* Provide daily harvest limits in conjunction with a Monday – Friday five-day harvest week.
  - *Action 1-D.):* Implement a recreational wild oyster harvest limit of for example, one 5-gallon bucket of oysters, and allow recreational harvest during the same season the fishery is open to commercial harvest using the same gear.
  - *Action 1-E.):* Manage harvest areas to prevent the concentration of effort in specific locations by allowing all of the legal and approved (FDACS) harvest areas of the Bay to be open during the harvest season and harvesting hours (Strategy 10-B and 10-C above).
  - *Action 1-F.):* Establish the 5% undersize oyster limit for both harvesters and dealers.
  - *Action 1-G.):* Clarify that it is an allowable practice for oystermen to weigh oyster bags while on the water to ensure the bags meet the weight limit regulations.
  - *Action 1-H.):* Implement stock-based temporary wild harvest closures in conjunction with regular stock assessments of the oyster density.
  - *Action 1-I.):* Evaluate and determine a metric used to manage oyster reef harvest at a sustainable threshold. Consider a graduated set of thresholds.
  - *Action 1-J.):* Implement an annual stock assessment using fisheries dependent and independent data, with data collection methods and site selection done in collaboration with oystermen, for determining a sustainable level of wild oyster harvest for each season.

<b>Lead:</b> FSU/UF	<b>Partners:</b> FWC, stakeholders
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2. Recommend specific criteria and/or conditions, with related performance measures for the reopening of Apalachicola Bay to limited wild oyster harvesting.

- *Action 2-A.):* Use ABSI ecosystem health metrics and FWC/UF models to develop criteria for opening and closing wild oyster harvest and for determining sustainable harvest.
- *Action 2-B.):* Work with FWC and FDACS to ensure that definitions of oyster population health are not only based on harvest metrics.

3. Conduct an oyster stock assessment for the ABS with periodic updates.

<b>Lead:</b> FWC	<b>Partners:</b> FSU, UF, NGOs, citizen scientists, watermen
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4. Manage the commercial oyster industry and recreational oyster fishing to provide for sustainable spat production and the recovery of oyster populations.

- *Action 4-A.):* Evaluate management scenarios (e.g., seasonal (summer) closure to wild harvesting, rotational closures, 5-day work weeks, non-harvested spawning reefs (permanent closures), limited entry, transferable license program, closures based on stock levels (stock assessment), reduced bag limits, bag tags, relaying oysters to better habitat, additional enforcement presence, manage harvest areas to prevent the concentration of effort in specific locations (open larger areas).
- *Action 4-B.):* Develop strategies to limit oyster harvest to periods outside of peak spawning season.
- *Action 4-C.):* Evaluate existing allowable and minimally destructive alternative gear type options and harvest methods, including the use of experimental gear for wild oyster harvesting.

<b>Lead:</b> FWC	<b>Partners:</b> oystermen, FSU, UF, Sea Grant
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5. Work with FWC Law Enforcement to develop enforcement strategies and appropriate penalties sufficient to deter harvest or sale of undersized oysters as well as violations that harm wild or leased oyster reefs and other natural resources, and that will support restoration efforts in the ABS.

- *Action 5-A.):* Develop strategies to increase FWC enforcement presence and number of checkpoints to provide a deterrent to illegal activities.
  - Provide law enforcement presence during peak harvesting periods, and on the water during harvest season hours.
- *Action 5-B.):* Develop strategies to ensure consistent practices are used for enforcement of regulations regarding the harvestable and marketable size of oysters. (See Actions 5-F and 5-G)
- *Action 5-C.):* Revise statutes and/or rules as needed to require FWC to check harvested oysters for size-limit enforcement\* before they are washed and

processed. Once processed, enforcement of oyster size-limits should be limited to oysters under 2.75” because processing changes shell height.

*\* Sampling and other data collection activities shall not be impacted by this recommendation.*

- *Action 5-D.):* Evaluate and enhance, as needed, the regulations and enforcement practices to ensure dealers accurately identify the source of oysters after processing and packaging.
- *Action 5-E.):* Evaluate and revise, as needed, the statutory and/or regulatory requirements to ensure that FWC has authority to enforce oyster regulations at the dealers’ location.
- *Action 5-F.):* Work with FWC and FDACS to implement recommended enforcement changes.
- *Action 5-G.):* Work with oystermen to evaluate current rules and regulations to ensure they are enforced consistently, fairly, and practically with an understanding of real-world on-the-water harvesting practices and constraints.
- *Action 5-H.):* Evaluate and seek authority to implement a tiered system of penalties for purposeful violators (increased fines and license suspensions ranging from increased length of suspension to the permanent loss of license) to keep purposeful violators out of the industry.
- *Action 5-I.):* Encourage community and industry support for consistent judicial imposition of penalties within the existing penalties framework for oyster harvest violations, including imposing stricter penalties for habitual and willful violators.
- *Action 5-J.):* Prior to the opening of each harvest season FWC should conduct a joint workshop between FWC law enforcement and the oystermen to review the current rule and regulations, identify any changes, discuss enforcement approaches relative to harvest practices and constraints on the water, and to provide mutual two-way education, and enhance communication and collaboration between FWC and oystermen.
- *Action 5-K.):* Work together and with other stakeholders to seek funds to support the recommended increased law enforcement presence in the Bay.

<b>Lead:</b> FWC/FDACS	<b>Partners:</b> FSU-CAB, CAB Successor Group, oystermen, oyster dealers
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6. Evaluate the development of a policy that would require setting sustainable harvest goals and placing limitations on or a complete closure to harvesting based on the results of data (e.g., stock assessment) collected and evaluated under a comprehensive monitoring program designed to sustainably manage the resource.
  - *Action 6-A.):* Convene a co-management advisory committee comprised of state and federal agencies, and other appropriate experts, to assess and make

recommendations on oyster habitat needs in conjunction with harvest management strategies.

- *Action 6-B.):* Convene an Oyster Advisory Board within FWC to review and make recommendations on management and enforcement of the oyster fishery once wild oyster harvesting resumes in Apalachicola Bay.

<b>Lead:</b> FWC	<b>Partners:</b> FDACS, FSU, UF, local governments
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7. Restore and create reef structures suitable in size, location, and substrate type for healthy and sustainable oyster settlement, production, and harvesting.

- *Action 7-A.):* Include oystermen in discussions to evaluate cultching techniques and materials for growing oysters (e.g., historical non-traditional, trees), adding spat on shell or other substrates.
- *Action 7-B.):* Include oystermen in discussions on spatial configuration of reefs (height, width, contours, etc.), locations (existing reefs and hard bottom), use of larger rock to protect restored reefs from siltation and sedimentation from prevailing currents and storms.

<b>Lead:</b> FWC	<b>Partners:</b> FSU, UF, Sea Grant, watermen and aquaculture organizations, local county programs
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- *Action 7-C.):* Design and implement restoration projects to achieve oyster fishery production targets.
- *Action 7-D.):* Design restoration projects that include both fished and non-fished reefs.

<b>Lead:</b> FWC	<b>Partners:</b> FSU, UF, NOAA for funding
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<b>PRIORITY 2 STRATEGIES</b>
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8. Recommend policies and actions that retain and recycle shell for habitat replenishment in the ABS.

- *Action 8-A.):* Develop agency rules and policies that require shell retention and recycling for habitat replenishment through a fee or incentive program.
- *Action 8-B.):* Obtain legislative support for statutes that support or require shell recycling and oyster habitat replenishment. (e.g., Texas House Bill 51 (2017); [North Carolina General Statute §130A-309.10](#) (2010); Maryland House Bill 184; Chapter 157, F.S. (McClellan 1881).
- *Action 7-C.):* Establish and/or expand partnerships with local organizations, stakeholder groups, industry, and universities in shell recycling programs.

9. Use decision-support tools to develop a system of potential closed areas that are well defined in terms of size, location, and longevity and include rotational and seasonal harvest areas, as well as long-term closed areas in strategic locations to provide habitat for year-round protection for brood stock and enhanced spawning opportunities.
- *Action 9-A.):* Engage local stakeholders in determining total coverage (how much to protect), placement (where to protect), and size (how large) of all types of potential closed areas using gridded maps as well as distributions of selected fishery and ecologically important species.
10. Use ecological quantitative modeling and other decision support tools to evaluate strategies and actions, and define performance criteria for an oyster population that can sustain a pre-determined level of wild oyster harvest, with a stipulated number of harvesters (limited entry), and protocols to ensure sustainability.
- *Action 10-A.):* Use model outputs to identify the oyster population abundance that can support sustainable harvest.
  - *Action 10-B.):* Use model outputs to identify percentage of the total reef area that is sufficiently productive to support sustainable harvest.
  - *Action 10-C.):* Use model outputs to identify annual; recruitment required to support sustainable harvest.
  - *Action 10-D.):* Use model outputs to determine amount and frequency of habitat replacement to maintain productive oyster reefs.

<b>Lead:</b> FSU/UF	<b>Partners:</b> FWC, stakeholders
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11. Work with FDACS to ensure that oyster aquaculture practices and locations in the Bay are compatible with the goals and strategies for restoration and management of the ecosystem and are compatible with wild fisheries and the important cultural role of a working waterfront and seafood industry.
- *Action 11-A.):* Develop maps using FDACS data showing all aquaculture activities in the ABS, superimposed on existing maps of essential fish habitat, fishing activities, seagrass beds, and natural existing hard bottom (reefs/bars) to identify potential conflicts.
  - *Action 11-B.):* Utilize habitat and activity maps from *Action 5. A.* to identify potential new oyster restoration areas and areas that could be used as spawning reefs to enhance recruitment and productivity nearby harvested reefs.

<b>Lead:</b> FDACS	<b>Partners:</b> FSU, UF, FWC, oystermen
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12. Investigate oyster shell and oyster relay programs to move both cultch and live oysters to more favorable habitat (relay programs are recommended to only be used for restoration experiments).

- *Action 12-A.):* Use model and mapping information on larval source areas and environmental conditions to inform the potential programs.
- *Action 12-B.):* Research similar relay programs in other areas for potential models and cautions.

<b><i>Lead:</i></b> FDACS/FWC	<b><i>Partners:</i></b> FSU, UF, Sea Grant, FDEP, FDOH, stakeholders (oystermen)
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