



State of Florida Artificial Reef Strategic Plan

Florida Fish and Wildlife Commission
Division of Marine Fisheries
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PURPOSE OF THE PLAN

Development of the strategic plan's purposes, vision themes, goals and objectives occurred as the result of consensus building among the 15 member Advisory Board. The Advisory Board, working with its facilitators, strived for maximum consensus on all aspects of the plan. Although 100% agreement was not expected or achieved, the overall result was a consensus product incorporating the advice and input of all members.

Florida Fish and Wildlife Conservation Commission (FWC) staff assisted in plan development to ensure that it conforms with FWC programs and mandates, and also with other state and federal fisheries and environmental regulatory laws and policies.

The Artificial Reef Strategic Plan is intended to serve as a blueprint for both the FWC and the coastal local government programs for the next five years. The Plan is intended to guide the FWC state artificial reef program and other artificial reef-related activities statewide. This strategic plan will provide the foundation for a detailed operational artificial reef plan that will serve to update the 1992 Florida State Artificial Reef Plan.

The strategic plan embodies seven guiding principles or purposes:

- To optimize the biological and economic benefits of artificial reefs in Florida to ensure that the marine environment, human health and marine organisms are protected, restored, enhanced or sustained;
- To provide policy guidance based upon the best available scientific and experiential information, and best management practices for artificial reef development;
- To support data collection, the use of innovative technology, and evaluation to adjust management approaches for accomplishing the objectives of the artificial reef strategic plan;
- To support the pursuit of adequate funding to accomplish the objectives of Florida's artificial reef program;
- To provide future direction for the development of FWC artificial reef rules and other related rules and policies;
- To provide a framework for public education and outreach about artificial reefs in Florida;

- To provide guidance for operational planning and technical assistance at state, regional and local levels consistent with the state strategic artificial reef plan.

In addition to the guiding principles or purposes of the strategic plan, the strategic plan is also comprised of six primary goals. Each goal includes specific objectives to achieve the goal. Tactics for meeting each objective have also been included and will be used as guidance when developing the state Artificial Reef Operational Plan.

The following six goals were identified by the Artificial Reef Advisory Board, and are the backbone on the Artificial Reef Strategic Plan. The goals and objectives do not represent a specific priority of importance.

Goal A: Assure that long-term social, economic, and quality of life values of artificial reefs benefit the local and regional economies of Florida.

Goal B: Utilize artificial reefs in scientific research to obtain a mechanistic and predictive understanding of how artificial reefs function ecologically and physically across spatial and temporal scales.

Goal C: Use Artificial Reefs as a component of fisheries management.

Goal D: Identify, procure and maximize new and existing sources of funding for artificial reefs.

Goal E: Improve intergovernmental coordination and public/private cooperation in artificial reef development.

Goal F: Foster public and private sector marine ecosystem stewardship and accurate understanding of artificial reef issues.

ADVISORY BOARD MEMBERS:

1. Ed Kalakauskis, Jacksonville Offshore Fishing Club, Jacksonville, FL.
2. Ted Forsgren, Executive Director, Coastal Conservation Association, Florida Chapter, Tallahassee, FL.
3. Eilene Beard, proprietor, Scuba Shack, Pensacola, FL.
4. Jerry Jensen, Charlotte Harbor Artificial Reef Association, Punta Gorda, FL.
5. Bill Lindberg, Ph.D., Director Dept. of Fisheries and Aquatic Sciences University of Florida, Gainesville, FL.
6. Steve Bortone, Ph.D., Director, Sanibel-Captiva Marine Laboratory, Sanibel, FL.
7. William Ward, commercial fisherman and proprietor, Captain's Finest Seafood, Tampa, FL.
8. Kathy Fitzpatrick, Artificial Reef Coordinator, Martin County, Stuart, FL.
9. Captain Mike Eller, charter boat proprietor Destin, FL (Captain Bob Zales serving as alternate).
10. Marianne Cufone, Ocean Conservancy, St. Petersburg, FL.
11. Robert Turpin, Artificial Reef Coordinator, Escambia County, Pensacola, FL.
12. Chris Koepfer, Artificial Reef Coordinator, Lee County Division of Natural Resources, Fort Myers, FL.
13. Laddie Akins, Director, Reef Environmental Education Foundation, Key Largo, FL.
14. Pamela Fletcher, Artificial Reef Coordinator, Broward County, Ft. Lauderdale, FL.
15. Jon Dodrill, FWC Division of Marine Fisheries - Artificial Reef Program, Tallahassee, FL.

Moderators: FSU Center for Conflict Resolution: Hal Beardall and Bob Jones

Goal A: Assure long-term social, economic, and quality of life values of artificial reefs benefit the local and regional economies of Florida.

Goal A Objectives (A1-A3) and Tactics (T):

- A1 Balance social and economic values, public interest and safety concerns along with objectives for resource conservation, restoration, enhancement and sustainable fisheries.
 - A2 Develop a diversified Artificial Reef Program incorporating different project objectives that provide quality extractive and non-extractive artificial reef opportunities.
 - A2(T1) Develop fishing reefs;
 - A2(T2) Develop fisheries enhancement reefs with limited or no fishing or spearfishing;
 - A2(T3) Develop juvenile habitat reefs;
 - A2(T4) Develop eco-tourism (diving, snorkeling) reefs.
 - A3 Support artificial reef objectives-driven socio-economic and ecological impact studies to meet the artificial reef goals set forth in this plan.
 - A3(T1) Conduct formal standardized socio-economic analyses by qualified economists targeting multiple coastal regions on both coasts around the state to assess resident and visitor reef use at regional levels by measuring user value and economic impacts of both natural and artificial reefs but distinguishing between the two categories;
 - A3(T2) Conduct formal standardized ecological impact studies;
 - A3(T3) Integrate the social factors and impacts of growth, population, development, and economics into the artificial reef planning process.
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Goal B: Utilize artificial reefs in scientific research to obtain a mechanistic and predictive understanding of how artificial reefs function ecologically and physically across spatial and temporal scales.

Goal B Objectives (B1-B4) and Tactics (T):

B1 Ensure priority questions are derived from practical needs.

B1(T1) Identify, establish, update, and maintain a list of researchable problems/questions whose resolution would substantially improve understanding of artificial reefs;

B1(T2) FWC will establish a mechanism within the Reef Program by which priority artificial reef research questions are identified and communicated to FWC and other management agencies for the purpose of incorporating them into requests for proposals (RFPs), (e.g., work with Sea Grant, MARFIN, interstate marine fisheries commissions to develop funding sources and develop conceptual research designs);

B1(T3) Prioritize strategic research questions for FWC grant funded research to influence/motivate, give direction to artificial reef development;

B1(T4) Identify emerging artificial reef issues that require proactive planning and research implementation;

B1(T5) Procure information and research results from other states and countries;

B1(T6) Promote a cooperative research partnering perspective that yields additional capabilities for research, data sharing and funding; partner to avoid research duplication and leverage the effective work of others;

B1(T7) Identify artificial reef survey and monitoring gaps;

B1(T8) Guide the collection of data and monitoring of artificial reefs incorporating a broader integrated systems design perspective (e.g. regional ecosystem, estuarine, other natural systems, etc.);

- B1(T9) Ensure the applicability of the research and promote adaptive management through coordination with researchers and managers.
- B2 Ensure rigorous study design to answer priority questions.
 - B2(T1) Identify, foster, and reward consistency of data sets state-wide using replication and standardized reefs in various regions of the state;
 - B2(T2) For reef marine organisms managed on an interstate basis, coordinate artificial reef replication/monitoring projects across state lines;
 - B2(T3) Use collaborative approaches to develop designs appropriate to answer major research questions;
 - B2(T4) Increase rigor and improve design of artificial reef survey data collection efforts;
 - B2(T5) Use control reefs to statistically assess artificial reef management.
- B3 Ensure valid methods and consistent procedures for data collection and quality control.
 - B3(T1) Promote data standards and data sharing;
 - B3(T2) Use innovative, up-to-date technology in the collection, storage, and handling of data;
 - B3(T3) Promote the development, use, and maintenance of long term artificial reef databases;
 - B3(T4) The FWC reef program will participate in a data portal strategy for cataloguing and assessing all FWC funded data and research, supporting broader access to data, organizing data into more useful forms, and incorporating other artificial reef data from other stakeholders willing to participate in the effort. All researchers and reef managers (external and internal) would ideally be able to utilize and exchange data through this portal;

- B3(T5) Integrate Artificial reef location and monitoring data into a public access landscape network (GIS) of FWC Florida Marine Research Institute and elsewhere, with the exception of non published artificial reef sites.
- B4 Ensure an overall progressive, innovative research program.
- B4(T1) The FWC reef program will work with other resources within the agency and external peer review to assess proposed and current research and monitoring activities funded by FWC (including resources and manpower needed to complete them), in order to prioritize them based on the artificial reef strategic plan and the FWC agency-wide strategic plan and identify those to be selected or dropped;
- B4(T2) Seek ways to improve efficiencies, refine sampling and analytical protocols or target management needs more effectively. Data collection methods and suitability/fit for entering into a central FWC data portal will be reviewed;
- B4(T3) Enhance the professional reputation of the Florida Artificial Reef Program;
- B4(T4) Increase quantity and quality of reports produced by the Florida Artificial Reef Program;
- B4(T5) Encourage professional development of local coastal government artificial reef managers to enhance skills and competencies through participation in relevant conferences, training, etc.;
- B4(T6) FWC shall host in cooperation with other sponsors a statewide artificial reef summit every two-three years.

Goal C: Use Artificial Reefs as a component of fisheries and ecosystem management.

Goal C Objectives (C1-C3) and Tactics (T):

- C1 Develop specific objectives for artificial reef development.

- C1(T1) Agree on specific objectives for artificial reefs, but look at artificial reefs with a broad perspective;
 - C1(T2) Incorporate single species, multi-species or ecosystem management as appropriate in artificial reef construction projects;
 - C1(T3) Use artificial reefs in habitat enhancement, protection, rebuilding and management;
 - C1(T4) Apply ecological body of natural reef knowledge to artificial reef development.
 - C2 Identify reef attributes that enhance survival, growth and reproduction of various life stages of marine organisms.
 - C3 Identify design and placement strategies of artificial reefs to rebuild, protect and/or enhance fish stocks and/or achieve fishery management and conservation objectives.
 - C3(T1) Where deemed appropriate by the FWC, identify opportunities for design and placement of artificial reefs to rebuild or enhance fish stocks in zoned managed areas, or marine reserves;
 - C3(T2) Where deemed appropriate by the FWC, identify opportunities for the development of marine reserves intentionally designed around the use of artificial reefs in areas not currently used for bottom fishing to serve as the primary hard bottom habitat;
 - C3(T3) Where deemed appropriate by the FWC, identify and evaluate current or future artificial reef permitted areas as candidates for fishery management council designated Special Management Zone (SMZ) status (i.e. where there is some level of fishing gear restriction);
 - C3(T4) Utilize unpublished artificial reefs when appropriate;
 - C3(T5) Explore legal and administrative mechanisms for protecting unpublished reef site locations.
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Goal D: Identify, procure and maximize new and existing sources of funding for artificial reefs.

Goal D Objectives (D1-D5) and Tactics (T):

- D1 Educate the public and public officials of the social, economic and ecological importance of artificial reefs as a first step in building support for enhanced or additional sources of funding.
- D2 The FWC Artificial Reef Program will work through FWC administrative channels to protect and enhance existing sources of artificial reef funding.
 - D2(T1) Provide timely, justified and accurate funding requests for specific artificial reef activities;
 - D2(T2) Ensure grant funding requests to the U.S. Fish and Wildlife Service adequately reflect major objectives in the five year grant project which in turn support objectives in the Artificial Reef Strategic Plan.
- D3 Seek new sources of funding with help of stakeholders that leverage stakeholder support to advance the reef program's strategies and research priorities.
 - D3(T1) Compile information from and make available all federal and state granting sources that may be applicable to funding artificial reef research, monitoring, and development;
 - D3(T2) Prioritize funding opportunities, seeking funding that closely aligns with Artificial Reef Program strategic direction.
- D4 Identify and procure appropriate reef construction materials, transport, and funding including other federal, state, local government, and private donation sources.
 - D4(T1) Work closely with the U.S. Maritime Administration (MARAD), U.S. Navy, U.S. Customs, and other federal agencies for material donation possibilities;
 - D4(T2) Work closely with the Florida Department of Transportation in their obsolete coastal bridge demolition projects to incorporate as an added benefit in bridge demolition section, willingness of contractor to transport acceptable concrete/steel bridge

material to permitted sites where such a project fits into the operational plan.

- D5 Enhance funding through development of projects that have the capacity to accomplish multiple objectives (e.g., research and development of reef modules and fisheries research).
 - D6 Make the best use of available funding through utilizing projects of regional scope to take advantage of economies of scale and associated reduced cost, and possibly reduction in administrative paperwork (single contract versus multiple small contracts).
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Goal E: Improve intergovernmental coordination and public/private cooperation in artificial reef development.

Goal E Objectives (E1-E10) and Tactics (T):

- E1 Encourage early regulatory/intergovernmental/intra-agency coordination, better information sharing among interested parties, and the inclusion of stakeholders (affected interests) in pre-application review of all proposed artificial reef permitting and other regulatory and artificial reef resource management issues.
 - E1(T1) Establish a state-federal interagency working group to discuss and address artificial reef permitting and other artificial reef issues and concerns and meet on a regular basis;
 - E1(T2) Work with fishery management councils, interstate marine fisheries commissions, and other state and local agencies to enhance effectiveness of the Artificial Reef Program in meeting its goals and objectives;
 - E1(T3) The FWC shall continue to review and provide constructive comment on artificial reef construction permit applications.
 - E1(T4) Coordinate artificial reef development in areas of concern to the US Coral Reef Task Force.
- E2 Continue to move towards a coordinated regulatory process for permitting and reef deployments that facilitates the process without weakening resource protection standards.

- E3 Encourage the coordination of the evaluation of potential impacts on fish and other marine organisms and ensure the values of these organisms are addressed at all levels of state, regional, and local artificial reef planning, permitting, and construction.
- E4 Be responsive and proactive to both internal and external stakeholder input.
 - E4(T1) Create partnerships with stakeholders to work collaboratively;
 - E4(T2) Improve relationships with stakeholders by providing the products/services they need, and by maintaining openness in the decision making processes, by holding public workshops during the development of key artificial reef strategies, goals, rules, and policies;
 - E4(T3) Gather input from State Artificial Reef Advisory Board stakeholders. The Board shall meet for briefing and information exchange every six months or more frequently as may be necessitated by other artificial reef issues. Advisory subcommittees may be established for specific issues to bring to the Board for presentation and discussion;
 - E4(T4) FWC shall compile, maintain and utilize an email/ mailing address database of artificial reef stakeholders (affected interests) as well as pursue other effective outreach efforts in order to promote and facilitate stakeholder inclusion in artificial reef planning activities;
 - E4(T5) Increase the level of the FWC Artificial Reef Program interaction with non-governmental organizations to achieve common goals for reef marine organisms and associated natural and artificial reef habitat protection.
- E5 Reduce user conflicts through artificial reef planning and management.
 - E5(T1) Utilize an exclusionary mapping process prior to permit application to identify potential conflicts with other users of the seafloor and adjacent water column including but not limited to recreational fishers, divers, non-extractive users, commercial fishers, military, shipping, telecommunication and gas line companies, and users of sand sources for beach re-nourishment;

- E5(T2) Ensure that newly permitted reef zone locations are disseminated and accurately published in a timely manner so that they can be accurately charted or reported on NOAA charts or reported in a Notice to Mariners;
- E5(T3) Ensure publication of new individual public reef coordinates, with the exception of designated non-published artificial reefs;
- E5(T4) Address potential user conflicts resulting from movement of non-stable or non-durable reef materials through education and information on minimum standards, materials composition, design and placement.
- E5(T5) Develop guidelines or code of ethics to help reduce user conflicts (charter vs. recreational).
- E6 Eliminate illegal reef building and ocean dumping activities.
- E7 Integrate a new state operational artificial reef management plan with the state artificial reef strategic plan, considering the guidance of the National Marine Fisheries Service's National Artificial Reef Plan.
 - E7(T1) Develop artificial reef rules after development of an operational plan;
 - E7(T2) At a minimum of every five years revisit the Artificial Reef Strategic Plan, operational plan and associated rules for review, evaluation, and update.
- E8 Develop comprehensive and proactive artificial reef plans and guidelines specific to each region of the state.
 - E8(T1) Regional delineations will consider ecologic, geographic and administrative parameters;
 - E8(T2) Develop artificial reef conservation strategies through the regional plan process that are scientifically based, monitored and managed.
- E9 Reduce liability issues at the artificial reef permitting and planning level.
 - E9(T1) Encourage regulatory agencies to issue artificial reef development permits only to state or federal fisheries

management agencies, established state universities and marine research institutions, or local coastal governments and municipalities.

E9(T2) Develop risk mitigation guidelines when volunteers are utilized in artificial reef development activities.

E10 Clearly define the roles and opportunities for public and private participation in Florida's Artificial Reef Program.

E10(T1) Enable or encourage legal private reef building activities under State or County authority in order to build and maintain quality reef habitat using approved materials placed in areas authorized for reef construction.

Goal F: Foster public and private sector marine ecosystem stewardship and accurate understanding of artificial reef issues.

Goal F Objectives (F1-F7) and Tactics (T):

F1 Actively increase stakeholder education, involvement and interaction on emerging artificial reef issues through pursuit of effective outreach efforts.

F2 Disseminate more accurate and thorough information to the public.

F2(T1) Determine the information to be disseminated, verify its accuracy, identify the target audiences and tailor information to those specific audiences (this may require multiple versions/type of the same publications to capture all audiences).

F3 Promote marine ecosystems stewardship.

F3(T1) Utilize opportunities to imbed other important conservation messages within artificial reef educational material;

F3(T2) Educate and inform the public so that they develop ethics that reflect the value of marine resources and the associated importance of both natural and artificial reef habitat;

F3(T3) Increase promotion of artificial reef information including the potential use of artificial reefs as a tool in fisheries enhancement throughout the state through FWC regional

offices, contacts with regional and county tourist development councils (TDC's), Chambers of Commerce, County development authority.

- F4 Ensure that scientific results from artificial reef research are accessible, meaningful to the public and disseminated in useable formats that ensure effective science-based policy and decisions.
 - F4(T1) Close the research loop by making public needs and interests translated into research questions.
 - F4(T2) Promote effective data transfer between researchers and public (two-way communication).
 - F4(T3) Enhance public awareness by aggressively promoting the value of artificial reef research and how it contributes to managing and better understanding Florida's reef fisheries and hard bottom resources.
- F5 Undertake effective partnering with other appropriate entities to accomplish public outreach.
- F6 Strive for more effective utilization of various media types. For example: web access (e.g., PDF reports online, interactive quizzes, online reporting), input into newspaper and magazine articles, television.
- F7 Optimize internal communication and information sharing between the FWC reef program and other units within the FWC.
 - F7(T1) The FWC Artificial Reef Program shall make better utilization of FWC websites, optimizing internal coordination on research and monitoring objectives, and ensure that artificial reef goals are clearly communicated, understood, and adhered to on all major initiatives.
- F8 Provide outreach to new local government artificial reef managers not familiar with artificial reef issues.