



PROCEEDINGS
SAFMC Citizen Science Program Design Workshop
January 19-21, 2016

Prepared by SAFMC Staff

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I. Background

The South Atlantic Fishery Management Council (SAFMC) manages federal fisheries over a broad geographic range along the eastern U.S. from the Florida Keys to North Carolina. Management encompasses a wide range of habitats and species managed through seven fishery management plans, along with plans addressing habitat, sargassum, and corals. For many years the South Atlantic Fishery Management Council has grappled with the challenge of ensuring adequate and timely science to support management despite limited resources, a multitude of species to manage, and a complex and highly diverse ecosystem. Discussions of data challenges and the resulting scientific uncertainties often lead to offers from fishermen to provide their vessels as research platforms, collect samples and record their own observations to help increase scientific knowledge and 'fill data gaps'. Additionally, common themes heard from stakeholders through the SAFMC's 2014-2015 Visioning Process included the need for more and better data to manage fisheries and a willingness to work with scientists to help collect data throughout the region.

Citizen science is a growing field in which trained members of the public collaborate and engage with scientists in the inquiry and discovery of new knowledge. Public participation in scientific research advances science, research, and policy and fosters an informed and engaged citizenship.

The Council recognized the desire of constituents to get involved and the need to have a well-designed program and accompanying sampling protocols to ensure that information collected through such efforts can be used to inform stock assessments and management decisions. To meet this growing need, the Council decided to explore developing a comprehensive Fishery Citizen Science Program.

In March 2015, the Council created a Citizen Science organizing committee to consider ways the SAFMC could use citizen science to address research and data needs. The organizing committee consisted of SAFMC staff (Amber Von Harten, John Carmichael, and Julia Byrd), Council members (Mark Brown, Michelle Duval, and Ben Hartig), SEFSC Director (Dr. Bonnie Ponwith), and a representative from The Pew Charitable Trust (Leda Dunmire). As a first step, the committee recommended convening a workshop where interested citizens, fisheries managers and scientists, and citizen science practitioners gathered to develop recommendations for designing such a program. The Council supported the proposed workshop and committed to providing travel and logistics support. The Organizing Committee developed an agenda and identified interested participants for the Citizen Science Workshop. Working closely with Rick Bonney and Jennifer Shirk, citizen science experts affiliated with the Department of Program Development and Evaluation at the Cornell Lab of Ornithology, the Organizing Committee learned more about the field of citizen science and refined the workshop approach and topics based on this information. The Committee also worked with the state Sea Grant Programs from NC, SC, GA and FL to tap into their experience working with constituents on research and monitoring projects. To support wider participation in the workshop, each state Sea Grant Program in the South Atlantic also provided additional travel support for a number of fishermen participants.

II. Workshop Overview

The SAFMC Citizen Science Program Design Workshop was held January 19-21, 2016 in Charleston, SC. The primary goal of this workshop was to develop programmatic recommendations (Blueprint) for a comprehensive Citizen Science program for the South Atlantic Council. Over 65 people from throughout the region participated in the workshop including commercial, for-hire, and private recreational fishermen, partners from each of the four state Sea Grant programs, data managers and scientists from state and federal agencies, academic institutions, and non-governmental organizations. Workshop observers included Council members and NOAA Fisheries headquarters staff, including Richard Merrick, Chief Science Advisor for NOAA Fisheries. See Appendix A for a complete list of workshop participants.

Prior to the workshop, an online survey was sent to workshop participants to get a better idea of their background, their knowledge and experience on citizen science, and what they were hoping to get out of the workshop. Results from this survey helped the Organizing Committee develop the workshop agenda. See Appendix B for survey results and Appendix L for the workshop agenda.

During the workshop, presentations were given by Rick Bonney and Jennifer Shirk, from the Cornell Lab of Ornithology. Their presentations provided an overview of the definition of Citizen Science, the necessary components for a Citizen Science project or program, and examples of successful Citizen Science projects. Additional presentations were given by Christy Semmens from Reef Environmental Education Foundation (REEF) and Scott Baker and Sara Mirabilio from North Carolina Sea Grant to showcase examples of fishery-related Citizen Science programs and projects on both a national and local level. All of the citizen science speaker presentations are in Appendix C.

The remainder of the workshop was divided into three sessions. Each session had a breakout group exercise followed by a plenary session. These sessions focused on,

- Session I – Project Ideas: brainstorming potential Citizen Science project ideas to address fishery issues in the region,
- Session II – Project Design: learning about the key elements for designing a successful Citizen Science project, and
- Session III – Expert Group Recommendations: developing draft recommendations for components critical to a Citizen Science program for the South Atlantic.

During Session I, participants were divided into small breakout groups to brainstorm topics and approaches for potential citizen science projects for the South Atlantic. Topics could address all fisheries managed by the Council and consider all components of the fishery – fishery resource, ecosystem, habitats, social and economic issues, environmental issues, etc. Workshop facilitators helped participants summarize the list of project ideas and approaches from each breakout group and then categorized them to develop common themes for the types of projects that could be supported by citizen science. See Appendix K for a summarized list of project ideas and approaches.

In Session II, the top three project ideas from Session I were selected as the focus for the Project Design exercise. The top three project ideas were

- Better Private Recreational Data
- Fishery Discards
- Environmental Data Collection

Participants were divided into small breakout groups and were asked to design a citizen science project using one of the project ideas developed in Session I (listed above). Groups were asked to use the five project components for a citizen science framework described during Jennifer Shirk’s presentation when designing their citizen science project. The five components include,

1. Identify goals (Science/participants/policy-action);
2. Establish Capacity (Staff/volunteers/partners);
3. Design/Refine (Question/protocol, Training, Infrastructure);
4. Manage (Participation, Data, Expectations);
5. Apply/Adapt (Research/action, Determine effectiveness, Transparency)

The groups shared their project design elements during a plenary session to set the stage for Session III that would have participants develop draft recommendations for components needed for a Citizen Science Program for the South Atlantic.

During Session III, participants were divided into expert groups based on their current role and expertise in South Atlantic fisheries. The expert groups focused around six areas:

- Governance,
- Science Standards,
- Data Management,
- Researchers,
- Communication, and
- Fisherman/Citizen Science Participants.

Each Expert Group developed core program recommendations and presented these to all workshop participants during a plenary session. These draft recommendations provided input to the development of the final SAFMC Citizen Science Blueprint document.

Expert Group breakout notes and Expert Group plenary presentations are found in Appendices D – I.

A post-workshop online survey was sent to workshop participants to gauge what information they learned; identify the components of a Citizen Science Program that were most important to them personally and to the SAFMC’s efforts to develop a program; identify the components they thought would be the most challenging in designing a citizen science program; and evaluate the workshop speakers and hands on exercises. Post-workshop survey results are found in Appendix J.

The Council’s Citizen Science organizing committee met the day after the workshop, January 22, 2016 and used the expert groups’ recommendations to help develop the Citizen Science Program Blueprint. The Blueprint is a document to help develop the Council’s Citizen Science Program. In addition to establishing a governance structure for operations and program oversight, the Blueprint calls for developing five essential program action teams to focus on volunteers; data management; projects and topics management; communication, outreach, and education; and finance. The document also outlines the need to establish multiple partnerships with existing programs and agencies to mutually identify research and data needs; improve constituent knowledge, involvement, and buy-in; collect better data to

address management issues; increase data gathering capacity; and help to resolve long-standing data needs. Results from the post-workshop survey were used to further refine the Blueprint document. The SAFMC Citizen Science Blueprint is found in Section II of the Proceedings.

At their March 2016 meeting, the SAFMC reviewed and adopted the SAFMC Citizen Science Program Blueprint and in September 2016, a Council level Citizen Science Committee was established to provide guidance for the development of the program. In December 2016, the Council established a Citizen Science Program Manager staff position to begin implementation of the Program Blueprint.

III. Final SAFMC Citizen Science Program Blueprint



SAFMC Citizen Science Program Blueprint

Prepared by the SAFMC Citizen Science Planning Workgroup, based on recommendations of the SAFMC Citizen Science Workshop

Program Identity

A. Program Official name: South Atlantic Fishery Management Council Citizen Science Program

B. Brief name: The program will be branded using a shorter name that could possibly form a catch acronym or other brief name to refer to the program. This will be developed by the Operations Committee.

C. Mission Statement:

“Improve fisheries management through collaborative science”

D. Vision Statement:

“more collaboration + more data + more trust = better management”

E. Values:

- empower
- include
- engage
- respect
- reliable
- trust
- mutual

F. Definition of “Citizen Science” for the Program: The definition of citizen science for this specific program is yet to be defined. Establishing a definition for the program will be one of the first tasks charged to the Operations Committee and Oversight Board.

Goals & Objectives

The planning workgroup drafted preliminary potential goals for a citizen science program that will be modified once the program launches and development begins. Specific objectives will be developed in coordination with the program A-Teams and reviewed by the Operations Committee.

GOAL 1: Adopt and sustain a new approach to increase the data available to address research and management needs.

- *Objectives should consider all aspects of fisheries including fish, fishery, ecosystem, fishermen.*

GOAL 2: Ensure data collected are appropriate, relevant, reliable, accessible, timely and useful.

GOAL 3: Build partnerships for mutual learning and collaboration.

GOAL 4: Enhance stewardship for the resources of the South Atlantic.

GOAL 5: Foster active engagement and communication about processes, results and impacts.

- *Objectives should consider strategies for providing feedback on usage, collection*

Administration

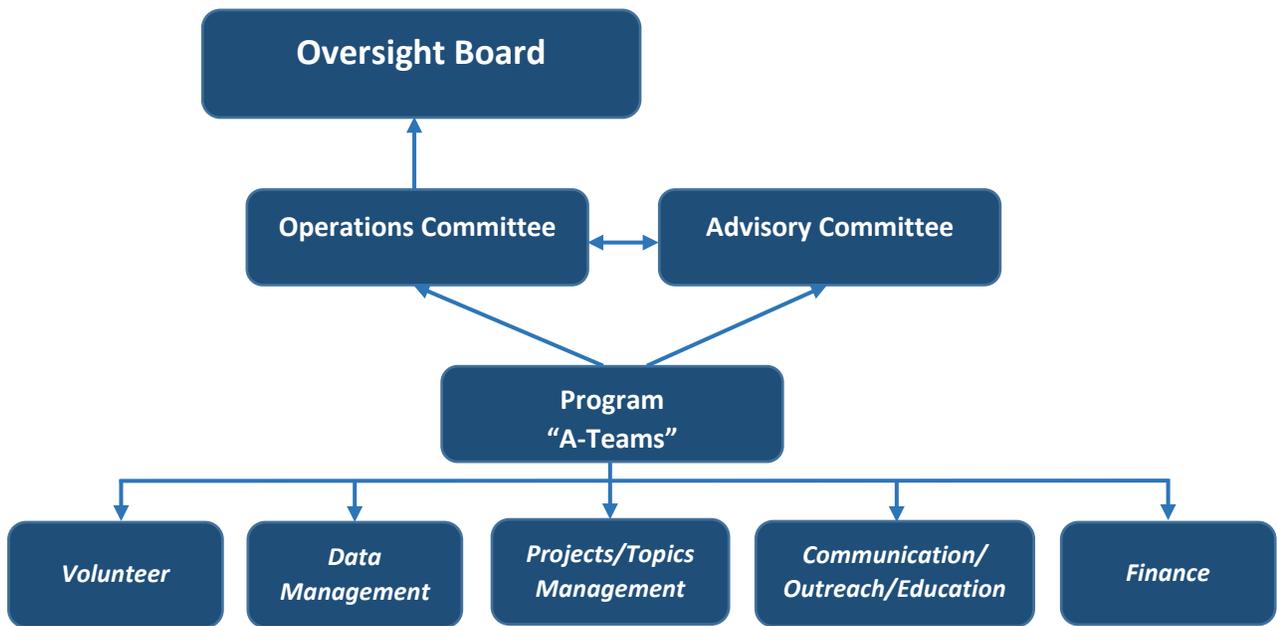
A. Parent/administrative support organization: SAFMC

B. Transition Strategy (*development to implementation*):

- Existing organizing committee will handle oversight tasks until planned infrastructure is in place and ready to take the reins.
- Anticipate 12-18 months before fully transferred, with the clock starting once funding is secured and initial staff is hired.
- Tasks will be delegated to other infrastructure components as they are developed and brought on line.
- Organizing Committee members are expected to continue to serve key roles in various bodies of the permanent infrastructure.

C. General overview and hierarchy

Citizen Science Program Organizational Chart



D. Roles & Operations – *Program Administration Hierarchy*

1. Oversight Board

Design/ Purpose	<ul style="list-style-type: none">• Similar to SEDAR Steering Committee or ACCSP Coordinating Council• Approve policies, provide program direction/multi-partner support, and advice
Membership	<ul style="list-style-type: none">• Representatives from SERO; SEFSC; NOAA Headquarters, Sea Grant (rotating), SAFMC (Chair, Executive Director, and SSC Chair); Stakeholders (private, for-hire, commercial); ACCSP/ASMFC; State agency; Advisory Committee Chair
Appointments	<ul style="list-style-type: none">• Council appointed: <i>Stakeholders(3); NGO; Sea Grant; At-large; SSC Chair; State agency; AP Chair</i>• Designated by agency: <i>SERO, SEFSC, S&T, ACCSP/ASMFC</i>• Named individuals may designate temporary or permanent proxies
Tasks	<ul style="list-style-type: none">• Approve program policy (SOPPS), goals, and objectives (<i>Developed by staff & Operations Committee</i>)• Approve program budget (<i>Developed by staff; recommendations from A-Teams</i>)• Provide infrastructure & governance direction (<i>through SOPPS & program evaluation</i>)• Meets annually (face-to-face); Additional meetings in first 2-3 years of program
Staff Support	<ul style="list-style-type: none">• Citizen Science Program Manager (<i>supervised by SAFMC Deputy Director for Science & Statistics</i>)

RECOMMENDATION: Establish a Citizen Science Program Oversight Board.

2. Operations Committee

Design/ Purpose

- Smaller group of advisors that develop program recommendations for the Oversight Board to consider
- Approve policies, provide program direction/multi-partner support, and advice

Membership

- Representatives from Citizen Science Organizing Committee (2 Council members, SEFSC Director/Designee; Council Staff (Deputy Dir for S&S); NGO); A-Team Leaders; SSC (Chair or Designee)

Appointments

- Appointed by the Oversight Board
- Term policies would be developed by the Oversight Board to govern membership

Tasks

- Establish A-Teams immediately (topic specific task forces)
- Coordinate with A-Team Leaders
- Report A-Team recommendations to the Oversight Board
- Draft SOPPS and policies for Oversight Board approval

Staff Support

- Citizen Science Program Manager (*supervised by SAFMC Deputy Director for Science & Statistics*)

RECOMMENDATION: Establish a Citizen Science Program Operations Committee.

3. Advisory Committee

Additional standing committees may be added over time to assist with specific programmatic needs related to projects supported through the citizen science program. Committees to coordinate proposal review and other technical/data needs are examples of possible standing committees that may be convened in the future.

Design/ Purpose	<ul style="list-style-type: none">• Serve in the role of advisors similar to the Council's Advisory Panels• Works in conjunction with the Operations Committee to develop recommendations for the Oversight Board
Membership	<ul style="list-style-type: none">• Fishermen (private, for-hire, commercial) and scientists• 3 stakeholders per state
Appointments	<ul style="list-style-type: none">• Appointed by the Operations Committee• Nominated by partners• Term policies would be recommended by the Operations Committee and approved by the Oversight Board to govern membership
Tasks	<ul style="list-style-type: none">• Serve as outreach ambassadors• Assist with developing strategies for recruiting and training volunteers• Identify research and data needs• Serve in some capacity during the proposal review process
Staff Support	<ul style="list-style-type: none">• Citizen Science Program Manager (<i>supervised by SAFMC Deputy Director for Science & Statistics</i>)

RECOMMENDATION: Establish a Citizen Science Program Advisory Committee

4. A-Teams

The A-Teams are task forces that will be developed during the initial launch of the citizen science program to help develop program components as outlined below.

Volunteers

Team will consider

- **Recruiting/Retention**
- **Training:** *delivery, skills certification, continuing*
- **Incentives:** *tangible/intangible, data sharing, accessibility*
- **Role in project ID & research needs**
- **Expectations:** *participation, communication, feedback, data results and usage, building sense of ownership in program*

Communication-Outreach-Education

Team will consider

- **Approaches & Tools:** *programmatic, projects/results, and to participants*
- **Media Plan:** *Branding/PR*
- **Feedback-Recognition Plan**
- **Training Plan:** *approaches, tools, methods*
- **Newsletters/Reports:** *program and projects*
- **Technology Platforms:** *web-based, social media role, others*

Data Management

Team will consider

- **Managing entity?**
- **Data Life Cycle**
- **Data Policies:** *collection standards, QA/QC*
- **Access:** *confidentiality and ownership*
- **End-user citations**
- **Validation**
- **Use guidelines:** *agreements and waivers*
- **Infrastructure:** *entry, storage, housing, database*
- **Electronic tools**
- **Data documentation:** *obtaining and managing*
- **Applicable data standards:** *IQA, NS2*
- **Platforms for data**
- **Presentation & marketing**

Finance

Team will consider

- **Administrative funding:** *short-/long-term sources, budget*
- **Project funding:** *sources, partnerships for receiving, disbursing, managing funds*

Projects-Topics Management

Team will consider

- **ID topics/research needs**
- **Application process**
- **Approving/endorsing projects:** *pre-review process, review entity, revising*
- **Prioritization of needs**
- **Selecting projects for support, endorsement**
- **Soliciting ideas**
- **Outlining project expectations:** *Goals and Plans for Data, Volunteers, Communication, Project Promotion, and Science Methods/Deliverables*
- **Training for science methods in citizen science**
- **Evaluation of projects:** *performance measures of success*

RECOMMENDATION: Establish five (5) A-Teams to develop program components. Others maybe added based on the advice of the Operations Committee.

Partnerships

The aim of a Citizen Science program would be to complement existing programs with similar missions and leverage new resources and partnerships to expand upon the fishery data needs in the region. Possible partnership opportunities were identified with existing programs and agencies. Developing relationships would likely be mutually beneficial to the entities involved. Potential benefits from partnering with the Citizen Science Program could include: identifying research and data needs; improving constituent knowledge, involvement, and buy-in; having better data to address management issues; increasing data gathering capacity; and helping to resolve long-standing data needs. Potential partners are listed below along with support they could potentially provide to a Citizen Science Program.

Sea Grant

- **Identify data and research needs**
- **Source of capacity**
 - *Program management*
 - *Program manager support & advice*
 - *Volunteer management (recruiting & training)*
 - *Outreach assistance*
- **Potential funding: source, funding partnerships, donation management**
- **Infrastructure committee members at all levels**
- **Program development recommendations**

NMFS

- **Identify data and research needs**
- **Source of capacity**
 - *Program and project management*
 - *Scientific (e.g. design, analysis)*
 - *Volunteer management (recruiting & training)*
- **Data QA/QC**
- **Program funding**
- **Infrastructure committee members at all levels**
- **Help ensure CS addresses national mandates and recommendations**

ACCSP

- **Potential partner for data warehousing and management**
- **Potential funding source**
- **Infrastructure committee members at all levels**

Fishery Information Networks (FINS)

- **Serve as another model for data management**

(Continued)

(Partnerships continued)

State Agencies

- **Identify data and research needs**
- **Source of capacity**
 - *Project management*
 - *Scientific*
 - *Volunteer management (recruiting & training)*
- **Potential funding partnerships**
- **Project managers and partners**
- **Infrastructure committee members at all levels**

SAFMC

- **Administrative parent**
 - *HR, staff management*
 - *Office space*
 - *Program support, funding*
- **Program guidance & direction**
- **Identify data and research needs**
- **Source of capacity**
- **Infrastructure committee members at all levels**

Non-Governmental Organizations (NGOs)

- **Source for capacity building**
- **Identify data and research needs**

Cooperative Research Program *(CRP- federal grant program)*

- **Potential benefits from CS**
 - *Promote awareness of CRP*
 - *Connect citizens and researchers interested in CRP projects*
- **Potential benefits to SAFMC**
 - *Increase benefit from CRP to SAFMC issues*
 - *Recommend CRP priorities*

RECOMMENDATION: Expand existing partnerships with the identified agencies and programs and build collaborative relationships with newly identified agencies and programs.

Paid Staff

To ensure success, dedicated, full-time staff will be required for both initial program development and long-term support. Initially, a program manager is recommended to develop the infrastructure, initiate training and outreach, and support initial projects. The program manager will be a SAFMC employee within the science and statistics branch.

Dedicated managers for individual projects will be required as projects expand in number or complexity. Such positions could be filled by partner staff, well-trained and motivated volunteers, or dedicated program staff if resources and need allow.

Immediate tasks for the Citizen Science Program manager include,

- Inventorying current marine citizen science efforts;
- Organizing and populating program infrastructure;
- Serving as the point of contact for the program and interested volunteers; and
- Pursuing administrative and project funding.

Once the program is up and running, tasks will shift to supporting program committees, project management, volunteer support, and outreach and education.

RECOMMENDATION: Hire a full time program manager as soon as funds are available.

Funding Requirements

Funding is required to initiate the program, including salary and travel for the program manager, website development and hosting, outreach and training activities and travel for program committees and teams to develop program guidance. Additional funding for project support would further insure success of the critical first projects.

Since the governance recommendation is to house the program within the SAFMC, core administrative funding, such as that used to support staff salaries, must be obtained through NMFS channels. Funding for specific projects may come from various other sources, including competitive programs such as CRP, S-K, MarFin as well as partner organizations such as Sea Grant, state agencies, and ACCSP.

RECOMMENDATION: Pursue short-term funding options for program development and long-term alternatives to ensure its success and sustainability.

Legal and Liability concerns

Collecting, storing, and providing access to data raises potential legal and liability concerns that will need to be addressed during program development. For example, data used for decision making in the Council Management system fall under the requirements of federal laws including the Information Quality Act and the more recent PARR directive that addresses access.

Consideration must also be given to risk management and liability in the event of accidents that may occur during field activities associated with projects supported or endorsed by the Program.

RECOMMENDATION: Agency reviews program SOPPS to ensure compatibility with applicable laws and mandates.

Initial “Kickstarter” project

Workshop participants strongly supported initiating a “kickstarter” project early in the launch of a Citizen Science Program. Initiating a “kickstarter” project could help demonstrate how a project would be administered and implemented in the new Citizen Science program, develop

initial interest in a program and serve as an outreach platform, and help showcase the successes of citizen science driven projects.

Recommendations were made to develop criteria for project selection including,

- Identifying a simple, useful project with a high chance of success and broad constituent interest
- Consider a project in which the outcome will not have a direct negative impact on South Atlantic fisheries (i.e., fishery closure) but rather will add to information about the fishery to help support management decisions.
- Establish a process for project solicitation, review, and selection.

RECOMMENDATION: Develop a project selection process in order to initiate a “kickstarter” project.

Miscellaneous topics and recommendations

Advice

- Pilot projects are good.
- Fail early, Fail often: let the program evolve and don't be afraid to try new things.
- Outreach is critical and should be a component at each infrastructure level.
- Training is critical for project participants and managers.
- Hierarchy is required; interests and needs will vary broadly.
- Consider how to foster “matchmaking” for project ideas with scientists needing data connected with citizens who can provide those data and citizens with ideas connected with scientists who can turn them into projects.
- Possibly use a web oriented match-making type platform to connect scientists and citizens.

IV. Appendices
(available as separate documents)

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