

## SAFMC Citizen Science Action Team Progress Summary

The five Citizen Science Advisory Panel Action Teams - Data Management, Volunteers, Projects/Topics Management, Communication/Outreach/Education, and Finance & Infrastructure – have met monthly since August 2017. The Teams have been using the Council-adopted Terms of Reference to guide them through their work. This summary provides highlights of the progress each team has been making towards addressing the Terms of Reference and developing recommendations for the operations and policies that will shape the Council’s Citizen Science Program. All meeting summaries are available on the Citizen Science program website under the Citizen Science AP – Action Teams section: <http://safmc.net/citizen-science-initiative/>

### I. Data Management Action Team – Progress Summary

The Data Management Action Team ranked the Terms of Reference in order of which items should be addressed first by the Team to help guide the Team on developing a plan of work based on these rankings.

<b>Data Management A-Team: Prioritized Ranking Results of Terms of Reference (ToR)</b>	
<b>NOTE: ToRs are in order of highest to lowest priority</b>	
<b>Priority</b>	<b>Terms of Reference</b>
<b>1</b>	<b>ToR #2:</b> Develop an inventory of data management resources for the Program (both existing resources and resources that will be needed) that considers each of the elements in the data life cycle, partners, data storage/infrastructure at varying levels of need.
<b>2</b>	<b>ToR #1:</b> Develop an overall data management plan for the Program that considers the elements in the “data life cycle”.
<b>3</b>	<b>ToR #7:</b> Develop recommendations for defined, minimum data standards that projects must meet in order to be considered under the Program. Recommendations should consider the goal of data collected under the Program to be used in assessments & management.
<b>4</b>	<b>ToR #6:</b> Develop options for a tiered Quality Assurance/Quality Control and validation system for citizen science data collected by the Program and recommendations for how this system might work for different levels of projects. Consider pricing & cost.
<b>5</b>	<b>ToR #3:</b> Develop policy recommendations on how citizen science data from the Program will be made accessible (to volunteers, researchers/ scientists, managers, funders, etc.). Consider what level of access is appropriate.
<b>6</b>	<b>ToR #9:</b> Develop recommendations for short and long-term data storage options for citizen science data collected by the Program. Recommendations should consider pricing and cost options.
<b>7</b>	<b>ToR #8:</b> Determine how existing research and/or citizen science projects and data may be able to fit within the data standards developed by the Program for use in management and/or science.
<b>8</b>	<b>ToR #4:</b> Develop policy recommendations on how ownership of citizen science data from the Program will be determined collectively with all project participants (volunteers, researchers/scientists, managers, funders, etc.).
<b>9</b>	<b>ToR #5:</b> Develop policy recommendations on how citizen science data from the Program can be used (by volunteers, researchers/scientists, managers, funders, etc.) and how data should be cited.

### Tasks Completed by the Action Team:

#### Data Management Resources Inventory

- To address Term of Reference #2 (ranked as the highest priority), the Team developed a Data Management Resources form to understand the existing data management capacity and resources in the region from fisheries

data collection programs as well as citizen science projects/programs. Link to the form:

<https://goo.gl/forms/LrZglJqBC8LCTNQ43>

- The form was sent to state, federal, non-profit, and private agencies and organizations that have existing data management systems in place or citizen science projects that collect data.
- To date, the Team has received 30 responses and is in the process of collecting additional responses with a specific focus on targeting more citizen science projects and additional agencies. A summary of responses as of 11/2/17 can be viewed here: [http://safmc.net/download/CitSci\\_DataMgmtATeam\\_Summary\\_11.02.2017\\_2.pdf](http://safmc.net/download/CitSci_DataMgmtATeam_Summary_11.02.2017_2.pdf)

### **Next Tasks to be Completed by Action Team:**

Several of the next Terms of Reference to be addressed by the Team can build upon information compiled from the Data Management Resources Inventory form. Specifically, the Team will begin work on Term of Reference #7 (developing defined minimum data standards for projects under the program) and #6 (options for a tiered QA/QC and validation system for project data).

### **Review of Data Standards/Policies**

- One of the questions in the Data Management Resources Inventory form asked if the respondent had data standards/policies in place for their data collection program and if so, would they be willing to share them with the Action Team. Fourteen respondents indicated they were willing to share their data standards/policies.
- The Team will compile the data standards/policies and each team member will review 2 policy documents to summarize the standards. The Team will then summarize the commonalities and document key policies that the Council's Citizen Science program should consider for Data Management with regard to minimum data standards and QA/QC.

### **Data Management Costs Follow-Up**

- One of the questions in the Data Management Resources Inventory form asked about the associated costs of the respondent's system. Few respondents were able to answer the question because they were not the person on staff that handled this aspect of the system.
- The Team will develop a follow-up survey of questions related to cost for data management that will be sent to senior staff from those agencies/organizations. Feedback on the cost of existing data management systems will help the Action Team develop cost consideration recommendations for the Council's Citizen Science Program.

## II. Volunteers Action Team – Progress Summary

The Volunteers Action Team ranked the Terms of Reference in order of which items should be addressed first by the Team to help guide the Team on developing a plan of work based on these rankings.

<b>Volunteers A-Team: Prioritized Ranking Results of Terms of Reference</b>	
<b>NOTE: ToRs are in order of highest to lowest priority</b>	
<b>Priority</b>	<b>Terms of Reference</b>
1	<b>ToR #1:</b> Develop method and approach (inventory/needs assessment) for the Program to collect data on volunteers that want to participate in a project. <i>Information should consider, -existing skill sets of volunteers (data collection, fishing, technology, etc.); -existing resources of volunteers (vessels, gear, crew, networking within the fishing community, etc.); -what amount and type of data collection is feasible for volunteers to collect (dependent on the goal of the project and data needed); -motivations and expectations of volunteers for participating in a project; and an inventory of skills that will need to be taught to volunteers for different type of projects.</i>
2	<b>ToR #2:</b> Develop matrix of criteria for determining what type of volunteer training and what delivery approach is needed for different levels of projects (simple vs. complex projects) that may be conducted under the Program.
3	<b>ToR #3:</b> Develop options for a SAFMFC Citizen Science Program “certification” for volunteers to learn how the Program operates and supports projects; requirements for Program participation; and a general overview of data collection using citizen science methods, record keeping, data submission, and how data is incorporated into fishery science and management.
4	<b>ToR #4:</b> Develop list of potential and appropriate volunteer incentives that the Program will offer to project participants for different types of projects. Additional items to consider include recruitment and retention of volunteers.
5	<b>ToR #5:</b> Develop ideas for a matchmaking service to connect fishermen and researchers/scientists to work on citizen science projects together under the umbrella of the Program.
6	<b>ToR #6:</b> Determine appropriate options for the Program to share progress updates about the project, data results and present data visualization to volunteers.

### Tasks Completed by the Action Team:

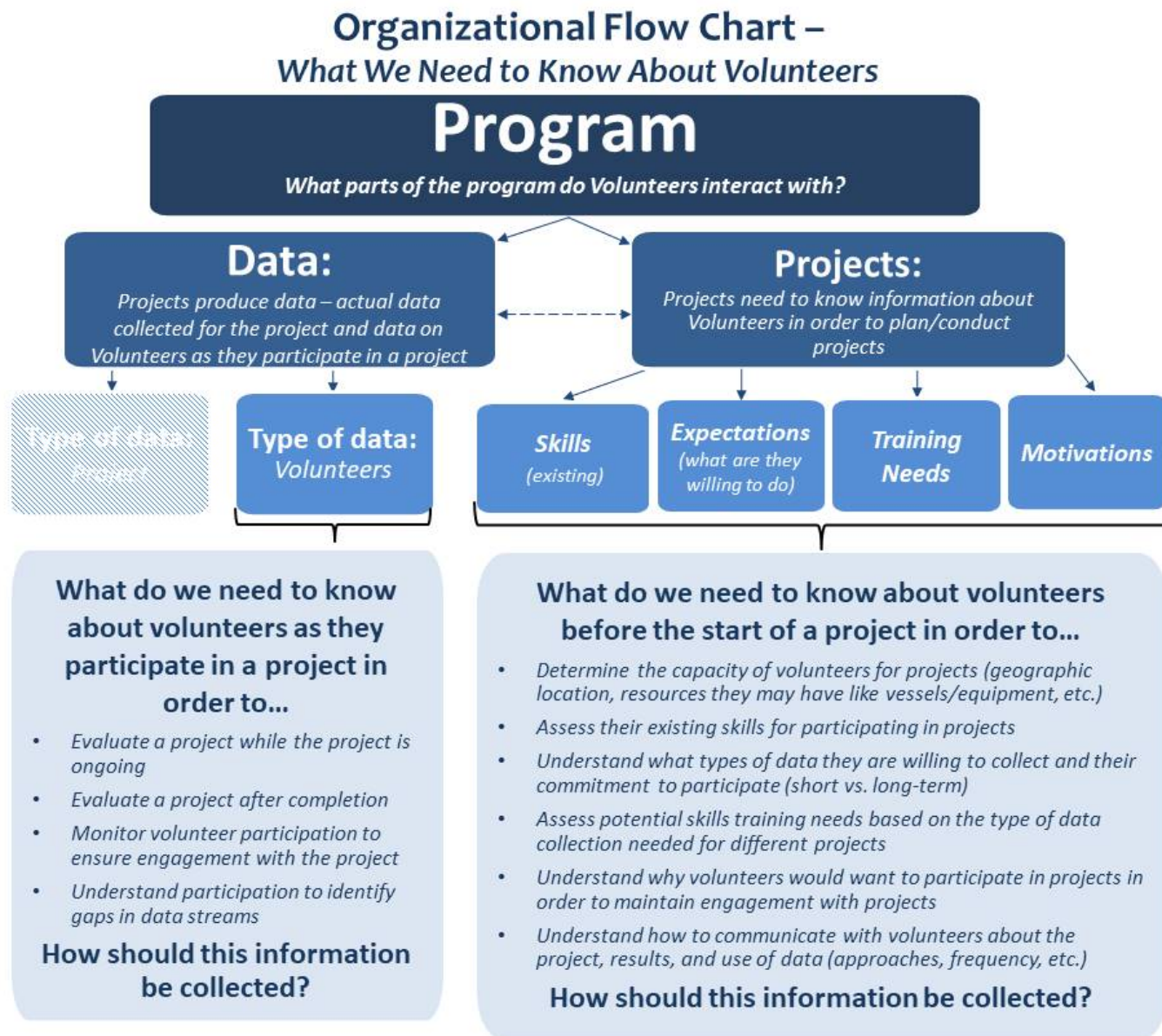
#### Inventory of Volunteer Approaches

- To address Term of Reference #1, the Team began an inventory of example citizen science projects detailing: (1) the approaches used to collect data on volunteers, (2) the types of information collected on volunteers, and (3) the training offered to volunteers.
- Expanding on the training information from the inventory, the Team began work on developing case studies of existing citizen science projects to gather information on the cost, approach, and evaluation of volunteer training. The programs being developed in to case study summaries include REEF, VA Gamefish Tagging Program, iAngler, and the California Collaborative Fisheries Research program.

#### Volunteer Interest Form

- Using the examples and information from the inventory, the Team began work on developing a form to collect information on potential volunteers with the intent of compiling information on the interest and capacity of volunteers in the region (demographics, participation in South Atlantic fisheries, existing skills and resources to bring to a project, level of commitment to participate, data they would be willing to collect, and new skills they may have an interest in learning in order to participate in a project). See Figure 1.

**Figure 1:** Organizational Flow Chart for Determining What the Council's Citizen Science Program Needs to Know about Volunteers



#### Next Tasks to be Completed by Action Team:

##### Expanded Volunteer Interest Form

- The Team will work with the Projects/Topics Management Action Team to develop the form to also include questions for scientists and researchers that may have an interest in participating in citizen science projects.

##### Sample Volunteer Training Plan

- Using the project idea for the pending citizen science pilot project on scamp group discards, the Team will develop a volunteer training plan for the project that will include all of the components needed to engage and train volunteers to participate in the project. This sample volunteer training plan will be used as a model for developing training plan recommendations for different types of citizen science projects the Program may support.

### III. Projects/Topics Management Action Team – Progress Summary

The Projects/Topics Management Action Team ranked the Terms of Reference in order of which items should be addressed first by the Team to help guide the Team on developing a plan of work based on these rankings.

<b>Projects/Topics Management A-Team: Prioritized Ranking Results</b>	
<i>NOTE: ToRs are in order of highest to lowest priority</i>	
Priority	Terms of Reference
1	<b>ToR #1:</b> Develop a collaborative process and mechanism (that includes potential volunteers, researchers, scientists, and managers) to identify and prioritize fishery issues, research needs, and data gaps that could be addressed through the Program using a citizen science approach. <i>Recommendations should consider the Council's current Research &amp; Monitoring Plan and how the issues and needs will be compiled for use in soliciting projects under the Program.</i>
2	<b>ToR #3:</b> Develop recommendations for project criteria requirements to be considered under the Program.
3	<b>ToR #2:</b> Develop options for how the Program should promote project opportunities and solicit proposed projects. <i>Options should consider approaches for projects developed by the Program vs. projects that are brought to the Program for consideration, using the data standards and protocols developed by the Data Management A-team.</i>
4	<b>ToR #5:</b> Develop recommendations on a process for reviewing proposed projects. Recommendations should consider who and how proposed projects will be reviewed and the frequency of review.
5	<b>ToR #4:</b> Develop recommendations for a mechanism (proposal template) for the Program to solicit project proposals. <i>Recommendations should consider how project opportunities will be promoted.</i>
6	<b>ToR #6:</b> Develop recommendations for how projects will be evaluated – both by the Program and by the project principle investigators – for the duration of the project.
7	<b>ToR #7:</b> Develop recommendations for how project data will be managed for use by the Program and by participants and partners.

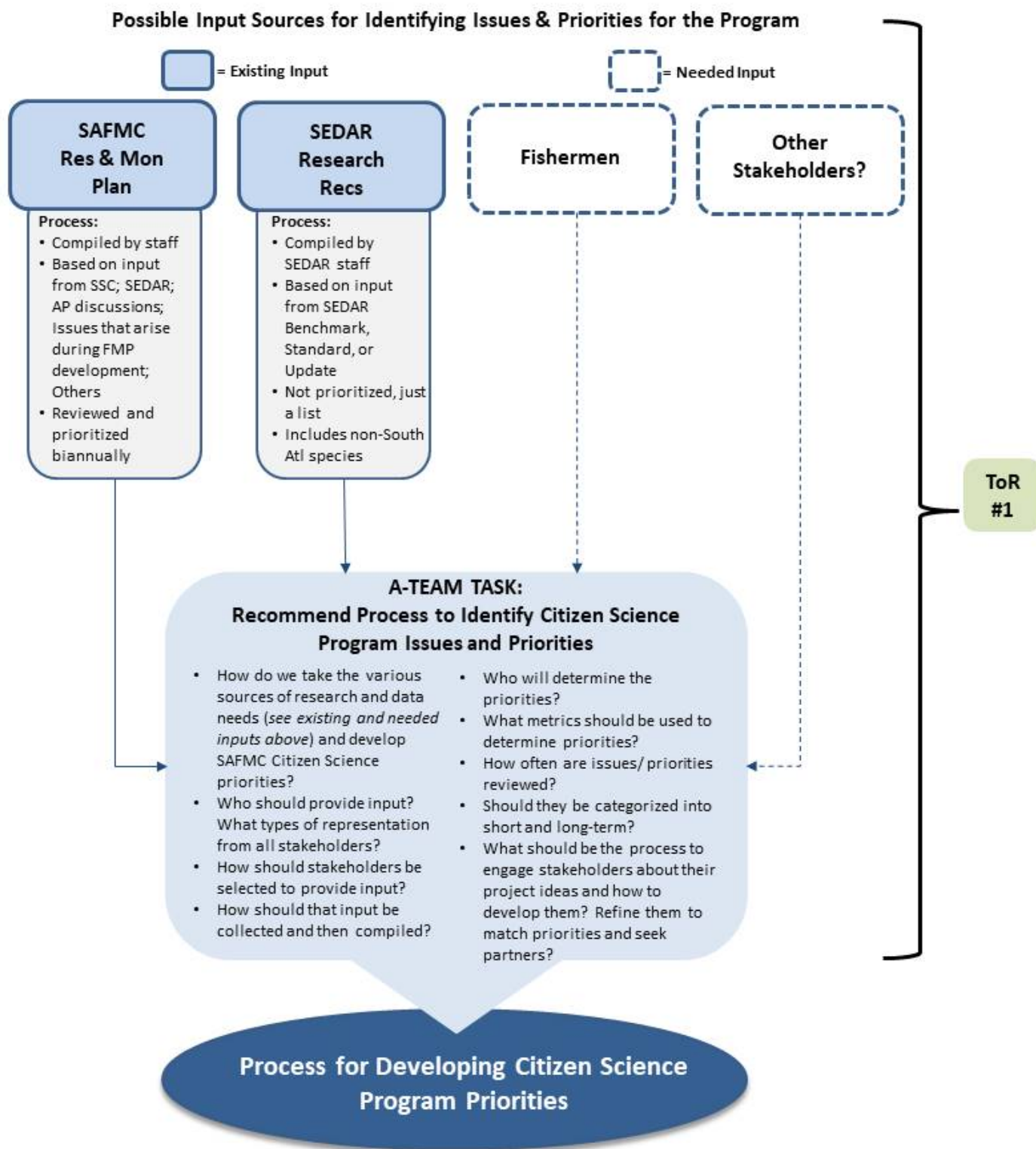
#### Tasks Completed by the Action Team:

##### Identification of Processes for Establishing Citizen Science Topics/Issues

- To address Term of Reference #1, the Team identified the existing processes and input that was missing for compiling ideas for citizen science topics/issues. Existing processes include the SAFMC Research & Monitoring Plan and the SEDAR Research recommendations. Input derived from these two processes includes input from the Council's Advisory Panels, Scientific and Statistical Committee and other input gathered during amendment development. However, there is not a mechanism to collect broader input from the public and those fishermen that may be interested in becoming engaged with a citizen science project and the Program. See Figure 2.

**Figure 2:** Possible Sources of Input for Determining Citizen Science Topics and Issues

## Tasks for Addressing ToR #1 – Projects/Topics Management A-Team



## Next Tasks to be Completed by Action Team:

### Process for Establishing Citizen Science Program Topics and Ideas

- The Team will use the information from Figure 2 to establish draft options for a process to identify and prioritize fishery issues that could be addressed using citizen science approaches. The Team is exploring a tiered approach:

- **TIER 1** –

#### **Volunteer Interest Form**

The Team will work with the Volunteers Action Team to develop questions that will collect information from scientists and researchers on their interest in participating in a citizen science project, what role they are willing to fulfill in a project, what resources they can bring to a project, and other research interests they may have that align with the Council's citizen science research needs.

- **TIER 2** - Includes input from two sources and the Team will continue to discuss and develop a process for using the Research & Monitoring Plan and developing additional ways to collect citizen science-specific input.

#### **SAFMC Research & Monitoring Plan**

The R&M Plan outlines the broad, technical research needs for to help inform management decisions made by the Council. These are identified by fishermen, scientific advisors, and the Council every 2 years. The Plan can be used to identify broad research needs that could be addressed using citizen science.

#### **Annual Request for Input on Citizen Science Needs**

Develop a Citizen Science Research Needs document that calls upon topics in the R&M Plan but outlines more specific fishery issues/project ideas for stakeholder consideration and ranking. The document could be used to develop a list of prioritized citizen science topics and project ideas for the Program based on the R&M Plan.

### Project Development Plan

- Using the project idea for the pending citizen science pilot project on scamp group discards, the Team will draft a project development plan that will include all of the components needed to plan this pilot citizen science project to ensure the data collected can be used in science and management. The plan may include options for assembling a project team, identifying project resources, costs associated with the project, timing of the project, describing how the data may be used, and appropriateness for meeting an identified citizen science research need. This sample project development plan will be used as a model for establishing criteria the projects must meet in order to be endorsed by the Program.

#### IV. Communication/Outreach/Education Action Team – Progress Summary

The Communication/Outreach/Education Action Team ranked the Terms of Reference in order of which items should be addressed first by the Team to help guide the Team on developing a plan of work based on these rankings.

<b>Communication A-Team: Prioritized Ranking Results</b>	
<b>NOTE: ToRs are in order of highest to lowest priority</b>	
<b>Priority</b>	<b>Terms of Reference</b>
<b>1</b>	<b>TOR #4:</b> Explore other similar citizen science programs and identify different types of communication and outreach platforms used to convey information about their program (visual, electronic, print, etc.). <b>PROGRAM</b>
<b>2</b>	<b>TOR # 1:</b> Develop an inventory (needs assessment) of existing marine science citizen science efforts that can be used as case studies to help describe the intent of the Council’s program. <b>PROGRAM</b>
<b>3</b>	<b>TOR #5:</b> Review marine science citizen science projects and identify different types of communication and outreach platforms used for project development with volunteers, volunteer training, and sharing project results. <b>PROJECT</b>
<b>4</b>	<b>TOR #3:</b> Develop options for outreach materials describing the different components of the Council’s Program. Options should consider outlining volunteer expectations, data use/sharing/accessibility policies, project criteria & selection process, etc. <b>PROGRAM</b>
<b>5</b>	<b>TOR #9:</b> Develop ideas for a matchmaking service to connect fishermen and researchers/scientists to work on citizen science projects together under the umbrella of the Program. <b>PROJECT</b>
<b>6</b>	<b>TOR #6:</b> Develop a matrix of current outreach resources and methods of communication and how each can be used for different types of project (simple vs. complex) and how each can be used with varying levels of volunteer skill sets. <b>PROJECT</b>
<b>7</b>	<b>TOR #2:</b> Explore ideas for establishing a program name and brand to help delineate and define the Council’s program. Recommendations should consider a list of promotional materials and items targeted materials for different participants in the Program. <b>PROGRAM</b>
<b>8</b>	<b>TOR #10:</b> Determine options for a Feedback Plan for the Program to continually evaluate volunteer participation, expectations, and incentives for being involved in projects. Consider how to collect testimonials from volunteers, sharing updates/results/data. <b>PROGRAM/PROJECT</b>
<b>9</b>	<b>TOR #7:</b> Consider options for a “Train-the-Trainer” approach for the Program that supports volunteer engagement utilizing peer-to-peer networks. <b>PROGRAM/PROJECT</b>
<b>10</b>	<b>TOR #8:</b> Develop a Recognition Plan that the Program will implement with project volunteers to recognize their contributions and to further support recruitment and retention of volunteers. Consider “gamification” approaches for participation in projects. <b>PROGRAM/PROJECT</b>



## **Tasks Completed by the Action Team:**

### **Inventory of Communication Approaches**

- To address Terms of Reference #4 and 5, the Action Team developed an inventory of communication/outreach approaches used in example citizen science projects. The inventory includes a summary of commonalities in communication approaches/tools, and
- Based on the inventory, the Team developed draft recommendations related to appropriate communication/outreach approaches/tools the Council's Program should consider.
- To address Term of Reference #3, the team added to the inventory spreadsheet examples of how existing citizen science projects share results with volunteers (approaches/tools) and also how projects are promoted to recruit volunteers.

## **Next Tasks to be Completed by Action Team:**

### **First Set of Recommendations for Communication/Outreach Approaches**

- The Team will finalize the first set of recommendations for Communication/Outreach approaches to present to the "All Hands" Action Team meeting to be held in January 2018.
- The recommendations will include a comparison of different types of citizen science projects and the types of communication/outreach approaches that may work best for each type of projects. The recommendations will provide an explanation of Discrete vs. Continuous projects and describe each of the Communication/Outreach/Education elements needed for either type of project.

### **Sharing Project Results and Project Promotion**

- The Team will develop a summary of the inventory table focused on how projects share results and how projects are promoted to recruit volunteers

### **Review of SAFMC Citizen Science Program Promotional Flyer**

- The Finance & Infrastructure Action Team is developing a promotional flyer for use to solicit Program partners. The Communication/Outreach/Education Action Team will review and provide input on the draft promotional flyer to assess the flyer as a possible communication tool to educate partners about the Program.

## V. Finance & Infrastructure Action Team – Progress Summary

The Finance & Infrastructure Action Team ranked the Terms of Reference in order of which items should be addressed first by the Team to help guide the Team on developing a plan of work based on these rankings.

<b>Finance A-Team: Prioritized Ranking Results</b>	
<b><i>NOTE: ToRs are in order of highest to lowest priority</i></b>	
Priority	Terms of Reference
1	<b>ToR #1:</b> Develop an inventory of financial needs for the Program to support general administration/operation of the Program, database management/technology, project support, and training/outreach, etc.
2	<b>ToR #6:</b> Research the operation and infrastructure of existing governmental foundations used to support the activities of other agencies similar to the Council (i.e, National Marine Sanctuary Foundation, “Friends Of”-type groups, etc.).
3	<b>ToR #2:</b> Develop an inventory of Program partners that could facilitate and administer cooperative funding agreements for citizen science projects under the Program.
4	<b>ToR #4:</b> Research options and opportunities for short-term project funding.
5	<b>ToR #3:</b> Develop recommendations for long-term administrative funding for the Program.
6	<b>ToR #5:</b> Explore options and develop recommendations for utilizing online “kickstarter” campaigns to support projects under the Program.
7	<b>ToR #7:</b> Research options and develop recommendations for initiating a “hackathon”-style funding opportunity to engage technology experts in developing mobile applications for use in fisheries citizen science projects.

### **Tasks Completed by the Action Team:**

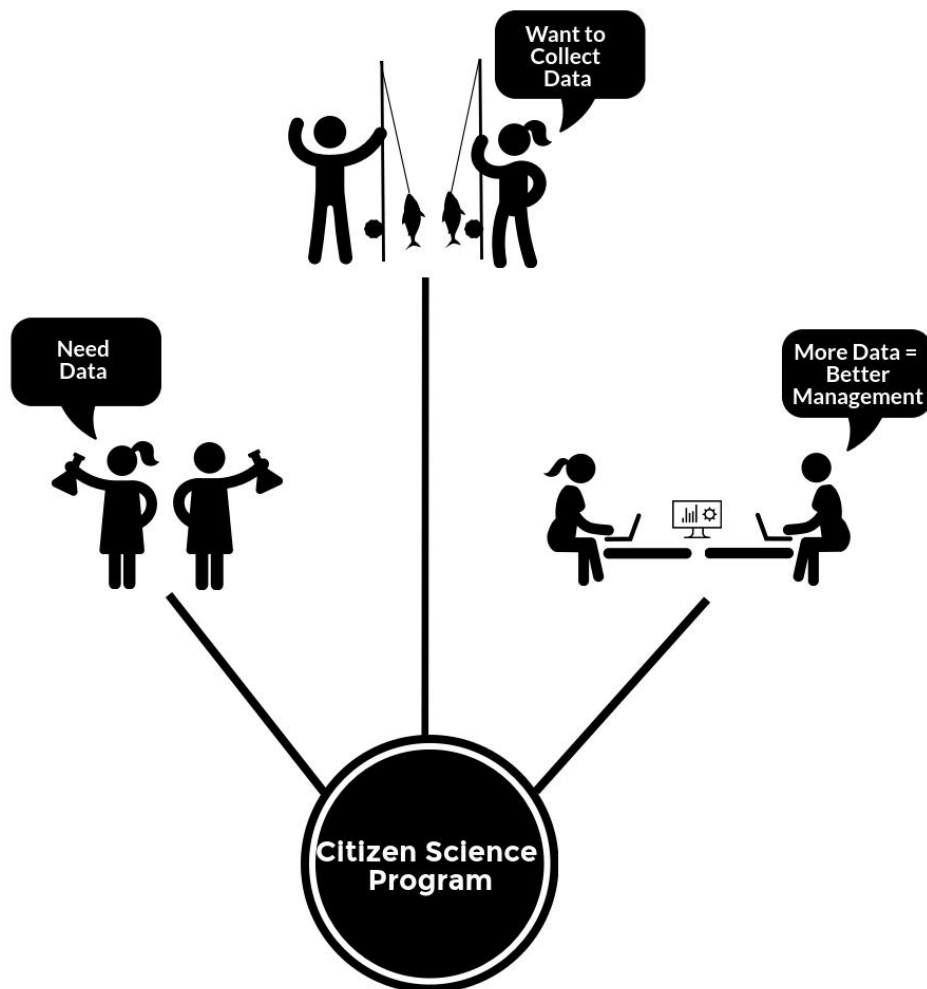
#### **Draft Operational and Programmatic Budget**

- To address Term of Reference #1, the Action Team developed a tiered draft budget that outlines the anticipated financial needs for the Program over time that includes line item Operational/Administrative expenses and Programmatic expenses that would provide support for projects.

#### **Promotional Flyer for the SAFMC Citizen Science Program**

- To address Term of Reference #4, the Action Team drafted a promotional flyer about the Program targeting potential Program partners to outline the intent and purpose of the Program and how partners can become involved in the Program. The Team is also working on graphics that describe the purpose of the Program. See Figure 3.

**Figure 3. Graphic showing participants in the Council's Citizen Science Program**



### **Next Tasks to be Completed by Action Team:**

#### **Recruitment of Action Team Members**

- As the Team continues work on the Terms of Reference, current team members and staff will continue to recruit A-Team members based on the expertise needed for developing recommendations for the Program on Finance and Infrastructure.

#### **Options for Establishing a Process for the Program to Receive Funds/Donations**

- To address Term of Reference # 6, the Action Team will work on developing possible models for funding partnerships to include establishing Memorandums of Agreement with other non-profit/agency groups to serve as fiscal stewards for program funds/donations and for the long-term, options for establishing a separate foundation for the Program that could be the recipient of funding.

**Promotional Flyer for the SAFMC Citizen Science Program**

- The Team will incorporate input from the Communications/Outreach/Education Action Team and finalize the flyer.

**VI. Next Steps & Timing**

The Action Teams will continue to meet and develop recommendations for the Program.

