Efforts to Develop a South Atlantic Fishery Management Council Citizen Science Program

Presented by SAFMC staff:

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SEDAR Program Coordinator

Amber Von Harten,

Fishery Outreach Specialist

May 25, 2016 QUEST Program webinar

Topics

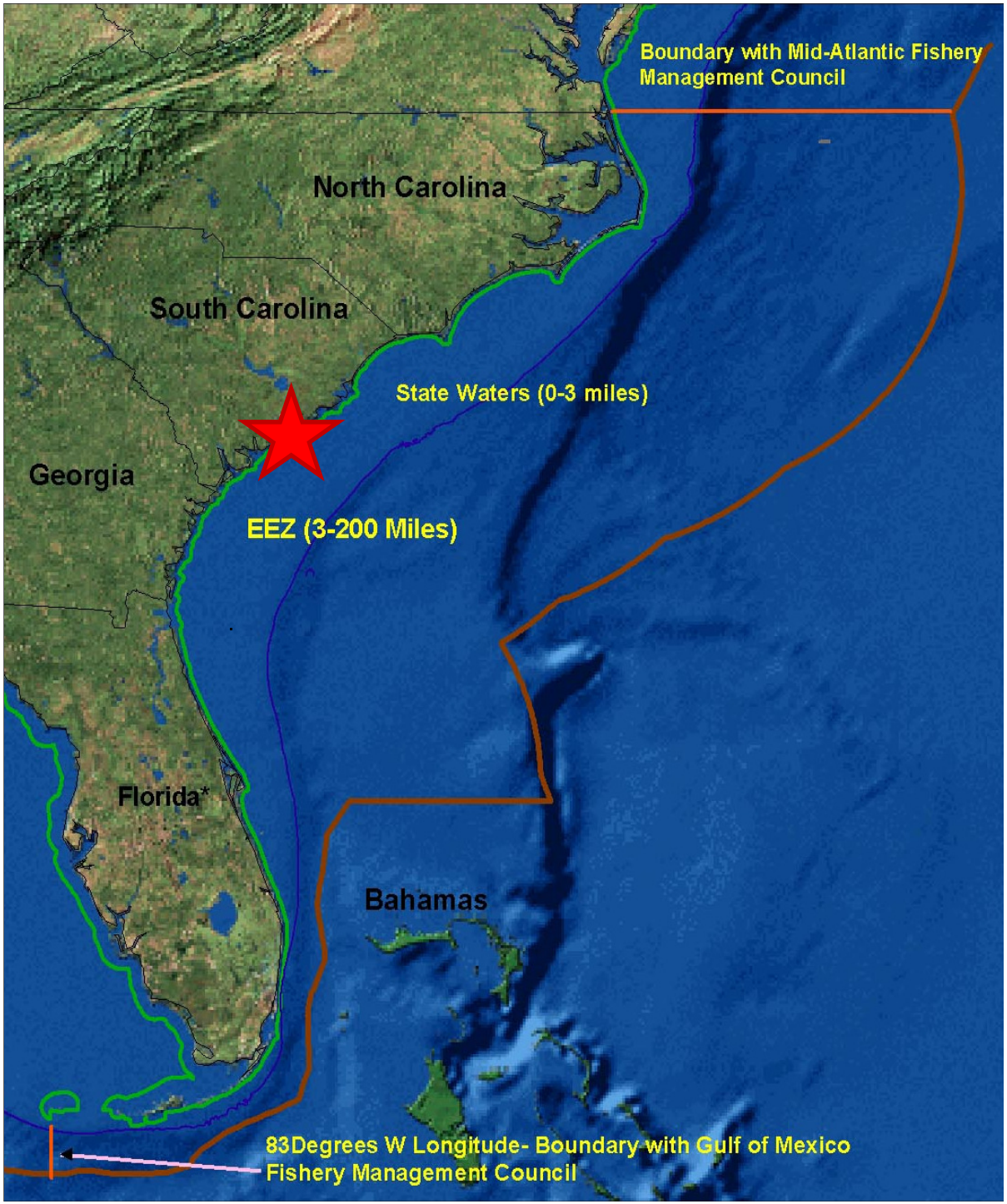
SAFMC Overview & Data Challenges
John Carmichael

Existing Data Collection Activities
Julia Byrd

SAFMC Citizen Science Initiative
Amber Von Harten

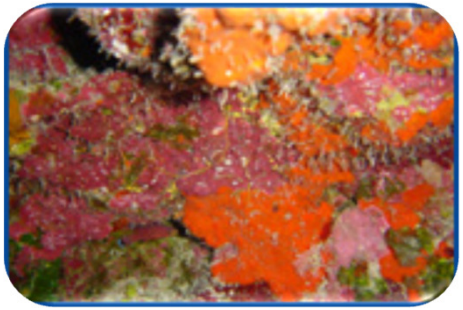
South Atlantic Fishery Management Council

NOAA Fisheries
Southeast Fisheries Science Center
Southeast Regional Office



7 Fishery Management Plans (FMPs) managing 71 species -

Sargassum to Shrimp to Dolphin



plus dedicated FMPs for Corals and Habitat

Extensive Fishing Effort

In 2014 -

- **Nearly 5 million private anglers,**
  > 17 million angler trips
- **Over 1000 For-hire recreational vessels,**
  > 675,000 angler trips
- **Over 1800 commercial vessels,**
  > 11,500 trips

MANY ARE VERY WILLING TO CONTRIBUTE!

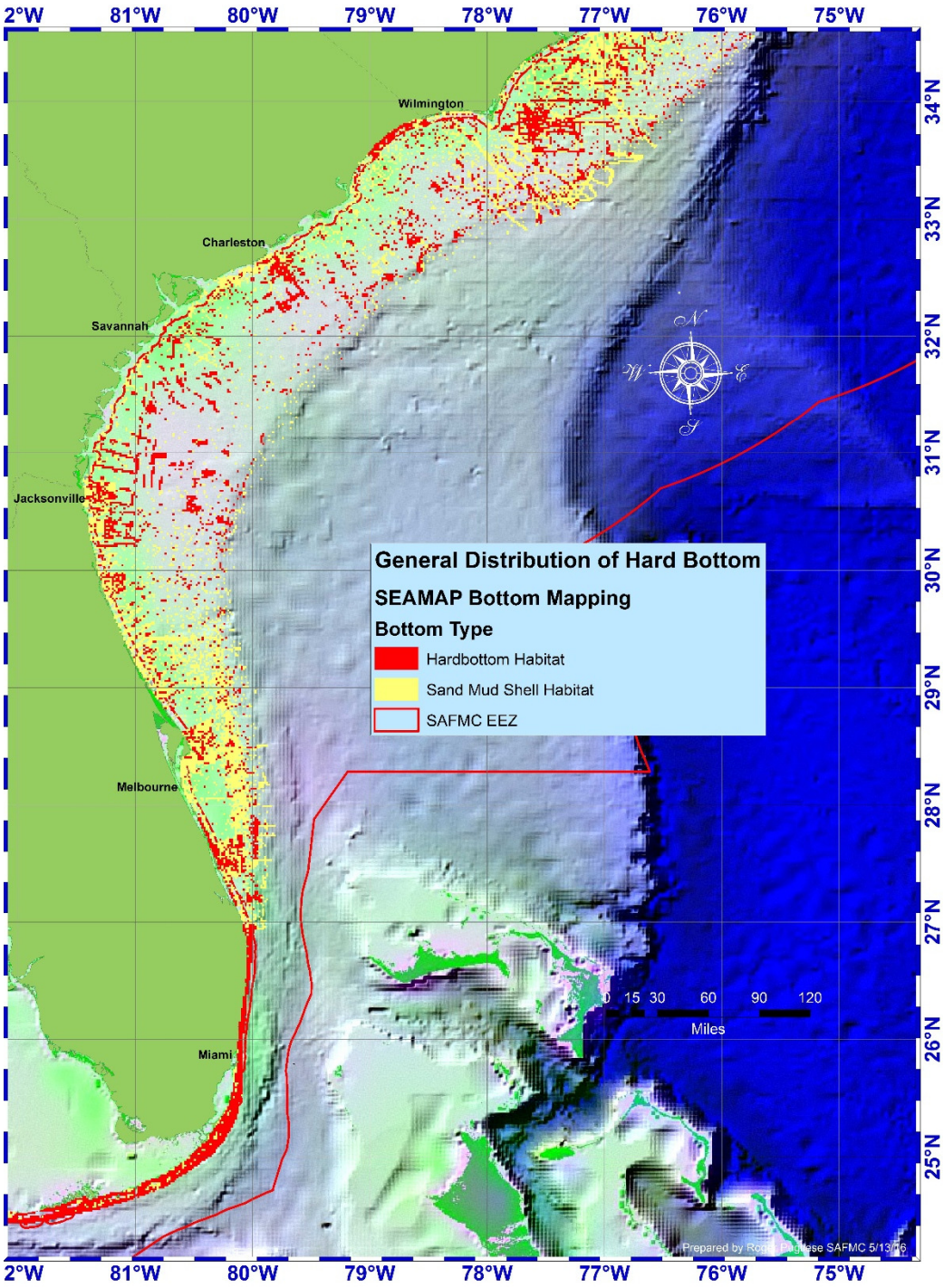
SNAPPER GROUPER
Fishery Management Plan

59 Species managed as a complex:

- ***Snappers & Groupers***
- ***Grunts***
- ***Jacks***
- ***Porgies***
- ***Triggerfish***
- ***Tilefish***

Varies:
North to South
Nearshore to Offshore

Many associated with reef or hard bottom



Diverse resources +

Patchy distributions +

Structure affinity =

Significant challenges for fishery and population monitoring

Quantitative information for management under Magnuson-Stevens Act often lacking

71 managed species, 20 quantitatively assessed

Common Assessment Uncertainties:

- Lack of fishery independent surveys
- Poorly defined stock boundaries
- High catch uncertainty
  - MRIP PSEs commonly above 30%
  - Significant discard removals :
    ~72% of recreational snapper grouper in 2014;
    Few observers = No lengths & No ages!
- Inadequate length/age samples

Quantitative information for management under Magnuson-Stevens Act often lacking

Common Impediments to Assessments – *all of the previous issues, plus more:*

- Lack of population surveys or indices
- Species misidentification & unclassified landings
- Basic life history lacking for many species
  - *Age, growth, reproduction*
- Habitats not fully mapped
- Movements & migrations poorly defined

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Existing Data Collection Programs

Fishery Independent: Southeast Reef Fish Survey

Video credit: SERFS

Photo credit: A. Von Harten

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Photo credit: A. Von Harten

Existing Data Collection Programs

Recreational Fisheries

MRIP/MRFSS

Photo credit: SCDNR

Southeast Region Headboat Survey

Photo credit: SRHS

Existing Data Collection Programs

Commercial Fisheries

Landings Data

ACCSP
Good Data. Good Decisions

GEORGIA
DEPARTMENT OF NATURAL RESOURCES

Trip Interview Program

Photo credit: Jack Cox

Coastal Fisheries Logbook Program

Photo credit: Will Heyman

Data Challenges

DATA GAPS INCLUDE…..

- **Better information to characterize discards all sectors**
- **Better catch & effort data from Private & Charter sectors**
- **More biological sampling from Private & Charter sectors**
- **Fishery independent sampling for deepwater species**
- **Habitat distribution & suitability**
- **Environmental data**

DATA PROCESSING

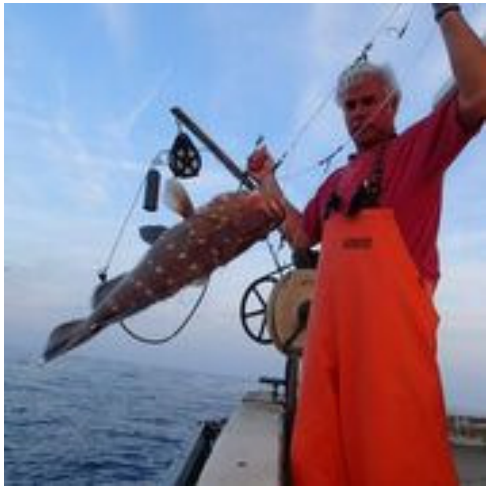
- **Work can be labor intensive for many types of data**

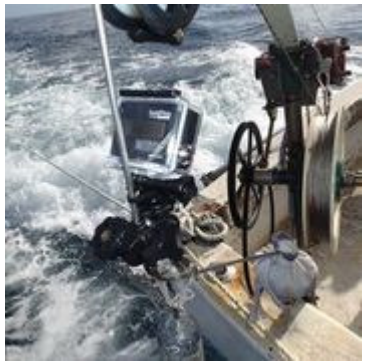
Cooperative Research Opportunities

Multiple agencies and organizations work cooperatively with fishermen to fill data needs:

- **Federal Grant Programs, such as, Cooperative Research, MARFIN, Saltonstall-Kennedy**
- **State Sea Grant Programs**
- **State Resource Agencies**
- **University Researchers**

Cooperative Research & Monitoring Protocol for US South Atlantic Spawning Areas





Heyman WD (2016) Cooperative Research and Monitoring Program for Fish Spawning Areas in the US South Atlantic (CRMP SASA). Version 2.0, 14 February 2016. LGL Ecological Research Associates, Inc., Bryan TX. (PDF Download Available).

Photo credits: Will Heyman

2015 Deepwater Monitoring Workshop

Carmichael, J, M Duval, M Reichert, N Bacheler and T Kellison. 2015. Workshop to determine optimal approaches for surveying the deep-water species complex off the southeastern U.S. Atlantic coast. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SEFSC- 685. 24 p. doi:10.7289/V5GB222C

Photo credits: SAFMC

Why Citizen Science?

- Many data needs & limited resources
- Interest by fishermen to provide information
- Interest by fishermen to work with scientists
- Opportunity to increase fishing public's scientific understanding
- Should complement existing programs & partnerships

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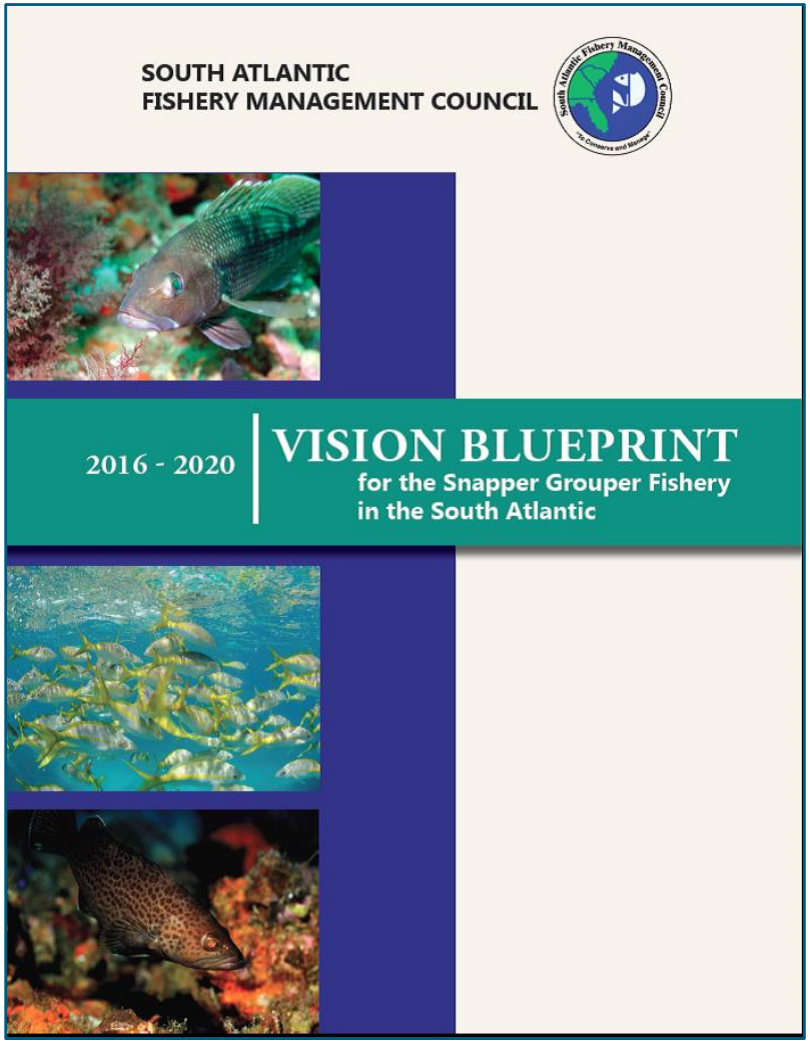
Example: Visioning Input
Support for Citizen Science

Common themes from stakeholders:

- More data
- Better data
- Willingness to collect data
- Work with scientists



www.birds.cornell.edu

A membership institution interpreting and conserving the earth's biological diversity through research, education, and citizen science focused on birds

Bonney, 2016

What is Citizen Science?

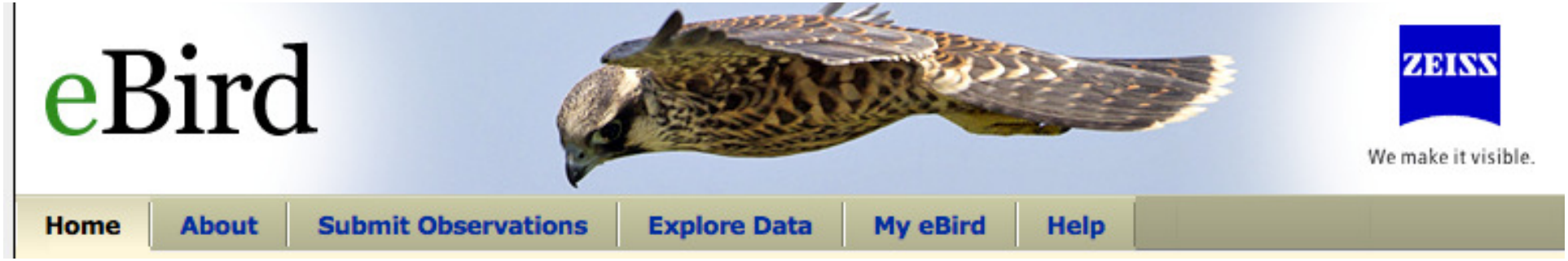
Is big, interdisciplinary, and productive

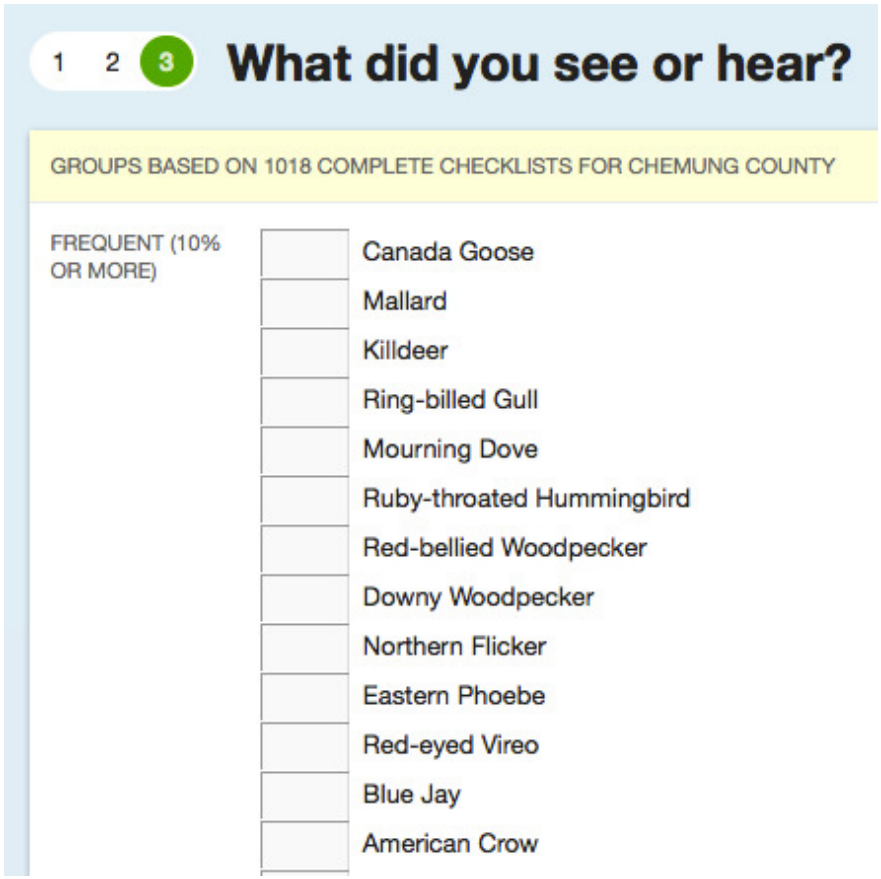
Has the potential to **transform** science and policy

Must be built through **intentional design**

Can be a major tool for fisheries councils!

Bonney, 2016





- *300 thousand users*
- *10 million hours*
- *250 million observations*
- *98.5% world's species*
- *> 100 peer-reviewed publications*

Bonney, 2016

eBird

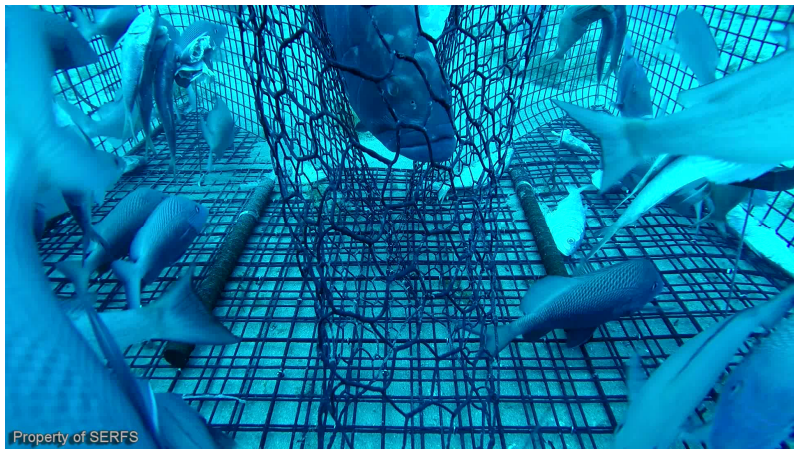
Willow Flycatcher annual occurrence

Bonney, 2016

Types of Citizen Science

Data Collection

Data Processing



Community Science

Curriculum Projects

Bonney et al., *Public Understanding of Science*

How Did We Get Here?
Program Development

SAFMC Citizen Science Organizing Committee

John Carmichael - *SAFMC staff*

Amber Von Harten - *SAFMC staff*

Julia Byrd – *SAFMC staff*

Dr. Michelle Duval -
SAFMC Council Chair (NC)

Ben Hartig -
SAFMC Council member (FL)

Mark Brown -
SAFMC member (SC)

Dr. Bonnie Ponwith -
NMFS, Southeast Fisheries Science Center

Leda Dunmire -
The Pew Charitable Trusts

2015:

- ***Citizen Science Organizing Committee***
- ***First Step: Workshop of scientists and fishermen***
- ***Made successful through partnerships with Sea Grant programs and Cornell Citizen Science Program Experts***

Citizen Science Program Design Workshop: *Jan 19-21, 2016*

- **Over 55 invited participants**
- **All fishery sectors, scientists, researchers, agency staff**
- **Develop recommendations for a South Atlantic Citizen Science Program**

Workshop Overview:

- What is Citizen Science?
- Traits of Successful Projects
- Designing Sample Projects
- Expert Guidance Themes
  - *Participants/Users*
  - *Researchers*
  - *Communication*
  - *Science Standards*
  - *Data Management*
  - *Governance*

Workshop Product:

SAFMC Citizen Science Blueprint

SAFMC Citizen Science Program
Blueprint Proposal
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*

1

March 2016

- **SAFMC Citizen Science Program Blueprint**
- **Workshop Proceedings**
  - *In preparation*

Key Elements:

Mission Statement:

"Improve fisheries management through collaborative science"

Vision Statement:

"more collaboration + more data + more trust = better management"

Core Program Goals:

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

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

GOAL 3: Build **partnerships** for **mutual learning and collaboration.**

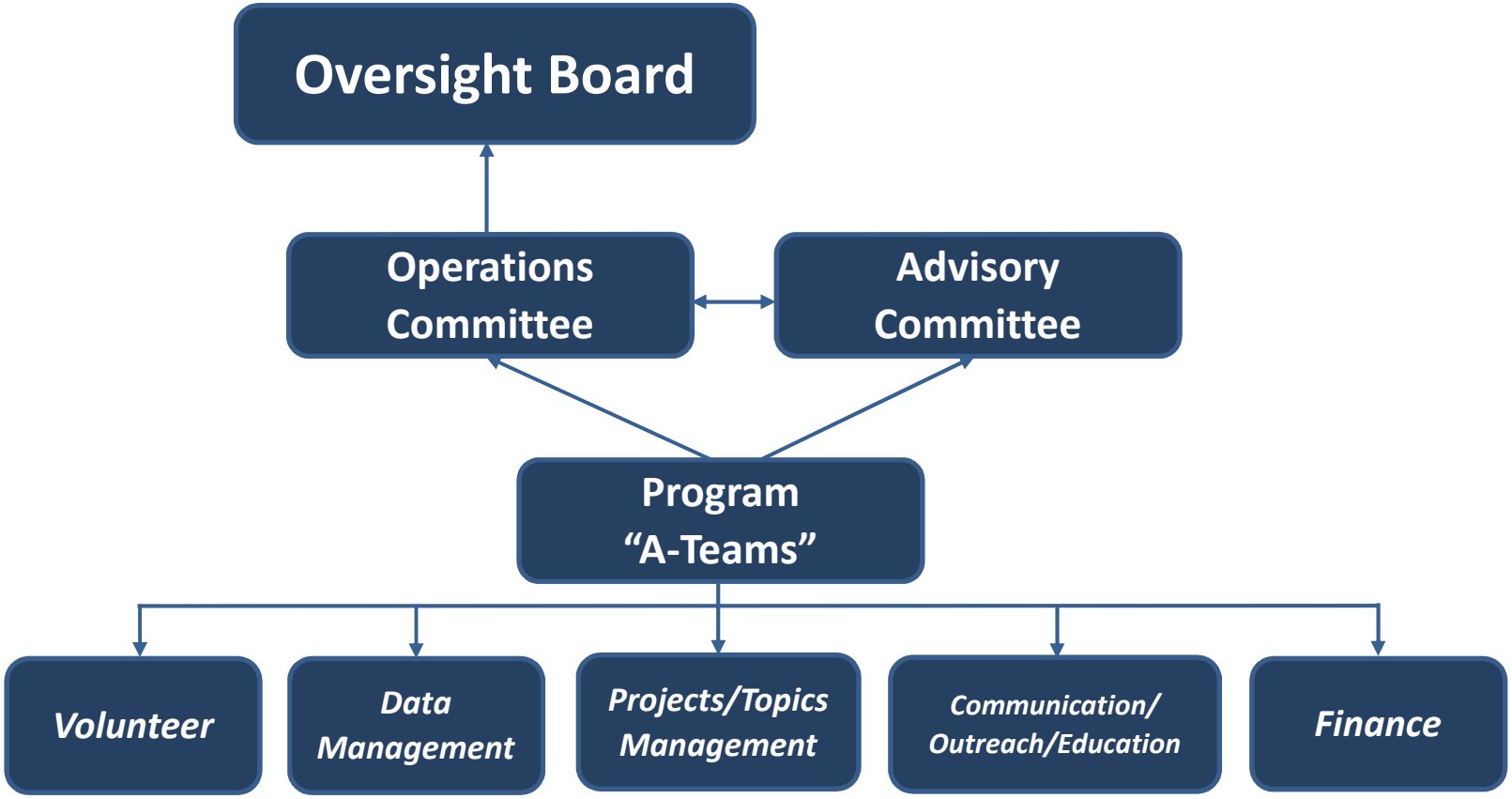
GOAL 4: Enhance **stewardship** for the resources of the South Atlantic.

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

Key Program Recommendations:

- **Expand existing partnerships and build new collaborative relationships.**
- **Establish tiered programmatic structure for Governance**
- **Establish five (5) Action Teams (“A-teams”) to develop program components.**

Tiered Program Structure:



A-Teams:

Volunteers

- Recruiting/Retention
- Training
- Incentives
- Role in project ID & research needs
- Expectations

Data Management

- Managing entity
- Data Life Cycle
- Data Policies
- Access
- End-user citations
- Validation
- Use guidelines
- Infrastructure
- Electronic tools
- Data documentation
- Applicable data standards
- Platforms for data
- Presentation & marketing

A-Teams:

Projects-Topics Management

- ID topics/research needs
- Application process
- Approving/endorsing projects:
- Prioritization of needs
- Selecting projects for support, endorsement
- Soliciting ideas
- Outlining project expectations
- Training for science methods in citizen science
- Evaluation of projects

Communication-Outreach-Education

- Approaches & Tools
- Media Plan
- Feedback-Recognition Plan
- Training Plan
- Newsletters/Reports:
- Technology Platforms

Finance

- Administrative funding
- Project funding

Key Program Recommendations - Immediate:

- **Hire a full time program manager as soon as funds are available.**
- **Pursue short-term funding options for program development and long-term alternatives to ensure its success and sustainability.**
- **Support a “kickstarter” project.**
- **Develop a project selection process in order to initiate a “kickstarter” project.**

Next Steps:

- **July 31:** Symposium and Focus Group at *International Marine Conservation Congress IV* in St. John's, Newfoundland
- **Explore program funding avenues**
- **Continue collaboration with NOAA, Sea Grant and other partners**

For more information:

http://www.safmc.net/citizen-science-initiative

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