

Gulf Coast Ecosystem Restoration Science Program Advisory Working Group

Prospectus

November 11, 2016

Introduction

On the basis of discussions with the Science Advisory Board (SAB) co-liaisons and, in consultation with NOAA staff, the Restoration Science Program Advisory Working Group (RSPA WG) has developed this prospectus to guide its near-term activities. This prospectus was initially drafted as a collective effort by the Science Program, RSPA WG co-chairs, and SAB liaisons and subsequently revised and finalized following input from the broader RSPA WG membership.

Focus

RSPA WG proposes to focus on the following question, which is central to NOAA's science-based mission for Gulf Coast ecosystem restoration research:

How do you construct an ecosystem-scale (holistic) understanding of how the Gulf of Mexico ecosystem functions and how does one use this ecosystem-scale understanding to manage the system?

This is a fundamental question the Science Program will have to answer if it is going to accomplish its two stated outcomes:

- The Gulf of Mexico ecosystem is understood in an integrative, holistic manner; and
- Management of, and restoration activities within, the Gulf of Mexico ecosystem are guided by this understanding.

Toward that end, the RSPA WG has designed workshop-based scientific inquiries to respond to these questions and, in so doing, provide the Science Advisory Board with science-based findings and perspectives to inform and enrich its advisory role to NOAA leadership.

While varying degrees of understanding of the physical, chemical, biological and geological processes operating in the Gulf of Mexico have been realized to date, only recently have attempts been made to place this understanding at the ecosystem scale (holistic) level. Further, application of this understanding is challenged by the fact that there are multiple entities active in the Gulf of Mexico whose management responsibilities are focused on subsets (i.e., geographic and/or topical) of the overall Gulf of Mexico ecosystem. Relevant questions, among others, include the following:

- What is a broadly acceptable definition of the “Gulf of Mexico ecosystem”, both in terms of its geographic/hydrological boundaries and the extent to which both human activity and the built environment is considered?
- What is a broadly acceptable definition of “management” in the context of Gulf of Mexico restoration efforts (i.e., what are we managing the system for)?
- Has the construction of a holistic, science-based understanding of an ecosystem been tried elsewhere and, if so, what can we learn from the work of others? How were their outputs used and by whom?
- How are other regions integrating science-based ecosystem-scale knowledge into management of a part of the ecosystem or managing ecosystem scale events?
- What are the most critical science-based gaps in integrating our current understanding of the physical, chemical, biological and geological processes in the Gulf of Mexico into comprehensive ecosystem modeling tools?
- What types of ecosystem modeling tools have been used- or need to be developed- to yield a holistic, science-based understanding of the Gulf of Mexico ecosystem?

Methodology

The RSPAWG proposes to organize and conduct a series of two, 1.5 day workshops that focuses on the “fundamental” question identified above. Working Group members, invited speakers, SAB liaisons and members, NOAA staff and other invitees will participate in this science-based inquiry and the generation of findings, conclusions and recommendations for consideration by the SAB and, ultimately, NOAA.

The methodology calls for RSPAWG leadership to take “ownership” of this initiative by designing the workshop program, selecting invitees, securing speakers, facilitating the workshop, generating a proceedings document, and preparing a brief report that summarizes the initiative and presents findings, conclusions and recommendations. These functions will be performed in consultation with the SAB liaisons to the Working Group, as well as with NOAA staff, to ensure responsiveness to critical science-based questions. The RSPAWG co-chairs will work with the selected speakers to guide the focus and approach of their presentations, and will also work with selected facilitators to ensure that workshop discussion remains on point. The latter will include the development of questions to guide discussion, and provide those questions to all participants in advance of the event. This will be accomplished by the RSPAWG co-chairs in consultation with the SAB liaisons to the Working Group and other parties, as appropriate.

Speakers will be carefully selected, with a special emphasis on those with “systems modeling” and “systems-structure-function” expertise.

The methodology will require advance preparation from RSPAWG members and other participants to ensure a fully informed, science-based discussion. Toward that end, two activities will take place well in advance of the first workshop:

- The scope of the effort will be well-defined to ensure that this broad topic can be properly managed in a workshop setting. In developing and refining the workshop agenda, the RSPA WG co-chairs, in consultation with the SAB liaisons and NOAA staff, will structure guidance to the speakers and facilitators. For example, some speakers will focus their remarks at the broad ecosystem level, while others will focus on one (or a few) managed resources or practices (e.g., fisheries, protected species, essential habitats) and then relate them back to the broader ecosystem level.
- The RSPA WG co-chairs will provide all participants (in advance of the first workshop) with links to relevant sites (e.g., NOAA, academic programs), as well as recent literature relevant to the fundamental question (see previous “Focus” section), ecosystem modeling, and related scientific matters.

Deliverables and Outcomes

Workshops conduct and follow-up will entail the generation of 1) a proceedings document that captures presentation and discussion highlights; and 2) a summary report (i.e., white paper) that presents science-based findings, conclusions and recommendations for consideration by the SAB and, ultimately, NOAA.

Among others, the proceedings document will include a synthesis of “lessons learned” from other initiatives that sought to develop a holistic understanding of an ecosystem and integrate that understanding into larger ecosystem-scale knowledge and science-based management. Specific to the Gulf of Mexico ecosystem, the proceedings document (and associated white paper) will also propose next steps in the interest of building upon the ecosystem understanding framework generated by workshop participants.

Complementing these activities is a proposed presentation by the RSPA WG co-chairs to the SAB, at which time findings, conclusions and recommendations will be presented and discussed. The SAB can then determine what, if any, next steps should be taken to support its science-based advisory role to NOAA.

Workshops Agenda

A proposed format for the workshops is presented below in some detail. In finalizing the workshops, the RSPA WG co-chairs will work collaboratively with- and welcome input from- its SAB liaisons, the broader SAB membership, and its colleagues on the Environmental Sciences and Management Working Group (ESMWG). The intent is to hold the first workshop - preferably at a Gulf Coast location - in early 2017. The second workshop, location to be determined, will be held within three (3) months of the first workshop. Workshop proceedings, white paper and SAB presentation to follow within three months of the workshop dates.

Workshop One

Day One (10:00am - 5:00pm)

Session 1: Meeting Overview and Desired Outcomes (2.0 hours)

Objectives

- Participants will understand expected meeting outcomes, including deliverables and associated science-based findings, conclusions and recommendations
- Participants will learn about the current status of the Restore Science Program and NOAA's role in advancing/conducting ecosystem-scale research
- Participants will learn about the current focus of ESMWG activities and their contributions to an ecosystem-level understanding of the Gulf of Mexico.

Speakers

- Welcome and Meeting Overview- RSPAWG Co-chairs: Bob Dickey and Dwayne Porter
- Overview and Update of NOAA's Science Program Activities- Julien Lartigue, NOAA
- Overview of related ESMWG activities- David Fluharty and/or Jo-Ann Leong, co-chairs

Session 2: Assessing Examples of Constructing a Holistic Model(s) to Understand Ecosystems at Large Scales (4.0 hours)

Objectives

- Participants will learn about different initiatives and models for developing a holistic understanding of an ecosystem.
- Participants will apply "lessons learned" from experiences to date in the interest of building a framework applicable to the Gulf of Mexico ecosystem.

Speakers (20 minutes each, followed by facilitated discussion)

- "NOAA's Gulf Integrated Ecosystem Assessment", Chris Kelble, Atlantic Oceanographic and Meteorological Laboratory, NOAA
- **Add title here, add speaker here**, National Center for Ecological Analysis and Synthesis
- **Add title here**, Denise Reed, The Water Institute of the Gulf (and NOAA SAB member)

Day Two (9:00am - Noon)

Session 3: Work Group Dialogue on Key Outcomes and Next Steps

Objective

- Participants will de-brief on key messages, findings and conclusions from Day One presentations and discussion.
- Participants will discuss next steps in building a framework to achieve an ecosystem-scale (holistic) understanding of how the Gulf of Mexico ecosystem functions.

- Participants will assess progress toward achieving workshop meeting outcomes, discuss next steps, identify action items, and make post-meeting assignments, as appropriate. This will include identifying the process and timeline for preparing workshop proceedings and the white paper, and securing RSPAWG approval prior to SAB submittal. .

This final session will be facilitated by the RSPAWG co-chairs.

Workshop Two

Day One (9:00am - 5:00pm)

Session 1: Meeting Overview and Desired Outcomes (1.0 hours)

Objectives

- Participants will review results and outcomes from Workshop One
- Participants will understand expected meeting outcomes, including deliverables and associated science-based findings, conclusions and recommendations

Speakers

- Welcome, Review and Meeting Overview- RSPAWG Co-chairs: Bob Dickey and Dwayne Porter

Session 2: Integrating an Ecosystem Approach into Science-based Management (3.0 hours)

Objectives

- Participants will learn how entities (e.g., state, federal agencies) in the Gulf of Mexico/ elsewhere are integrating ecosystem-scale understanding into management practices.
- Participants will generate ideas as to how such an approach can be better directed to support science-based management in the Gulf of Mexico.

Speakers (20 minutes each, followed by facilitated discussion)

- “Deepwater Horizon Programmatic Damage Assessment and Restoration Plan”, Lisa DePinto, National Ocean Service, NOAA
- **Add title here**, Dave Rudnick, South Florida Ecosystem Restoration Task Force
- **Add title here**, Peyton Robertson, Chesapeake Bay Program

Session 3: Applying an Ecosystem Approach at the Local Level (2.0 hours)

Objectives

- Participants will learn about local ecosystem restoration issues and initiatives and how science has informed- or needs to inform- management decisions.
- Participants will examine opportunities to apply “lessons learned” in a local context to the ecosystem level (i.e., holistic) content.

Speakers (20 minutes each, followed by facilitated discussion)

- *Add title, speaker and affiliation here. Consider a RSPA WG member.*
- *Add title, speaker and affiliation here*

Day Two (9:00am - Noon)

Session 4: Work Group Dialogue on Key Outcomes and Next Steps

Objective

- Participants will de-brief on key messages, findings and conclusions from Day One presentations and discussion.
- Participants will discuss next steps in building a framework to achieve an ecosystem-scale (holistic) understanding of how the Gulf of Mexico ecosystem functions.
- Participants will assess progress toward achieving workshop meeting outcomes, discuss next steps, identify action items, and make post-meeting assignments, as appropriate. This will include identifying the process and timeline for preparing workshop proceedings and the white paper, and securing RSPA WG approval prior to SAB submittal. .
- Participants will assess the workshop approach and offer “lessons learned” for consideration in planning future workshops on this or other topics.

This final session will be facilitated by the RSPA WG co-chairs.