

ZWG

16 April 10

Consensus recommendation by the
Science Subgroup to the full ZWG

Overview

Goal: protect ecological integrity (EI) of the sanctuary; to be protected, the sanctuary must be structurally intact and functionally resilient within context of historical baselines. That is, the native parts of system are maintained—as well as their relationships.

EI Objectives

1. Protect the full range (or representative examples) of community types, currently based on known relationships between species composition and particular habitat types based on grain size.
2. Protect and enhance size class composition for all species.
3. Protect key ecological patterns indicative of community and ecosystem processes.

EI Objective 1

- Protect the full range (or representative examples) of community types, currently based on known relationships between species composition and particular habitat types based on grain size.
 - Climax or stochastic rules not relevant. Minimize human disturbance to allow natural variation.
 - Monitor-manage human use easiest(?) metric
 - Community state and dynamics linked to human use and allow adaptive management of multiple use

EI Objective 2

- Protect and enhance size class composition for all species.
 - Ontogenetic shifts in functional role
 - Contribution to reproduction (BOFF for all taxa)
 - Monitor size class comp of key taxa (whales to plankton)
 - Reference points for success adaptive based on responses and historic data.

EI Objective 3

- Protect key ecological patterns indicative of community and ecosystem processes.
 - Seasonal distributions of aggregating species (seasonally dominant predators, prey)
 - Abundance and distribution of ecological engineers
 - Oceanographic conditions that mediate patterns of diversity and vice versa
 - Minimize effects of invasive species

Species of noteworthy attention (SNA)

- Endangered Species Act species, species of concern and deep sea coral taxa are important targets within SBNMS. While regional scale conservation actions can meet regional targets, we need to determine if human disturbance to these species within SBNMS boundaries is consistent with sanctuary and EI objectives.

Alternatives

1. Full protection of SBNMS (no extractive uses and managed access for tourism, observational research, etc)
2. Sanctuary-wide actions to reduce human disturbance but allow multiple uses
3. Modified border of the WGOM “sliver” to ensure adequate habitat (community) representation, plus minimize human disturbance
4. Minimize human disturbance in the WGOMC “sliver”
5. Status quo

- **Alternative 1.** Full protection of SBNMS (no extractive uses and managed access for tourism, observational research, etc)

Assumption – Will approach or meet EI goals to the extent ecological processes allow (still subject to influences outside the sanctuary; will allow assessment of needs at regional scale to meet EI goals).

** ESA species, species of concern and DSC taxa important targets

- **Alternative 2.** Sanctuary-wide actions to reduce human disturbance but allow multiple uses
 - Mobile and fixed gear use at designated times and areas based on minimizing impacts to representative habitats (more in shallow than deep; more in types with larger area than types with less representation sensu Cook & Auster).
 - Minimize impacts to aggregating species
 - Minimize impacts to migratory species
 - Link F of all species (target, bycatch, non-retained) to size class targets
 - Minimize impacts to ecosystem engineers
 - Comport with regional/external management authorities to maximize benefits within SBNMS
- ** ESA species, species of concern and DSC taxa important targets

Assumption – will have greatest effect across whole sanctuary.

- **Alternative 3.** Modify boundary of the “sliver” to ensure adequate habitat (community) representation and minimize human disturbance.
 - Extend boundary to west to capture more deep mud sediments which are currently underrepresented in the Sliver (~1% of area).
 - Ensure part of the expanded Sliver area is a true reference area with minimal human disturbance and no extraction.

- **Alternative 4.** Minimize human disturbance in the “sliver”
 - Allowable mobile (purse seine) and fixed gear (lobster) use at designated times and areas based on minimizing impacts to representative habitats (more in shallow than deep; more in types with larger area than types with less representation sensu Cook & Auster).
 - Minimize impacts to aggregating species
 - Minimize impacts to migratory species
 - Link F of all species (target, bycatch, non-retained) to size class targets
 - Minimize impacts to ecosystem engineers
 - Comport with sanctuary-wide and regional/external management authorities to maximize benefits within WGOMC sliver.

** ESA species, species of concern and DSC taxa important targets

Assumption – Patterns of and processes mediating patterns diversity can be effected by management at this spatial scale. (Valid? – yes for many taxa)

- **Alternative 5.** Status quo (management at regional scale)

Assumption – All pattern and process operate at a scale larger than SBNMS such that management within the boundaries will have no effect on EI metrics. (Valid? No – based on current knowledge)

Alternative 5 Discussion

Existing regulations were not designed to explicitly address ecological integrity within the sanctuary. Although these regulations have some benefits within the sanctuary they still fail to adequately protect EI within the sanctuary for the following reasons:

- Existing regulations do not protect the full range of habitats and species (e.g. deep mud, shallow sand communities)
- Existing regulations do not protect the full range of size classes across all taxa (Current fishing strategies direct effort onto larger animals in the population)
- Existing regulations do not protect community and ecological processes (e.g. ecosystem engineers such as tube builders, structure forming organisms such as sponges, vulnerability of key prey species such as sand lance and herring)

- Some factors affecting EI in the sanctuary are influenced primarily at a larger regional scale, including the species composition, size composition, and abundance of migratory fishes, marine mammals, birds.
- Actions taken within the sanctuary can help protect EI with respect to these species and processes:
- EI for resident species and local-scale processes is strongly dependent on actions within the sanctuary. These include: mobile but non-migratory fishes, sessile/non-motile benthic communities.