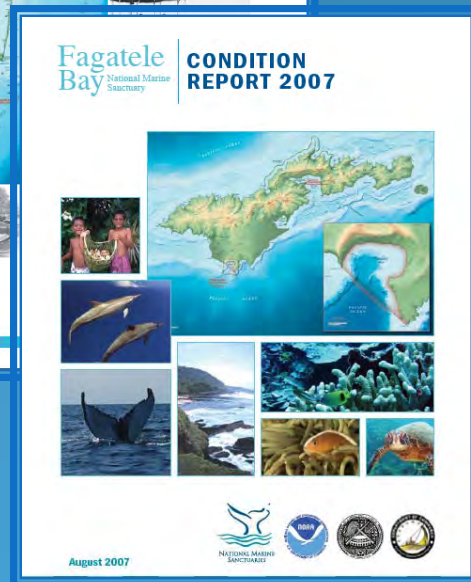


Condition Reports for the National Marine Sanctuary System

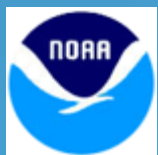
*Guiding management and tracking
performance in one component of
the National System of MPAs*



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Recent Evaluations of ONMS Program Performance

*OMB - Program Assessment and Rating Tool - 2004**

National Academy of Public Administration - 2006

DOC Office of Inspector General - 2008

*with National MPA Center

"Big 3" Performance Measures

Number of sites, based on long-term monitoring, for which **WATER QUALITY** is being maintained or improved

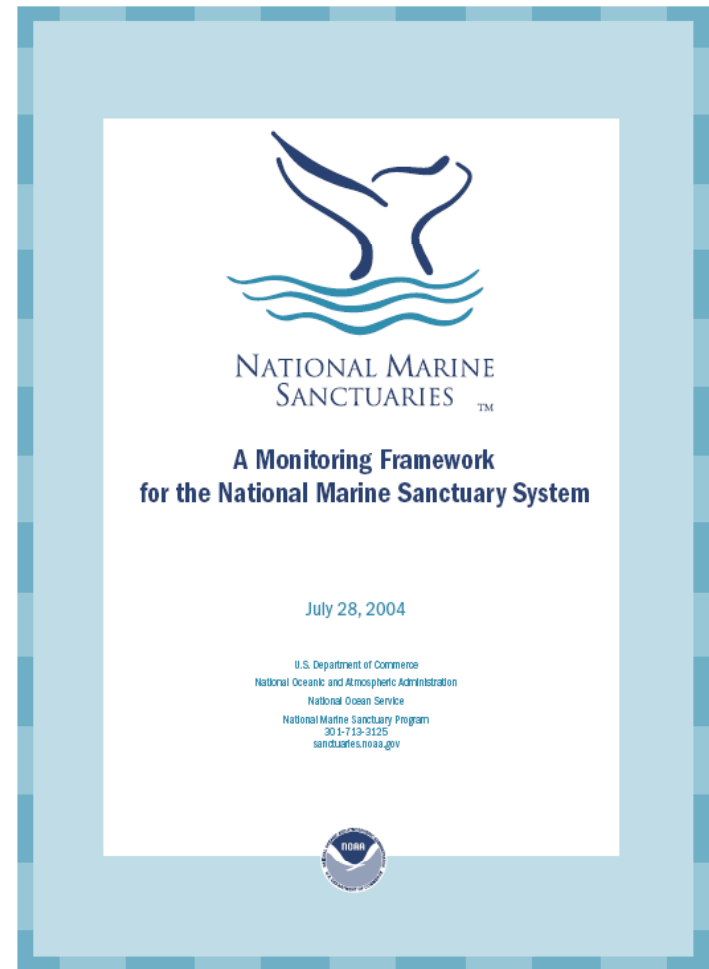
Number of sites, based on long-term monitoring, for which **HABITAT** is being maintained or improved

Number of sites, based on long-term monitoring, for which **LIVING RESOURCES** is being maintained or improved

SWiM = System-Wide Monitoring

"A Monitoring Framework for the National Marine Sanctuary System"

- *Consistent* approach to design and reporting
- *Tailored* local monitoring to track resource and human use trends



System Questions

Water Quality

1. Are specific or **multiple stressors**, including changing oceanographic conditions, affecting sanctuary water quality and how are they changing?
2. What is the **eutrophic condition** of sanctuary waters and how is it changing?
3. Do sanctuary waters pose risks to **human health** and how are they changing?
4. What are the levels of **human activities** that may influence water quality and how are they changing?

Habitat Quality

5. What is the **abundance and distribution** of major habitat types and how are they changing?
6. What is the condition of **biologically structural habitats** and how is it changing?
7. What are the **contaminant concentrations** in sanctuary habitats and how are they changing?
8. What are the levels of **human activities** that may influence habitat quality and how are they changing?

Living Resource Quality

9. What is the status of **biodiversity** and how is it changing?
10. What is the status of **environmentally sustainable fishing** and how is it changing?
11. What is the status of **non-indigenous species** and how is it changing?
12. What is the status of **key species** and how is it changing?
13. What is the condition or **health of key species** and how is it changing?
14. What are the levels of **human activities** that may influence living resource quality and how are they changing?

Condition Reports

Subject areas:

Water

Habitat

Living Resources

Maritime Archaeological Resources

Future - socio-economic, cultural heritage

Pressure-State-Response Model

Goals:

Five-year cycle to document *conditions*

Educate public for *management plan review*

Progress on resource protection and improvement goals; program *performance measures*



Condition Reports

- Interpretation of on-going monitoring and research
- Uses quantitative data, and when necessary non-quantitative information
- Assessments by sanctuary staff, advised by subject matter experts and reviewers (SAC, region, NMFS, others)
- Subject to Information Quality Act

Standard Questions & Responses

Living Resources Extracted Species






10.

What is the status of environmentally sustainable fishing and how is it changing?

Commercial and recreational harvesting are highly selective activities, for which fishers and collectors target a limited number of species, and often remove high proportions of populations. In addition to removing significant amounts of biomass from the ecosystem, reducing its availability to other consumers, these activities tend to disrupt specific and often critical food web links. When too much extraction occurs (i.e. ecologically unsustainable harvesting), trophic cascades ensue, resulting in changes in the abundance of non-targeted species as well. It also reduces the ability of the targeted species to replenish populations at a rate that supports continued ecosystem integrity.

It is essential to understand whether removals are occurring at ecologically sustainable levels. Knowing extraction levels and determining the impacts of removal are both ways that help gain this understanding. Measures for target species of abundance, catch amounts or rates (e.g., catch per unit effort), trophic structure, and changes in non-target species abundance are all generally used to assess these conditions.

Other issues related to this question include whether fishers are using gear that is compatible with the habitats being fished and whether that gear minimizes by-catch and incidental take of marine mammals. For example, bottom-tending gear often destroys or alters both benthic structure and non-targeted animal and plant communities. "Ghost fishing" occurs when lost traps continue to capture organisms. Lost or active nets, as well as lines used to mark and tend traps and other fishing gear, can entangle marine mammals. Any of these could be considered indications of environmentally unsustainable fishing techniques.

	Good	Extraction does not appear to affect ecosystem integrity (full community development and function).
	Good/Fair	Extraction takes place, precluding full community development and function, but it is unlikely to cause substantial or persistent degradation of ecosystem integrity.
	Fair	Extraction may inhibit full community development and function, and may cause measurable but not severe degradation of ecosystem integrity.
	Fair/Poor	Extraction has caused or is likely to cause severe declines in some but not all ecosystem components and reduce ecosystem integrity.
	Poor	Extraction has caused or is likely to cause severe declines in ecosystem integrity.

State Section (Rating Status & Trends)

- Subject areas: water, habitat, living resources and maritime archaeological resources
- 17 questions posed to all sanctuaries, each with six response options for status, four for trend, or N/A
- Experts rate status and trend, agreeing on a basis for judgment and supporting text and graphics
- Sanctuary is responsible for final rating

Status:	Good	Good/Fair	Fair	Fair/Poor	Poor	Undet.
Trends:	Conditions appear to be improving.....					▲
	Conditions do not appear to be changing.....					—
	Conditions appear to be declining.....					▼
	Undetermined trend.....					?
	Question not applicable.....					NA

Condition by Sanctuary

SANCTUARY SITES

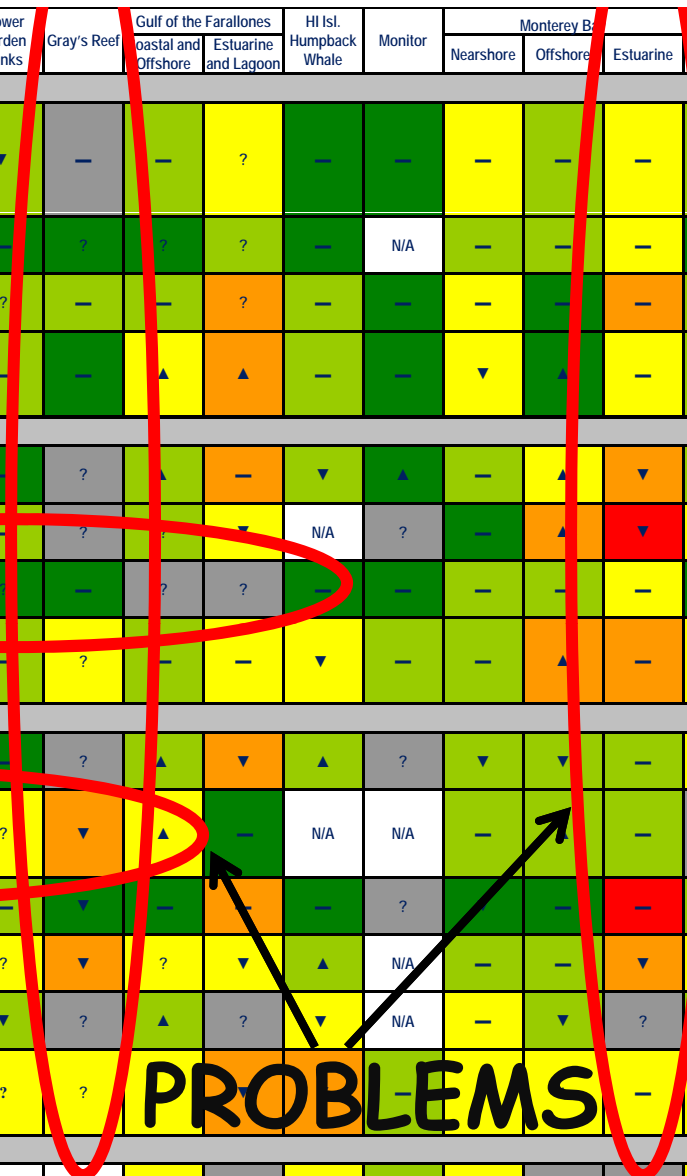
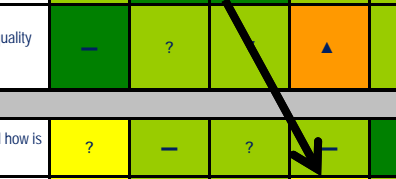
Status of Resources		Channel Islands	Cordell Bank	Fagatele Bay	Florida Keys	Flower Garden Banks	Gray's Reef	Gulf of the Farallones Coastal and Offshore	Estuarine and Lagoon	HI Isl. Humpback Whale	Monitor	Monterey Bay			OCNMS	PMNM	Stellwagen Bank	Thunder Bay
												Nearshore	Offshore	Estuarine				
WATER QUALITY																		
1	What is the condition of sanctuary waters including changing oceanographic and water quality and how are they changing?	?	—	▼	?	▼	—	—	?	—	—	—	—	—	?	▼	—	
2	What is the eutrophic condition of sanctuary waters and how is it changing?	—	—	—	?	—	?	?	—	N/A	—	—	—	—	—	—	—	
3	Do sanctuary waters pose risks to human health and how are they changing?	—	—	?	—	?	—	?	—	—	—	—	—	—	—	—	—	
4	What are the levels of human activities that may influence water quality and how are they changing?	—	?	▼	▲	—	—	▲	▲	—	—	▼	▲	—	—	▲	—	
HABITAT																		
5	What is the abundance and distribution of major habitat types and how is it changing?	?	—	?	—	—	?	▲	—	▼	▲	—	▲	▼	?	▼	—	
6	What is the condition of biologically-structured habitats and how is it changing?	—	—	—	▼	—	?	?	▼	N/A	?	—	▲	▼	?	▼	—	
7	What are the contaminant concentrations in sanctuary habitats and how are they changing?	▲	?	—	?	?	—	?	?	—	—	—	—	—	—	—	—	
8	What are the levels of human activities that may influence habitat quality and how are they changing?	▲	▲	—	▼	—	?	—	—	▼	—	—	▲	—	▲	—	▼	
LIVING RESOURCES																		
9	What is the status of environmentally sustainable fishing and how is it changing?	?	—	—	▼	—	?	▲	▼	▲	?	▼	▼	—	▲	—	▲	
10	What is the status of environmentally sustainable fishing and how is it changing?	▲	—	—	?	?	▼	▲	—	N/A	N/A	—	▲	—	?	▲	—	
11	What is the status of non-indigenous species and how is it changing?	▼	—	—	—	—	▼	—	—	—	?	▼	—	—	—	?	▼	
12	What is the status of key species and how is it changing?	—	—	—	—	?	▼	?	▼	▲	N/A	—	—	▼	?	?	—	
13	What is the condition or health of key resources and how is it changing?	?	—	▼	▼	▼	?	▲	?	▼	N/A	—	▼	?	?	?	—	
14	What are the levels of human activities that may influence living resource quality and how are they changing?	—	▲	?	?	?	?	—	▼	▼	—	▼	▲	—	▲	—	—	
MARITIME ARCHAEOLOGICAL																		
15	What is the condition of maritime archaeological resources and how is it changing?	▼	N/A	N/A	—	N/A	N/A	?	?	▼	—	?	?	?	?	▼	▼	
16	What is the condition of maritime archaeological resources and how is it changing?	▼	N/A	N/A	—	N/A	N/A	▼	—	?	—	—	▼	—	—	—	—	
17	What are the levels of human activities that may influence maritime archaeological resource quality and how are they changing?	▲	N/A	N/A	—	N/A	—	?	?	▼	—	?	?	—	?	▲	▼	

Status of Resources		Channel Islands	Cordell Bank	Fagatele Bay	Florida Keys	Flower Garden Banks	Gray's Reef	Gulf of the Farallones Coastal and Offshore	Estuarine and Lagoon	HI Isl. Humpback Whale	Monitor	Monterey Bay			OCNMS	PMNM	Stellwagen Bank	Thunder Bay
												Nearshore	Offshore	Estuarine				
WATER																		
1	Are specific or multiple stressors, including changing oceanographic and atmospheric conditions, affecting water quality and how are they changing?	?	—	▼	?	▼	—	—	?	—	—	—	—	—	?	▼	—	
2	What is the eutrophic condition of sanctuary waters and how is it changing?	—	—	—	—	—	?	?	?	—	N/A	—	—	—	—	—	—	
3	Do sanctuary waters pose risks to human health and how are they changing?	—	—	—	—	—	—	—	?	—	—	—	—	—	—	—	—	
4	What are the levels of human activities that may influence water quality and how are they changing?	—	?	—	▲	—	—	▲	▲	—	—	▼	—	—	—	▲	—	
HABITAT																		
5	What is the abundance and distribution of major habitat types and how is it changing?	?	—	?	—	—	?	▲	—	▼	▲	—	▲	▼	?	▼	—	
6	What is the condition of biologically-structured habitats and how is it changing?	—	—	—	—	—	?	—	—	N/A	?	—	▲	▼	?	▼	—	
7	What are the contaminant concentrations in sanctuary habitats and how are they changing?	—	?	—	?	—	—	?	?	—	—	—	—	—	—	—	—	
8	What are the levels of human activities that may influence habitat quality and how are they changing?	▲	▲	—	▼	—	?	—	—	▼	—	—	▲	—	▲	—	▼	
LIVING RESOURCES																		
9	What is the status of biodiversity and how is it changing?	?	—	—	▼	—	?	▲	▼	▲	?	▼	▼	—	▲	—	▲	
10	What is the status of environmentally sustainable fishing and how is it changing?	▲	—	—	—	?	▼	▲	—	N/A	N/A	—	—	—	?	▲	—	
11	What is the status of non-indigenous species and how is it changing?	▼	—	—	—	—	▼	—	—	—	?	—	—	—	▼	?	▼	
12	What is the status of key species and how is it changing?	—	—	—	—	?	▼	?	▼	▲	N/A	—	—	▼	?	?	—	
13	What is the condition or health of key resources and how is it changing?	?	—	▼	▼	▼	?	▲	?	▼	N/A	—	▼	?	?	?	—	
14	What are the levels of human activities that may influence living resource quality and how are they changing?	—	▲	?	—	?	?	—	—	—	—	—	—	—	—	—	—	
MARITIME ARCHAEOLOGICAL																		
15	What is the integrity of maritime archaeological resources and how is it changing?	▼	N/A	N/A		N/A	N/A	?	?	▼	—	?	?	?	?	▼	▼	
16	Do maritime archaeological resources pose an environmental hazard and is this threat changing?	▼	N/A	N/A	—	N/A	N/A	▼	—	?	—	—	▼	—	—	—	—	
17	What are the levels of human activities that may influence maritime archaeological resource quality and how are they changing?	▲	N/A	N/A		N/A	—	?	?	▼	—	?	?	—	?	▲	▼	

GAPS



PROBLEMS



Thoughts for the National System of MPAs

⚡ KEEP IT SIMPLE

- "Representative" measures
- "Nest" or "sequence" input/output measures
- Stay within authority of MPA EO and authorities of component MPA programs

Thoughts for the National System of MPAs

⚡ JUST DO IT!

- Don't let the perfect be the enemy of the good
- Strengthen site-based outcomes
- Prototypes to demonstrate system performance



Ecosystem Integrity

- Judging an ecosystem as having “integrity” implies the relative wholeness of ecosystem structure and function, along with the spatial and temporal variability inherent in these characteristics, as determined by the ecosystem’s natural evolutionary history.
- Ecosystem integrity is reflected in the system’s ability to produce and maintain adaptive biotic elements.
- Fluctuations of a system’s natural characteristics, including abiotic drivers, biotic composition, complex relationships, and functional processes and redundancies are unaltered and are either likely to persist or be regained following natural disturbance.

Report Development

- Initial drafting by sanctuary staff
- Expert selection
- Expert workshop
 - Verify content in draft
 - Answer state questions
- Sanctuary draft
- Expert and internal review
- External review
- Sanctuary final report

The Review Process

- *Internal* - sanctuary, region, NMFS, other NOAA
- *Invited* - subject experts, SAC, IPC, SSC
- *External* - under Information Quality Act and Peer Review Guidelines for ISI

