Sanctuary Condition Report

April 2008

Summary of Draft Report

Maritime Archaeological Resources

Research • Education • Conservation • Stewardship
Purpose of the Report
“A Monitoring Framework for the National Marine Sanctuary System”

• Consistent approach to the design and reporting process of monitoring programs for all sites that enables integration of information into a system-wide monitoring product.
  – 17 questions standard among all sites, questions relate to:
    • Water
    • Habitat
    • Living Resources
    • Maritime Archaeological Resources
Purpose of the Report

• Tailored monitoring at the local level to track and report the status and trends of natural and cultural resources and human uses.
• Assess the condition of the site and the system
• Determine if system is achieving its resource protection and improvement goals as reflected in program performance measures
• Revisit prior to management plan updates and to be used to determine how well we are achieving our management goals
Content

- Site History and Resources
- Pressures (based on draft management plan and workshop participants)
  - Vessel traffic
  - Marine Debris
  - Radioactive waste
  - Dredge Materials
  - Introduced species
  - Fishing
  - Non-point Source Pollution
  - Wildlife Disturbance
Content

• State of Sanctuary Resources
  – Water (4 questions)
  – Habitat (4 questions)
  – Living Resources (6 questions)
  – Maritime Archaeological Resources (3 questions)

• GFNMS will have two sections (all 17 questions considered for each section)
  – Estuarine
  – Outer coast & pelagic
Ratings of status and trend for each question

<table>
<thead>
<tr>
<th>Status:</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOOD</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Trends:</th>
</tr>
</thead>
<tbody>
<tr>
<td>▲</td>
</tr>
<tr>
<td>—</td>
</tr>
<tr>
<td>▼</td>
</tr>
<tr>
<td>?</td>
</tr>
<tr>
<td>N/A</td>
</tr>
</tbody>
</table>
Content

- Response to Pressures
- Concluding Remarks
- Citations & Appendices
## Status & Trends: Offshore Outer Coast

### Water Quality

**Good to Fair**

<table>
<thead>
<tr>
<th>#</th>
<th>Status</th>
<th>Trend</th>
<th>Basis for Judgment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Stressors</td>
<td>—</td>
<td>Decreased oil pollution; few HAB’s nonpoint source discharges from San Francisco Bay and Russian River; sediment spills from barges; two localized 303(d) listings.</td>
</tr>
<tr>
<td>2</td>
<td>Eutrophic Condition</td>
<td>?</td>
<td>No obvious problems, healthy phytoplankton constituents; only 10 year monitoring for phytoplankton so trend undetermined.</td>
</tr>
<tr>
<td>3</td>
<td>Human Health</td>
<td>—</td>
<td>Mixing from upwelling, tidal, and local currents prevent harmful influences; two coastal 303(d) listings for discharges and beach closures.</td>
</tr>
<tr>
<td>4</td>
<td>Human Activities</td>
<td>▲</td>
<td>Increasing vessel traffic (discharges and noise) is of concern, decrease in acute and chronic oil pollution, decreasing sediment; increasing management and enforcement actions.</td>
</tr>
</tbody>
</table>

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# Status & Trends: Offshore Outer Coast

## Habitat

<table>
<thead>
<tr>
<th>Status</th>
<th>Trend</th>
<th>Basis for Judgment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abundance/Distribution</td>
<td>▲</td>
<td>Some loss from localized pressures related to population growth, but reduced trawling impacts and improved enforcement of dredge disposal practices.</td>
</tr>
<tr>
<td>Structure</td>
<td>?</td>
<td>Prior alteration and loss due to trawling; but substantial data gaps for a number of habitat types.</td>
</tr>
<tr>
<td>Contaminants</td>
<td>▲</td>
<td>Limited data beyond Golden Gate area, though no obvious problems.</td>
</tr>
<tr>
<td>Human Activities</td>
<td>—</td>
<td>Activities relating to visitation increasing, trawling decreasing.</td>
</tr>
</tbody>
</table>

Legend:
- ▲ = Improving
- — = Not changing
- ▼ = Getting worse
- ? = Undetermined trend
- N/A = Question not applicable
### Status & Trends: Offshore Outer Coast

**Living Resources**

**Good to Fair**

<table>
<thead>
<tr>
<th>#</th>
<th>Status</th>
<th>Trend</th>
<th>Basis for Judgment</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Biodiversity</td>
<td>▲</td>
<td>Effects on food web from historical changes in Steller, northern fur seal, and sea otter abundances, but populations appear to be recovering.</td>
</tr>
<tr>
<td>10</td>
<td>Extracted Species</td>
<td>▲</td>
<td>Historical fishing impacts; recent improvements in some stocks due to take reductions.</td>
</tr>
<tr>
<td>11</td>
<td>Non-indigenous Species</td>
<td>—</td>
<td>Species exist (e.g. green crabs and striped bass), but there are no known ecosystem impacts.</td>
</tr>
<tr>
<td>12</td>
<td>Key Species</td>
<td>?</td>
<td>Among sanctuary’s list of almost 50 key species, populations are in varying states of integrity.</td>
</tr>
<tr>
<td>13</td>
<td>Health of Key Species</td>
<td>▲</td>
<td>Smaller size of some whales; reduced Steller sea lion condition and pupping rates; removal of oil from Luckenbach has reduced seabird and marine mammal oiling incidents.</td>
</tr>
<tr>
<td>14</td>
<td>Human Activities</td>
<td>—</td>
<td>Increasing vessel traffic (discharges and noise) are of concern, perhaps offset by reductions in trawling.</td>
</tr>
</tbody>
</table>
# Status & Trends: Offshore Outer Coast

Maritime Archaeological Resources

**Good/Fair to Fair**

<table>
<thead>
<tr>
<th>#</th>
<th>Status</th>
<th>Trend</th>
<th>Basis for Judgment</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Integrity</td>
<td></td>
<td>Artifacts have been removed at some coastal sites by divers; sites subjected to degradation by waves, shifting sands, and strong currents; lack of monitoring to determine trend.</td>
</tr>
<tr>
<td>16</td>
<td>Threat to Environment</td>
<td>▼</td>
<td>Deterioration of offshore wrecks could result in the release of hazardous cargo and/or bunker fuel.</td>
</tr>
<tr>
<td>17</td>
<td>Human Activities</td>
<td></td>
<td>Trawling and diving; lack of monitoring to determine trend.</td>
</tr>
</tbody>
</table>

- **Good** = Improving
- **Good/Fair** = Not changing
- **Fair** = Getting worse
- **Fair/Poor** = Undetermined trend
- **Poor** = Question not applicable
- **Undet.** = Not applicable

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Status & Trends: Lagoons & Estuaries
Water Quality
Good/Fair to Fair/Poor

<table>
<thead>
<tr>
<th>#</th>
<th>Status</th>
<th>Trend</th>
<th>Basis for Judgment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Stressors</td>
<td>?</td>
<td>Impacts from continued land use changes, freshwater diversion, increased hypersaline conditions, increased restoration activities and Best Management Practices may offset loss of eelgrass beds.</td>
</tr>
<tr>
<td>2</td>
<td>Eutrophic Condition</td>
<td>?</td>
<td>High nutrient levels from SF Bay and Tomales Bay watershed, without associated problems or reported loss of fish populations.</td>
</tr>
<tr>
<td>3</td>
<td>Human Health</td>
<td>?</td>
<td>Bacterial and viral outbreaks have occurred in Tomales Bay; closed harvest of shellfish 80-110 days/year as prevention measure.</td>
</tr>
<tr>
<td>4</td>
<td>Human Activities</td>
<td>▲</td>
<td>Impacts from land use changes continue, increased restoration activities and Best Management Practices may offset freshwater diversion.</td>
</tr>
</tbody>
</table>
## Status & Trends: Lagoons & Estuaries

### Habitat

**Fair to Fair/Poor**

<table>
<thead>
<tr>
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<th>Status</th>
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<th>Basis for Judgment</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Abundance/Distribution</td>
<td></td>
<td>Alteration and loss, particularly in Bolinas Lagoon, from changing land use and road construction; plans for restoration have yet to be implemented.</td>
</tr>
<tr>
<td>6</td>
<td>Structure</td>
<td>▼</td>
<td>Loss of eelgrass and oyster beds due to continuing sedimentation.</td>
</tr>
<tr>
<td>7</td>
<td>Contaminants</td>
<td>?</td>
<td>Limited data, though bird studies (terns) strongly suggest the need for increased monitoring.</td>
</tr>
<tr>
<td>8</td>
<td>Human Activities</td>
<td></td>
<td>Impacts from continued land use changes and urbanization may be offset by reduced mining impacts and restoration activities.</td>
</tr>
</tbody>
</table>
### Status & Trends: Lagoons & Estuaries

**Living Resources**

**Good to Fair/Poor**

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<tr>
<th>#</th>
<th>Status</th>
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<th>Basis for Judgment</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Biodiversity</td>
<td>▼</td>
<td>Species diversity changes due to eelgrass loss and invasive species, especially in Bolinas Lagoon.</td>
</tr>
<tr>
<td>10</td>
<td>Extracted Species</td>
<td>—</td>
<td>Minimal extraction, thus limited impacts.</td>
</tr>
<tr>
<td>11</td>
<td>Invasive Species</td>
<td>?</td>
<td>High number of invasive species; green crabs and <em>Spartina</em> has caused substantial alteration.</td>
</tr>
<tr>
<td>12</td>
<td>Key Species</td>
<td>▼</td>
<td>Keystone and some key species are at reduced levels; eelgrass decline is likely to diminish recovery potential.</td>
</tr>
<tr>
<td>13</td>
<td>Health of Key Species</td>
<td>?</td>
<td>Data limited to harbor seals and insufficient to judge estuarine conditions.</td>
</tr>
<tr>
<td>14</td>
<td>Human Activities</td>
<td>▼</td>
<td>Increasing impacts from urbanization, changing uses that affect watersheds, and wildlife disturbance caused by visitor activities.</td>
</tr>
</tbody>
</table>

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- ▼ = Getting worse
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# Status & Trends:
### Lagoons & Estuaries

Maritime Archaeological Resources
Unknown

<table>
<thead>
<tr>
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<th>Trend</th>
<th>Basis for Judgment</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Integrity</td>
<td>?</td>
<td>No wreck sites have been visited or investigated.</td>
</tr>
<tr>
<td>16</td>
<td>Threat to Environment</td>
<td>—</td>
<td>Unlikely that the wrecks (mostly schooners) contain hazardous cargo.</td>
</tr>
<tr>
<td>17</td>
<td>Human Activities</td>
<td>?</td>
<td>Bottom fishing, aquaculture, and environmental restoration activities could affect resources.</td>
</tr>
</tbody>
</table>

Good → Good/Fair → Fair → Fair/Poor → Poor → Undet.

△ = Improving  — = Not changing  ▼ = Getting worse
?
= Undetermined trend  N/A = Question not applicable
Pressures

Outer Coast & Offshore Areas
- Habitats
  - Tramping
  - Extraction
  - Bottom trawling
- Water quality
  - Outflow from San Francisco Bay and the Central California Valley agricultural runoff
  - Little information
    - Eutrophic conditions
    - Trophic level impacts from the radioactive waste dumpsite
- Living Resources
  - Little information
    - Biological structures
    - Trends in key species
- Maritime Archaeological Resources
  - Little information
Pressures

Estuarine and Lagoon Areas
  • Habitats
    • poor watershed practices
    • increased siltation
  • Water Quality
    • water diversion
    • in-flow of heavy metals from abandoned mines
    • pollutants from dairy ranches
  • Living Resources
    • loss of eelgrass
    • Non-indigenous species
  • Maritime Archaeological Resources
    • Little information

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Timeline to Completion

March 17 – April 11  GFNMS Staff review
April 14 – 21       Condition Report Team makes revisions
April 18            Summary overview to SAC
April 21 – May 2    SAC, NMFS and West Coast Region office review
May 5 – June 30     Condition Report Team makes revisions
June 30 – July 30   ISI board review
Aug 1 – Aug 31      Condition Report Team makes revisions
Sept 1 – 14         HQ edits final version, media press
                      release with MJ & Maria
Sept 20             Release of Report to public

GFNMS staff reviewers = Maria, Irina, Karen, and MJ (images and captions)
NMFS reviewers = Emily Menashes and Steve Ralston
West Coast Region Office = Bill Durous and Dave Lott
ISI review board = John Largier, Jon Stern and James Allen
Condition Report Team = Jan Roleto, Kathy Broughton, Steve Gittings and
                      Karen Fox