

HUMAN USE MAPPING IN THE MARINE AND COASTAL ZONE

A SUMMARY AND REVIEW OF METHODS,
LIMITATIONS, AND GAPS

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NOAA Coastal Services Center
LINKING PEOPLE, INFORMATION, AND TECHNOLOGY

PROJECT PURPOSE

- To inform NOAA CSC's understanding of the current state of knowledge of human use mapping approaches.
 - Common methods
 - Tools and technology
 - Challenges & limitations
 - Data gaps



METHODS

- Divided human uses into 3 categories:
 - Military & Industrial
 - Consumptive
 - Non-consumptive
- Literature and web search
- Compilation of relevant sources into spreadsheet with fields to address specific questions
- Informal interviews were conducted to supplement the literature and web review
- Summarized findings in report



USE CATEGORIES

Non-consumptive	Consumptive	Military and Industrial
<ul style="list-style-type: none">• Conservation• Maritime heritage and archeology• Diving• Tourism• Beach access (swimming, surfing)• Nature and whale watching• Recreational boating (motorized and non-motorized)	<ul style="list-style-type: none">• Commercial fishing• Traditional fishing• Recreational fishing (and boating)	<ul style="list-style-type: none">• Aquaculture• Renewable energy• Homeland security/defense• Commerce and transportation• Mining• Oil and gas exploration

GENERAL FINDINGS

- Data collection and mapping method used depends on policy and management context
- Non-consumptive uses are the least mapped category of uses, but there are increasing efforts to collect data for CMSP and economic valuation projects



COMMON METHODS USED

Consumptive

- Existing data, individual interviews, group workshops, mail and online surveys, aerial surveys, and onboard vessel monitoring.



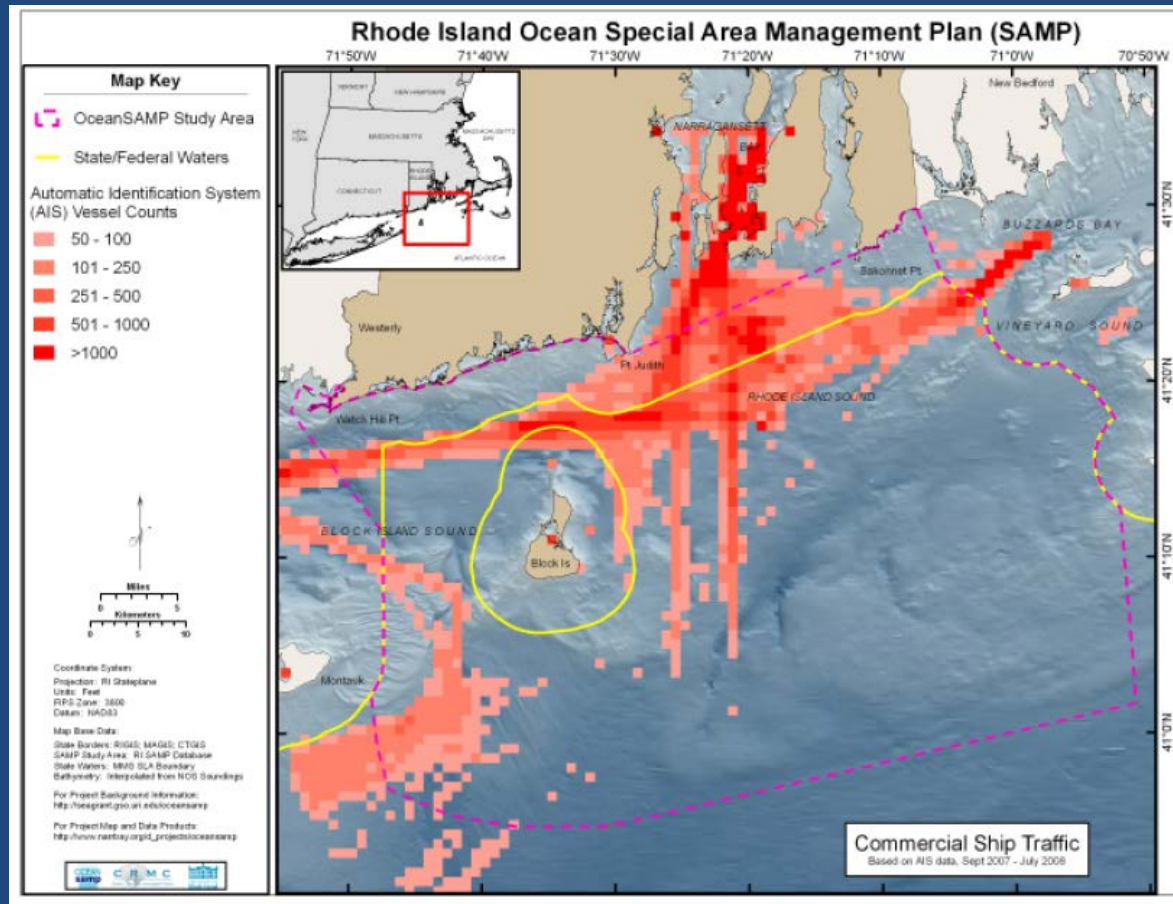
Non-consumptive

- Existing data, intercept surveys, opt-in surveys, aerial surveys, and group workshops.

Military & Industrial

- Existing data, individual interviews, and group workshops.

RHODE ISLAND SAMP



Source: RI SAMP, 2010

Commercial shipping density map was created using aggregated Automatic Identification System (AIS) data.

COMMON TOOLS & TECHNOLOGY USED

- Paper maps
- Desktop GIS
- GPS
- Aerial surveillance technology
- Statistical/economic modeling and analysis
- Online surveys
- Custom Mapping Applications
- Google Earth and Google Maps



WEB-BASED SURVEY

Florida Saltwater Fishing Survey (Michigan State University):



Recreational fishermen use a web-based survey to provide spatial information on a specific fishing trip.

MAPPING CHALLENGES

Military & Industrial

- Proprietary data
- Security concerns
- Standards

Consumptive

- Working with people
- Proprietary data
- Accuracy issues
- Uncommon activities

Non-consumptive

- Uncommon activities
- Working with people
- Cultural sensitivity
- Capturing intensity or quality



GAPS

Military & Industrial

- Smaller industrial uses
- Impact data
- Google Earth for offshore
- Public availability

Consumptive

- Small fisheries overlooked
- Recreational fishing regulation
- Illegal fishing practices

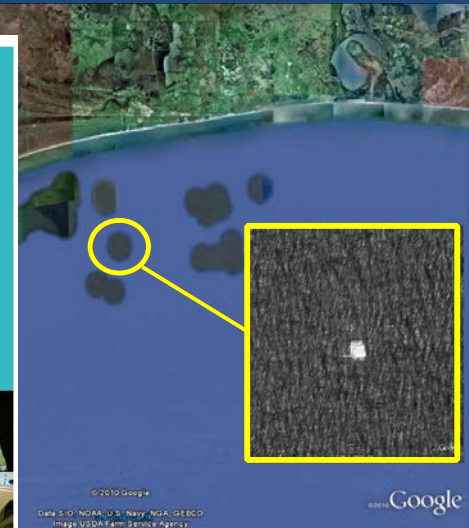
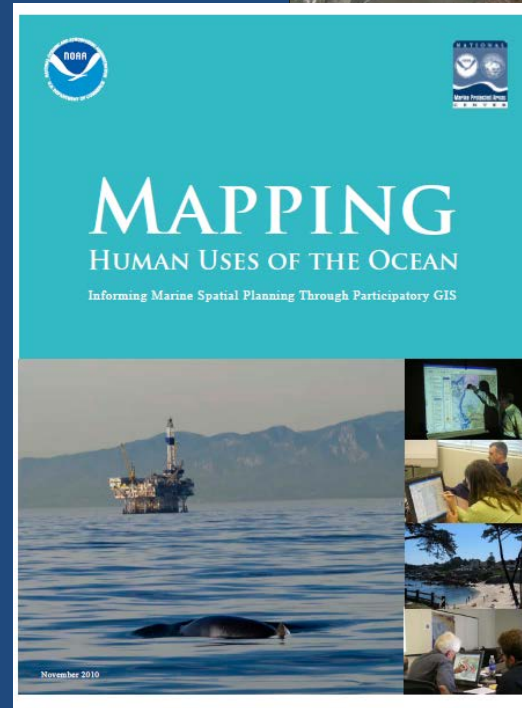
Non-consumptive

- Quality and intensity data
- Regulation
- Larger-scale data gathering
- Data standardization



ADDRESSING GAPS AND CHALLENGES

- Beach cameras
- Portable GPS devices
- Regional data portals
- Combining qualitative and quantitative data
- Cumulative mapping
- Development of best practices manuals



- Improving trust
- Incentives

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