Federal MPA Agency Workshop:
Data Needs for Marine Cultural Resource Management
November 29-30, 2005
Arlington, VA

Summary Report

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Background

Marine protected areas (MPAs) in the United States are widely used as a tool for helping conserve the nation's wealth of natural and cultural resources for all Americans and the world. These precious resources, including coral reefs, kelp forests, whales, shipwrecks, archaeological sites, traditional cultural places, and a wide variety of marine life in the oceans, coasts, and Great Lakes, are vital to the economic sustainability of the nation and its traditional connections to the sea for future generations. MPAs provide recreation and economic opportunities for millions of Americans; help sustain critical habitats and marine resources; and act as an "insurance policy" by helping protect marine resources from human impacts.

Over the past two decades, the use of place-based marine conservation and management tools, including the use of MPAs, has risen dramatically. Currently, there are hundreds of federal, state, territory, and tribal authorities and thousands of sites in U.S. waters. Each site may have varying definitions of types and purposes. These sites range from multiple-use to no-take reserves, although less than one percent (1%) of MPAs in the U.S. are no-take reserves.

The complexity of MPAs and their recognition as vital tools for marine conservation and management are the foundation of Presidential Executive Order 13158 on MPAs, which was signed on May 26, 2000. The Executive Order directs the Department of Commerce through the National Oceanic and Atmospheric Administration (NOAA) and the Department of the Interior (DOI) to work with other federal agencies and consult with states, territories, tribes, and the public to develop a scientifically-based, comprehensive national system of MPAs. The Marine Protected Areas (MPA) Center, in cooperation with the Department of the Interior, was established to execute this role.

The MPA Center is implementing the Executive Order by working with federal and state agencies to coordinate and share information, tools, and strategies to enhance management of existing MPAs. In addition, the Center will work with MPA programs and stakeholders to facilitate regional planning processes to: (1) identify and prioritize natural and cultural resources for additional protection; (2) assess threats and gaps in levels of protection currently afforded to natural and cultural resources, as appropriate; and (3) identify emerging threats and user conflicts affecting MPAs and appropriate, practical, and equitable management solutions, including effective enforcement strategies, to eliminate or reduce such threats and conflicts. This exchange of information and development of guidance can and should complement existing directives to inventory and avoid harm to cultural resources as described in the National Historic Preservation Act (Sections 110 and 106); Archaeological Resource Protection Act

(Sections 2 and 11); and Executive Order 11593 for the Protection and Enhancement of the Cultural Environment.

As part of the MPA Center work with federal MPA programs (U.S. Fish and Wildlife Service; National Estuarine Research Reserves System; National Park Service; and the National Marine Sanctuary Program), MPA Center staff attended and participated in a workshop entitled: *Laying the Foundation, Finding Common Ground: Crafting an Effective Interagency Collaboration*. One of the priority areas identified during this meeting was the need for marine habitat mapping and resource characterization. The cultural resource leads agreed that another meeting to discuss specific cultural resource data needs to enhance interagency resource characterization efforts would be appropriate and the MPA Center agreed to organize and host the workshop.

Federal MPA Agency Workshop, November 2005
The MPA cultural resource data needs workshop for federal MPA agency partners was convened by the MPA Center on November 29 and 30, 2005 at the U.S. Fish and Wildlife Service in Arlington, Virginia. The goals of the workshop are set forth below in detail. The MPA Center structured the event to ensure a vital learning experience for all, including the Center itself, on the individual agency cultural resource management needs and priorities, and to enhance relationships and a commitment to participation in data gathering and information sharing among the participating agencies. A copy of the workshop agenda is contained herein as Appendix #1. MPA Center staff facilitated the event.

In attendance were nine (9) participants representing the federal MPA agencies that manage cultural resources in the marine environment, including the National Marine Sanctuary Program (NMSP); U.S. Fish and Wildlife Service (USFWS); National Park Service (NPS); and the National MPA Center (in a coordinating role). Appendix #2 contains a complete list of the participants.

The workshop was marked by the articulation of constructive suggestions from the participants as to the types of information that would be useful for federal resource characterization efforts, meeting federal archaeology program mandates and guidelines, and assisting in development of a national system of MPAs. The participants represent a wealth of marine cultural resource management knowledge that collectively spans over 100 years. This report captures the broad content of the workshop. It includes a summary of the workshop goals; an explanation of the workshop format; a summary of the cultural resource management needs, goals, and objectives; types of data needed for marine cultural resource characterization, analysis, and planning; and the highlights of key follow-up actions to be taken by the MPA Center and its partner agencies as a result of the workshop.

<u>Workshop Goals</u>

Prior to the workshop, MPA Center staff developed the goals and the agenda of the workshop with input from the workshop participants. The workshop goals were to:

1. Discuss the management goals and priorities for marine cultural resource management and determine the core data set necessary to meet those goals/priorities
2. Identify the types of data federal cultural resource managers need to meet their goals and priorities, how this information should be organized, and what planning, analysis, and mapping tools would be most useful for managers.
3. Determine the next steps for developing a national marine cultural resource database based on cooperation and data sharing among federal agencies.

<u>Workshop Format</u>

The workshop format was designed to both educate and elicit input on marine cultural resource data needs to meet federal MPA agency management goals and to ensure a continuous dialogue following the event. Joe Uravitch, director of the MPA Center, welcomed everyone to the event and kicked off two days of focused sessions.

The agenda included several presentations designed to inform participants on the marine cultural resource management responsibilities of the federal MPA agencies. Brian Jordan, maritime archaeologist of the MPA Center, gave a brief presentation on the MPA Center and its efforts with marine cultural resources, and an overview of the need for a national cultural resource characterization for the national system of MPAs. Each of the federal MPA agency presentations discussed elements of the following: management priorities, strategic trends, and projected outlook for each program as it relates to marine cultural resources; the use of data to meet those priorities; data organization; data integration with other databases with each agency; currently utilized planning, analysis, and mapping tools; and data and tools that a program does not currently possess, but would like to see developed.

The balance of the agenda was devoted to a series of sessions designed to elicit input from the participants on the development of a national marine cultural resources data set that would be useful to cultural resource managers and the MPA Center in developing a national system of MPAs. The content and input emerging from each of the sessions was captured in detail by the MPA Center staff.

<u>Management Needs/Goals/Objectives</u>

The notes for this session are included in Appendix #3, and are summarized below. The key marine management goals for the federal MPA agencies reflect the overarching program mandates for the protection of significant cultural resources for future generations, as well as existing federal mandates for cultural resource inventory (NHPA Section 110) and avoidance of harm compliance (NHPA Section 106). The program

managers believed that it was important to maximize the returns for resource inventory by combining natural and cultural resource characterization initiatives. The sharing of agency assets and capabilities by developing federal/state/tribal/non-governmental organization partnerships was pointed out as being increasingly necessary to meet agency management goals. Workshop participants also believed that it was important to develop quantifiable performance measures that could be built into resource characterization projects for accountability.

From a site/land management perspective, it was agreed that law enforcement is a priority area for the protection of cultural resources, especially in the marine environment. To have effective law enforcement, jurisdiction information needs to be clear to the manager and law enforcement personnel, including accurate boundary information; legal mandates; and management responsibility for land, resources, and water column. Another site-level priority is the assessment of cultural resources site condition and vulnerability.

Outreach and education, including stewardship and interpretation, were cross-cutting goals and priorities for both the site and program office levels.

Data Needs

This section focused on the cultural resource data needed by managers and program offices to meet their management goals and objectives. It is a summary of several workshop sessions, including: data needs; database planning, analysis, and mapping tools; sensitive spatial data; and outreach and education. The session notes are compiled in Appendix #4 and Appendix #5. This summary will focus on the general data principles and beneficial uses of a national database, while the data fields are summarized in tabular form in Appendix #6.

At the beginning of the data needs section of the workshop, it was believed by all of the participants that if a national inventory of marine cultural resources was to be initiated, it should be focus driven; i.e., the use of the database should be carefully defined and meet the participating agencies' management needs. The primary need for a national database was seen as a standardized national inventory of marine cultural resources with all of the cultural resource information in a centralized location. The target audience/users for this information would be cultural resource managers; MPA managers (federal/state/tribal); and the MPA Center for assisting in regional and national planning efforts. The information collected should be broad enough to facilitate coordination and information sharing efforts across agency and geo-political boundaries (e.g. state-federal jurisdictions; different regions; etc.) without replicating current information gathering and storage efforts. The database would be an effective tool if it: (1) standardized the information within the database at a broad level of specificity to ensure the quality of the data and its accuracy, and (2) tied the database into existing data structures. The individual cultural resource records within the database should be tied to an existing jurisdiction or management unit, and this information should be geo-spatially related so that boundary information, legal mandates, and management responsibility for land, resources and the

water column are clear to the managers and law enforcement entities. Data fields should be quantifiable when possible, to facilitate the evaluation of performance measures.

The overall database should be secure, web-based, query-enabled, and allow appropriate level access dependent on user needs (i.e., username and password determines level of access to types of information). By being web-based, MPA managers and/or designee would have direct access the information need to make management decisions based on their specific agency mandates. Electronic security and institutional protocols (e.g., non-disclosure agreements) specifying how the information is to be shared within and among the agencies would ensure that a particular user only has access to information needed for their specific needs. The data fields summarized in Appendix #6 were developed in reference to these principles.

On a site level, managers would need to be able to query the number of cultural resources within an MPA (known vs. historically documented) and the number of sites that have been systematically surveyed. This information would be useful to inform priorities for future cultural resource assessments. On a broader agency/regional/national scale, a query-based gap analysis tool would be useful for determining how many historically significant resources are currently within a region or under a management agency's jurisdiction. This will help agencies determine what is currently being protected, what might be threatened, and what is not protected by existing law. The database should be developed so that information can be shared among federal/state/tribal agencies to link programs around specific types of resources. This would lead to opportunities to identify thematic contexts across disciplines and programs.

As with all significant cultural resources, sensitive spatial data may be restricted from public disclosure and exempt from the Freedom of Information Act (FOIA) requirements. This applies to historic sites that federal agencies determine may be damaged through revealing the location, character, or ownership of the historic resource(s). The participants discussed this briefly and came to the conclusion that the exact spatial data should be recorded in the secure database where appropriate and when freely provided by the managing agency. If an agency is not comfortable disclosing this information, the spatial information can be recorded in two ways: as existing within a MPA/MMA/jurisdictional unit; or within an acceptable buffer zone (e.g., within a 100 square nautical mile area).

Participants believed that a national database would also be useful for developing a stand-alone environmental education component that does not include spatially sensitive information, yet still elevates the value and significance of marine cultural resources and our nation's traditional connections to the sea. Information in the database could provide the historical context of both the natural and cultural resources for an MPA, information on historically significant cultural resources and how they are being managed, and publicly accessible cultural resource images.

Organizing the Data

This session focused on how the complex cultural resource information could be organized to facilitate management needs. The session notes are captured in Appendix #7, but elements were also discussed in the Data Needs section (Appendix #4) and they influenced the development of the draft data dictionary (Appendix #6). A large part of the discussion revolved around how much detail the cultural resource (CR) site type field should include. Participants believed that being too detailed would create an additional burden on resource and MPA managers, while needlessly replicating federal agency data collection efforts. By concentrating on a broad level of specificity and standardizing the data, the information could be useful for coordinating across sites, agencies, and geo-political boundaries for the planning and preservation of significant marine cultural resources. More specific information could be captured in a summary text field. Additionally, the data source information would be included with the site record so that a user could contact the management/jurisdictional entity if they needed access to detailed information about the resource. The participants believed that further consideration of the CR site type field was warranted, but would not be productive for the remaining time. Participants agreed to continue to work on this field at a later date. An example of data standardization for the MPA Center's Marine Managed Areas (MMA) Inventory was proffered as a starting point (see Appendix #8).

Existing Databases

To facilitate the "Drawing on Existing Databases" section, MPA Center staff developed a table with the identified data fields and existing federal databases that might include information on marine cultural resources. This table is included in Appendix #9. Workshop participants were queried about each database to identify which ones contained data fields with similar information. Information had to be in an appropriate data field and not simply contained in an image file (e.g., pdf or attached document) or complex memo field. There was uncertainty about several of the DOI databases and the DOD Navy database, and this information will need to be filled in through consultation with these agencies at a future date.

The following databases were evaluated in this section:
- DOC/NOAA
  - NMSP's archaeological database (NOAA's ARCH II)
  - NMSP's Resource and Undersea Threats (RUST)
  - NMSP's Sanctuary Hazardous Incident Emergency Logistics Database Systems (SHIELDS)
  - NMSP's Pacific Coast Maritime Archaeology Summary (PCMAS)
  - Office of Coast Survey's Automated Wreck and Obstruction Information System (AWOIS)
  - Office of Response and Restoration's Abandoned Vessel Database
  - MPA Center's MMA Inventory
- DOI
  - NPS Submerged Resource Center's (SRC) database

- o NPS Archeological Sites Management Information System (ASMIS)
  - o NPS National Register of Historic Places (NRHP)
  - o NPS List of Classified Structures (LCS)
  - o NPS Cultural Landscapes Automated Inventory Management System (CLAIMS)
  - o NPS Ethnographic Resources Inventory (ERI)
  - o NPS Floating Historic Vessels
  - o US Fish and Wildlife Service cultural resource database (FWS)
  - o Marine Management Service cultural resource database (MMS)
- DOD
  - o Navy Wreck List (NIMA)

Cooperation, Data Sharing, and Next Steps

As a result of the active and productive exchange at the workshop, a number of follow-up actions and steps have been identified and will be pursued by the MPA Center and participating agencies. The session notes are included in Appendix #10. Among the most important are the following:

- Share draft report with key federal MPA managers and other interested federal agencies, and ask for review of existing database matrix and list of key fields.
- Finalize workshop report and share with federal agency leadership, Interagency MPA Workgroup, and coastal states.
- Finalize data fields proposed for national database.
- Develop an information fact sheet and web page using example-driven products to explain/demonstrate the benefits of a national marine cultural resource database to federal agency leadership of MPA programs.
- Create a more detailed needs assessment document for the development of the test database.
- Develop a test database using the identified data fields.
- Identify a pilot area to test the database and query-based tools.
  - o Tentatively identified the west coast (California to Washington) as the area in which the pilot should take place.
  - o This will incorporate information collected during the cooperative federal/state/NGO Pacific Coast Maritime Archaeology Summary (PCMAS) project.
  - o The database will also utilize the MMA Inventory for the MPA/Jurisdictional level data
- Test the database with a select group of federal and state MPA and cultural resource managers. An area of Washington with a cross-section of NPS, NMS, NWR, Washington State, and tribal areas has been proposed as the area to test the database.

Conclusion

The "Data Needs for Marine Cultural Resource Management" workshop proved to be both informative and instructive for all in attendance. The MPA Center and federal agency participants received invaluable input regarding the cultural resource management objectives of the various federal MPA agencies and the information needed to fulfill their mandates. The relationships forged and strengthened during this workshop and the information received will serve as an important first step in determining the types of data and planning tools useful in developing a national database of marine cultural resources and will assist in preserving the nation's cultural resources for present and future generations.

For More Information, Contact:

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Appendices

       Appendix #1: Workshop Agenda
       Appendix #2: Workshop Participant List
       Appendix #3: Management Needs/Goals/Objectives notes
       Appendix #4: Data Needs notes
       Appendix #5: Database Planning, Analysis, and Mapping tools notes
       Appendix #6: Data Dictionary developed from the Data Needs notes
       Appendix #7: Organizing the Data notes
       Appendix #8: Table with potential Cultural Resource Site Types taken from the Marine Managed Areas Inventory database
       Appendix #9: Cross-Tab with Data fields and existing federal cultural resource databases
       Appendix #10: Cooperation, Data Sharing, and Next Steps notes

Federal MPA Agency Workshop: Data Needs for Marine Cultural Resource Management
November 29-30, 2005
U.S. Fish and Wildlife Service Building, Room 2064
4501 N Fairfax, Arlington VA

Meeting Goals:
1) Discuss the management goals and priorities for marine cultural resource management and determine the core data set necessary to meet those goals/priorities.
2) Identify the types of data federal cultural resource managers need to meet their goals and priorities, how this information should be organized, and what planning, analysis, and mapping tools would be most useful for managers.
3) Determine the next steps for developing a national marine cultural resource database based on cooperation and data sharing among Federal agencies.

DAY 1 – November 29

9:00-9:10   Welcome and Introduction to Workshop
Joseph Uravitch, Director, Marine Protected Areas Center

9:10-9:30   Cultural Resources and the National System of MPAs
Brian Jordan, Maritime Archaeologist Coordinator, MPA Center
- MPAs and conserving cultural resources
- Need for cultural resource characterization
- Need for a national marine cultural resource database
- Questions and Discussion

9:30-11:00   Overview of Marine Cultural Resource Management Programs
Larry Murphy, Chief, NPS Submerged Resource Center
Eugene Marino, Service Archaeologist, FWS
John Broadwater, Program Manager, NOAA NMSP Maritime Heritage Program
- Management priorities, strategic trends, and projected outlook for your program as it relates to marine cultural resources
- How does your program use data to meet those priorities?
- How is this information organized?

- How is this information integrated with other databases within your agency?
- What tools do you currently use with your database for planning, analyzing and mapping?
- What data and/or tools that your program currently does not have, but would like to develop?

11:00-11:15	Break
11:15-12:00	Management Priorities Discuss and summarize management priorities for marine cultural resource management across the programs and agencies. • Outcome: List of important management goals and priorities that cut across federal agency programs
12:00-1:30	Lunch (on your own)
1:30-2:30	Data Needs Discuss and summarize the types of data federal cultural resource managers need to meet their goals and priorities. • Outcome: Develop a generalized primary data set that is useful to multiple agencies and the MPA Center in meeting their individual management goals.
2:30-3:30	Organizing the Data Discuss and summarize how we should organize the data to be most beneficial for planning and management of marine cultural resources. • Examples: Classification of vessels (type, function, age); Context (local, state, regional, national, international); Themes (decades, events, uses, types)
3:30-3:45	Break
3:45-4:45	Database Tools Discuss and summarize the database planning, analysis, and mapping tools needed as applications of a national marine cultural resource database for resource managers.
4:45-5:00	Summarize, recap, and discuss next day's schedule
5:00	Adjourn

AGENDA

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DAY 2 – November 30

9:00-9:15	Welcome, Highlights and Introduction to Day 2
9:15-11:00	Drawing on Existing Databases Discuss and summarize the information in existing databases that will be necessary in order to develop a national database.
11:00-11:15	Break
11:45-12:15	Sensitive Spatial Data How do we deal with the physical location of marine cultural resources in the database? Do we store this information in the database? If so, how do we display this information without endangering the resources?
12:15-1:45	Lunch (on your own)
1:45-2:45	Education and Outreach What types of education and outreach tools or sets of information should be developed from the information in the national database?
2:45-3:00	Break
3:00-4:30	Cooperation and Data Sharing How do the federal agencies work together to share data and develop the national database of marine cultural resources?
4:30-5:00	Recap and Next Steps
5:00	Adjourn

Appendix 2: Attendance for the Federal MPA Agency Workshop
"Data Needs for Marine Cultural Resource Management"
November 29-30, 2005
Arlington, VA

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Appendix 3: Management Needs/Goals/Objectives – Session Notes
Federal MPA Agency Workshop Summary
"Data Needs for Marine Cultural Resource Management"

- User Groups/Target Audience for the Database need to be carefully defined
  - Cultural Resource managers
  - MPA managers (federal/state/tribal)
  - MPA Center
- Meet Federal Mandate for CR Inventory (100% survey and evaluation for National Register eligibility of CR for all federally-controlled lands)
  - Section 110 of the NHPA; E.O. 11593, etc.
- Meet Compliance needs
  - Section 106 of the NHPA
- Maximize returns on resource inventory by combining cultural and natural resources data gathering
- Performance Measures should be considered and built into database where feasible
- To be able to answer CR-related questions from the site/land management level
  - What is the jurisdiction of these sites?
  - Information can be useful for evaluating permit requests
- Feeds into a site/project level as well as broader management plans
  - Ex. Zone concept (utilizing zones of importance or potential impact zones that have different levels of access or allowable uses (no take vs. recreational use vs. commercial use)
- Site/land management level:
  - Enhance law enforcement by utilizing zones
  - Determine site condition and vulnerability
    - Natural vs. anthropogenic impacts
  - Stewardship and interpretation
  - Outreach and Education
- Develop Federal/State/Tribal/NGO partnerships to meet the management goals
  - Maximize sharing of assets and capabilities
- Jurisdiction information needs to be clear to the manager
  - Boundaries
  - Legal mandate
  - Management responsibility for land, resources, and water column

Appendix 4: Data Needs Session Notes
Federal MPA Agency Workshop Summary
"Data Needs for Marine Cultural Resource Management"

Data Needs
- General Principles
  - Focus driven
    - What data other disciplines/agencies are capturing?
  - Query based
  - Tying database into existing data structures
  - Standardized
    - Presentation
    - Collection – develop standard protocols to ensure quality of data
    - Cumulative– build on existing data
    - Data accuracy
    - Metadata
      - Data Source information
    - General Data compatibility
  - Data security
    - Electronic
    - Institutional – protocols
    - Allowing appropriate level access dependent on user needs
  - Directly accessible by superintendent/sanctuary/refuge managers and/or designee to support them in making management decisions to meet their mandates
  - Include quantifiable variables/fields for response to performance measures
  - Jurisdiction information needs to be clear to the manager
    - Boundaries
    - Legal mandate
    - Management responsibility for land, resources, and water column
  - Geo-Spatially related
    - Being able to manipulate data via layers
    - Cross-referencing of related yet spatially distinct locations
- Site Data Categories (tabular)
  - Jurisdiction or Mgmt unit
    - Federal/State/None/Unknown (multiple sections allowed)
    - Primary Responsible Management
    - Total Mgmt area
    - Total Submerged/Marine area
    - Location
    - Region
    - # of historically reported sites in unit
    - Historic natural and cultural context of the site

- Site Data Categories (spatial coverage)
  - Management boundary
  - Bathymetry
  - Geo-rectified historic maps
  - Remote sensing data
- Cultural resource data (tabular)
  - CR site type
  - Location
    - How derived
      - Reported or systematic survey
    - Lat/long decimal degrees
    - Verified (yes/no)
    - Within MPA/MMA? (Yes/No)
      - MPA/MMA site name/ID
  - Protection
    - Targeted for protection/non-targeted but incidentally protected/not targeted for protection
  - Depth
  - Condition assessment
  - NR eligibility
    - Listed/Determination of Eligibility/Not Eligible/Unknown
  - Age
  - Primary Historical Theme (military, commercial, etc.)
  - Cultural association
  - Historically Documented (yes/no)
  - Images
  - Threatened? (yes/no/unknown)
    - List of threats (to/from)
  - Material collected? (yes/no/unknown)
    - Federal title to collection (yes/no/unknown)
- Natural Resource Data (tabular)
  - Habitats
  - Fauna
  - Flora

Appendix 5: Database Planning, Analysis, and Mapping Tools Session Notes
Federal MPA Agency Workshop Summary
"Data Needs for Marine Cultural Resource Management"

Database Planning, Analysis, and Mapping tools
[What do we want to get out of the database?]
TOP 6

- Gap analysis; significance
- National inventory
    - # CR contained w/in MPAs (known vs. historically documented; recorded by jurisdiction)
    - Inform priorities for future assessments
    - Query number of sites w/in MPA systematically surveyed
- Provide regional context – query tool
    - Would need to agree on administrative regions
    - Maritime landscapes
- Linking existing databases (e.g. RUST & MMA Inventory)
- Info to share information & link programs around specific types of resources
    - Opportunities to identify thematic contexts across disciplines & programs
- Develop examples of different front ends for different users
    - ARC IMS
    - Web enabled
    - Security levels
- Develop examples of end products that use database to meet mandates

OTHER IDEAS

- Content for environmental education
    - Historical content
    - Publicly accessible CR images
- Focal point for engaging states
- Useful for meeting federal & program mandates
    - EO
    - Comprehensive management plans
- Common definitions / database dictionary
- May want different versions for managers & archeologists (or different reports/products; different levels of clearance)
    - Internal – for archeologists, full version
    - External – for managers; queries, reports, web based

Appendix 6: Draft Data Dictionary developed during Data Needs session
Federal MPA Agency Workshop Summary
"Data Needs for Marine Cultural Resource Management"

Data Field	Description
MPA/JURISDICTION LEVEL DATA	
Management Unit	Name of MPA/Jurisdiction Unit (Text) – Can include State waters and EEZ
Jurisdiction/Mgmt Agency	Primary management agency (Text)
Total Area	Unit of measure; tabular data (sq. meters)
Submerged/Marine Area	Unit of measure; tabular data (sq. meters)
Location	Lat / Long for MPA (degrees decimal)
Region	Need to agree on admin regions for database (List)
# of historically reported sites	Sum total of historically reported sites w/in management unit (Number)
Historic natural & cultural context	Description of historic context of MPA site (Text)
Mgmt boundary	GIS boundary info (Spatial)
Bathymetry	GIS bathymetry layer (Spatial)
Historic maps	GIS layer (Spatial)
Remote sensing data	GIS layer (Spatial)
CULTURAL RESOURCES SITE LEVEL DATA	
CR site type	Categories as determined by DOC/DOI: Tentatively use the list as compiled for the MMA Inventory (List)
CR Summary	Summary information about the CR and/or site (text field)
Location	Lat / Long for site (degrees decimal)
How Derived	Source of information (List: reported or systematic survey)
Location Type	Categories of location (List: submerged, coastal, marine associate, etc.)
Verified	Physically verified CR site (Option: Y/N)
Within MPA/MMA	(Checkbox: Y/N)
Site Protection	Is site protected by legislation? (List: targeted for protection; not targeted but incidentally protected; not targeted for protection)
Depth	Minimum depth to bottom (Number: meters)
Condition assessment	Use NPS categories (List: poor/fair/good/excellent/unknown)
NR Eligibility	Eligibility for National Register (List: listed/DOE/ineligible/unknown)
Age	Century (15th – 20th) or prehistoric/precontact (List)
Historical Theme	Checkboxes: Use Areas of Significance list from National Register Bulletin: *How to Complete the National Register Registration Form*
Cultural association	National or cultural affiliation (Checkboxes: Base on list of Ethnographic Heritage Category in National Register Bulletin: *How to Complete the National Register Registration Form*)
Historically documented	Is there historical documentation for this site? (Option: Y/N)
Images	Is there an image in a publicly accessible database? (Option: Y/N)
Image info	Location of images (text field)
Threatened	Agency assessment (List: Y/N/unknown)
List of threats to resource	List of threats to the resource (Checkboxes)
List of threats from resource	List of threats from the resource (Checkboxes)
Museum collection	federal/state/private/publicly accessible /unknown (Checkboxes)
Habitat characterization	TBD w/natural resource experts at DOC/DOI
Web based	Is database accessible by web? (Option: Y/N)

Appendix 7: Organizing the Data Session Notes
Federal MPA Agency Workshop Summary
"Data Needs for Marine Cultural Resource Management"

Organizing the Data
- CR Site Type
    - See MMA Inventory list (Appendix #7)
    - Limited list of marine associated historic structures (lighthouses, life saving stations)
    - Text field for more specific info (e.g., type of vessel)
    - Note sunken state craft (legal framework requiring coord w/NHC, State Dept)
- Themes (Taken from NPS National Register of Historic Places Themes)
    - Agriculture
    - Architecture
    - Archeology
        - Prehistoric
        - Historic - aboriginal
        - Historic - non-aboriginal
    - Commerce
    - Communications
    - Engineering
    - Entertainment/Recreation
    - Exploration/Settlement
    - Health/Medicine
    - Industry
    - Invention
    - Law
    - Literature
    - Maritime History
    - Military
    - Politics/Government
    - Religion
    - Science
    - Social/Humanitarian
    - Theater
    - Transportation
    - Other

Appendix 8: Table with potential Cultural Resource Site Types taken from the Marine Managed Areas (MMA) Inventory database
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Cultural Resource Type	Description and examples
shipwreck or other submerged watercraft	This category represents both identified and unidentified shipwrecks and other watercraft that have been located.
	Examples: Historic shipwrecks, canoes, or other watercraft
prehistoric archaeological site or remains	Prehistoric or pre contact archaeological site or remains.
	Examples: Known prehistoric archaeological site(s); Distribution of prehistoric cultural remains
traditional cultural property	This category represents sites that are significant because of their association with cultural practices or beliefs of a living community that are (a) rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community. In the comments section, provide additional information about the type(s) of site or remains. For additional information about this category, please refer to National Register Bulletin 38: Guideline for Evaluating and Documenting Traditional Cultural Properties (http://www.cr.nps.gov/nr/publications/bulletins/nrb38/) or comparable State publication.
	Examples: Sacred sites, Native American sites, ancient Hawaiian burial grounds, and other sites of traditional cultural importance.
historic site or object	Do not include buildings, structures, shipwrecks, or prehistoric sites; these go into there respective individual categories. In the comments section, provide more detailed information about the type(s) of site or remains. For additional information about this category, please refer to National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation (http://www.cr.nps.gov/nr/publications/bulletins/nrb15/).
	Examples: historic cemeteries, known historic (post contact) archeological site, historic international border, battlefield, monument, aircraft wreckage (if wreckage remains are dispersed)
historic building	This category represents historic buildings that were created principally to shelter any form of human activity. For additional information about this category, please refer to National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation (http://www.cr.nps.gov/nr/publications/bulletins/nrb15/).
	Examples: fort, farmstead, historic fishing village (could be a Historic Site if the location is important and not the buildings)
historic structure	This category represents functional constructions made usually for purposes other than creating human shelter. For additional information about this category, please refer to National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation (http://www.cr.nps.gov/nr/publications/bulletins/nrb15/).
	Examples: Remains of historic standing structures such a piers and wharfs, military structures, bridges, historic aircraft (if largely intact), navigational structures, and lighthouse.
identified submerged relict landforms or paleo shoreline	Submerged relict landforms or paleoshorelines that have bee verified through coring or other acceptable method.
	Examples: submerged paleolandform or paleoshoreline
subsistence uses by local residents	In the comments section, provide more detailed information about the type(s) of site or remains.
	Examples: subsistence use of marine areas, such as fisheries.

Appendix 9: Table with data fields and existing federal cultural resource databases

	Majority of Data will need to be Entered	NOAA's ARCH II	RUST	SHIELDS	AWOIS	Abandoned Vessel DB	MMA/MPA Inventory	PCMAS	NPS SRC	ASMIS	FWS	NRHP	LCS	CLAIMS	ERI	MMS	Floating Historic Vessel	Navy Wreck List (NIMA)	Notes
AGENCY		DOC/NOAA							DOI									DOD	
MPA/JURISDICTION LEVEL																			
Management Unit		x	x	x		x	x	x	x	x	x					x			Name of MPA/Jurisdiction Unit (Text)
Jurisdiction/Mgmt Agency		x	x	x		x	x	x			x					x			Primary management agency (Text)
Total Area									x							x			Unit of measure; tabular data (sq. meters)
Submerged/Marine Area									x							x			Unit of measure; tabular data (sq. meters)
Location		x	x	x	x	x	x	x	x	x	x								Lat / Long for MPA (degrees decimal)
Region	x																		Need to agree on admin regions for database (List)
# of historically reported sites						x		x	x		x					x		x	Sum total of historically reported sites w/in management unit (Number)
Historic natural & cultural context			x			x					x								Description of historic context of MPA site (Text)
Mgmt boundary			x	x		x			x		x					x			GIS boundary info (Spatial)
Bathymetry			x	x					x							x			GIS bathymetry layer (Spatial)
Historic maps			x	x					x										GIS layer (Spatial)
Remote sensing data		x	x						x										GIS layer (Spatial)
CULTURAL RESOURCE SITE LEVEL																			
CR site type		x	x		x	x	x	x	x	x	x					x	x	x	Categories as determined by DOC/DOI (List)
Location		x	x	x	x	x		x	x	x	x					x	x	x	Lat / Long for site (degrees decimal)
How Derived		x	x	x	x			x	x	x	x					x		x	Source of information (List: reported or systematic survey)
Location Type	x																		Categories of location (List: submerged, coastal, marine associate, etc.)
Verified		x	x	x	x			x	x	x	x					x		x	Physically verified CR site (Option: Y/N)
Within MPA/MMA	x	x	x	x					x	x									(Checkbox: Y/N)
Is site protected?	x						x												Is site protected by legislation? (List)
Depth		x	x	x	x			x	x	x	x					x		x	Minimum depth to bottom (Number: meters)
Condition assessment		x	x		x	x		x		x	x	x							Use NPS categories (List: poor/fair/good/excellent/unknown)
NR Eligibility		x	x				x			x	x	x					x		Eligibility for National Register (List: listed/DOE/ineligible/unknown)
Age		x	x	x	x	x		x	x	x	x					x		x	Century or prehistoric/precontact (List)
Historical Theme	x										x						x		Use modified list from NPS (List)
Cultural association								x	x	x	x						x		National or cultural affiliation (e.g. tribal) (Text)
Historically documented		x	x	x	x			x	x	x	x					x	x	x	Is there historical documentation for this site? (Option: Y/N)
Images		x	x			x		x	x	x	x						x		Is there an image in a publicly accessible database? (Option: Y/N)
Image info		x	x			x		x	x										Location of images (text field)
Threatened			x			x		x		x	x								Agency assessment (List: Y/N/unknown)
List of threats to resource			x			x		x		x	x								List of threats to the resource (Checkboxes)
List of threats from resource			x			x		x											List of threats from the resource (Checkboxes)
Museum collection										x	x								federal/state/private/publicly accessible /unknown (Checkboxes)
Habitat characterization																			TBD w/natural resource experts at DOC/DOI
Web based		x	x	x	x	x	x		x		x					x			Is database accessible by web? (Option: Y/N)

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Cooperation, Data Sharing, and Next Steps
- Draft report from this week's workshop (B. Jordan)
- Share draft report with key federal MPA managers (Workshop participants – 1/06)
  - NOAA/DOI: Ask for review of existing database matrix, list of key fields
  - Bring in NHC, MMS, OE, OCS, NMS Maritime Heritage Exec Council, NPS Ocean Task Force
  - Finalize workshop report (2/06)
  - Share final workshop report w/Agency leadership, Interagency MPA Workgroup, Seamless Network participants, etc. (2/06)
- 1-pager w/examples to explain/demonstrate benefits of linked databases to leadership of MPA programs. (3/06 draft) Tie to:
  - Ocean & coastal mapping initiative (NOS)
  - Seabed mapping
  - Undersea threats (DHS)
- Develop web page on mpa.gov to highlight process; post 1-pager (& eventually pilot web materials)
- Identify pilot area (3/06)
  - Suggest West Coast (or subset w/multiple MPA agencies) – use PCMAS database
  - Begin working through technical issues
  - Identify examples of benefits, products
  - Develop web page, outreach materials on pilot
  - Engage state (CA) in pilot
- Integrate CR examples into Seamless Network case studies
- Develop more detailed needs assessment document