Integration of marine spatial data in Japan: "Japan's Marine Cadastre"

Masayuki FUJITA
The Secretariat of the Headquarters for Ocean Policy
Cabinet Secretariat, Government of Japan

MSDI Open Forum, Tokyo
Jan.26, 2016
Outline

• Framework of Japanese Ocean Policy
• Integration of Marine-related Data and Information
• Marine Cadastre in Japan
• Future Issues
• Summary
Framework of Japanese Ocean Policy
Basic Act on Ocean Policy

- International legal framework related to oceans:
  UNCLOS, Agenda 21, Convention on Biological Diversity, etc.

- Various challenges at sea around Japan:
  marine pollution, depletion of fisheries resources, coastal erosion, serious maritime accidents

- Increasing role of the oceans for all mankind:
  security of foods, ocean resources and energy, cargo transport, global environment

Need to establish executive structure and to promote comprehensive and integrated approach to the ocean issues

Basic Act on Ocean Policy
Enactment : 20 April, 2007
Enforcement : 20 July, 2007
Structure to execute the Act

**Government**

**Headquarters for Ocean Policy**

Director-General: Prime Minister

Vice-Director-General: Chief Cabinet Secretary

Minister for Ocean Policy

Members: All Ministers

Cabinet Secretariat

Secretariat (SHOP)

Ministries

Implementing the measures

**Chairman’s meeting**

Key figures with deep insight

---

**1st Basic Plan on Ocean Policy** (approved by the Cabinet in March 2008)

- **Period of the Plan**: Five years (from FY2008 to FY2012)

**2nd (present) Basic Plan on Ocean Policy** (approved by the Cabinet in April 2013)

- **Period of the Plan**: Five years (from FY2013 to FY2017)
  - 4 visions as an oceanic state
  - 12 basic measures that the central government shall implement
Ministries related to ocean policy

Cabinet

Cabinet Secretary

The secretariat of the Headquarters for Ocean Policy

MOFA
Diplomacy

METI
Industry Energy Natural resources

MEXT
Science Technology Education

MLIT
Land Infrastructure Transport Tourism

MAFF
Fishery

MOE
Environment

MOD
Safety assurance

JCG
Hydrographic and Oceanographic Department

Data and Information Management
Integration of Marine-related Data and Information
2.6.(3) **Integration of marine-related information**

- Marine-related information is publicized *separately by respective agencies* depending on their own purposes.
- It is troublesome to search necessary information on specific marine zones or of specific types.
- Establish a system to comprehensively manage and provide the pieces of information now scattered in respective agencies.
- In the process, utilize the efforts made so far by agencies such as the Japan Oceanographic Data Center*

* JODC: Established in 1965 in the Hydrographic Department, JCG
How to integrate the marine-related information

1\textsuperscript{st} Step (2008~)
- To establish the meta-data search system in Japan
  “Marine Information Clearing House” (launched in 2010)

2\textsuperscript{nd} Step (2010~)
- To establish the WEB-GIS system for the Marine spacial information, which is managed by JCG
  “Marine Cadastre” (launched in 2012)
Stepwise integration of marine-related data and information

- Integration of meta-data
  - Clearing-House
    - Moderate cooperation among related organizations
- Integration of information into GIS
  - Marine Cadastre
    - High-level cooperation among related organizations
Marine Cadastre in Japan
Marine Cadastre in Japan

established and managed by JCG

Marine-related information

Social Information

Traffic Density

Environmental Information

Oceanographic Information

Marine Information

Infrastructure Information

Ocean Renewable Energy Information

Leisure activities

Ocean development

Environment protection

Users choose information and overlap them onto a map.

http://www.kaiyoudaichou.go.jp/
Information items in Marine Cadastre

More than 100 items are available

- **Social activity information**
  - Traffic volume, historic sites, natural treasures, fishery rights area, traffic route, fishery port area, U.S military exercises area, national park area,…

- **Infrastructure information**
  - Thermal power station, seabed pipes, cables, lights, Coast Guard offices,…

- **Marine environmental information**
  - Sunken vessels, obstructions, birds habitats, turtles spawn area, beach, coastal shoreline sensitivity…

- **Oceanographic information**
  - Bathymetric data, temperature, salinity, currents, contour line of them
Marine Cadastre: screen shots

Traffic routes, volume
Sunken vessels
Marine Cadastre: screen shots

National park area
Turtles spawn area
Coastal shoreline sensitivity
Marine Cadastre: screen shots

Marine energy potential map (wave height)
Marine Cadastre: screen shots

Marine energy potential map (wind)
Marine Cadastre: screen shots

Tidal stations (linked to real-time data)
Marine Cadastre in 2nd Basic Plan on Ocean Policy (2013-present)

Integration of marine-related information is picked up as “Measures to be Intensively Promoted (1-2)”.

1-3.(3)
- Take measures including improvement and strengthening of the Marine Information Clearing House and the Marine Cadastre and development of systems for analyzing and visualizing data in order to further increase use of marine information.

2-1.(2)
- To facilitate the use of marine renewable energy, take initiatives to improve Marine Cadastre and strengthen their functions.

2-6.(2)
- From a perspective of encourage sharing of marine-related information, improve the Marine Cadastre, in which marine-related information is visualized, selected and merged on geographic maps, and enhance its functions.
Stepwise integration of marine-related data and information

Integration of meta-data
Clearing-House
Moderate cooperation among related organizations

Integration of information into GIS
Marine Cadastre
High-level cooperation among related organizations

Utilization of the information
Marine Cadastre
utilized for regulation or coordination on the use of maritime area

Wind Energy Planning

Education
Future Issues
Future issues

• Further improvements and utilization of the Marine Cadastre

• Discussions with realization of Maritime Domain Awareness
  – MDA: a concept originally developed for maritime security in the US
  – Utilization of satellite data
  – More focus on real-time information

MDA defined in Japan (tentative translation)
“An effective understanding of marine-related situations and circumstances through the efficient collection and sharing of a variety of marine-related information conducive to Japan’s maritime security, marine safety, natural disaster countermeasures, the marine environment conservation, the promotion of marine industries, and the development of science and technology, while paying attention to the handling thereof.”
Summary
Summary

• With the situation where marine-related information is widely scattered in different organizations in Japan, “Integration of marine-related information” was described as important issues on the “Basic Plan on Ocean Policy” in 2008.

• For visualization and utilization of the integrated marine-related information, Marine Cadastre was launched in 2012 by JCG.

• The Marine Cadastre is utilized for ocean policy promotion such as the development of marine renewable energy.

• Further improvements of the Marine Cadastre together with the discussions of maritime domain awareness is necessary.
Thank you for your attention!