COMMON VISION CONFERENCE 2016
MIGRATION TO A SMART WORLD

MARINE SPATIAL PLANNING & MARINE CADASTRE: CHALLENGES AND ISSUES

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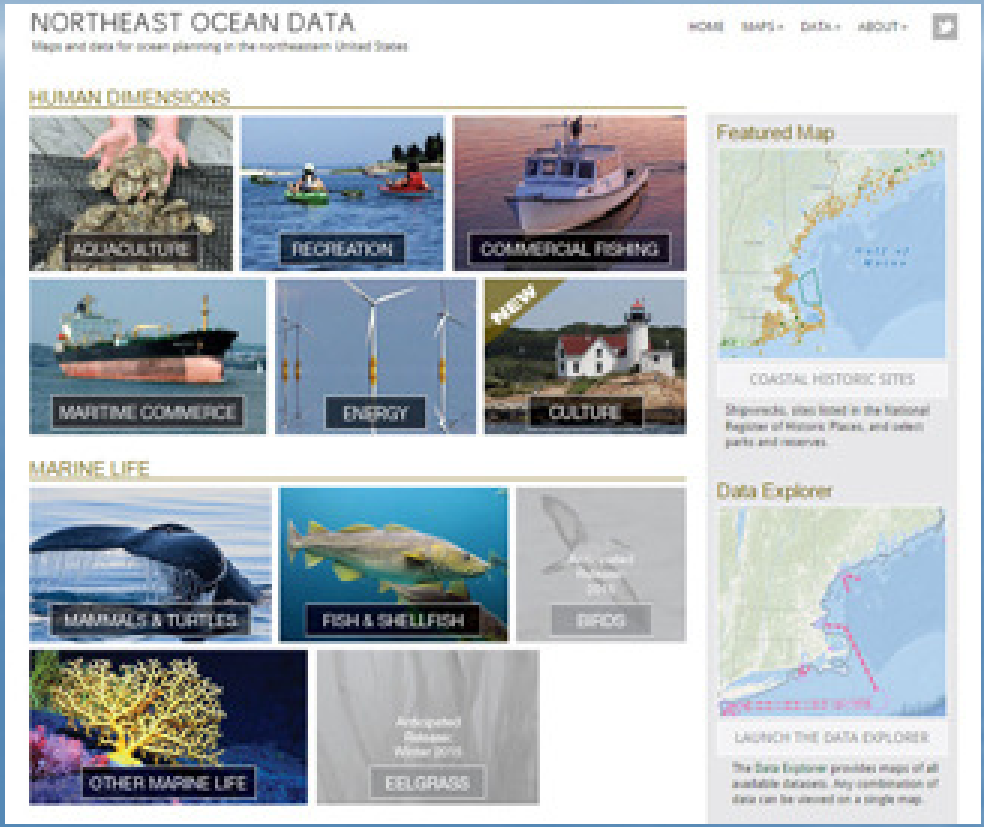
CHALLENGES FOR MSP

- **Multiple themes required in Marine Spatial Planning**
- **Multiple Jurisdictions & Multiple Agencies**
- **Data Issues – Cost, Governance, Access, Management**
- **EU Responses – MSFD & MSP Directive**



MARINE SPATIAL PLANNING

EU Marine Spatial Planning Directive (July 2014)

- **Article 3 - (2) 'maritime spatial planning' means a process by which the relevant Member State's authorities analyse and organise human activities in marine areas to achieve ecological, economic and social objectives;**
- **Article 4 - 2. In doing so, Member States shall take into account <u>land-sea interactions</u>.**

"… in the marine environment, the <u>terminology of cadastre is still unclear</u> because there are problems like discontinuity between land and marine cadastre, standards, technical and legal institutional aspects."

"Marine cadastre and spatial data infrastructures in marine environment" (2002)

MARINE CADASTRE ISSUES AND MSP

- **The concept of tenure does not exist at sea or varies in different marine locations.**
- **It is not possible to use classical means of boundary demarcation offshore.**
- **The marine environment is three dimensional – classical 2D simplifications will not suffice.**
- **It is common for multiple, overlapping rights to exist in a single location.**
- **Rights can vary with time, adding a fourth dimension to the spatial data.**
- **The baseline to which many maritime boundaries are related is ambulatory.**

"A marine cadastre should be considered as part of spatial data infrastructures, considering its importance for coastal and marine stakeholders. Then, these spatial data should be easily accessed to get the basic dynamic information."

(Williamson et al, 2002)

MULTIPLE JURISDICTIONS & AGENCIES

"Regional planning bodies <u>are not regulatory bodies</u> and have no independent legal authority to regulate or otherwise direct Federal, State, tribal, or local government actions. All activities will <u>continue to be regulated under existing authorities</u>."

USA - https://www.whitehouse.gov/administration/eop/oceans/marine-planning

US Office for Coastal Management – Digital Coast - <u>Contributing Partners</u>

- **Non-governmental (77)**
- **Academia (59)**
- **Private (42)**
- **Federal (92)**
- **State (81)**
- **County (43)**

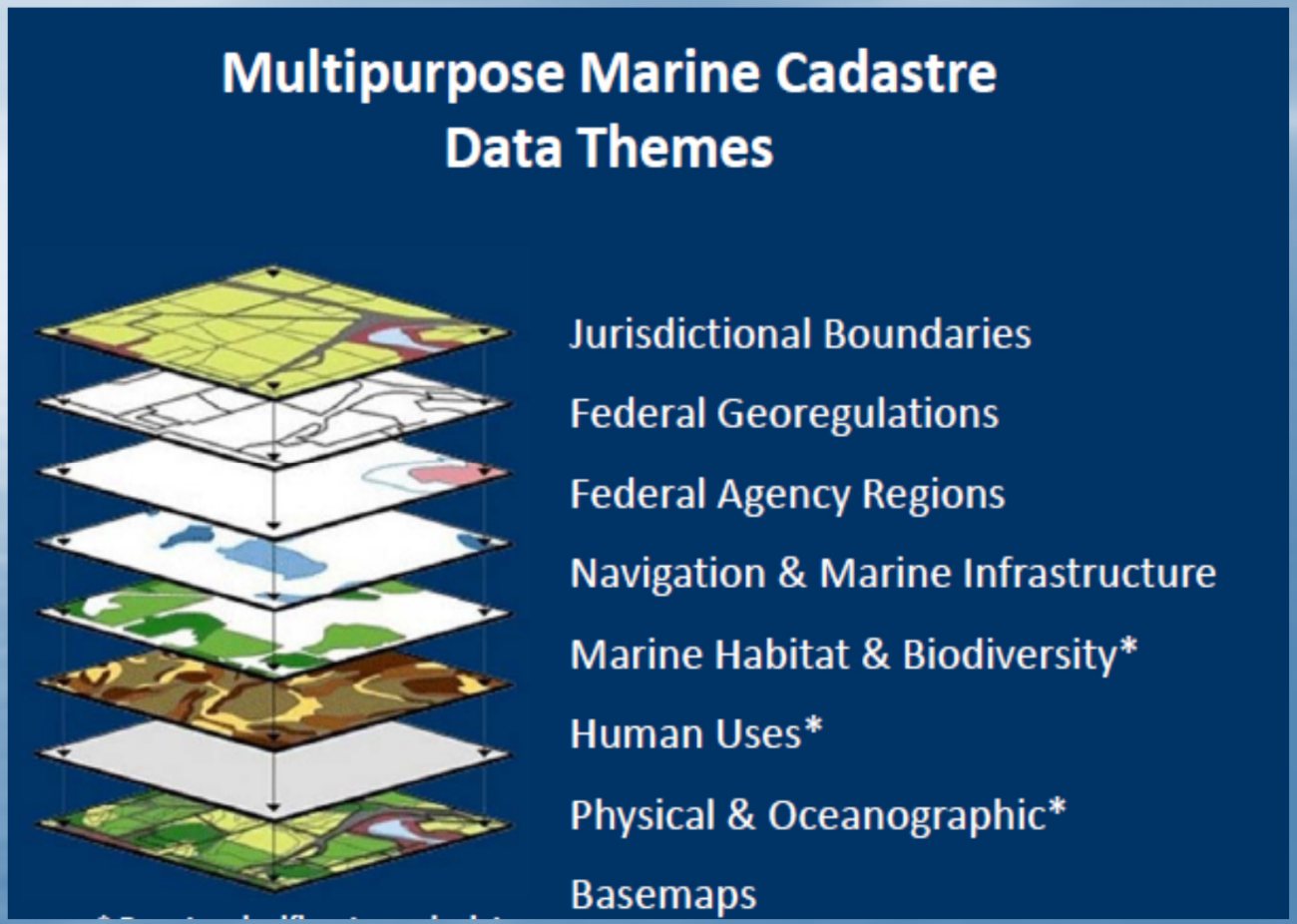
See the full list here: https://coast.noaa.gov/digitalcoast/contributing-partners/

MARINE SPATIAL PLANNING THEMES

- aquaculture areas
- fishing areas
- installations and infrastructures for the exploration, exploitation and extraction of oil, of gas and other energy resources, of minerals and aggregates, and for the production of energy from renewable sources
- nature and species conservation sites and protected areas
- maritime transport routes and traffic flows
- submarine cable and pipeline routes
- raw material extraction areas
- military training areas
- scientific research
- tourism
- underwater cultural heritage

from the EU Marine Spatial Planning Directive

MARINE DATA CHALLENGES - THEMES



MSP Themes:

- aquaculture areas
- fishing areas
- oil, of gas and other energy resources
- minerals and aggregates
- production of energy from renewable sources
- nature and species conservation sites and protected areas
- maritime transport routes and traffic flows
- submarine cable and pipeline routes
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MARINE DATA CHALLENGES - LEGAL BASIS

- EU Maritime Policy has no explicit legal basis in the Treaty of Rome as exists in other sectors, such as agriculture, transport, etc., so…
- … implementation of different elements of the EU Marine Strategy Framework Directive (MSFD) and Marine Spatial Planning (MSP) Directive rely on specific Treaty provisions that most closely relate to the proposed policy initiatives.
- The data components (data, tools, management, etc.) are then enacted (typically) via Regulations – but not always in detail and with multiple enforcement regimes (whether EU-wide or national).

MSP DATA CHALLENGES - STANDARDISATION & CONFORMANCE

MSP Directive - Article 10 - Data use and sharing

1. Member States shall organise the use of the best available data, <u>and decide how to organise the sharing of information</u>, necessary for maritime spatial plans.

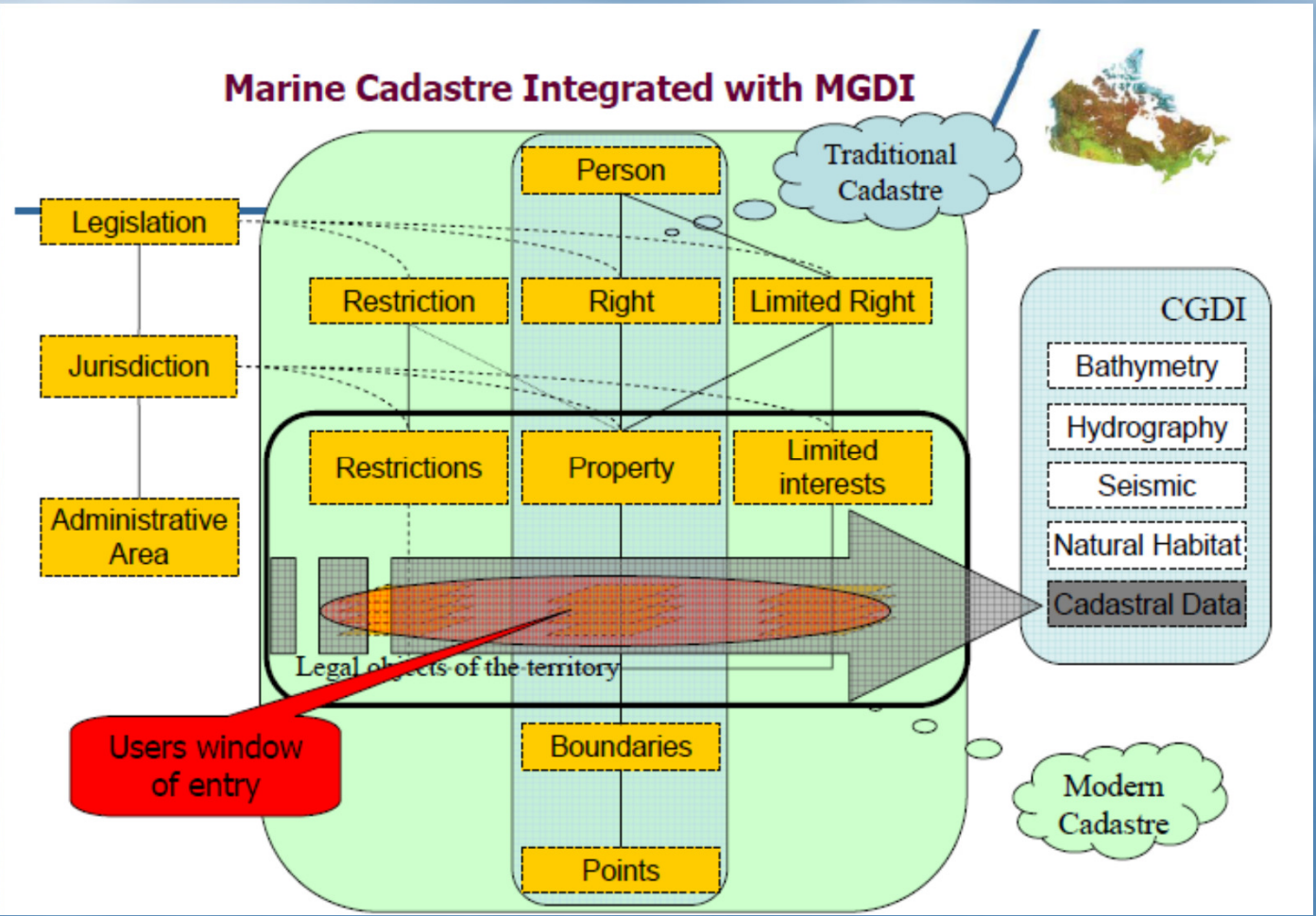
2. The data referred to in paragraph 1 may include, inter alia:

(a) environmental, social and economic data collected in accordance with Union legislation pertaining to the activities referred to in Article 8;

(b) <u>marine physical data</u> about marine waters.

3. When implementing paragraph 1, Member States shall make use of relevant instruments and tools, including those already available under the IMP, and under other relevant Union policies, such as those mentioned in Directive 2007/2/EC (<u>INSPIRE</u>).

MARINE DATA CHALLENGES - INTEGRATION



1. Marine Cadastre components are critical for implementation of marine spatial plans.
2. Data, jurisdictions and legal issues all overlap with MSP requirements.
3. Integrated spatial data infrastructures (SDI) encompassing both marine and terrestrial data are key enablers for both marine cadastre and MSP.

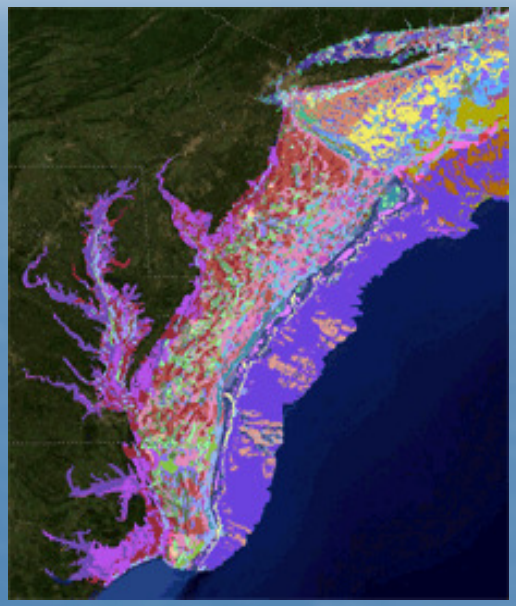
MARINE SPATIAL DATA INFRASTRUCTURE (SDI)

A Marine Spatial Data Infrastructure (MSDI) is that element of an SDI that focuses on the marine input to SDIs in terms of governance, standards, ICT and content.

The concept of MSDI is gaining wider appreciation in terms of the way a variety of data types might be combined for efficient analysis by a wide range of disciplines, such as spatial planning, environmental management and emergency response.

This requires the data to be held in a generic way, rather than for a particular product for a limited user group or for a specific purpose.

An MSDI is … an infrastructure that promotes interoperability of data at all levels.



from Spatial Data Infrastructures –"The Marine Dimension"

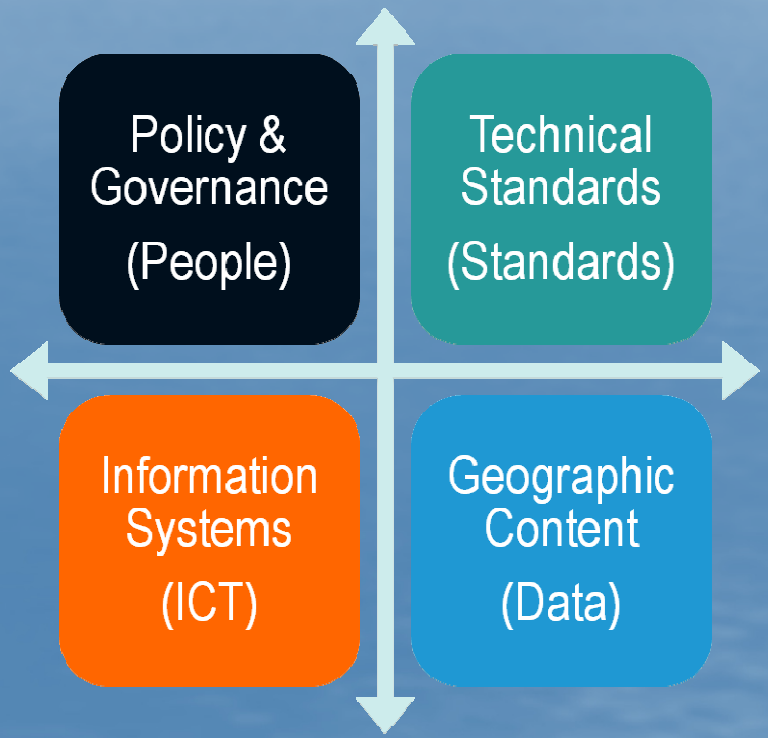
Guidance for Hydrographic Offices - IHO Publication C-17 - Edition 2.0 - April 2016

IHO MARINE DATA STANDARDS

(New) S-100 Framework Data Structure for Hydrographic and Related Data

- *broad geospatial framework structure*
- *not specific to navigation or charting*
- *capable of accommodating other requirements*
- *based on ISO 19100 series of geographic information standards*
- *will support development of Marine SDIs globally*
- *marine cadastre is one of the first sub-components to be developed*

MSDI Pillars



THE BIGGEST CHALLENGES?

1. **Marine Spatial Planning (MSP) requires far more data from far more data sources (creators, owners, custodians, public and private) than is provided within marine cadastre initiatives, programmes and systems alone.**
2. **Yet marine cadastre provides one of the most (if not <u>the</u> most) important underpinning data sources to enable MSP implementation**
   - **How do you <u>plan</u> without boundaries and related cadastre information?**
3. **The very complexity of MSP, involving <u>land-sea interactions</u>, significantly complicates the legal, jurisdictional and data management requirements for both marine cadastre and MSP.**

THANK YOU FOR YOUR ATTENTION!

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