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# **S121 – Maritime Limits and Boundaries (MLB)**

**Leveraging ISO 19152  
Land Administration Domain Model  
(LADM)**

# Presentation Outline

## 1. IHO S121 – MLB

- S121 Project
- S121 Data Model

## 2. ISO 19152 – LADM

- ISO19152 Project
- ISO19152 Data Model

## 3. Leveraging ISO 19152

- Administration
  - BAUnits, RRR, Party
- Other aspects
  - Source, Version

## 4. Challenges

- Broaden definition of Spatial Unit
- Unique Right Association

# S121 – Maritime Limits and Boundaries (MLB)

A standard to support the management, description and exchange of a State's Maritime Sovereignty, Sovereign right extents and associated juridical zones

(as described under the United Nations Convention on the Law of the Sea (UNCLOS))

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# S121 Project Team

50 Members representing:

- 13 Member States

- 9 active

- 6 International Body Members, Liaison and Bodies of Interest

- UN (DOALOS, GGIM), IHO (ABLOS, IHB, S100)
- ISO (TC211, 19152 LADM), INSPIRE, OGC

- 6 Observing Industry Members

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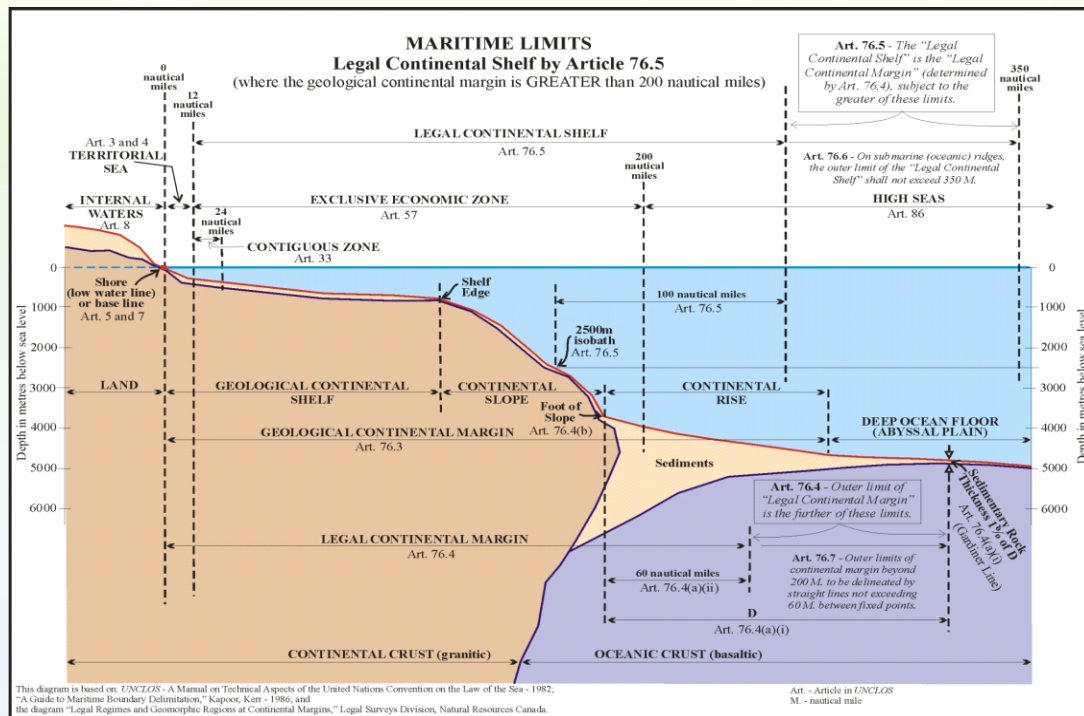
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# S121 Project Status

- Consolidated and agreed on the core features of the model (Dec. 2016).
- Discussed core feature attributes and the integration of ISO19152 (Sept. 2017).
- Functional Conceptual and Implementation model available online (HTML and EA files) (Dec. 2017)
- Draft Product Specification and Draft Encoding documents (Dec. 2017)
- Implementation Guidelines for ArcGIS and QGIS (2018)
- Fine tune the model with all stakeholders (2018)
- Reach an agreement on the OGC pilot strategy (2018)

# Maritime Limits and Boundaries

As defined in the **United Nations Convention on the Law Of the Sea (UNCLOS)**, Maritime Limits and Boundaries are used to define a set of zones used to establish jurisdiction and management of the sea.



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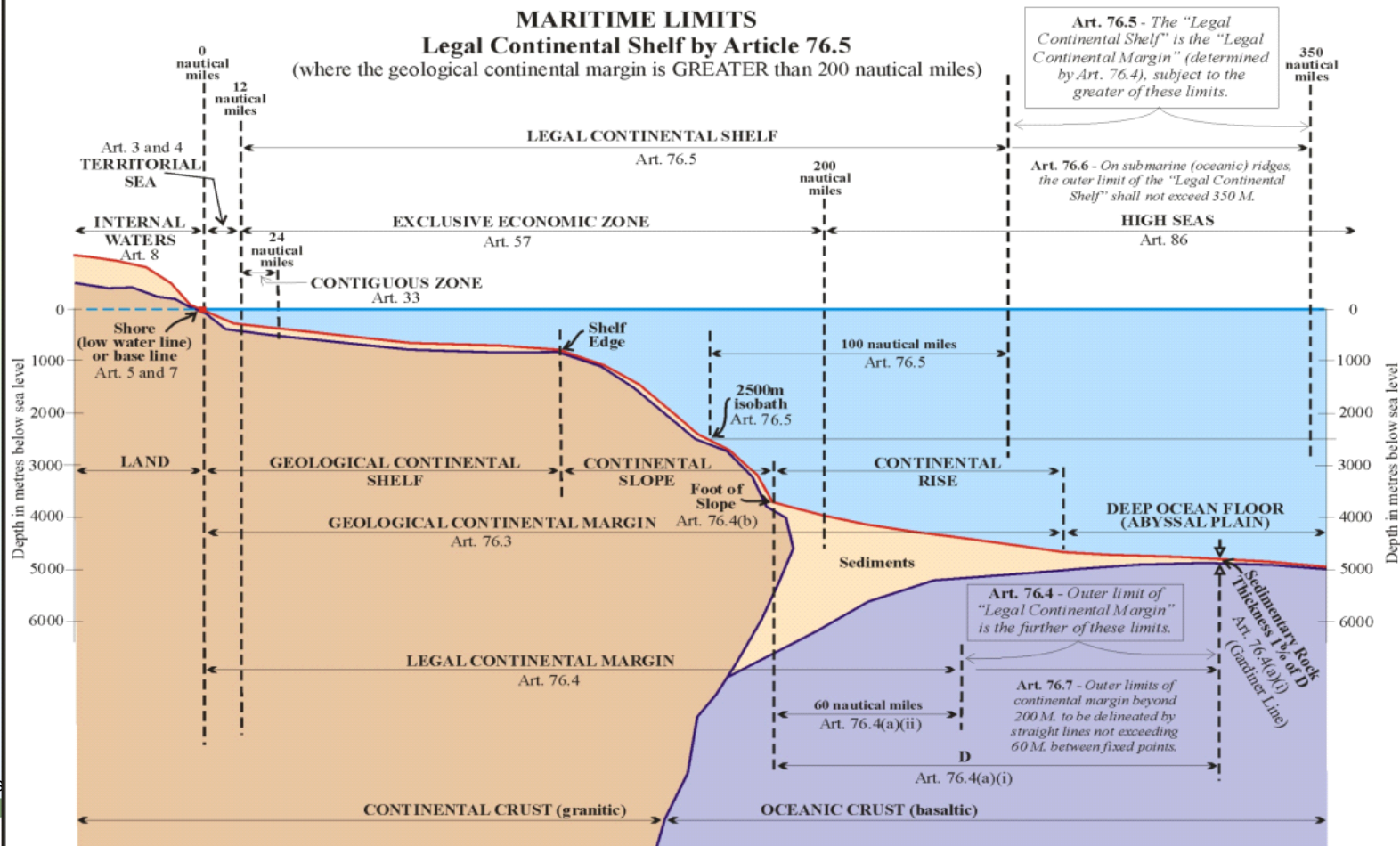
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# MARITIME LIMITS

## Legal Continental Shelf by Article 76.5

(where the geological continental margin is GREATER than 200 nautical miles)



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This diagram is based on: *UNCLOS - A Manual on Technical Aspects of the United Nations Convention on the Law of the Sea - 1982*; "A Guide to Maritime Boundary Delimitation," Kapoor, Kerr - 1986; and the diagram "Legal Regimes and Geomorphic Regions at Continental Margins," Legal Surveys Division, Natural Resources Canada.

Art. - Article in UNCLOS  
M. - nautical mile



# S-121 Strategy



Build on existing standards:

- Facilitate development
- Maximize interoperability
- Maximize extensibility

**ISO 19152 – LADM**  
**Land Administration**  
**Domain Model**

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# ISO19152 – Land Administration Domain Model (LADM)

- *Objectives*

1. Conceptual model for building Land Administration systems  
Not a data product specification
2. Basis for communication (a Land Administration terminology)  
Shared vocabulary for describing land administration systems

- *Basic components*

1. Persons and organizations (*'Parties'*)
2. Rights, restrictions and responsibilities (*'RRR'*)
3. Parcels, buildings and construction works (*'Spatial Units'*)
4. Surveying
5. Geometry and Mapping

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# ISO19152 – Project Team

## TC211 – Geographic Information

### – 32 Country members

- 9 active

### – 3 Liaison members

- FIG, UN (Habitat, GGIM), JRC
- Many more are joining (OGC, World Bank, IHO, etc.)

# ISO19152 – Project Status

- 2008-2011
  - FIG submits LADM as a proposal to ISO/TC 211 (Technical Committee on Geographic Information)
  - Reviews, working drafts (WD), committee drafts (CD), Draft International Standard (DIS), and Final Draft (FDIS).
- 2012
  - International Standard is published  
ISO 19152:2012(E)
- 2017
  - Systematic Review

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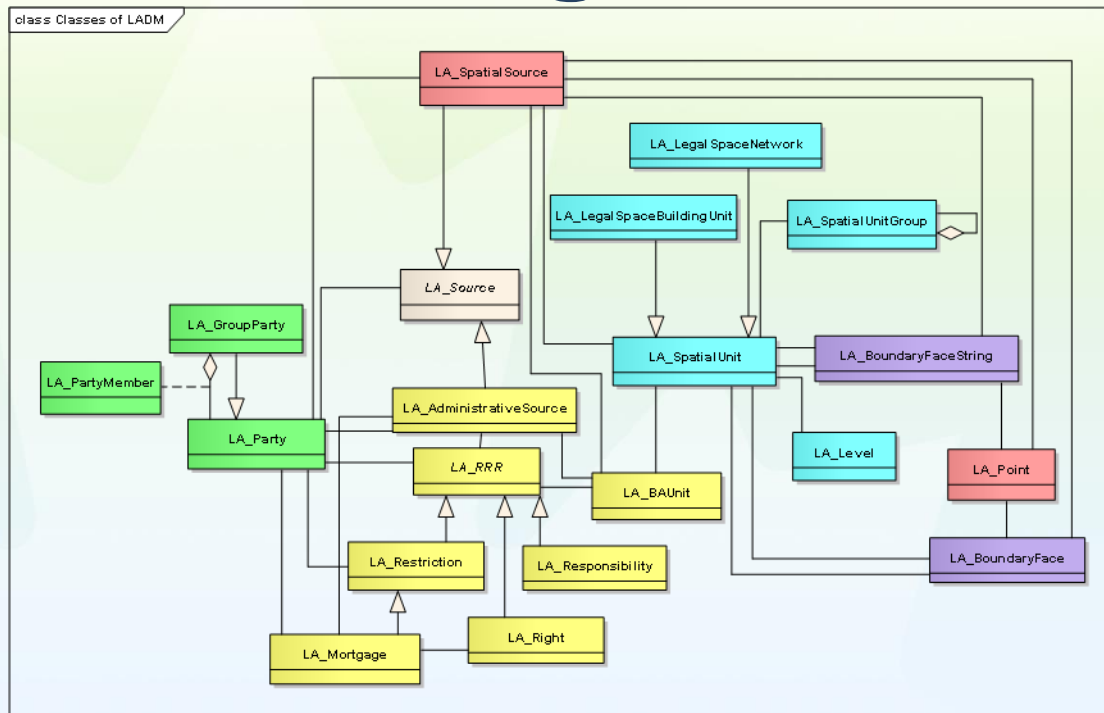
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# LADM - UML Diagram

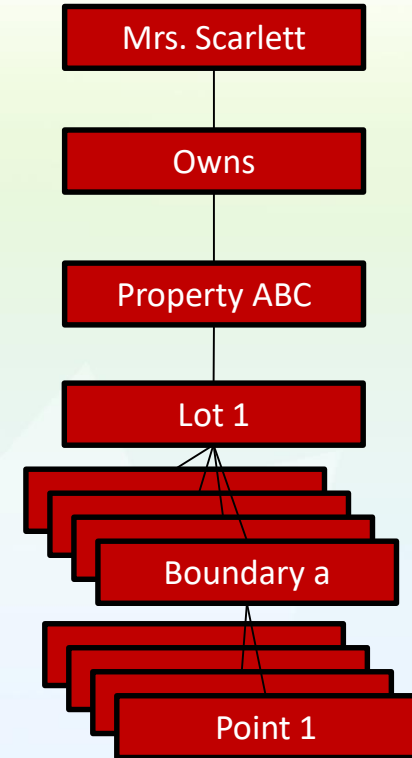
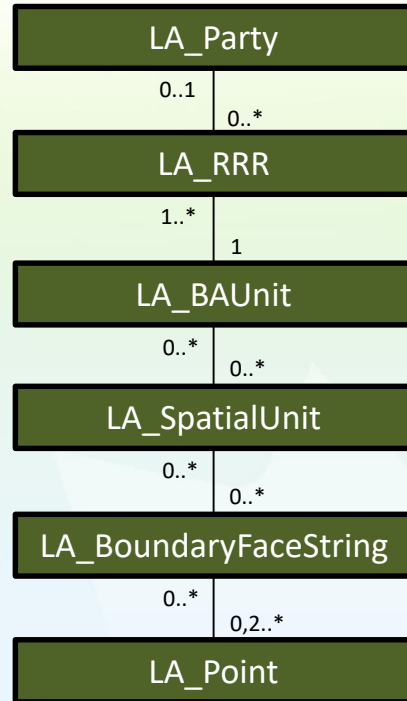
## Components

- Persons (green)
- Rights (yellow)
- Parcels (blue)
- Surveying (pink)
- Mapping (violet)



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# LADM Basic Model



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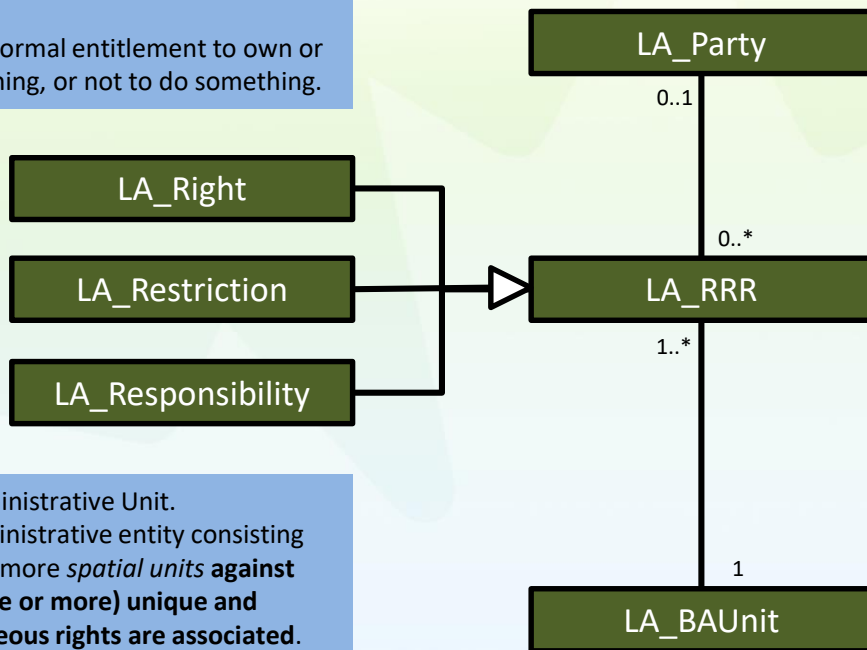
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# Rights, Restrictions, Responsibilities

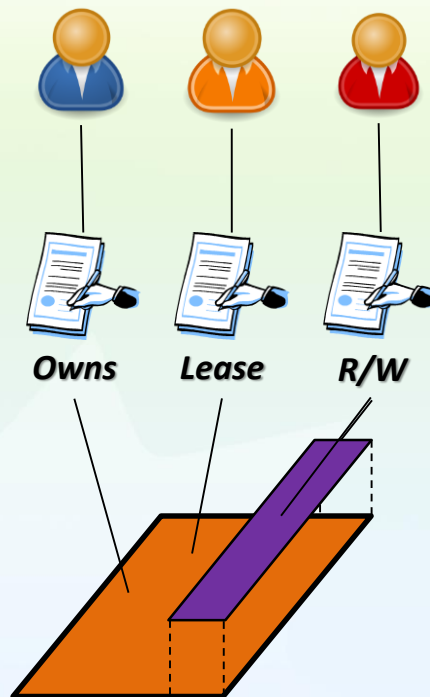
LA\_RRR

Formal or informal entitlement to own or to do something, or not to do something.



Basic Administrative Unit.

Legal administrative entity consisting of zero or more *spatial units* **against which (one or more) unique and homogeneous rights are associated.**



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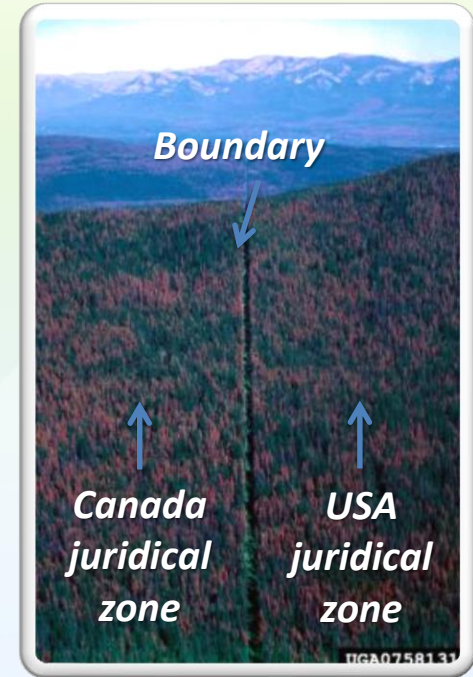
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# Leveraging the Basic Concept

- S121 - Maritime Limits and Boundaries is boundary centric.
- ISO19152 – Land Administration Domain Model is parcel centric
- A boundary is a limit of a zone or between two zones.



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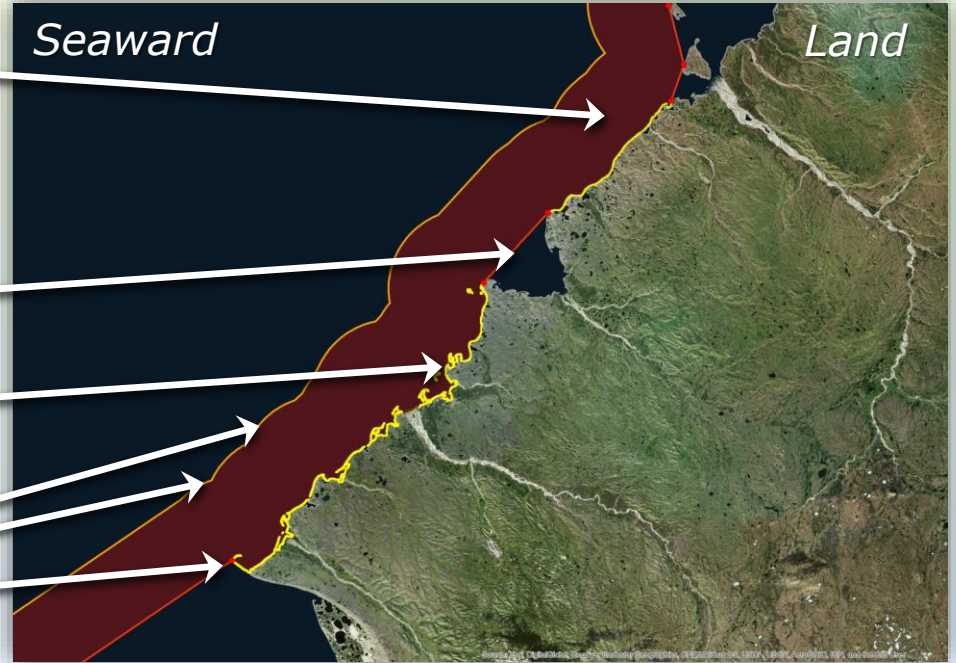
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# Basic Geometric Components

- Territorial Sea
- Limits
  - Straight Baseline
  - Normal Baseline
  - Territorial Sea Limit
- Points



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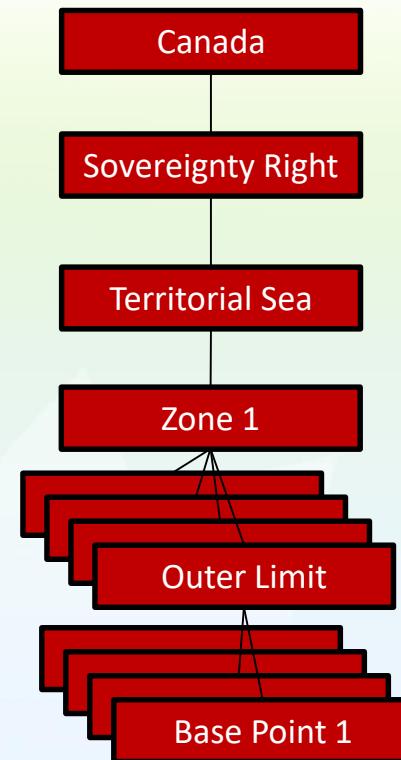
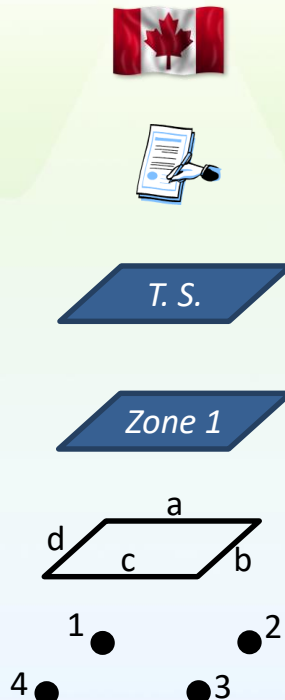
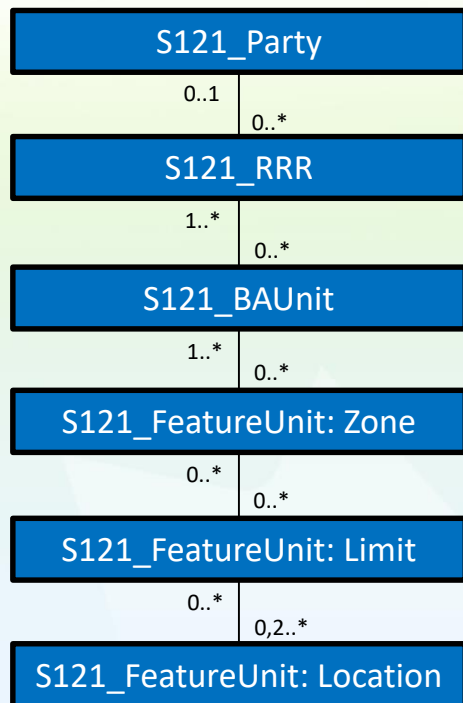


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# S121 Basic Model



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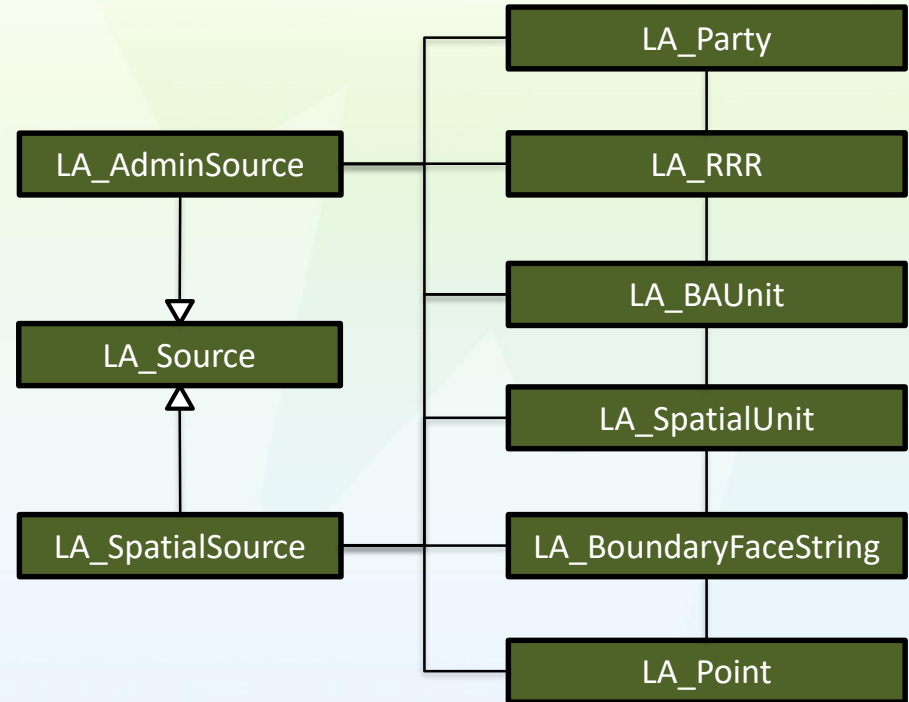
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# Leveraging Other LADM Concepts

- Source
  - Administrative Source
  - Spatial Source
- Versioned Object

# ISO19152 Source

- Source Type
- Document Type
- Source Reference
- Quality
- Dates:
  - Submission, Recorded, Authoritative
- Etc.

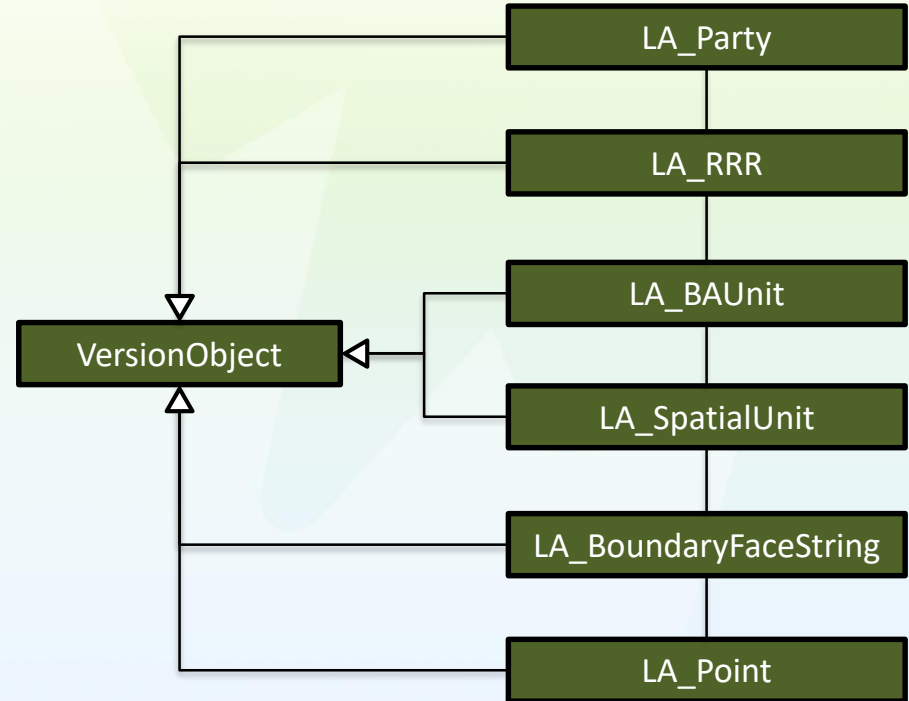


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# ISO19152 Versioned Object

- Start Lifespan
  - Mandatory
- End Lifespan
  - Optional



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# Challenges

- Broaden definition of Spatial Unit
- Unique right association too restrictive
- Admin and spatial source links too specific
- Code lists need to be defined
- Explicit instructions for the application/implementation
- Better alignment/integration with other ISO standards
- Governance to generate documents

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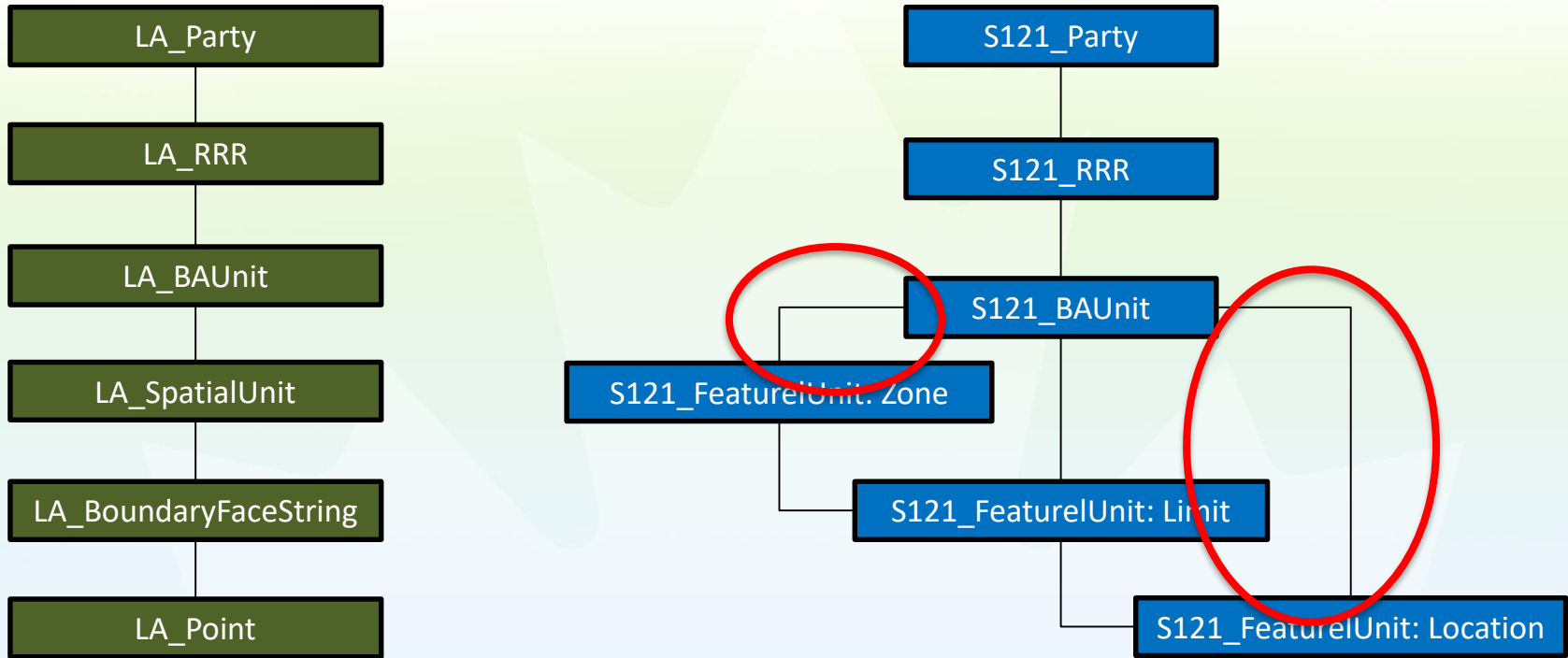


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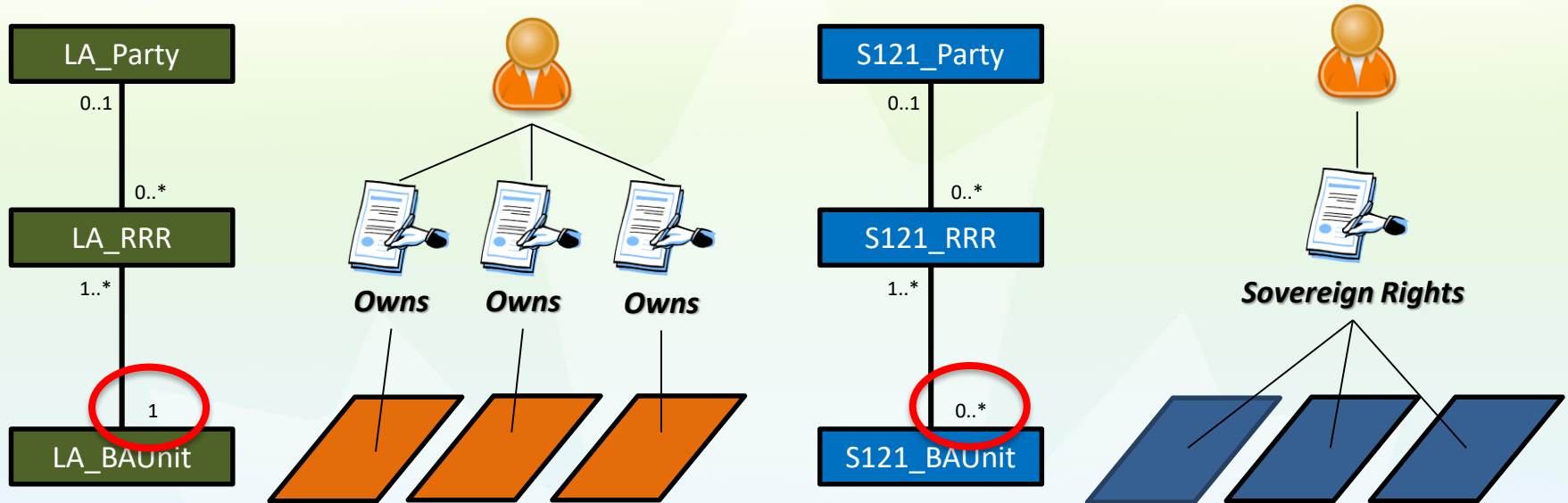
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# Broaden Definition of Spatial Unit



# Unique Right Association Too Restrictive



Basic Administrative Unit:

Legal administrative entity consisting of zero or more *spatial units* against which (one or more) unique and homogeneous rights are associated.

# Next Steps

- S121 Development Continues
  - Next meeting (March, August, Dec. 2018)
  - S121 OGC Pilot Projects (2018)
- Revision of ISO 19152 Initiated
  - Next meeting (April 2018)
  - FIG to prepare ISO19152 revision proposal (2018)

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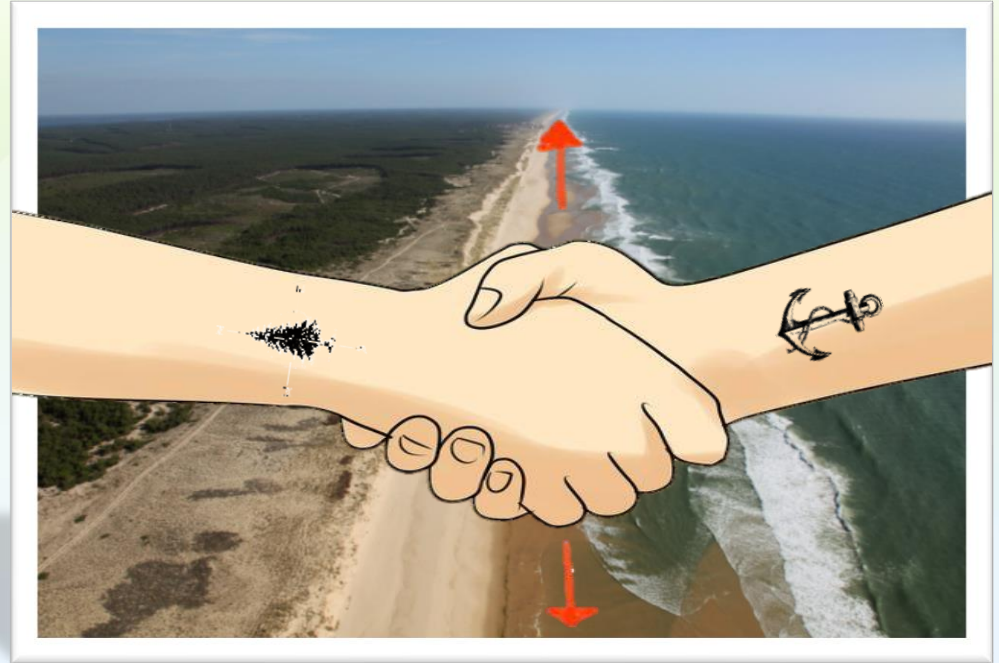
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# Improved interoperability

facilitate consistent administration of the marine spaces, littoral zones and land jurisdictions.



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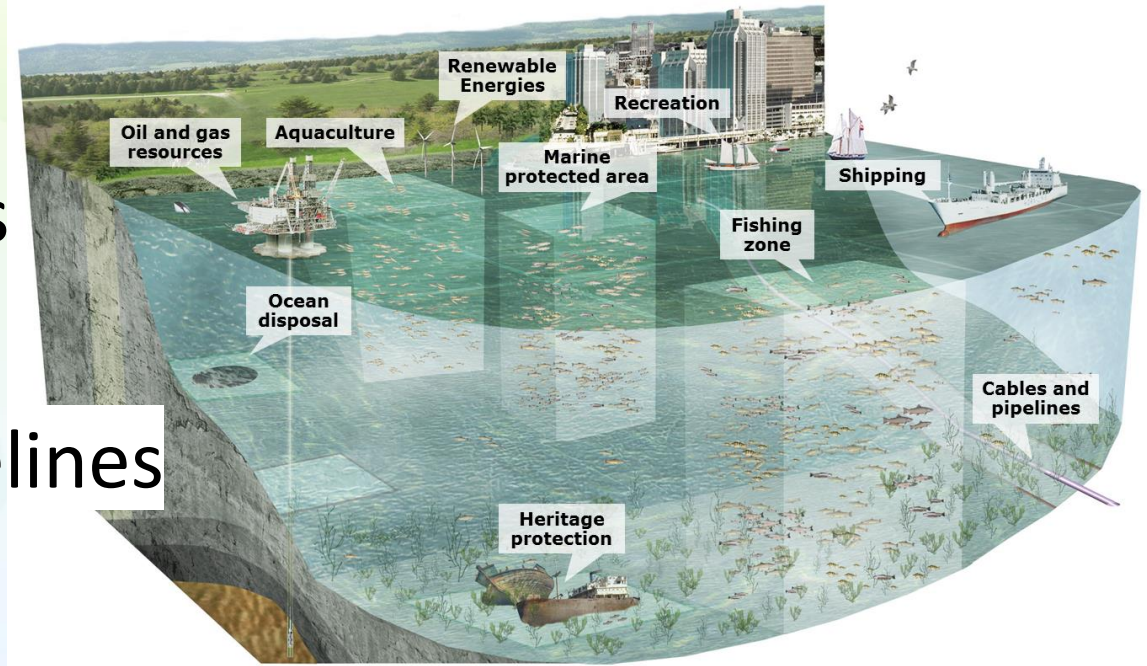
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# Improve Extensibility

- Resources
- Protected Areas
- Navigation
- Cables and Pipelines
- Etc.



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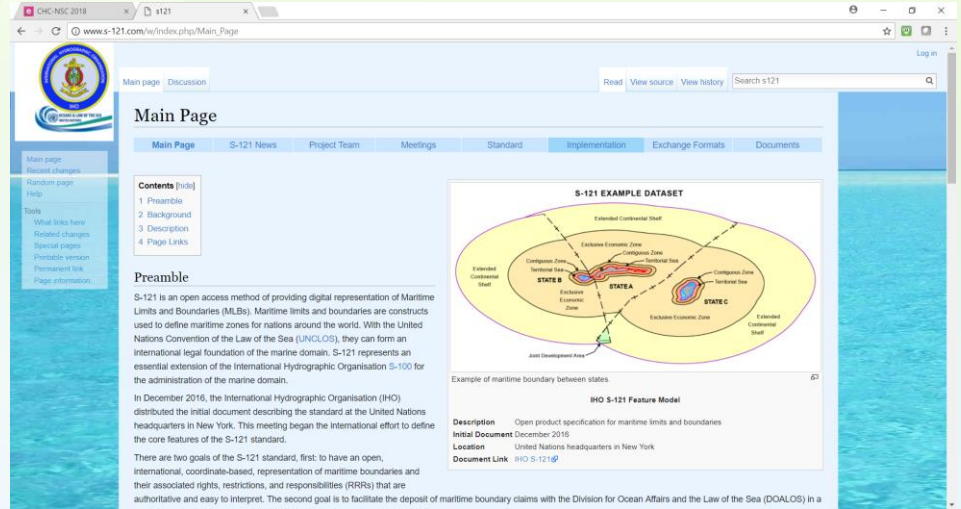
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# More Information

- [www.S-121.com](http://www.S-121.com)

- News
- Meetings
- Implementation
- Exchange formats
- Documentation



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