Delivering Legal Certainty for Electronic Marine Spatial Data

An Australian Perspective

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Problem

- Gap between legal and technical practice – the law has not adapted to the use of GIS data
- Changes in baseline spatial data are due to development in mapping ability, not changes in the coastline.
- For Australia, the geography is stable, baseline determination is maturing
- Imposes ongoing costs in administrating marine space
- Hinders innovation in Marine Spatial Planning
Golden rocks worth $5b to WA

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Response

1. Achieve legal certainty and long term stability in the location of maritime limits and boundaries through technical and legal response

2. A framework deployable by ALL States based on international standards

3. Integrated framework to implement maritime and terrestrial georegulation

4. Capacity to support smart uses – geofencing, integrated marine planning

5. Extensible to subsidiary regulatory zones – Fisheries, Petroleum, Minerals, Environment…
Methodology

• Law and technology - INTEGRATED from start
• DETERMINE geographic certainty of all coastal features
• INVEST in existing communities of practice
• MAXIMISE value of investment/data
• ENGAGE with regional States
• SHARE tools and experience to reduce cost adoption by other States
What does success look like

• Australia’s limits and boundaries declared electronically and available through DOALOS depository
• All coastal States work towards electronic deposit
• States of the South West Pacific achieve the same goal
• Extension of S-121 to subsidiary zones for managing Australia’s marine spaces – integrated marine cadastre
Timeline
2001 – Australia first release of digital maritime boundary data
2004 – Australia attempted submission of electronic Data to DOALOS
2005 – 1st Release of AMSIS
2009 – Australia committed to development of S-121
2010 – Australia commenced first principle review of domestic baselines
2018 – interim release of MLB data (Include Timor-Leste Boundary)
2019 –S-121 v1.0 release
2019 – complete mapping of baselines and commence intergovernmental consultation for transition
2021? – legislative amendments to implement delivery of electronic maritime limits for UNCLOS limits
Integrated bathymetry elevation modelling
Low tide composite of Australian coast

Guide investment in high cost data

Confirm all features identified and in correct location

Seamless view of littoral zone
All reefs in the GBR mapped with LADS Dec 2019

Aerial photography collection and analysis complete early 2020
Normalisation of Cartographic Practice

Convention recognises that baseline is sourced from cartographic source

Cartographic practice has important policy function – manages work effort and seasonal instability

Application of S4 can be undertaken by States without charting capability
All GRS80 datums are treated as equivalent for operational purposes. Digital datasets realised in GDA94 or ITRF2000 have been rigorously transformed to that datum.
The S-121 Standard
The data model as a foundation serving generic use cases

DATA MODEL

USE CASES

Navigation and Enforcement
Legal Declaration
Authoritative Public Data

Marine Spatial Data Infrastructure (MSDI)
Linking Legislation to Spatial Data

**Federal Register**
Authoritative Source of All National Legislation

**Australian Maritime Spatial Information System (AMSIS)**
Spatial Extension to FRL

- National Boundaries
- Petroleum
- Environment
- etc...........
One to One relationship

Seas and Submerged Lands Act

Seas and Submerged Lands Act spatial data
AMSIS/Cadastre

S-121 / ISO19152 infrastructure supporting all regulatory objects
Australian Development Path of S-121

AMSIS
S-121
ISO19152

S-121
MLB

S-122
Marine
Reserves

S-1xx ?
Fisheries
Priority
Development

S-1xx
Resources
titles ?

Integrate into
AMSIS framework
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