



Australian Government
Geoscience Australia



Delivering Legal Certainty for Electronic Marine Spatial Data

An Australian Perspective

Dr Stuart Minchin

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 administering marine space
- Hinders innovation in Marine Spatial Planning

Golden rocks worth \$5b to WA

Exclusive Andrew Probyn Federal Political Editor | The West Australian

Wednesday, 4 March 2015 6:45AM



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

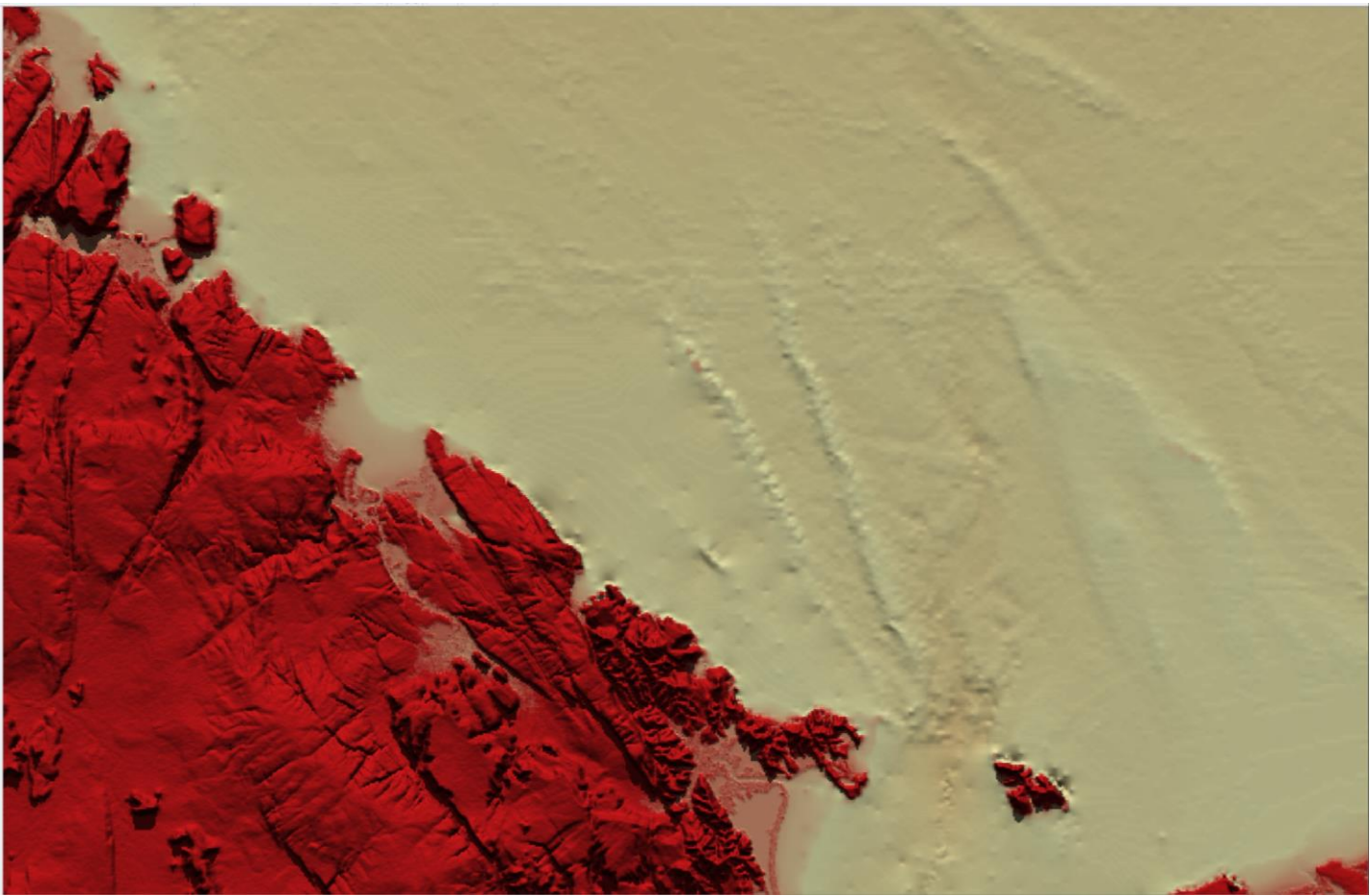
2010 – Australia commenced first principle review of domestic baselines

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



Australian Government

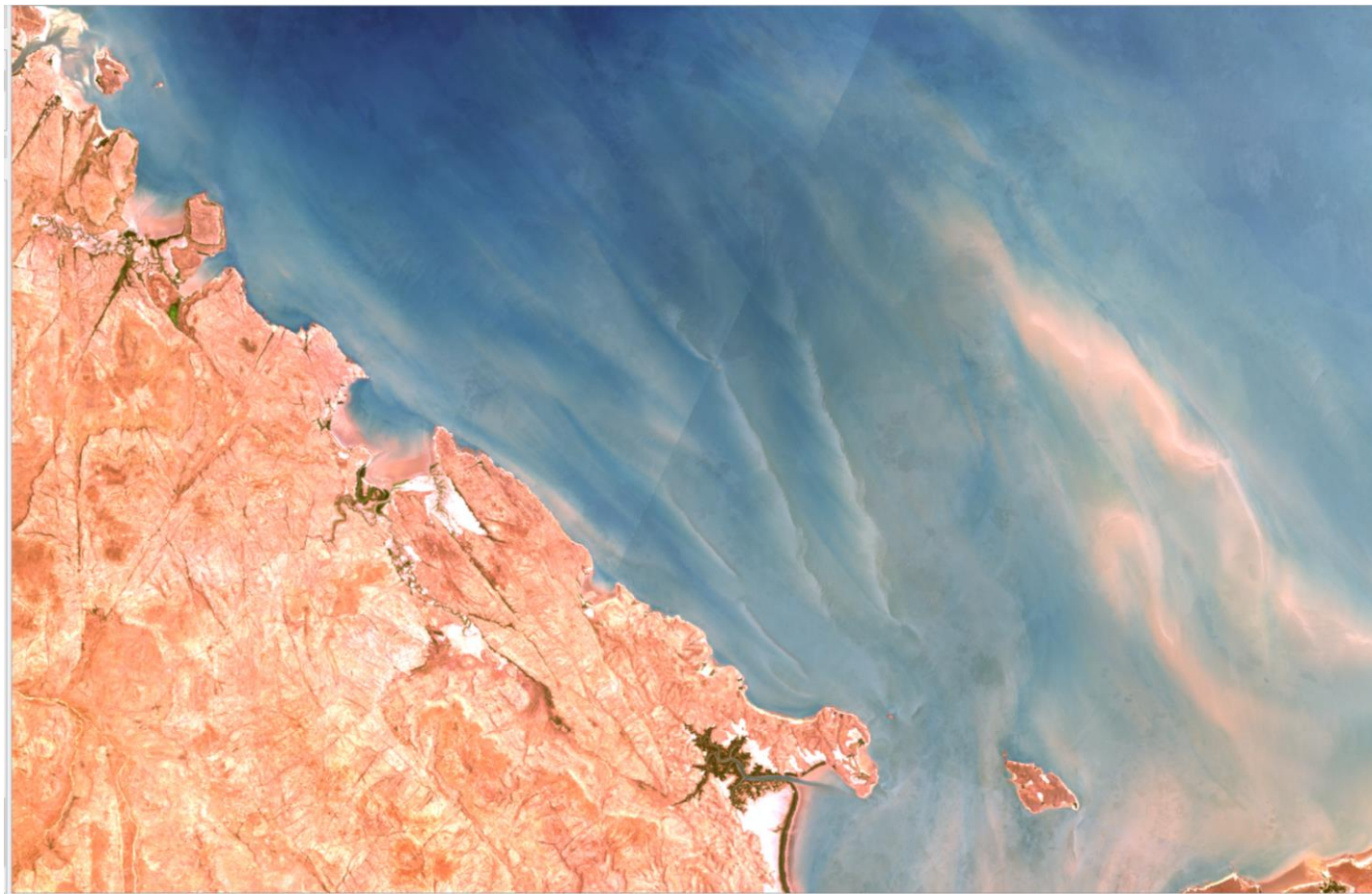
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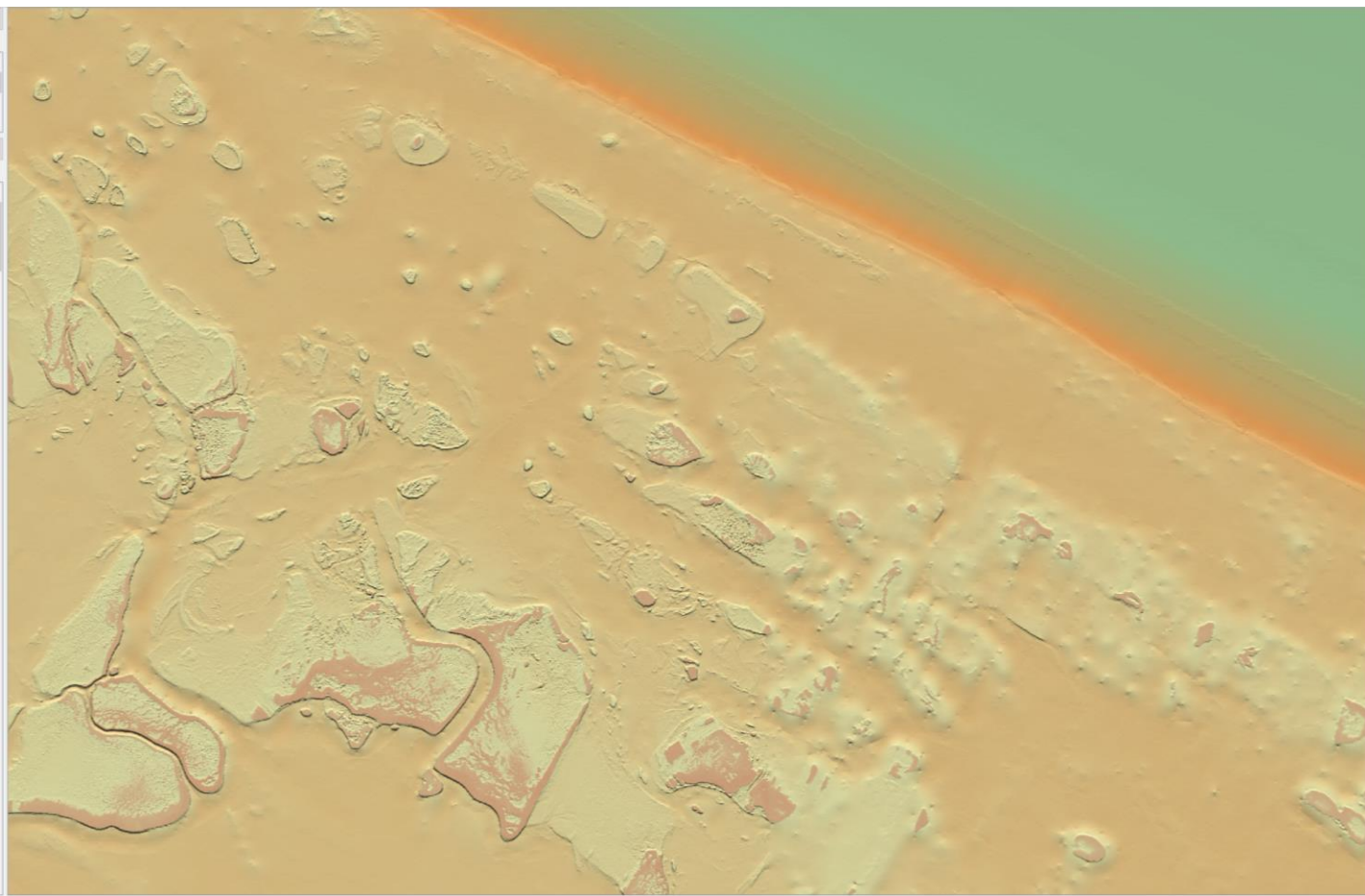
Low tide composite of Australian coast

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



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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

INTERNATIONAL HYDROGRAPHIC ORGANIZATION



REGULATIONS OF THE IHO FOR INTERNATIONAL (INT) CHARTS AND CHART SPECIFICATIONS OF THE IHO

Edition 4.7.0 – July 2017

(Publication date: July 2017)

AGD66

Obsolete

WGS72

Obsolete

WGS84

ITRF2000

Normalise

GDA94

Aust Nat Datum (ITRF 1992)

ITRF2000

GDA2020

/

ITRF2020

Dynamic

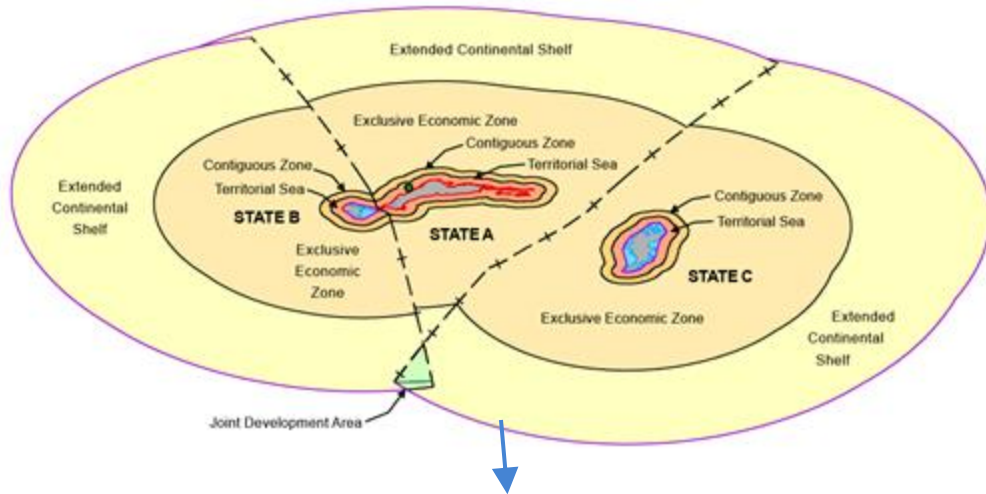
All GRS80 datums are treated as equivalent for operational purposes.

Digital datasets realised in GDA94 or ITR2000 have been rigorously transformed to that datum

The S-121 Standard

The data model as a foundation serving generic use cases

DATA MODEL



Marine Spatial Data Infrastructure (MSDI)

USE CASES

Navigation and Enforcement

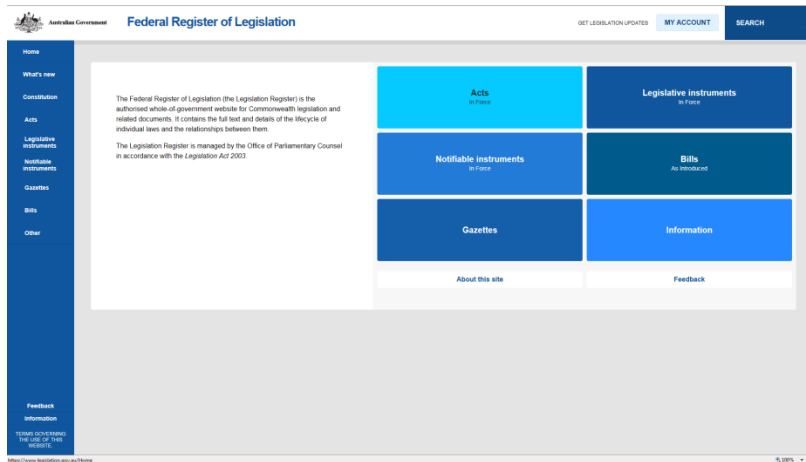
Legal Declaration

Authoritative Public Data

Linking Legislation to Spatial Data

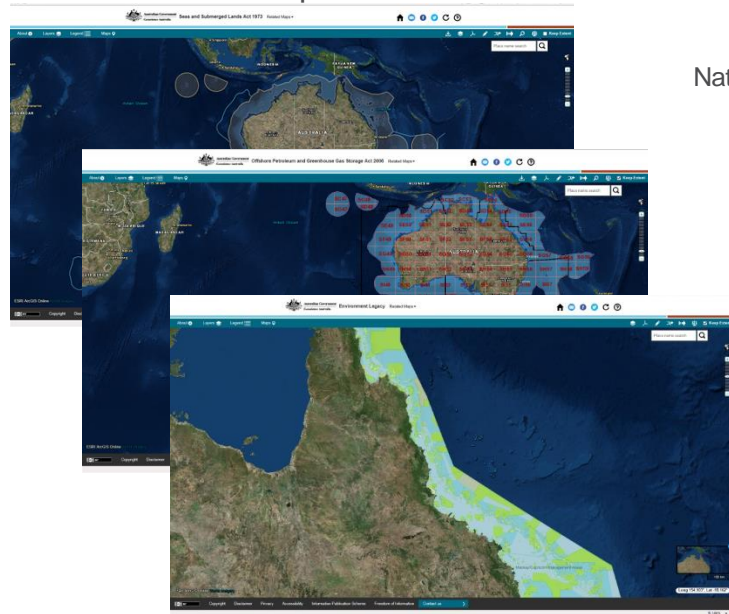
Federal Register

Authoritative Source of All National Legislation



Australian Maritime Spatial Information System (AMSIS)

Spatial Extension to FRL



National Boundaries

Petroleum

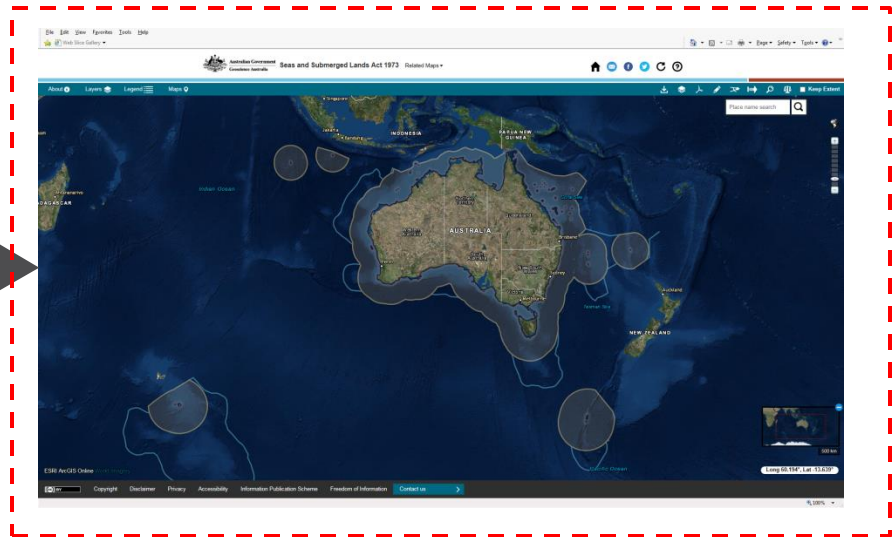
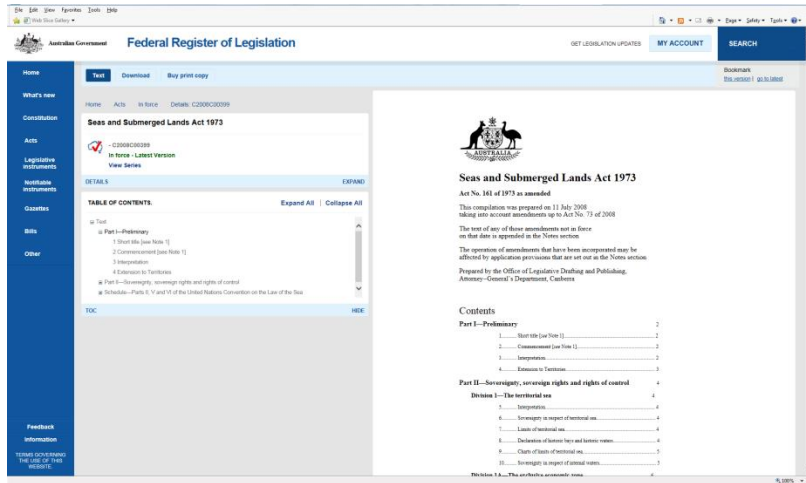
Environment

etc.....

One to One relationship

Seas and Submerged Lands Act

Seas and Submerged Lands Act spatial data



AM SIS/Cadastre

S-121 / ISO19152
infrastructure supporting all
regulatory objects

Content/Administration



Web
Visualisation

WMS/
WFS

Web
Services

Part 1
References to certain points by geographic
coordinates in terms of treaty datum or
International Terrestrial Reference Frame 2000
(if points not defined by treaty)

The line:
(a) commencing at point AUS-C-1 in the following table and running along the geodesic
sequentially connecting each point in the table and ending at the last point mentioned
AUS-C-125.

Point identifier	Latitude	Longitude	Treaty point reference(s)	Datum
AUS-C-1	10°59'00.0000"N	139°17'00.0000"E	(1)	AGRS90
AUS-C-2	11°00'00.0000"N	139°17'00.0000"E	(1)	AGRS90
AUS-C-3	10°59'00.0000"N	140°00'00.0000"E	(1)	AGRS90
AUS-C-4	09°40'00.0000"N	142°00'00.0000"E	(1)	AGRS90
AUS-C-5	09°40'00.0000"N	142°00'00.0000"E	(1)	AGRS90
AUS-C-6	09°40'00.0000"N	142°00'00.0000"E	(1)	AGRS90

Text



Navigation
Overlay

Carrier/Delivery

Australian Development Path of S-121

AMSIS

S-121

ISO19152

S-121

MLB

S-122
Marine
Reserves

Integrate into
AMSIS
framework

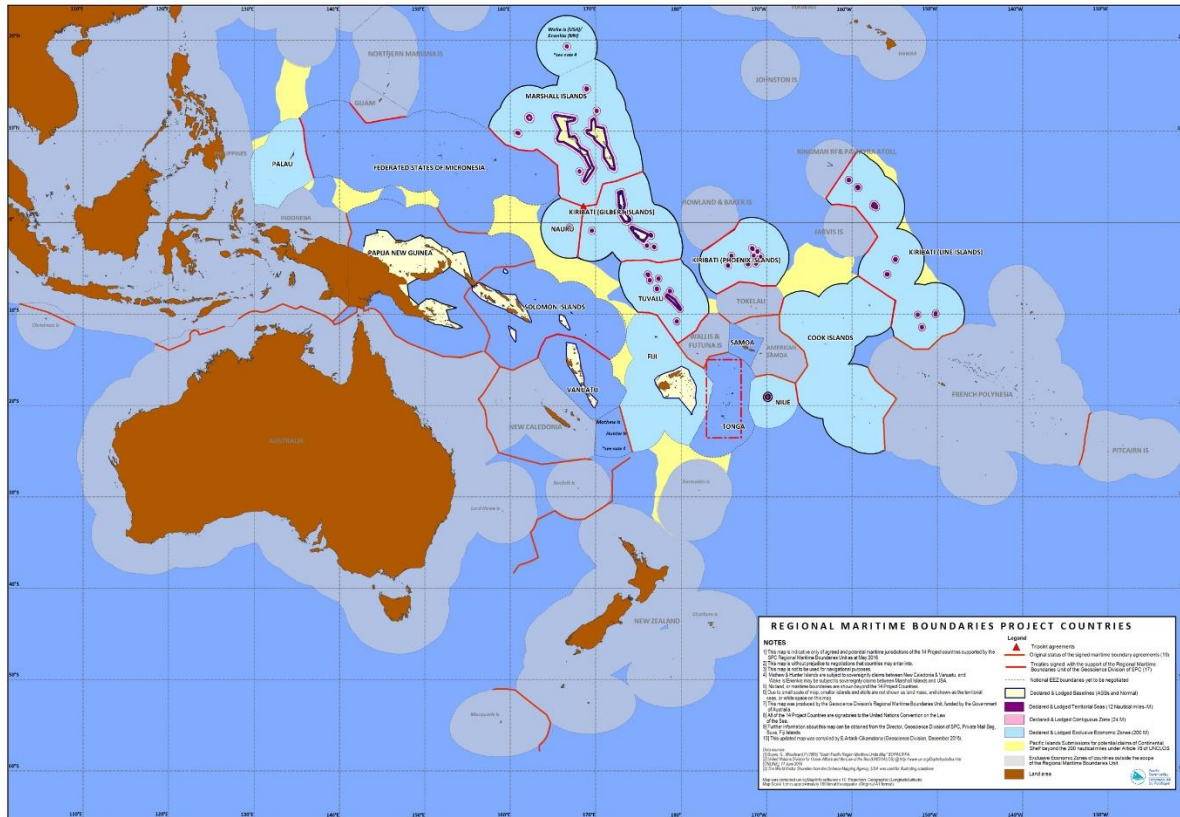
S-1xx ?
Fisheries
**Priority
Development**



S-1xx
Resources
titles ?



Regional Engagement



Australian Government



COMMONWEALTH
SECRETARIAT

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