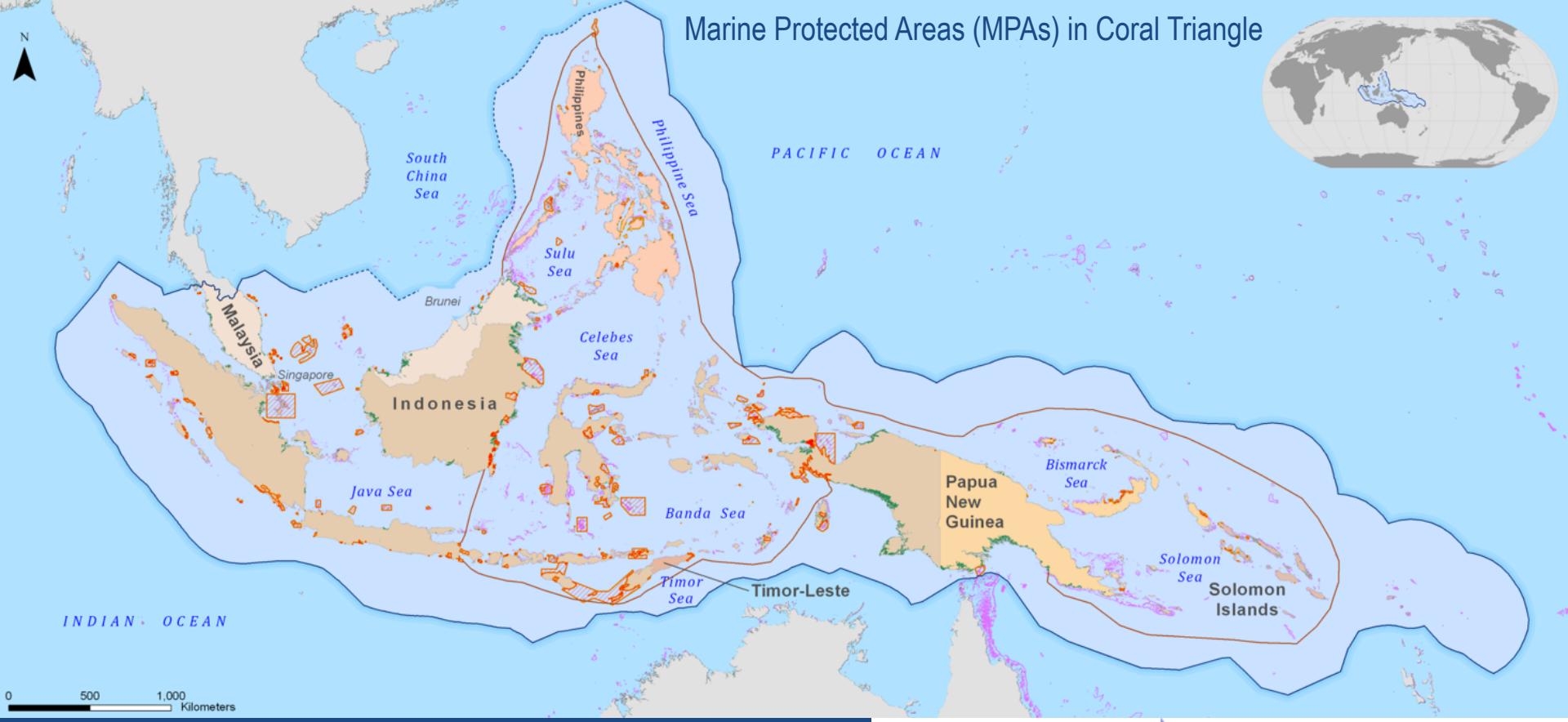


The Coral Triangle Atlas 2.0

Shwu Jiau Teoh, Nurulhuda Ahmad Fatan, Stanley Tan

November 2019

CORAL TRIANGLE ATLAS

CORAL TRIANGLE INITIATIVE ON CORAL REEFS, FISHERIES AND FOOD SECURITY

WorldFish

The Coral Triangle Atlas (CT Atlas)

Vision: To provide a common platform for all the countries in the Coral Triangle to share their data, and to create a growing, updated database for better marine resource management decisions and science

The Coral Triangle Atlas portal:

2009-2013:

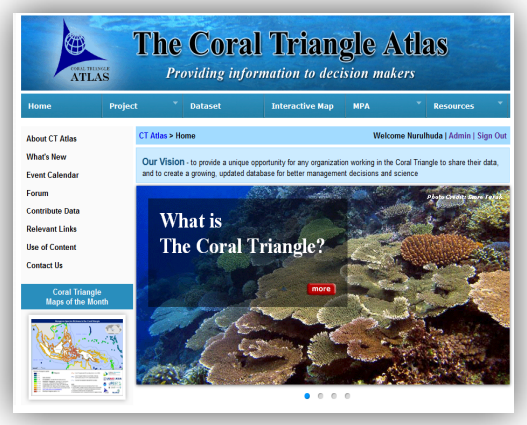
- Created through support from CTI-CTSP
- CT Atlas team – TNC, WWF, WorldFish

2013-2019:

- WorldFish continue hosting the website

2019-2020:

- CTI-CFF Regional Secretariat contracted WorldFish to do the CT Atlas website revamp & migration



http://ctatlas.reefbase.org/

Roles & Responsibilities

- Provide technical expertise to develop the newer version of CT Atlas
- Redesign, coding, migrate existing data, collate new data
- Provide training to relevant partners on updating the online data
- Train the IT/GIS officer in Regional Secretariat on managing the new CT Atlas

- Provide strategic vision for the new CT Atlas development
- Hire an IT/GIS officer to interact with WorldFish team for technical setup, operate and maintain the newer CT Atlas web site hosted by Regional Secretariat cloud server

CT Atlas Redesign & Migration (2019 APRIL-2020 JULY)

1. CT Atlas requirements & system setup study

WorldFish, CTI-CFF RS, T/GWG, NCC, CTI-CFF partners

– CT Atlas consultative workshop, system requirements study, develop detail work plan

2. Redesign CT Atlas

WorldFish, CTI-CFF RS

– Design and develop new interface/branding of CT Atlas, design system infrastructure and backup routine, setup web server

3. Develop CT Atlas

WorldFish, CTI-CFF RS, TWG, MEWG, NCC

– Develop the new database structure, coding, source & quality check the new data, compile & visualize indicators to measure RPOA/NPOA progress

4. Training & maintenance

WorldFish, CTI-CFF RS, TWG, MEWG, NCC

– Develop user guide/tutorial, conduct CT Atlas training to TWG/NCC to add/update data, train the IT/GIS officer to continue maintain the CT Atlas

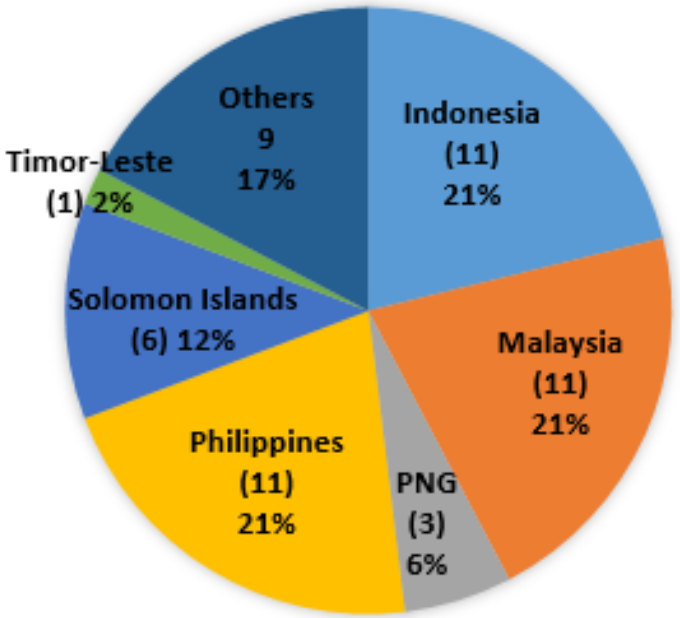
5. Sign-off the transition of CT Atlas management to CTI-CFF RS

WorldFish, CTI-CFF RS

– CTI-CFF RS will continue maintain the CT Atlas independently!

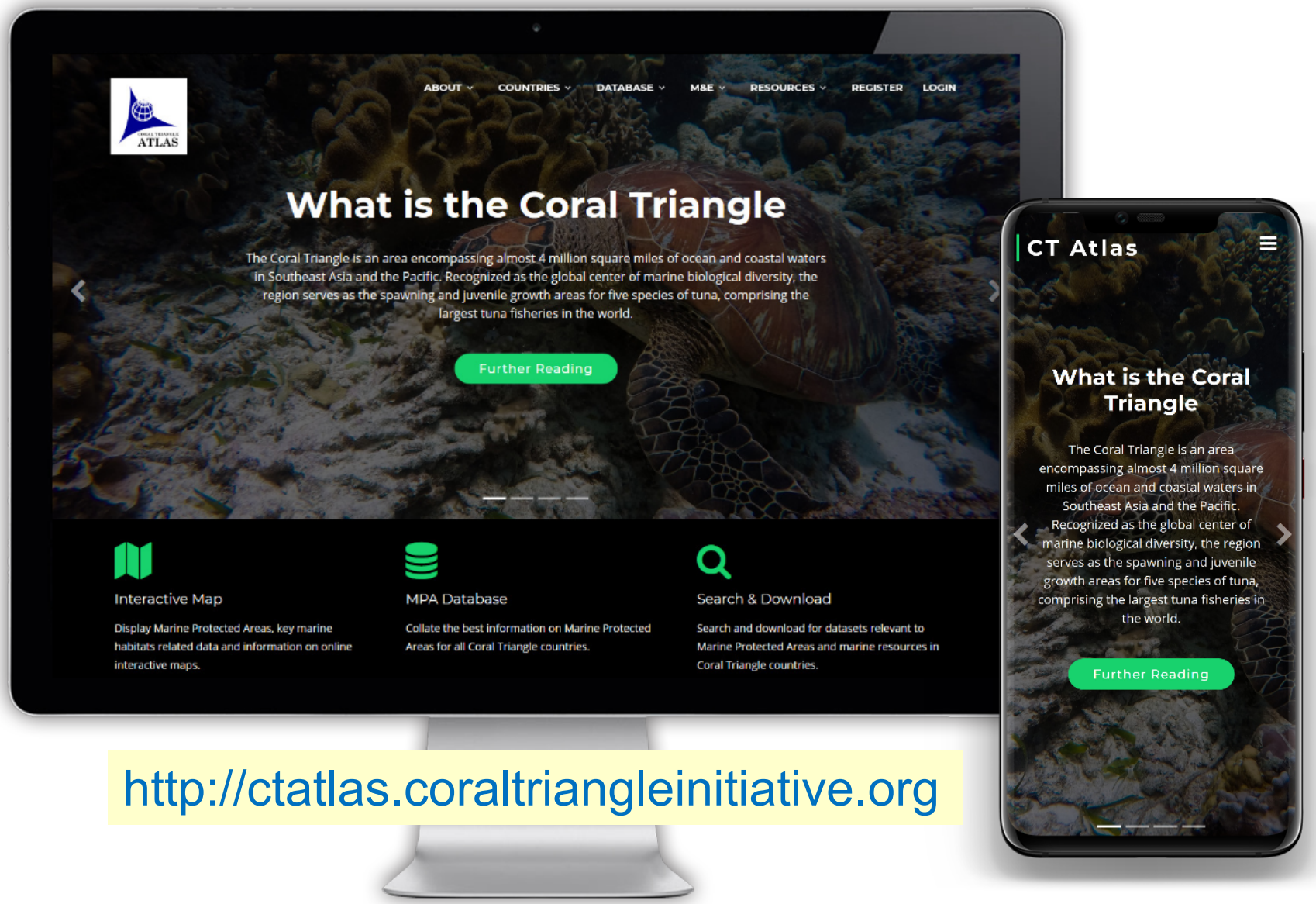
The Coral Triangle Atlas 2.0: Website Requirements Study

- Distributed CT Atlas website survey through CTI-CFF Regional Secretariat on 25th April 2019 to CTI-CFF network
- Presented the first analysis of 44 responses during CT Atlas consultation workshop on 2nd of May in Manado
- Extended the survey to 15th of May, received additional 8 responses
- Analysis report has been compiled and submitted to CTI-CFF Regional Secretariat on 28th June 2019
- The survey results were review and taken into considerations during redesign CT Atlas 2.0



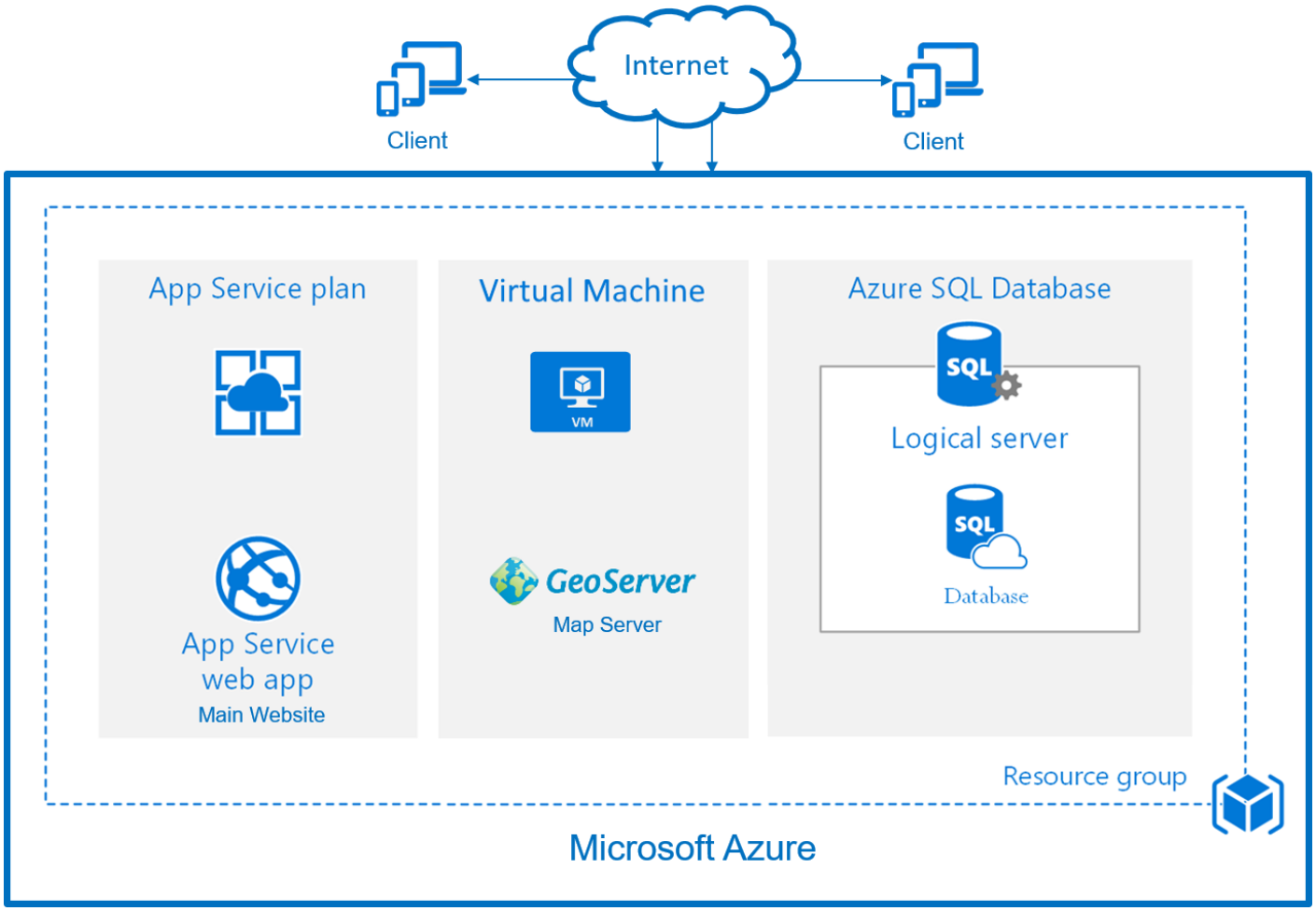
Respondents by Country:	Reponses
Indonesia	11
Malaysia	11
Papua New Guinea	3
Philippines	11
Solomon Islands	6
Timor-Leste	1
Others	9
TOTAL	**52**

The Coral Triangle Atlas 2.0



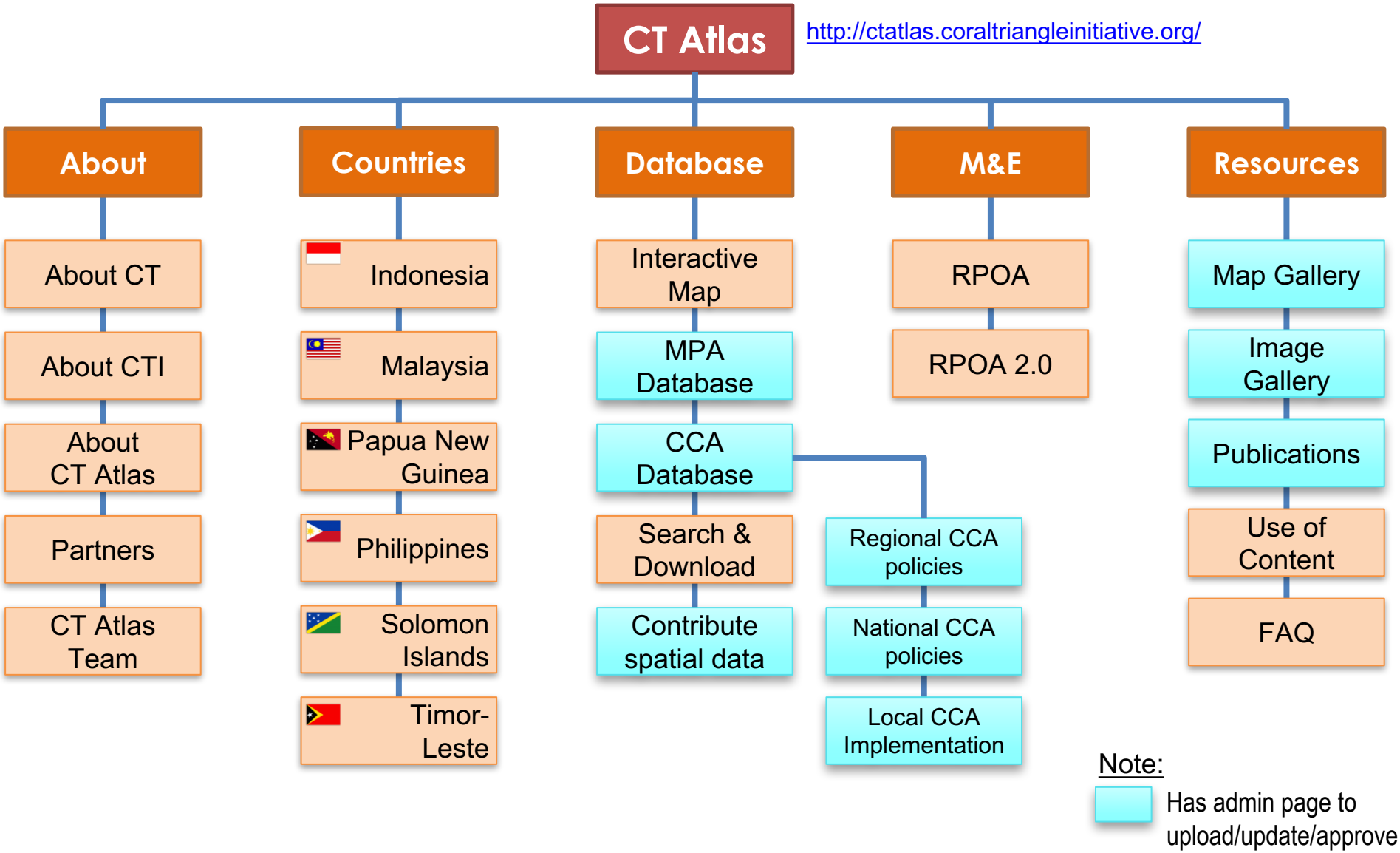
http://ctatlas.coraltriangleinitiative.org

The CT Atlas 2.0 Hosting Architecture

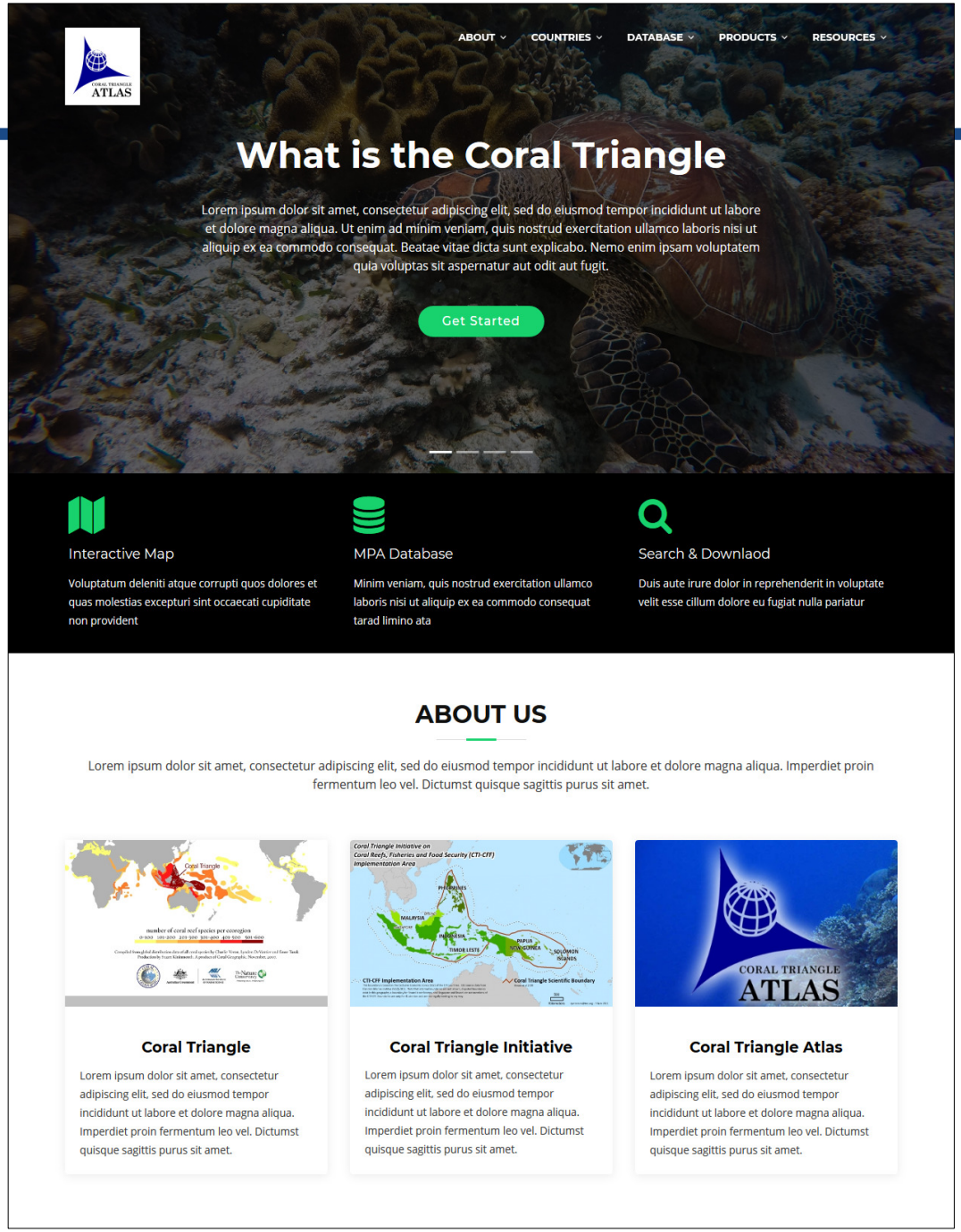


The subscription cost of new Microsoft Azure services is estimated around USD1,620 per year, which save nearly 48% of the original hosting cost (USD3,369) in ReefBase's Amazon Elastic Compute Cloud (Amazon EC2)

The CT Atlas : Contents



Home Page


ABOUT
COUNTRIES
DATABASE
PRODUCTS
RESOURCES
What is the Coral Triangle
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Get Started
Interactive Map
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MPA Database
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ABOUT US
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Coral Triangle
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Coral Triangle Initiative
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Coral Triangle Atlas
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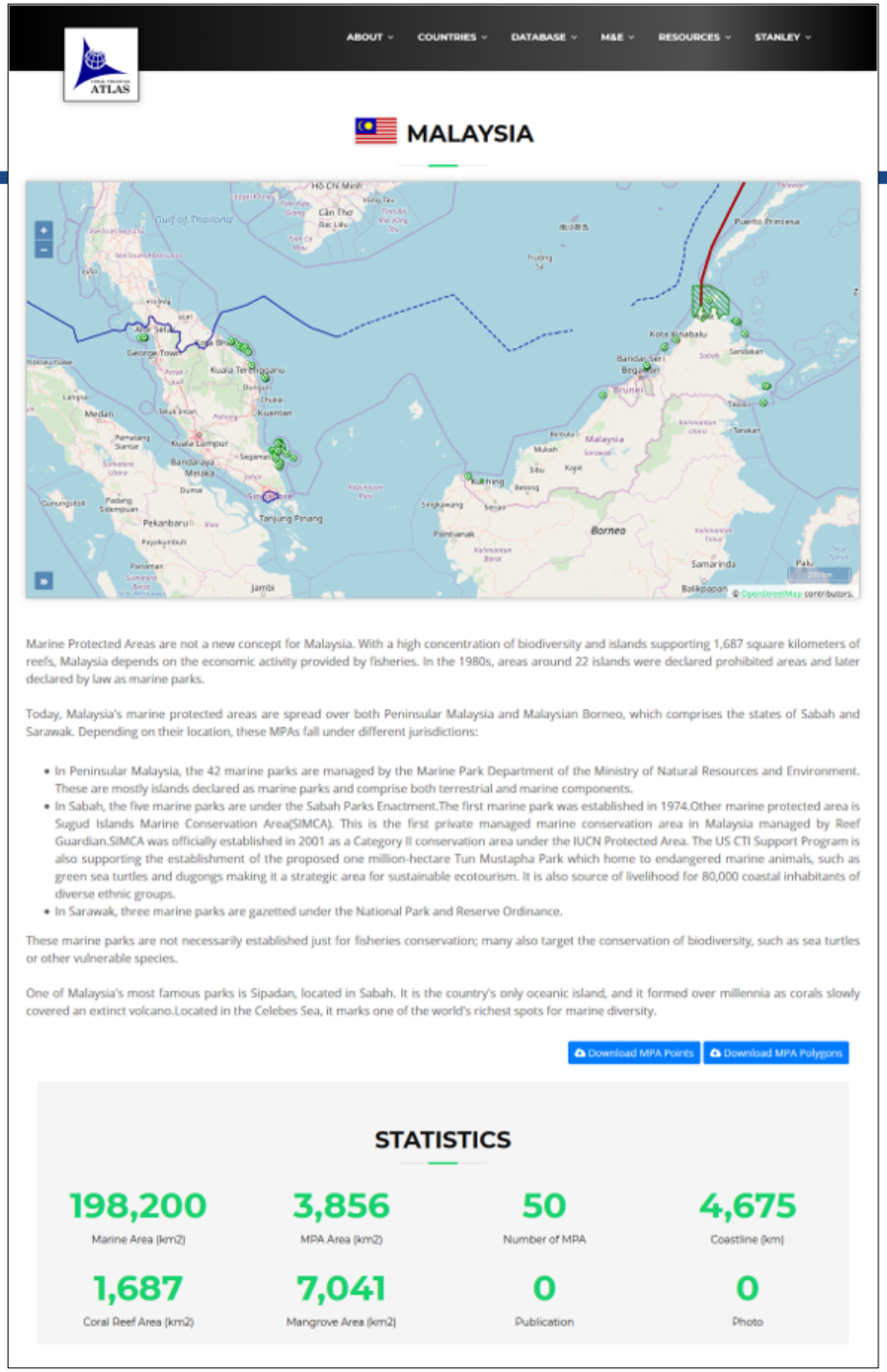
Countries



Marine Protected Areas are not a new concept for Malaysia. With a high concentration of biodiversity and islands supporting 1,687 square kilometers of reefs, Malaysia depends on the economic activity provided by fisheries. In the 1980s, areas around 22 islands were declared prohibited areas and later declared by law as marine parks.

Today, Malaysia's marine protected areas are spread over both Peninsular Malaysia and Malaysian Borneo, which comprises the states of Sabah and Sarawak. Depending on their location, these MPAs fall under different jurisdictions:

- In Peninsular Malaysia, the 42 marine parks are managed by the Marine Park Department of the Ministry of Natural Resources and Environment. These are mostly islands declared as marine parks and comprise both terrestrial and marine components.
- In Sabah, the five marine parks are under the Sabah Parks Enactment.The first marine park was established in 1974.Other marine protected area is Sugud Islands Marine Conservation Area(SIMCA). This is the first private managed marine conservation area in Malaysia managed by Reef Guardian.SIMCA was officially established in 2001 as a Category II conservation area under the IUCN Protected Area. The US CTI Support Program is also supporting the establishment of the proposed one million-hectare Tun Mustapha Park which home to endangered marine animals, such as green sea turtles and dugongs making it a strategic area for sustainable ecotourism. It is also source of livelihood for 80,000 coastal inhabitants of diverse ethnic groups.
- In Sarawak, three marine parks are gazetted under the National Park and Reserve Ordinance.

These marine parks are not necessarily established just for fisheries conservation; many also target the conservation of biodiversity, such as sea turtles or other vulnerable species.

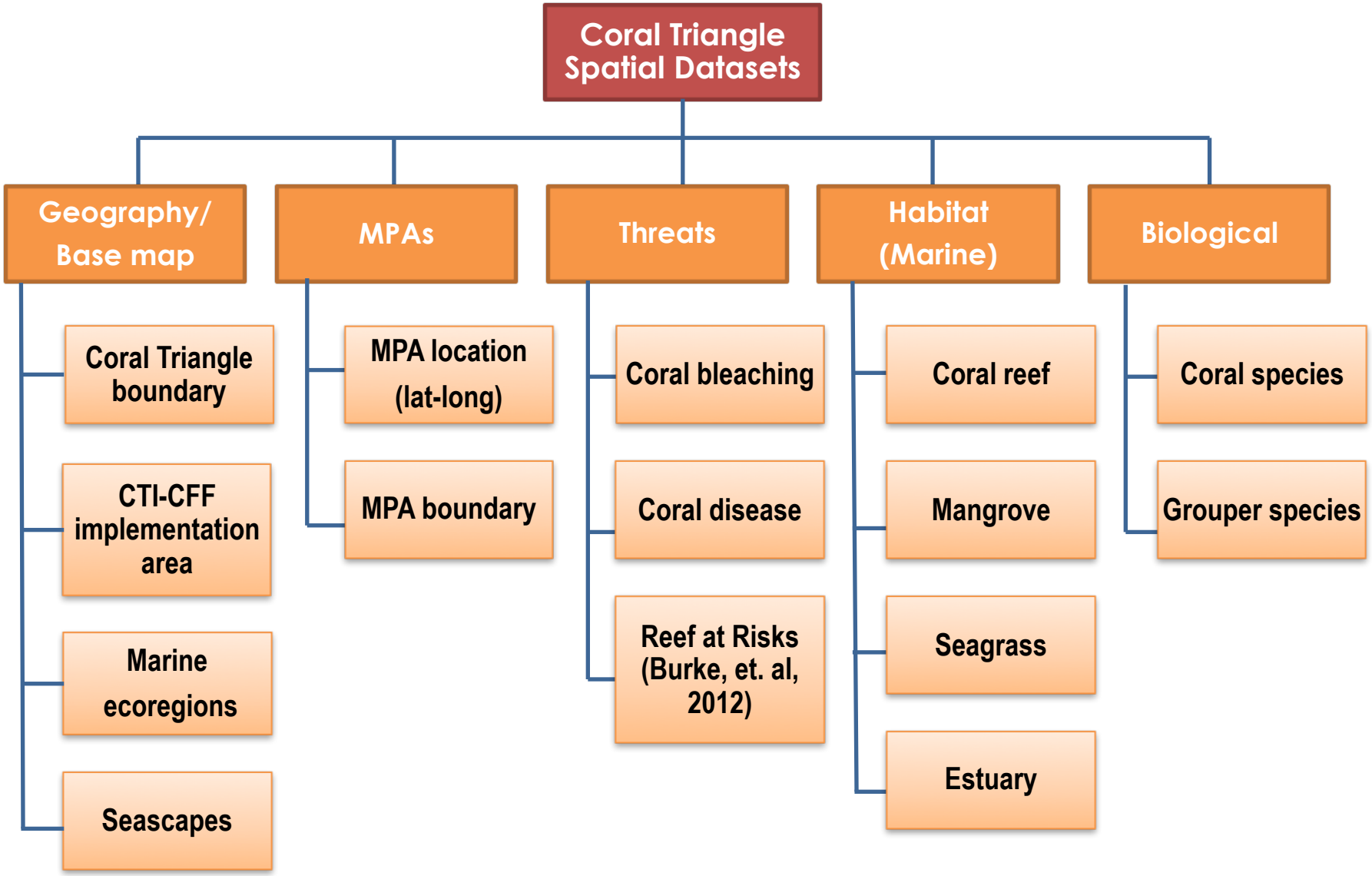
One of Malaysia's most famous parks is Sipadan, located in Sabah. It is the country's only oceanic island, and it formed over millennia as corals slowly covered an extinct volcano.Located in the Celebes Sea, it marks one of the world's richest spots for marine diversity.

Download MPA Points | Download MPA Polygons

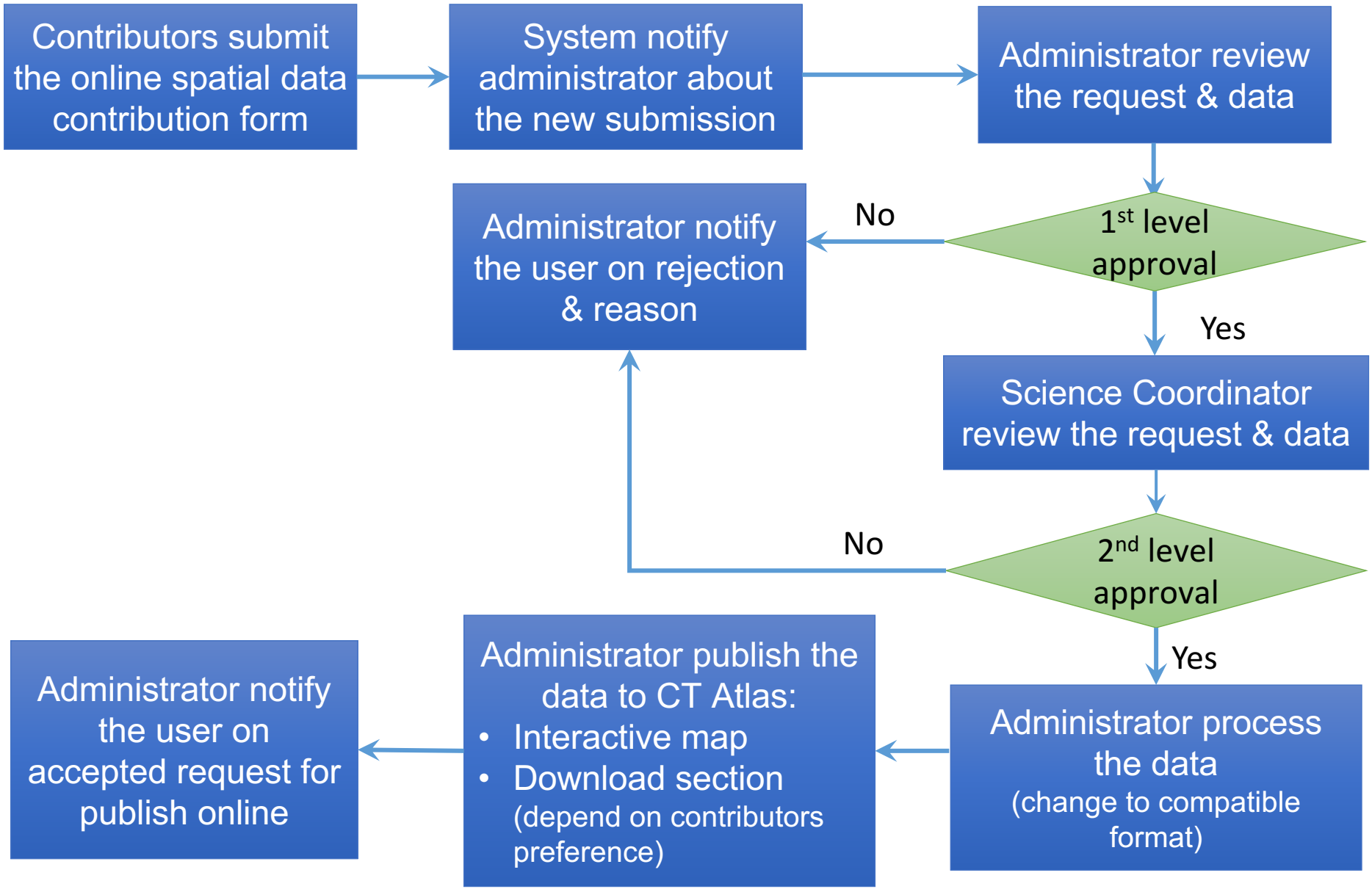
STATISTICS

198,200	3,856	50	4,675
Marine Area (km2)	MPA Area (km2)	Number of MPA	Coastline (km)
1,687	7,041	0	0
Coral Reef Area (km2)	Mangrove Area (km2)	Publication	Photo

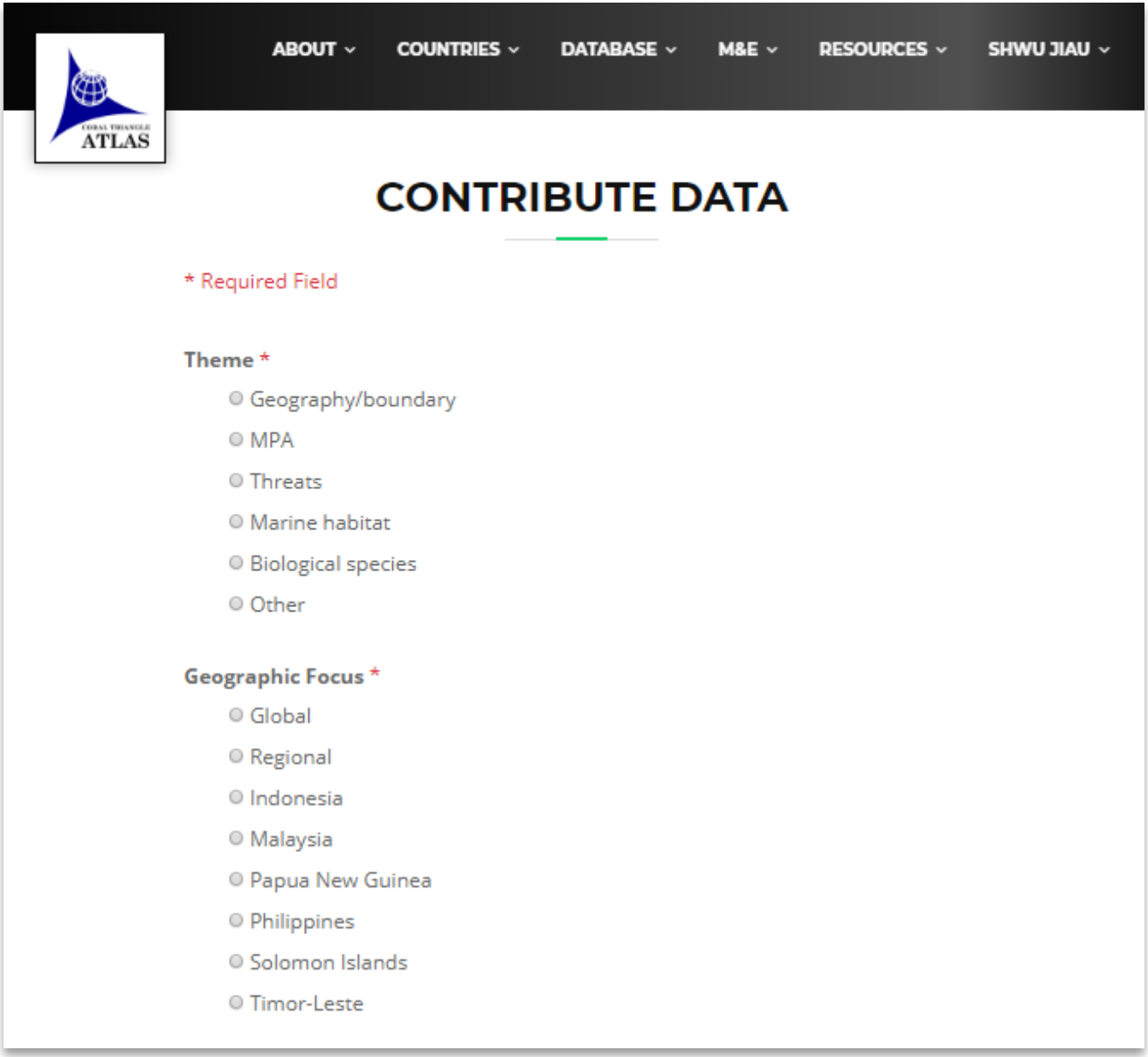
The CT Atlas : Spatial Datasets



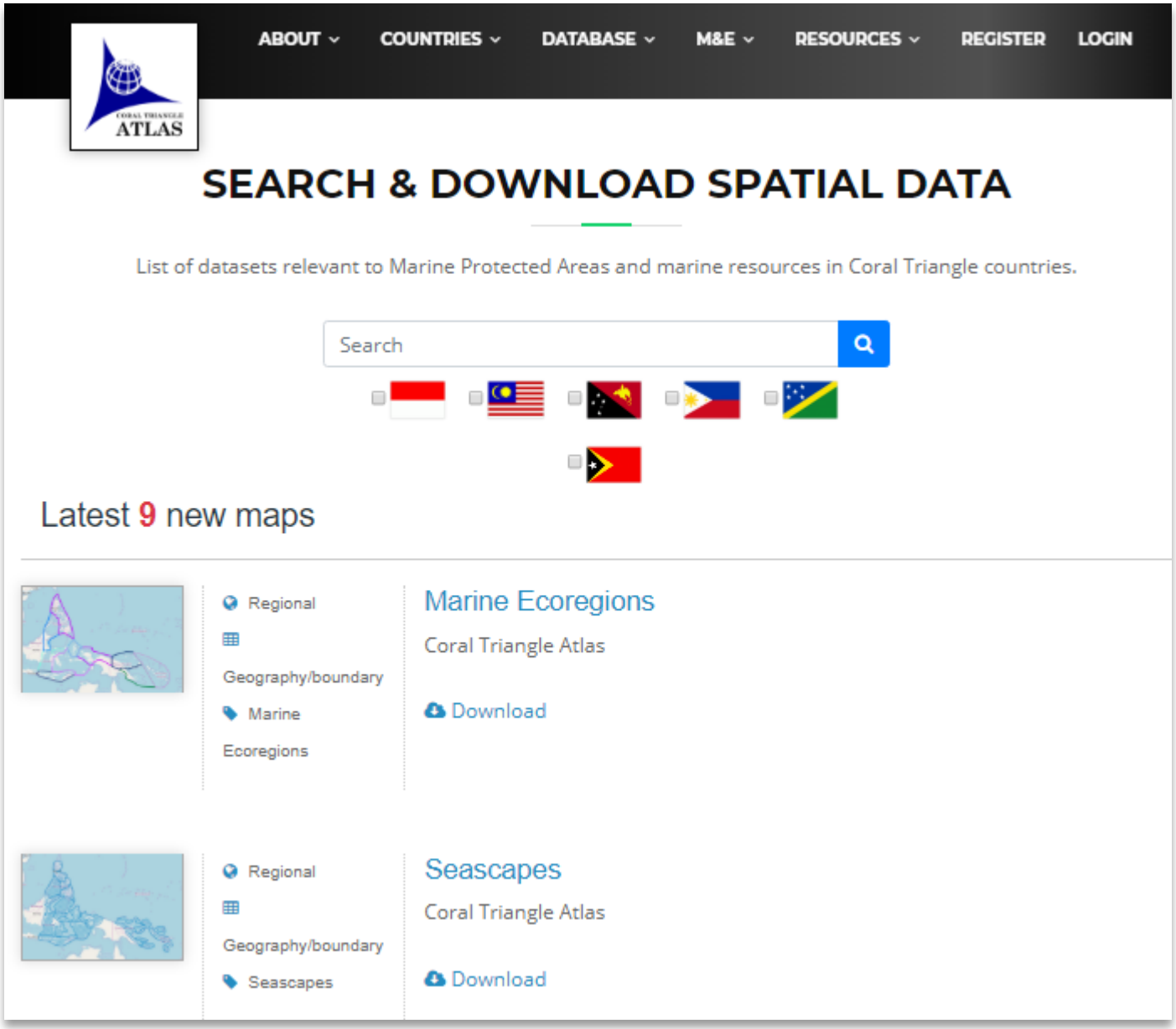
Proposed CT Atlas Spatial Data Contribution Mechanism



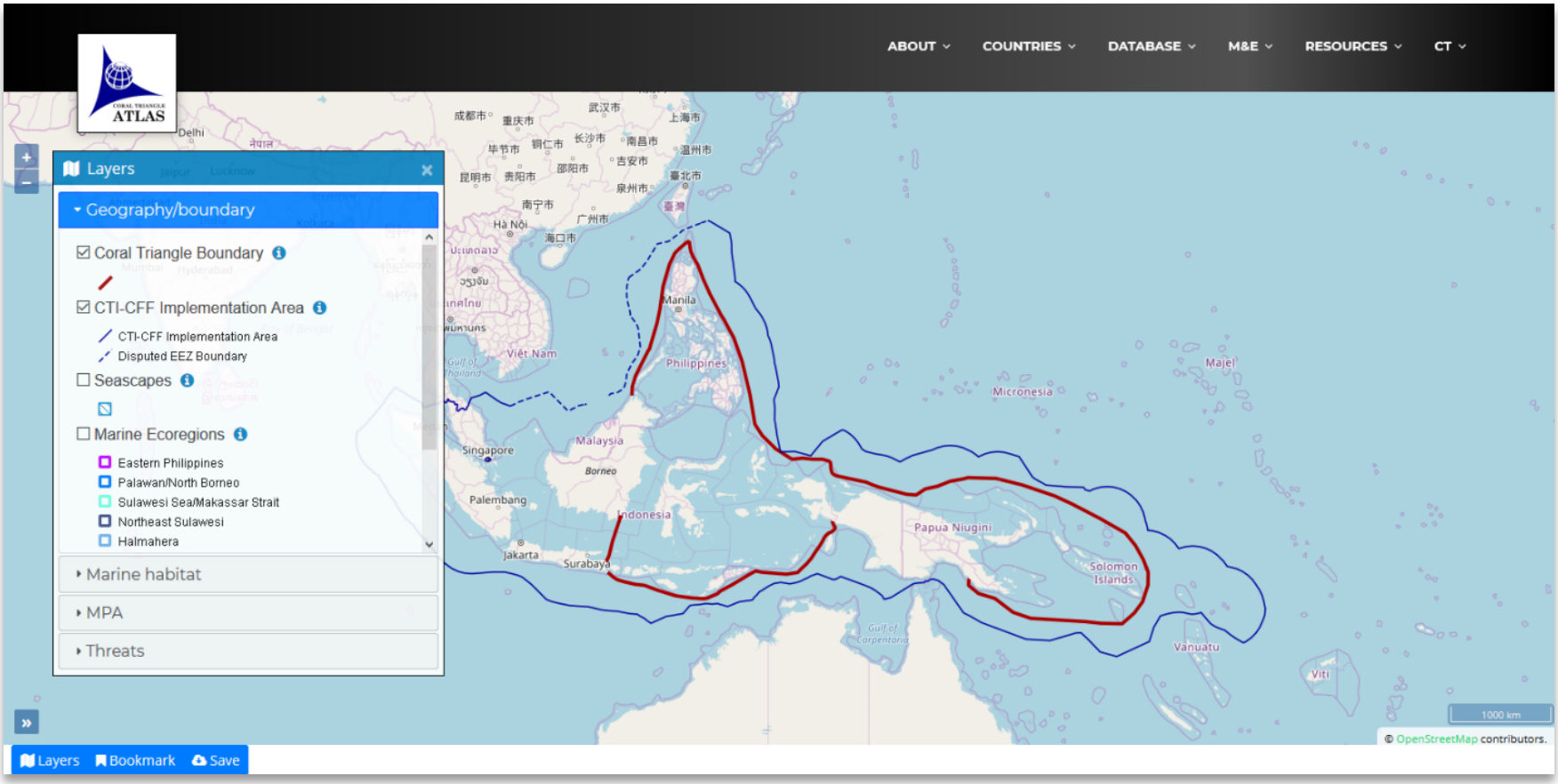
Contribute Spatial Data



Search & Download Spatial Data

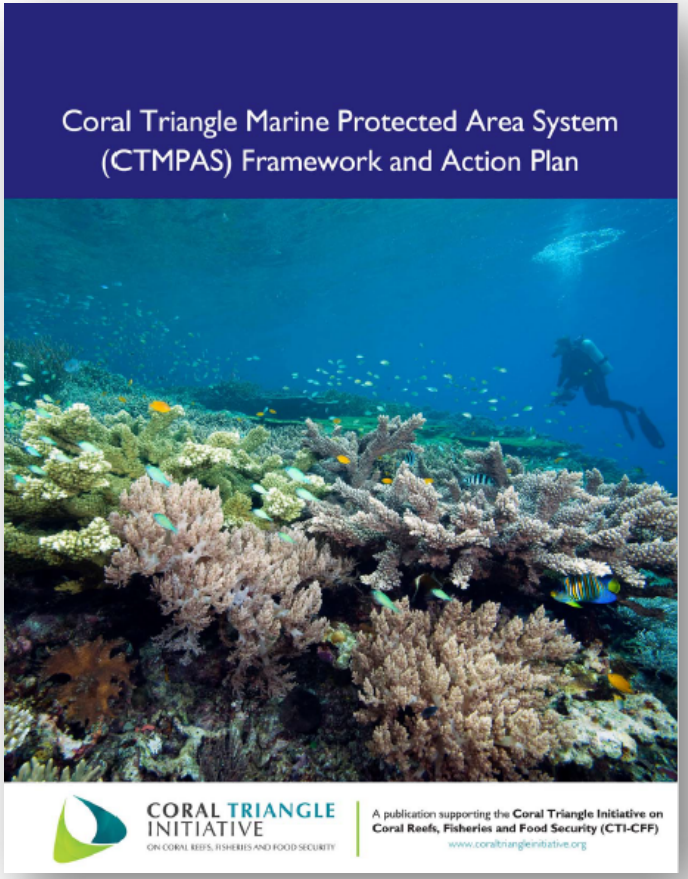


Interactive Map



MPAs in CT Atlas

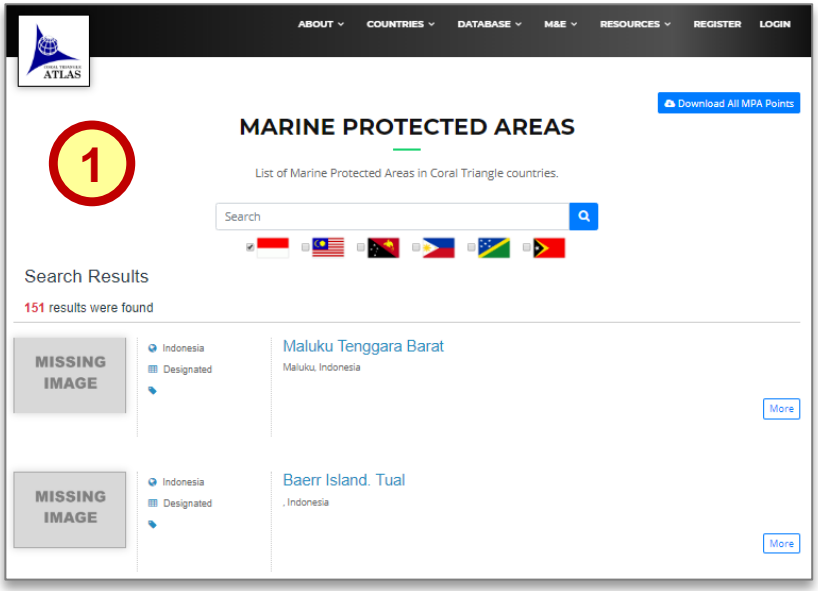
- To support CTI-CFF RPOA MPA (Goal 3) to develop a comprehensive map and geo-referenced database delineating a region-wide **Coral Triangle Marine Protected Area System (CTMPAS)**
- Holds the best publishable MPA datasets – holds >1200 MPAs in the region as at 2014
- As integral to the implementation of the CTI-CFF M&E System

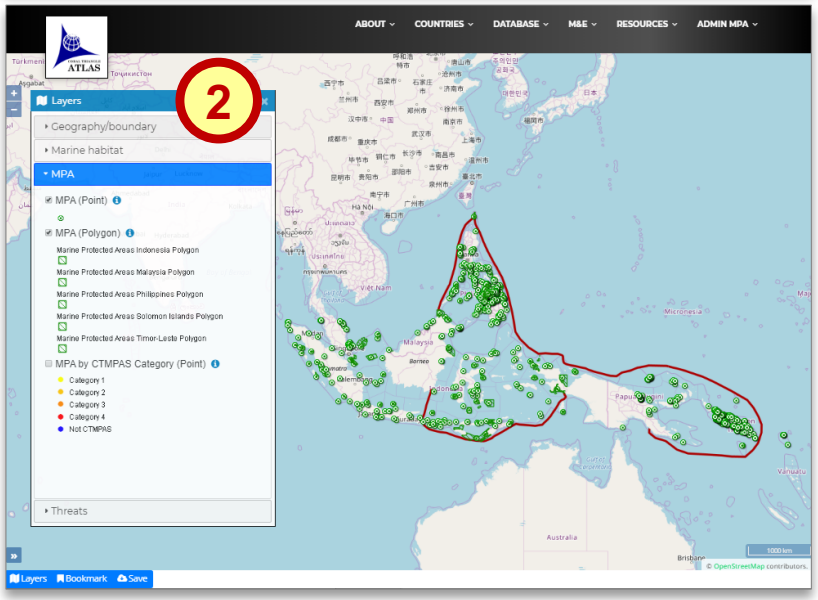


MPA Database in CT Atlas

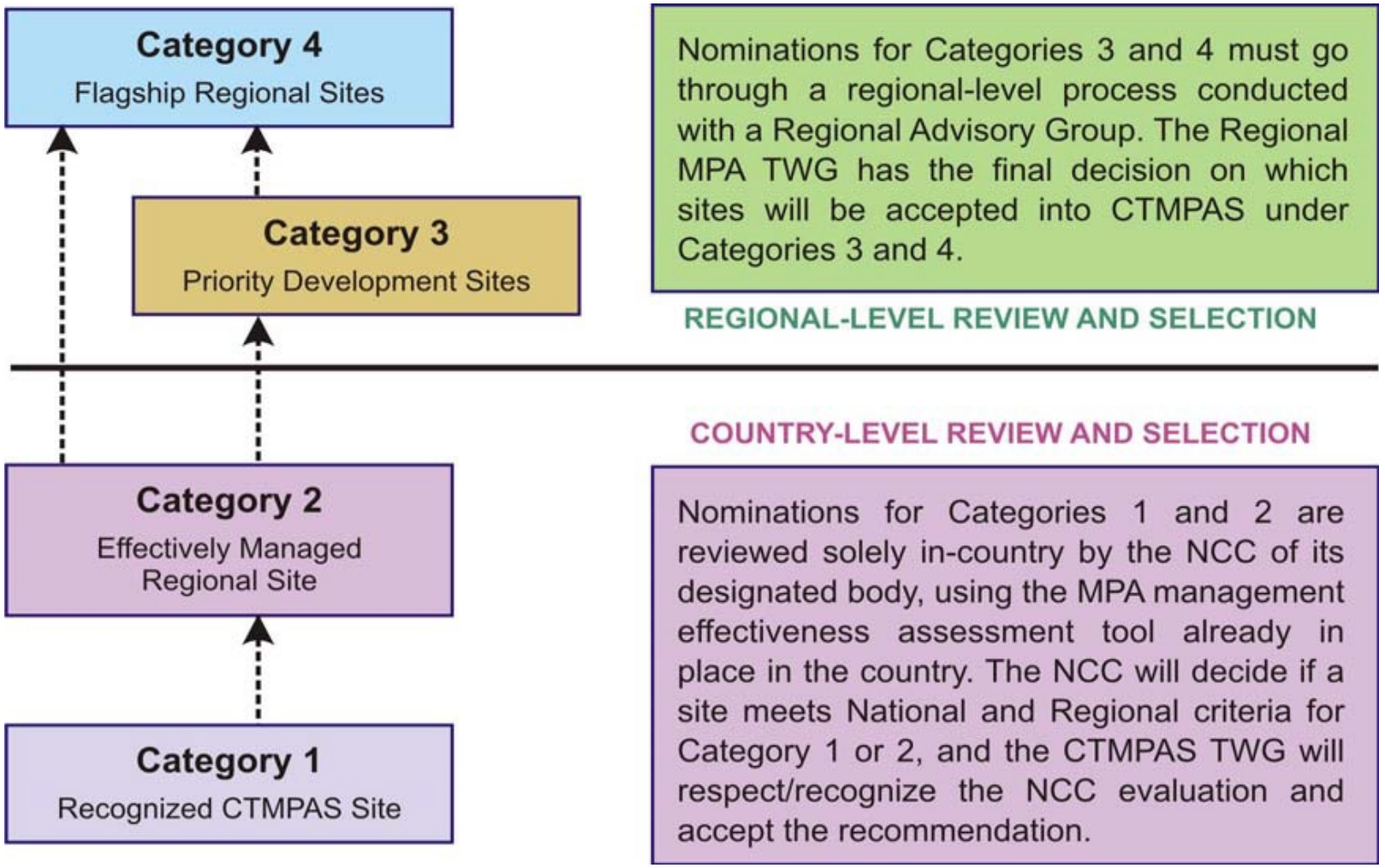
MPA database can be accessed through:

1. **MPA database page**
2. **Online interactive map**
3. **Each dedicated countries page**





Site Categories for CTMPAS Inclusion



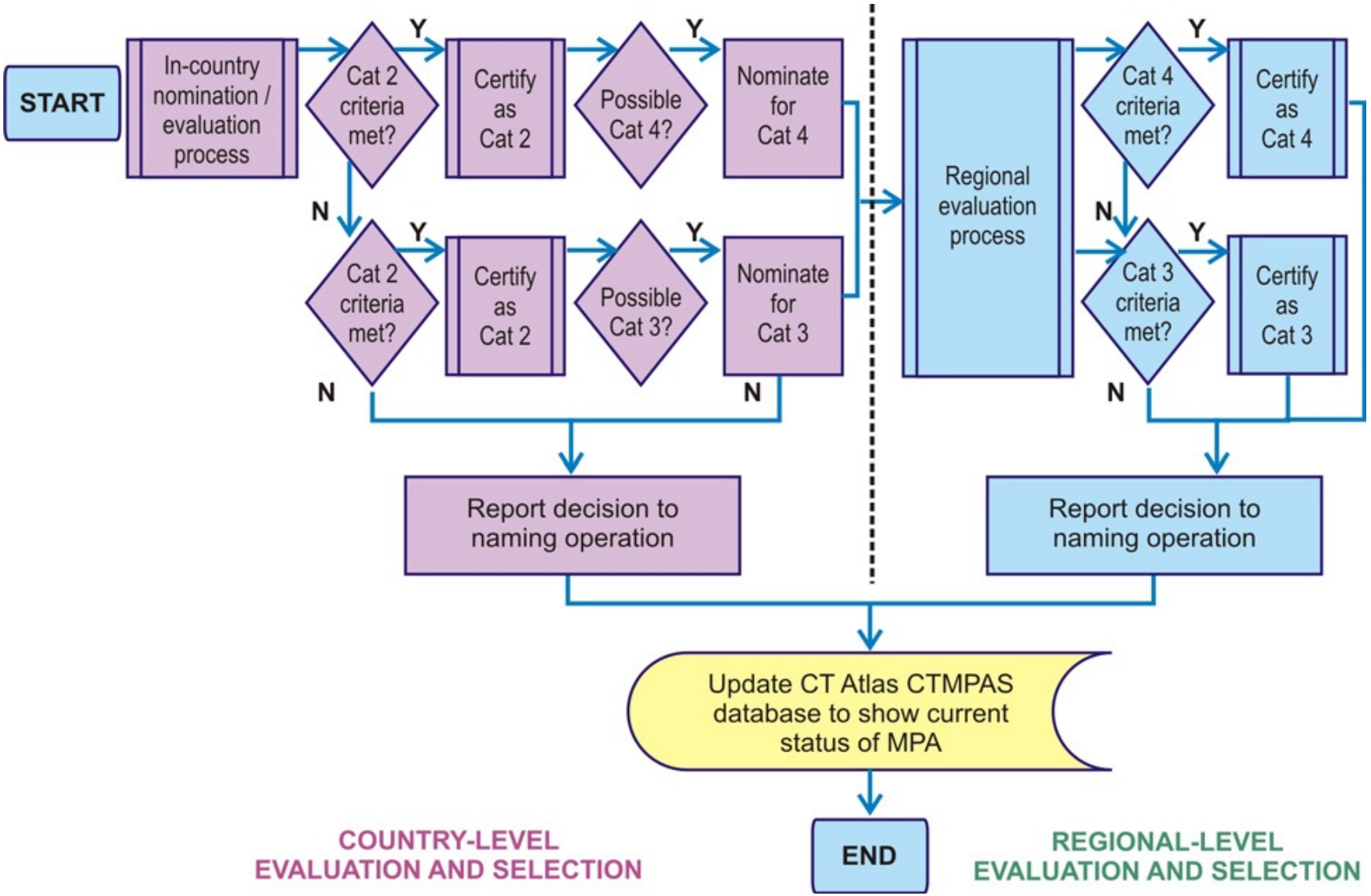
NOTE: All MPA sites that meet the minimum data requirements of CTMPAS framework are entered in the CT Atlas as **Category 1**.

Core (Minimum) Attributes of MPA Database (Recognized as CTMPAS Sites at Category 1)

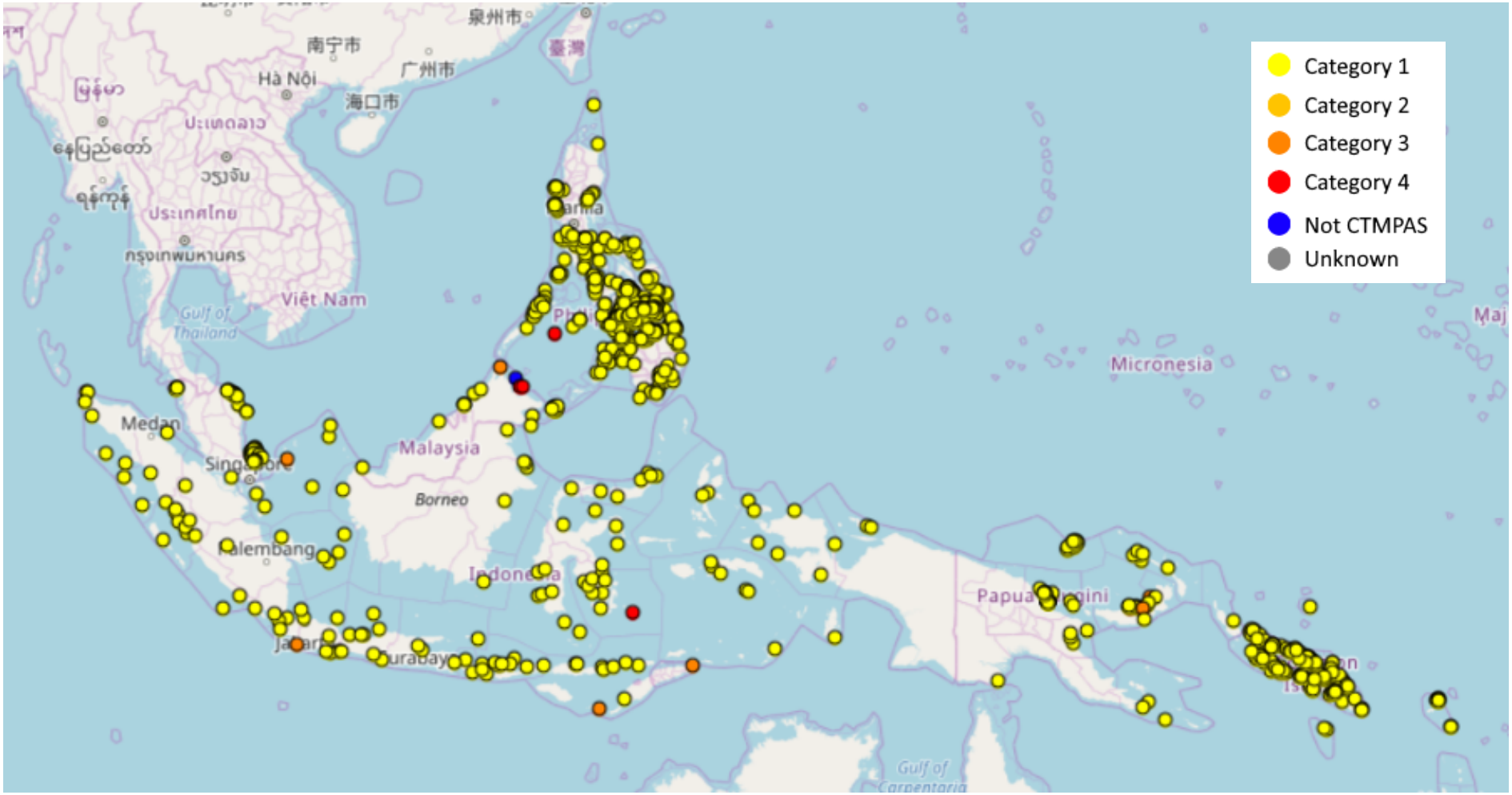
Attributes	Explanatory notes
Country*	Indonesia | Malaysia | Papua New Guinea | Philippines | Solomon Islands | Timor-Leste
Longitude*	Longitudinal coordinates
Latitude*	Latitudinal coordinates
Name*	The official name of the protected area[1]
Designation*	The type of protected area as legally/officially established/recognized (e.g. national park, world heritage site)
Legal/Formal Instrument	Legal Code/Number based on country systems[2]
Designation Type*	Local | National | International
Domain*	Marine | Marine-Terrestrial [3]
Status*	Designated | Proposed | Draft | Voluntary
Date Established*	Date/Year of the MPA established legally/formally
Reported area (ha[4])*	Total size of protected area in ha[4] based on legal/formal status/declaration
Total marine area (ha[4])*	Total size of marine area in ha[4] within protected area
Management Plan*	Yes | No | Unknown | Drafted
CTMPAS Category*	Category 1 | Category 2 | Category 3 | Category 4 | Not CTMPAS
IUCN Management Category	Classification under IUCN (Ia, Ib, II, III, IV, V or VI)
International Convention	Designation of MPA by an international convention/program (e.g. Ramsar site, World Heritage Site, Unknown)
Administrative unit level-1	Government level that administers or holds jurisdiction over MPA (e.g. in Malaysia, an MPA may be administered by either the federal government or state government; in the Philippines, MPAs are typically administered either by the national government (NIPAS) or the municipal/local government.
Zonation	Yes | No | Unknown
No Take	All | Part | Seasonal | None | Unknown
Reported No Take Area (ha[4])	Total area of no take zones in hectares[4]
Management Effectiveness Model	Model used (eg. MEAT/ E-MPA) to assess management effectiveness
Management Effectiveness Rating	ME rating based on MPA ME system used
Source	Source/provider of the data
Validated	Yes | No | Unknown. If Yes, name of person/organization who validated the MPA
Consent to display and share	Yes | No | Point only
Notes	Additional notes/remarks about the MPA

Notes: * Core (minimum) attributes required for an MPA to be included as a recognized CTMPAS site. [1] The name of the MPA should include its location to avoid confusion over MPAs with similar names (e.g. Apo Island Protected Landscape/Seascape, Dauin, Negros Oriental; Apo Reef Natural Park, Occidental Mindoro). [2] This refers to the number or code used to identify the legal/formal instrument that established the MPA. The full title/name of the law or formal declaration may also be provided, and when available, the full text of the document should be provided as an attachment. [3] Where the protected area includes both terrestrial and marine

The CTMPAS Site Selection and Review Process



CTMPAS by Category in CT Atlas

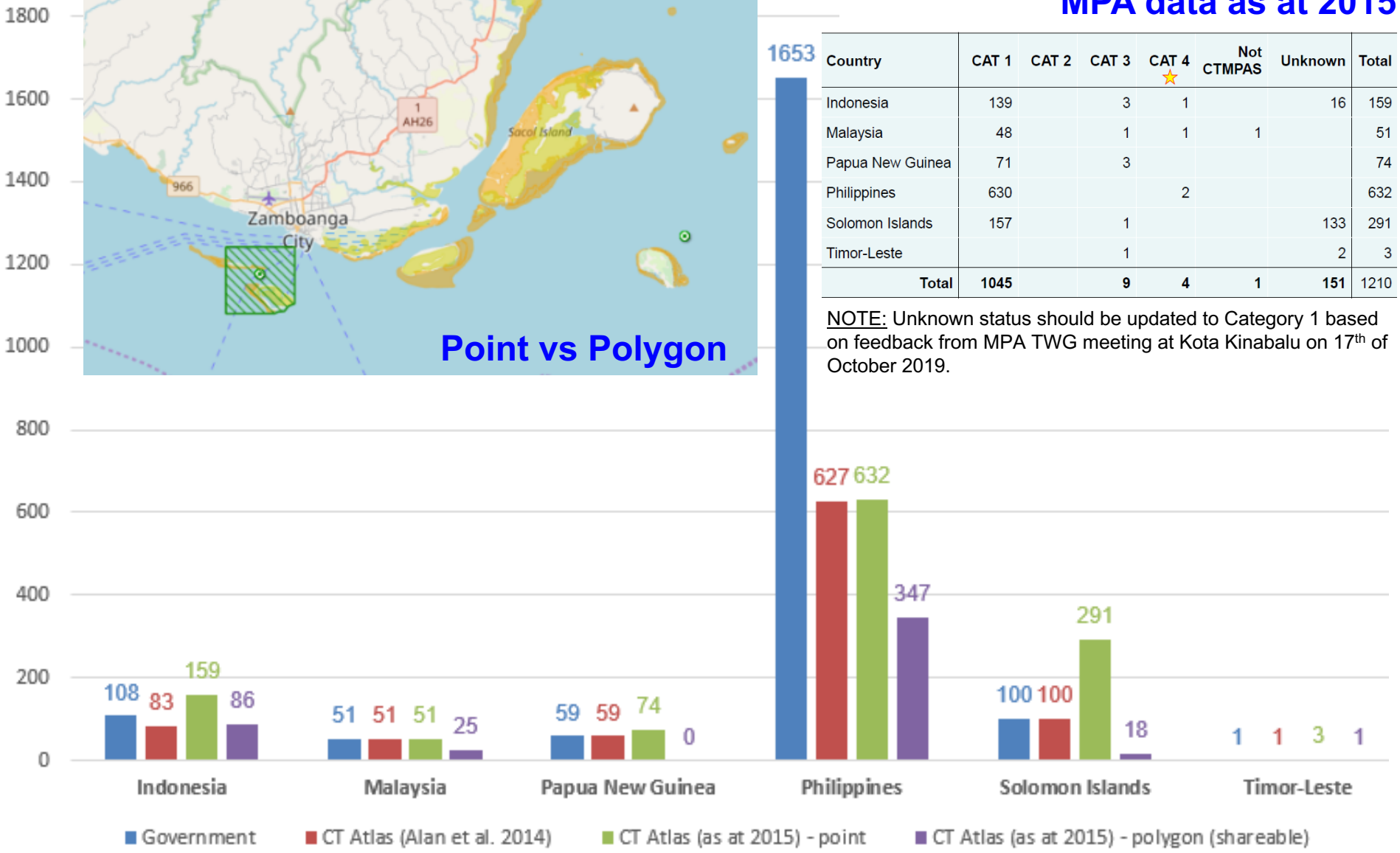


Status of MPAs Data in the CT Atlas

MPA data as at 2015

Country	CAT 1	CAT 2	CAT 3	CAT 4 ☆	Not CTMPAS	Unknown	Total
Indonesia	139		3	1		16	159
Malaysia	48		1	1	1		51
Papua New Guinea	71		3				74
Philippines	630			2			632
Solomon Islands	157		1			133	291
Timor-Leste			1			2	3
Total	**1045**		**9**	**4**	**1**	**151**	1210

NOTE: Unknown status should be updated to Category 1 based on feedback from MPA TWG meeting at Kota Kinabalu on 17th of October 2019.



Update MPA data

- To update the MPA data, we create the country MPA user accounts for each country NCC (focal points for MPAs):

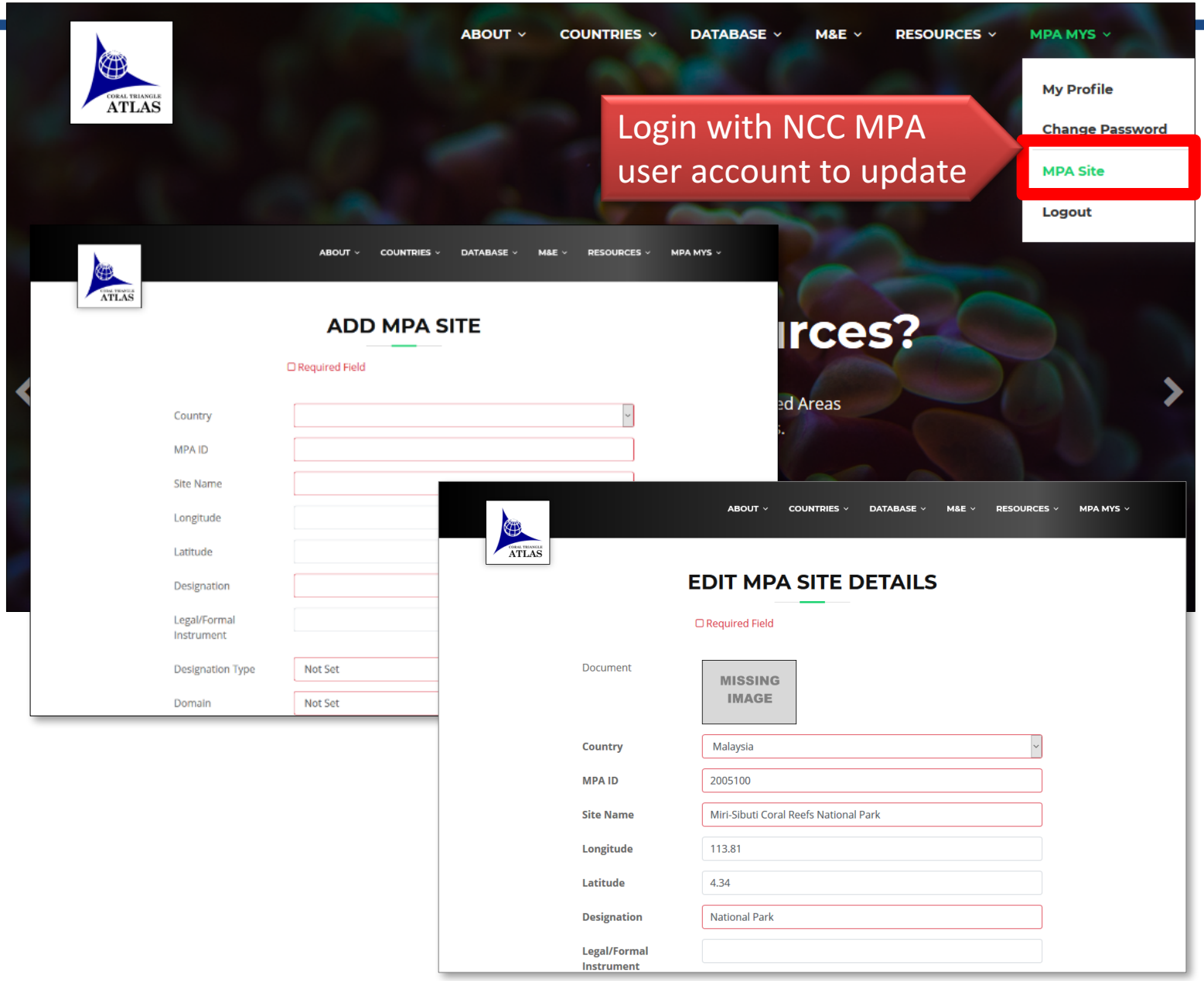
idnmpa
phlmpa
mysmpa
slbmpa
pngmpa
tlsmpa

- CTI-CFF will disseminate the password to MPA focal points in each country to log in

Update MPA data

MPA Database

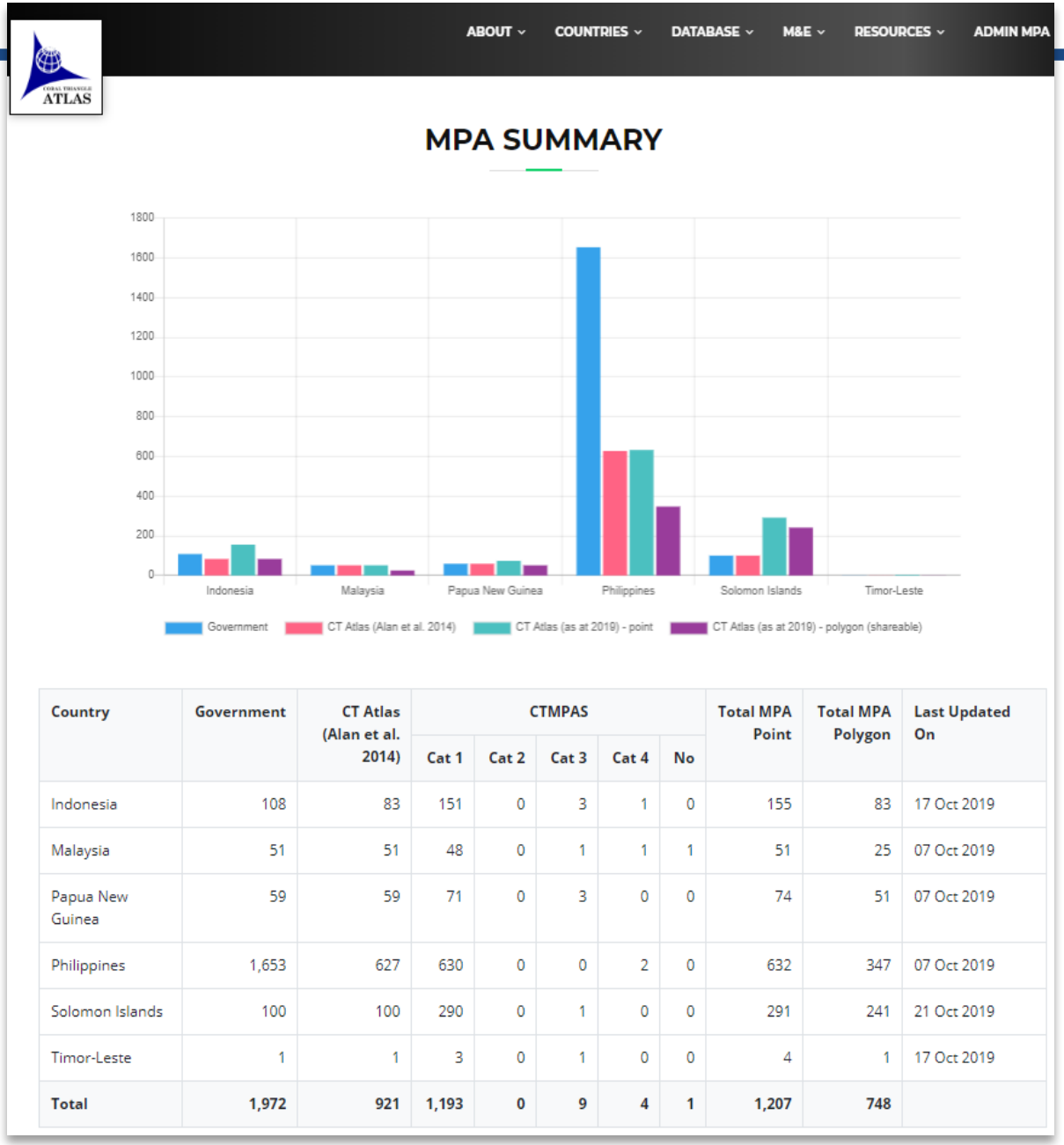
- MPA Database
- Indonesia
- Malaysia
- Papua New Guinea
- Philippines
- Solomon Islands
- Timor-Leste



MPA Dashboard

- Show the latest progress of MPAs updated for each country *(i.e. comparing the numbers of MPA reported by government; numbers by CTMPAS Category; missing boundary info [polygon]; last updated date)*

- Currently can access through MPA Administrator account log in only



Country	Government	CT Atlas (Alan et al. 2014)	CTMPAS					Total MPA Point	Total MPA Polygon	Last Updated On
			Cat 1	Cat 2	Cat 3	Cat 4	No			
Indonesia	108	83	151	0	3	1	0	155	83	17 Oct 2019
Malaysia	51	51	48	0	1	1	1	51	25	07 Oct 2019
Papua New Guinea	59	59	71	0	3	0	0	74	51	07 Oct 2019
Philippines	1,653	627	630	0	0	2	0	632	347	07 Oct 2019
Solomon Islands	100	100	290	0	1	0	0	291	241	21 Oct 2019
Timor-Leste	1	1	3	0	1	0	0	4	1	17 Oct 2019
Total	**1,972**	**921**	**1,193**	**0**	**9**	**4**	**1**	**1,207**	**748**	

Work Plan 2019 APRIL – 2020 JULY

Activities	2019									2020						
	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7
CT Atlas requirements and system setup study																
- Conduct CT Atlas inception/consultation workshop*		•														
- Study the additional requirements of CT Atlas		•	•													
- Develop detail work plan and propose structure for website systems includes hosting services and database			•	•												
Redesign CT Atlas																
- Design and develop new interface/branding of CT Atlas			•	•												
- Design system infrastructure & backup routine			•	•												
- Subscribe and setup web server for CTI secretariat & installation				•												
- Develop prototype of new interface/branding CT Atlas 2.0				•	•											
Develop CT Atlas																
- Develop the database in new structure and coding			•	•	•	•	•									
- Source & quality check the new data to add/update existing GIS layers			•	•	•	•	•									
- Compile and visualize indicators to measure RPOA/NPOA 2.0 progress						•	•									
- The web server for CTI-CFF has setup and run properly					•											
- Publish the beta version of new CT Atlas 2.0					•	•										
- Publish the final version of new CT Atlas 2.0						•	•									
- Develop user guide/tutorial video/FAQ for end users							•	•	•							
- Provide manual and training for administrators to maintain the website							•	•	•							
Training and maintenance																
- Conduct CT Atlas training* to NCCs and TWGs										•						
- CTI secretariat, NCCs and TWGs acceptance test										•						
- Train the IT/GIS officer under CTI secretariat to continue maintain the CT Atlas										•						
- Support the IT/GIS officer if any questions arise during transition period											•	•	•	•	•	•
- Sign-off the transition of CT Atlas management to CTI secretariat																•

Key Achievements & Move Forward…

Key achievements:

- **16 SEP 2019:** The CT Atlas 2.0 website has up and running well under CTI domain http://ctatlas.coraltriangleinitiative.org
- **17 OCT 2019:** THE MPA database module training was conducted during the 8th MPA REX and 8th MPA TWG Meeting at Kota Kinabalu, Malaysia

Key planned activities in coming months:

- Conduct technical training to CTI-CFF Regional Secretariat *(first week of December 2019)*
- Prepare the user guide, tutorial video & FAQ section for public user; user guide for administrator to maintain the CT Atlas 2.0 website *(by early January 2020)*
- Improve the integral to support RPOA, especially Goal 3
- Explore the CT Atlas opportunity to improve M&E in RPOA 2.0

Indicators for Tracking Progress RPOA Goal 3: MPAS Established and Effectively Managed

Target	Indicator	Regional Action	Spatial	Who Measures	Who reports	Means to Verify	Frequency	Source of Baseline Regional (2012)	Source of Baseline National
3.1 Region-Wide Coral Triangle MPA System (CTMPAS) in place and fully functional by 2020	3.1.1 *CTMPAS Framework* developed and adopted by CT6	Action 1	No	CTI MPA-TWG	CTI MPA-TWG	Copy of *CTMPAS Framework* document; CTI MPA-TWG Minutes of Meeting, SOM Decision Document	Once	Target by November 2012 during SOM	N/A
	3.1.2 Percent/Area of total marine habitat area in CT region in marine protected or managed areas	Action 2	Yes	CT Atlas	CTI MPA-TWG	CT Atlas map; *CTMPAS Framework* and progress report	Every two years	*CTMPAS Framework*, CT Atlas, and rSCTR	CT6 SCTR; national gap analysis
	3.1.3 Percent/area of each major marine and coastal habitat type in strictly protected "no-take replenishment zones"	Target outcome	Yes	CT Atlas	CTI MPA-TWG	CT Atlas map, CTMPAS progress reports	Every two years	*CTMPAS Framework*, CT Atlas, and rSCTR	CT6 SCTR; national gap analysis
	3.1.4 Percent/Area (in sq km) of marine protected areas under "effective" management	Target outcome	Yes	CT Atlas	CTI MPA-TWG	MPA Management Assessment Ratings/ Report	Every two years	*CTMPAS Framework*, CT Atlas, and rSCTR	SCTR; national gap analysis
	3.1.5 Percent/Area of marine protected/ managed areas included in CTMPAS	Actions 3, 4 and 5	Yes	CT Atlas	CTI MPA-TWG	CT Atlas maps/ database; CTMPAS progress reports	Every two years	*CTMPAS Framework*, CT Atlas, and rSCTR	MPA TWG, CT Atlas and SCTR

RPOA 2.0

2025 Objective A: The ability of the **coastal and marine ecosystems** to cope with impacts of climate change

- **A1: Coral reefs**
- **A2: Mangrove forests and seagrass beds**
- **A3: Endangered species**
- **A4: Fish stocks**

2025 Objective B: The ability of the **coastal communities** to cope with impacts of climate change

- **B1: Food security**
- **B2: Coastal livelihoods**

CORAL TRIANGLE ATLAS

Thank You

CORAL TRIANGLE INITIATIVE ON CORAL REEFS, FISHERIES AND FOOD SECURITY

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