



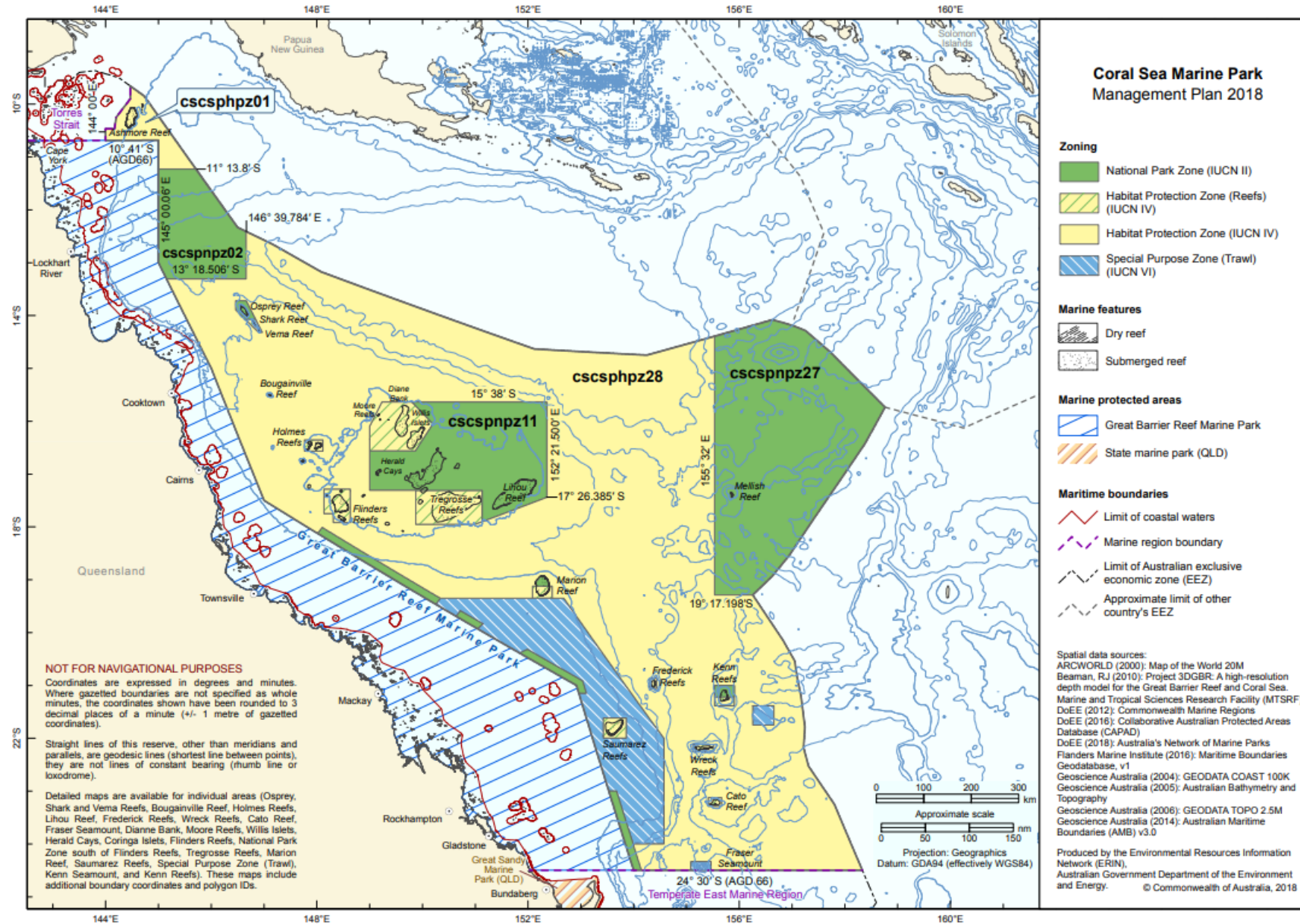
Australian
Marine Parks

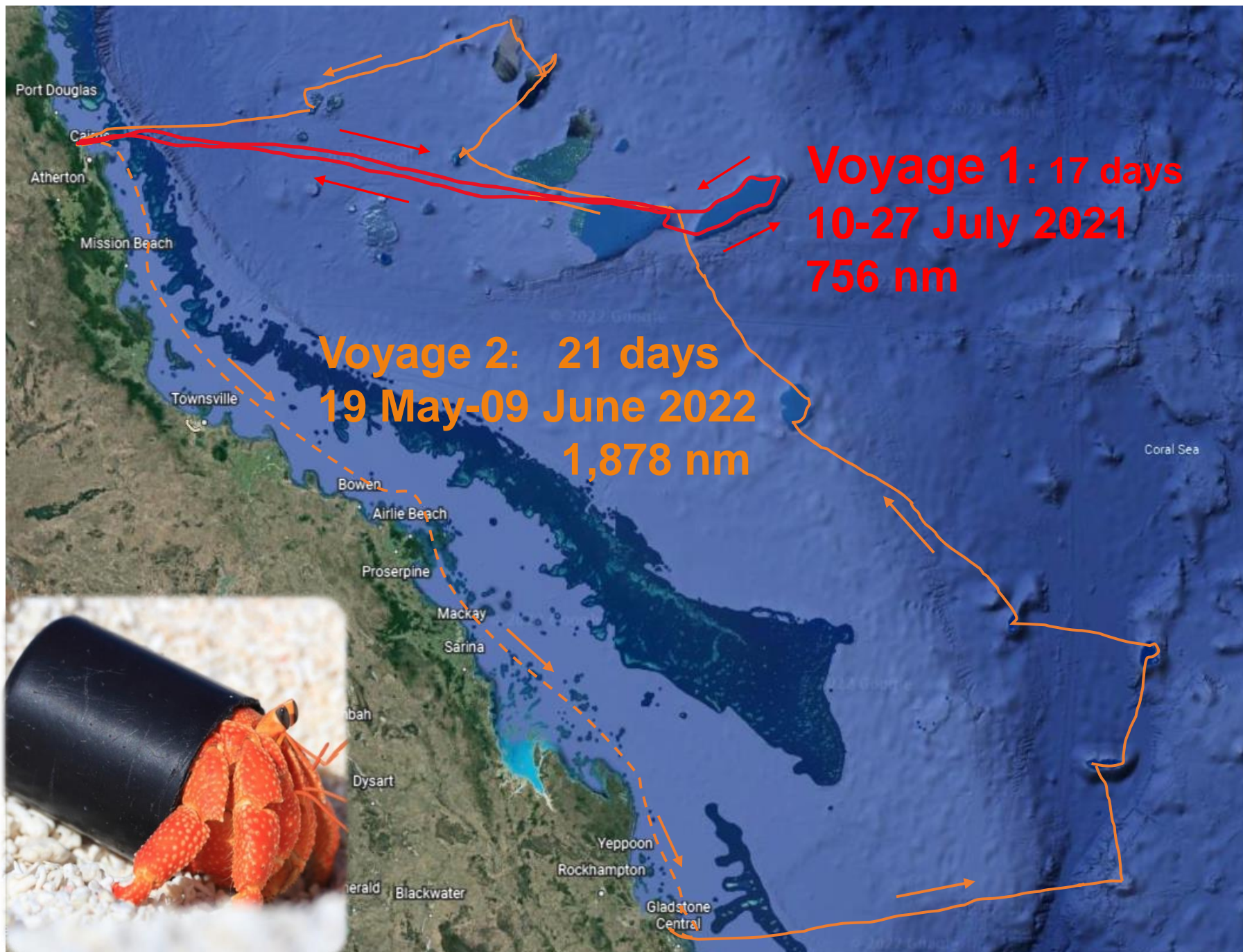
Coral Sea Marine Park – Marine debris clean-up voyages

(Parks Australia, Parks Australia volunteers, Queensland Parks and Wildlife Service, Tangaroa Blue Foundation)

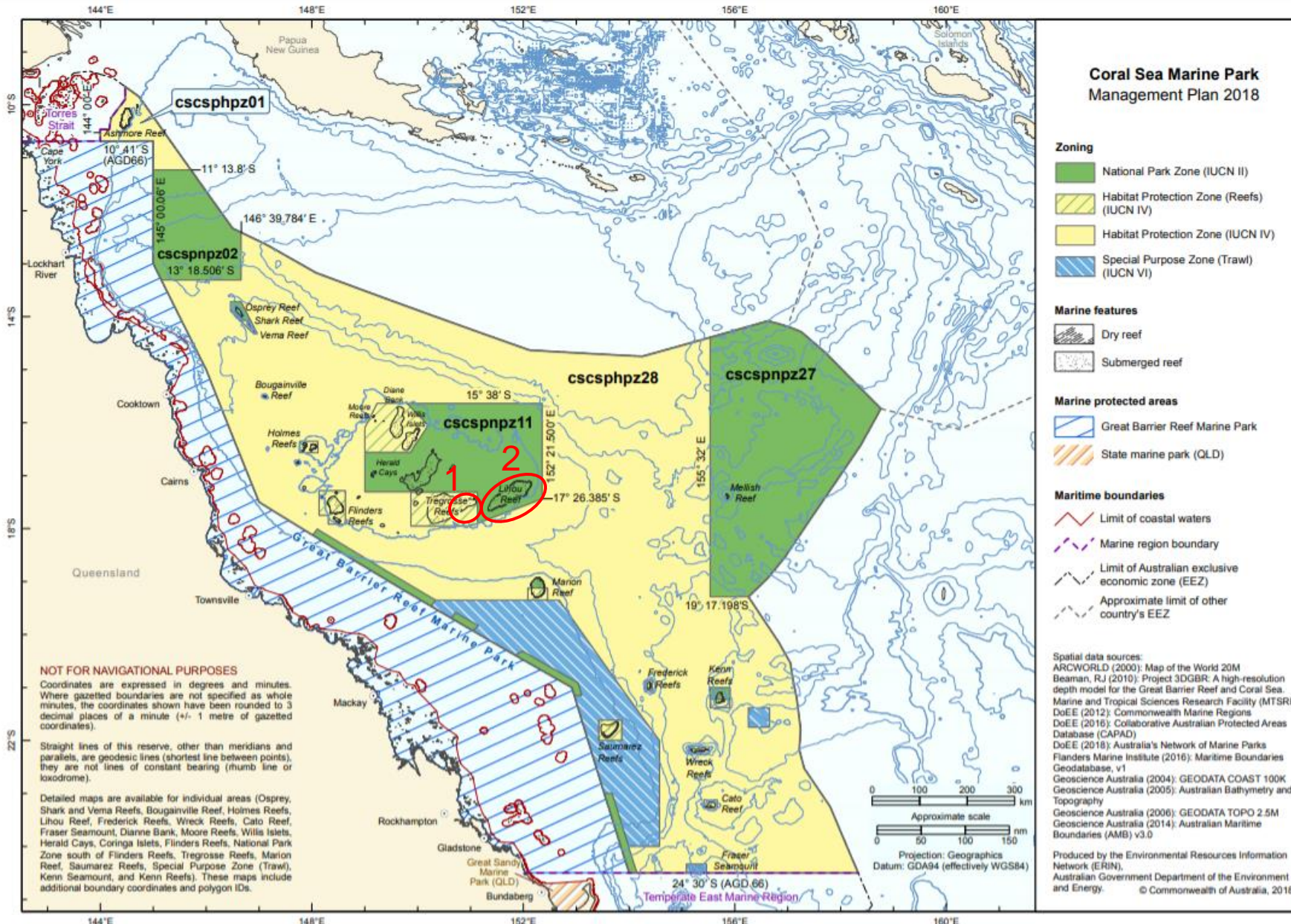
Marine debris – what, where and how we are dealing with it

Australia's Coral Sea Marine Park





Voyage 1: 10-27 July 2021 - Diamond Islets and Lihou Reef – Central CSMP



17 days
756 nm (1,400 km)
350 nm east of Cairns

- 1. Diamond Islets**
 - 4 x vegetated islets
- 2. Lihou Reef**
 - 5 x vegetated islets
 - 16 x coral sand cays

Voyage 1 July 2021 - Diamond Islets and Lihou Reef – 25 islets & cays

Marine debris data

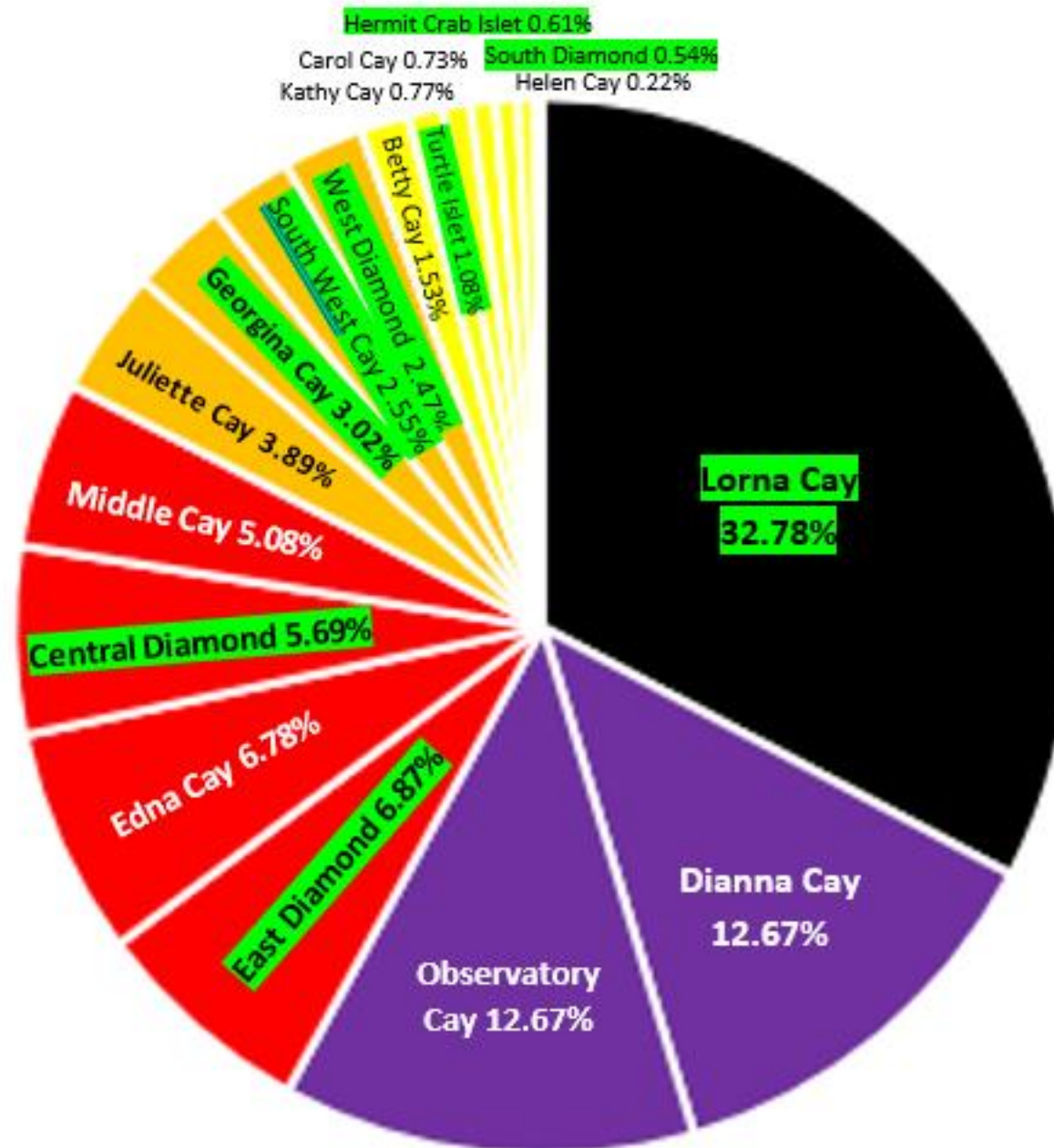
Tangaroa Blue Foundation data: details on 260 separate line items per cay/islet - 14 Oct 21

- **16,613 individual items - 2,036 kg combined weight**
- **Synthetic materials: 16,250 items; 98 percent of the total**
 - **7,614** - degrading hard pieces of plastic
 - **3,487** - plastic lids & bottle tops
 - **1,166 - plastic bottles**
 - **1,099** - metres of synthetic rope - **238** metres, longest single rope length
 - **607** - rubber thongs
 - **131** - square metres of synthetic fishing nets from 6 x FADs
 - **78** - plastic fishing floats of varying sizes
- **415** - wine, spirit and other glass drink bottles and jars
- **803** - items were positively identified as **originating (manufactured) in foreign countries**

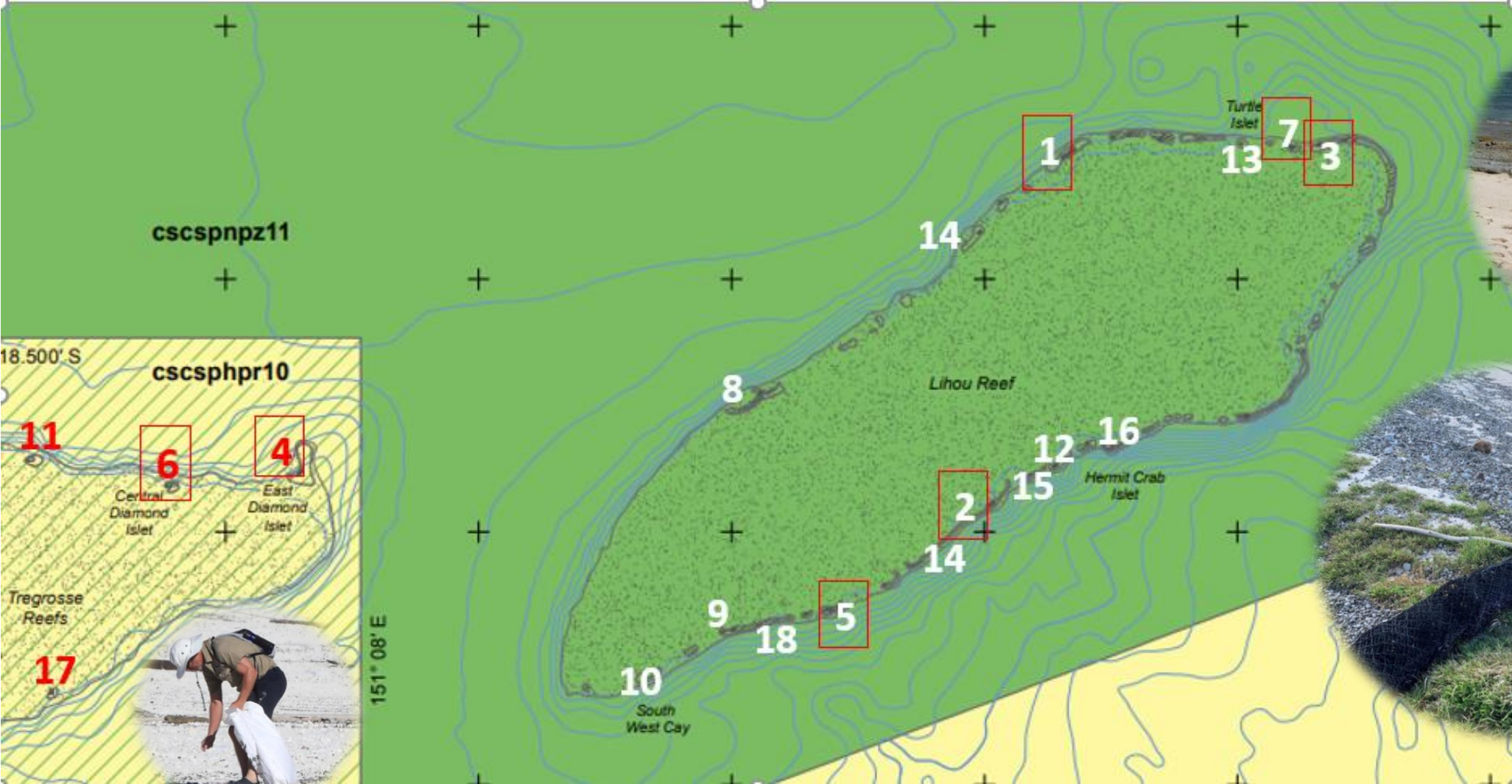




Comparison of individual cays/islets and percentage of total marine debris load (by number of individual items)



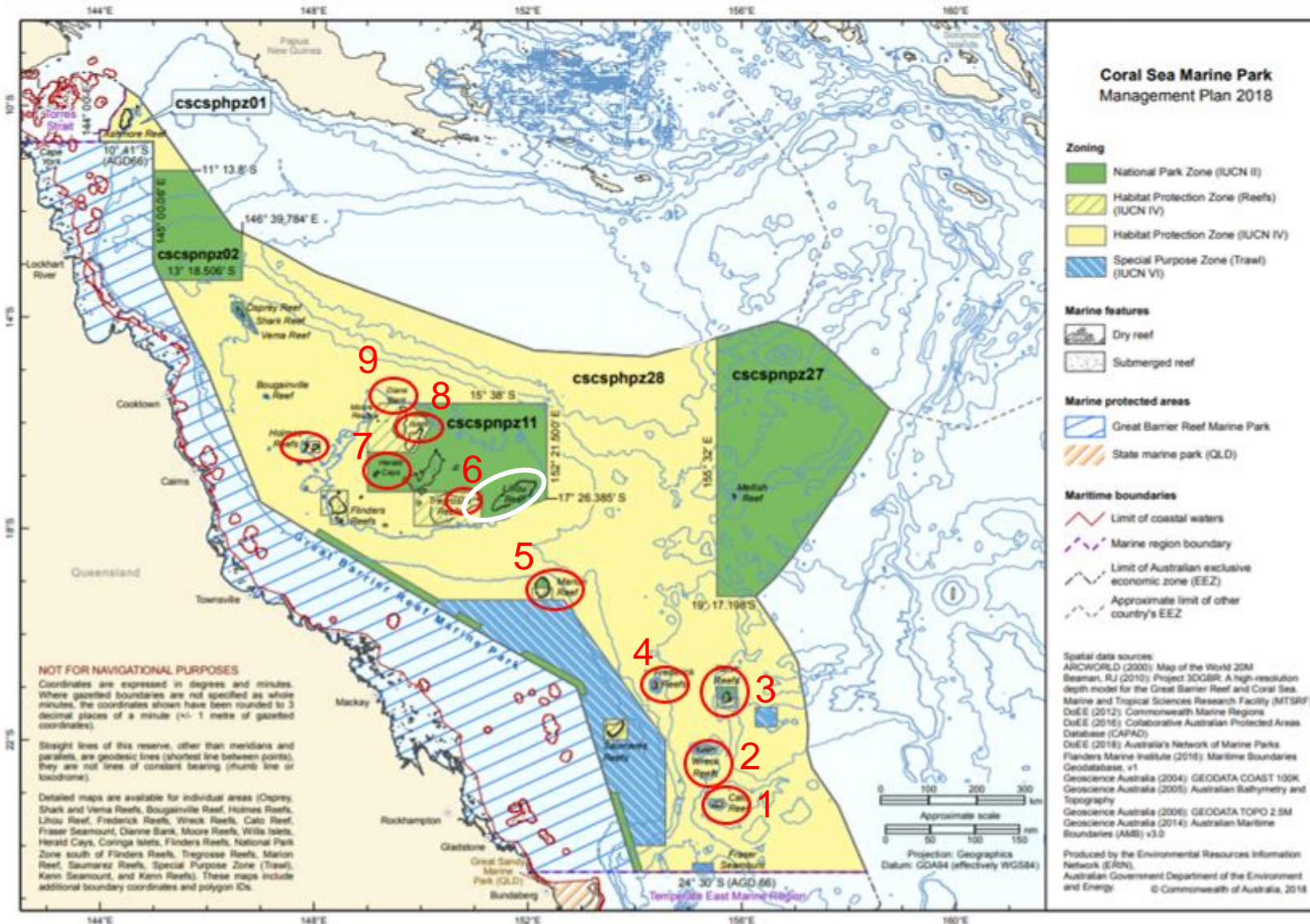
Voyage 1 July 2021 - Diamond Islets and Lihou Reef – Island marine debris load



Voyage 2: 19 May- 09 June 2022 – Southern to Central CSMP region – 20 islets & cays Marine debris data

21 days
1,878 nm (3,478 km)

1. Cato Reef
 - 1 x vegetated island
2. Wreck Reefs
 - 2 x vegetated islands
 - 2 x coral sand cays
3. Kenn Reefs
 - 4 x coral sand cays
 - (i/c 2 uncharted cays)
4. Frederick Reefs
 - 2 x coral sand cays
5. Marion Reefs
 - 3 x coral sand cays
6. East Diamond Islet
 - 1 x vegetated island
7. Herald Cays
 - 2 x vegetated islands
8. Willis Islets
 - 2 x vegetated islands
9. Diane Bank
 - 1 x coral sand cay



Voyage 2: 19 May- 19 June 2022 – Southern to Central CSMP region – 20 islets & cays - Marine debris data

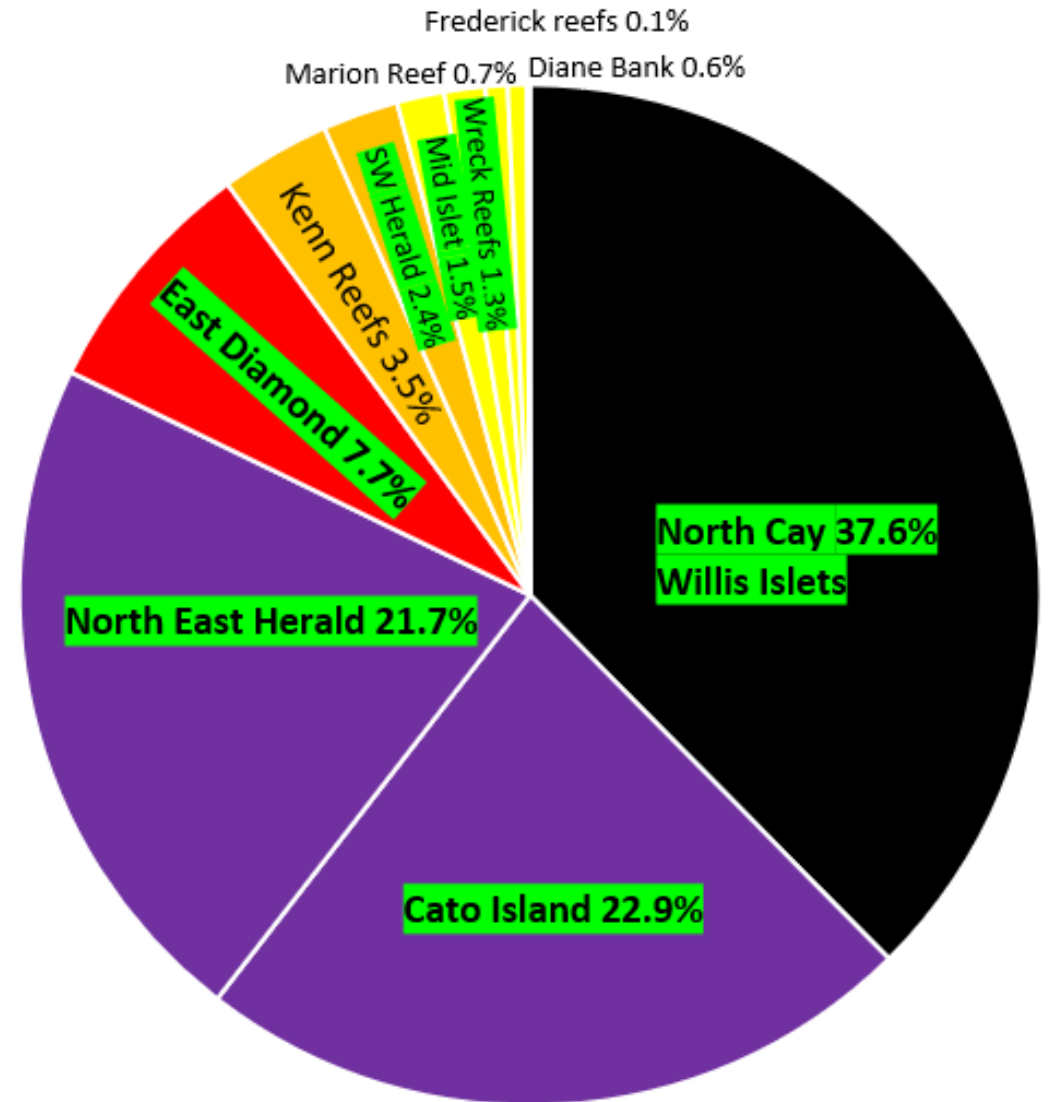
Tangaroa Blue Foundation data: details on 260 separate line items per cay/islet – 25 July 2022

- **11,523 individual items – 1,068 kg combined weight**
- **Synthetic materials: 10,923 items; 95 percent of the total**
 - **3,444** - degrading hard pieces of plastic
 - **1,600** - plastic lids & bottle tops
 - **593** - plastic bottles
 - **452** - metres of synthetic rope
 - **564** - rubber thongs
 - **44** - square metres of synthetic fishing net
 - **64** - plastic fishing floats of varying sizes
- **269** wine, spirit and other glass drink bottles and jars
- **322** items were positively identified as **originating (manufactured) in foreign countries**

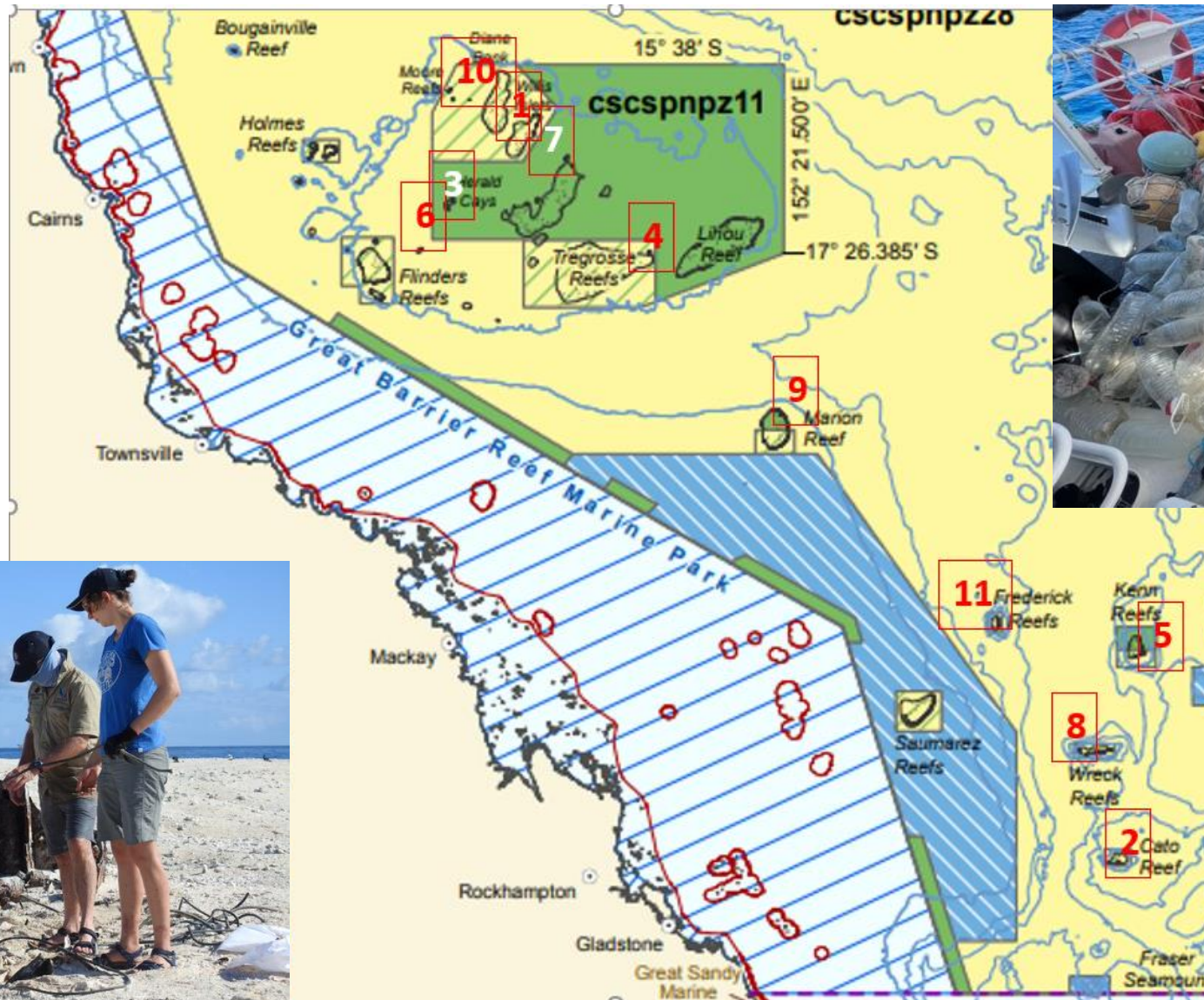




**Voyage 2: Comparison
of marine debris load
of cays/islets as a
percentage of total
voyage marine debris
load -
(by number of
individual items)**



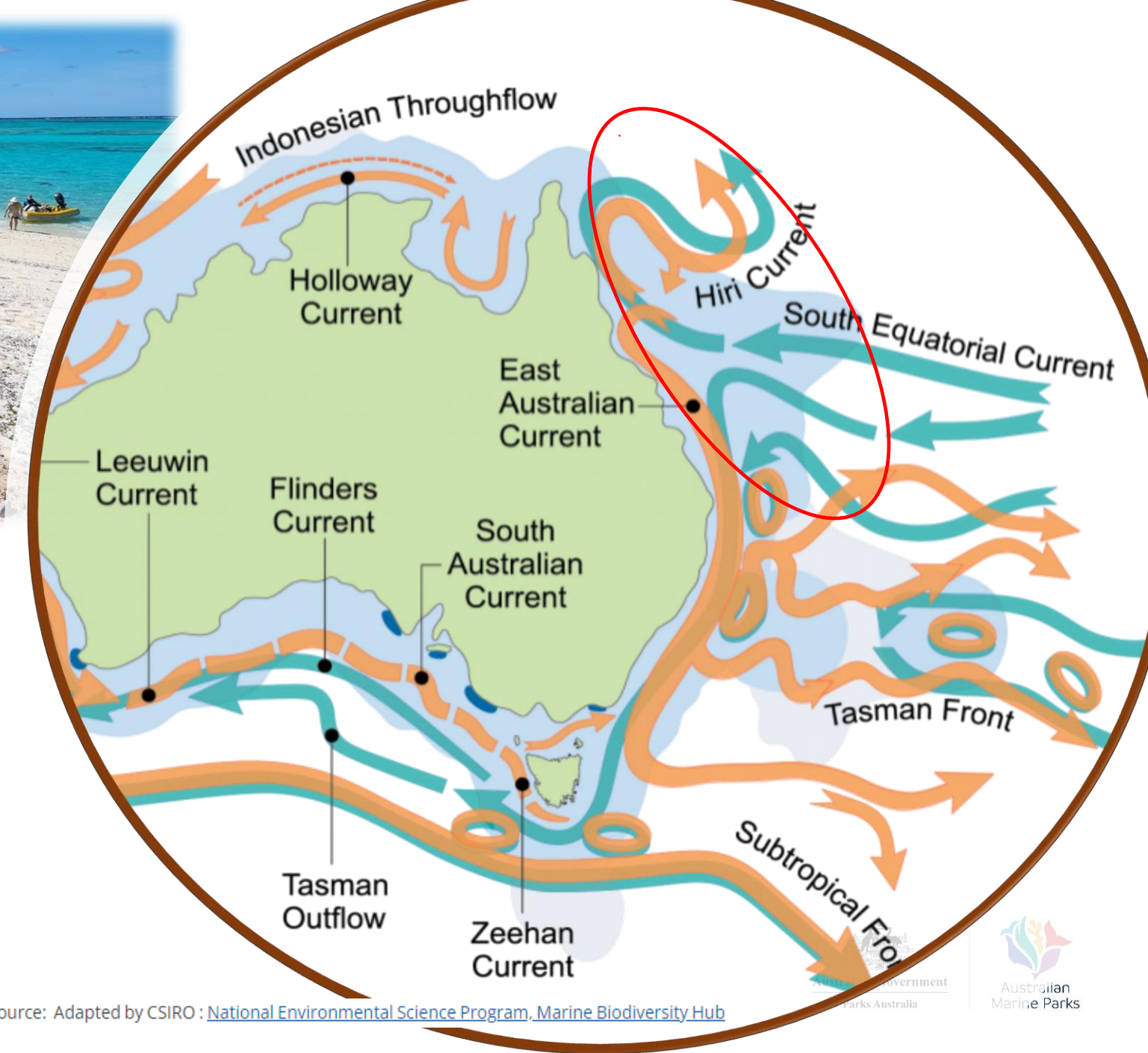
Voyage 2: May/June 2022 – Southern to Central CSMP region – Island marine debris load



East Diamond Islet marine debris load: July 2021 to June 2022

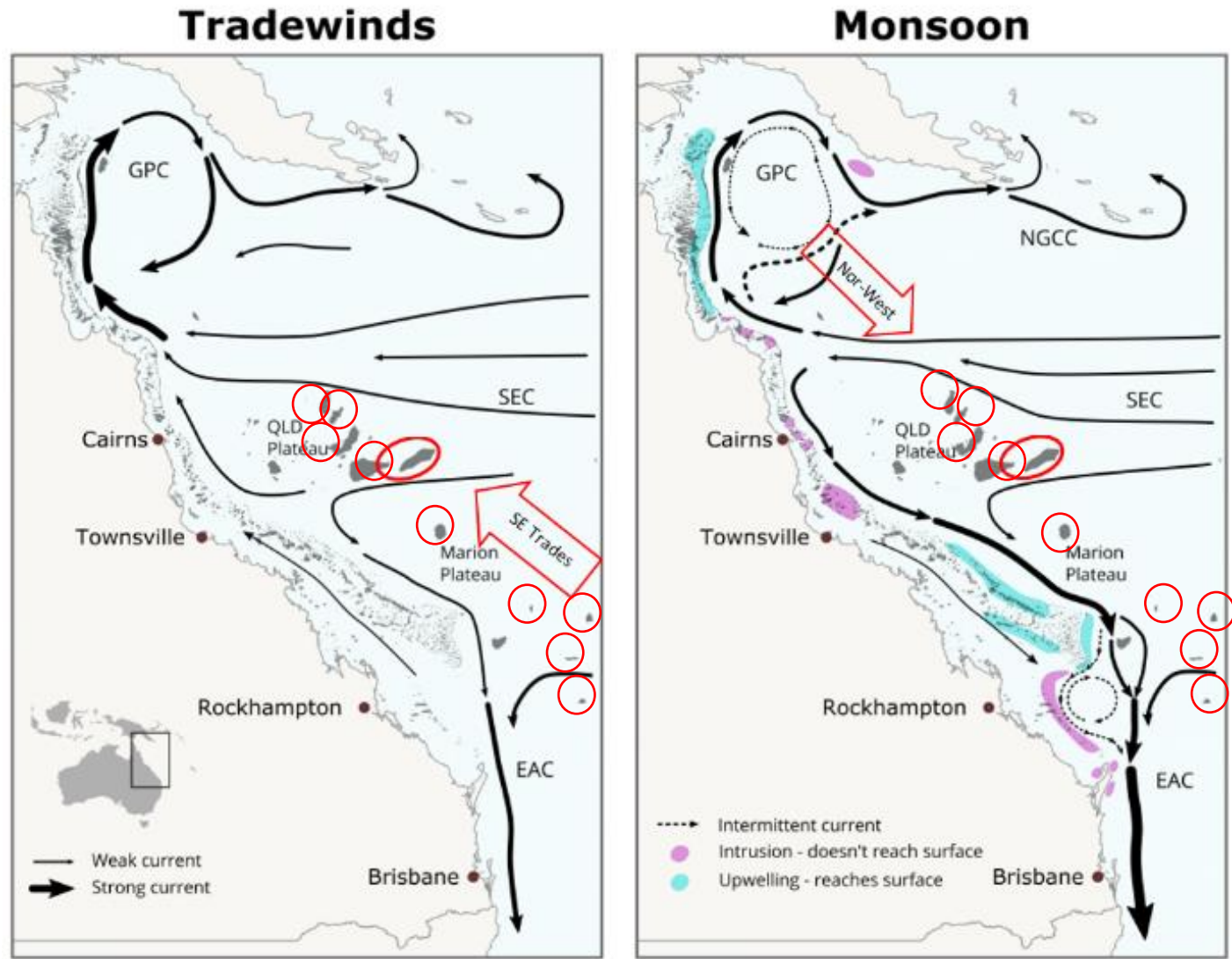
Year	Broken plastic, burnt pieces	Plastic lids / bottle tops	Plastic drink bottles	Plastic misc.	Insulation packaging	Non-food bottle	Food package	Thongs, rubber soles	Rubber remnants, toys	Rope / net scrap <1M	Rope Metres	Fishing nets M ²	Glass bottles, jars, wine /spirits	Total
July 2021	738	170	32	44	25	17	12	26	6	11	18	0	5	1,107
June 2022	180	150	84	53	42	40	11	47	15	123	36	24	14	889

Note: All 260 marine debris line items are not listed, but **Total** figures are correct.



Source: Adapted by CSIRO : [National Environmental Science Program](#), [Marine Biodiversity Hub](#)

Currents and winds prevalent in the Coral Sea Marine Park



This map shows prevailing surface currents, which are dependant on winds. This does not show variations due to weather and eddies.
GPC - Gulf of Papua Current, NGCC - New Guinea Coastal Current, SEC - South Equatorial Current, EAC - East Australian Current.

Attribution: Craig Steinberg, Eric Lawrey, 2018

Voyage 1: 10-27 July 2021 1,166 plastic bottles likely to be affected by wind drift

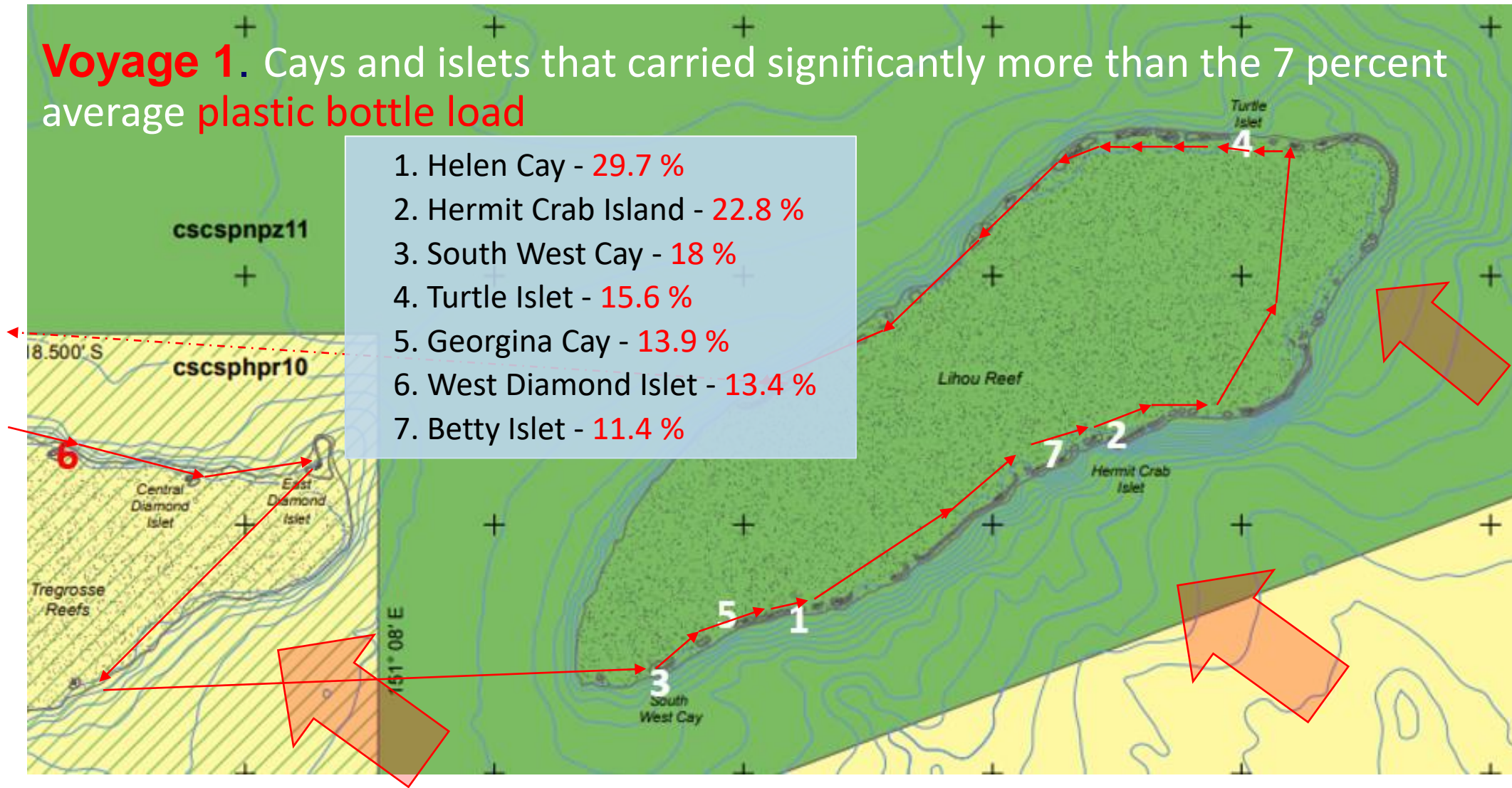
Tangaroa Blue Foundation data: details on 260 separate line items per cay/islet - 14 Oct 21

Cay / Islet	Total count of marine debris items	Total count of plastic bottles	Plastic bottles as a percentage of total marine debris items
Lihou Reef - Lorna Cay (vegetated)	5445	426	7.82 %
Lihou Reef - Dianna Cay	2105	53	2.52 %
Lihou Reef - Observatory Cay	2105	106	5.03 %
Diamond Islet - East (vegetated)	1142	63	5.52 %
Lihou Reef - Edna Cay	1126	76	6.75 %
Diamond Islet - Central (vegetated)	946	53	5.60 %
Lihou Reef - Middle Cay	845	24	2.84 %
Lihou Reef - Juliette Cay	646	62	9.60 %
Lihou Reef - Georgina Cay (vegetated)	502	68	13.55 %
Lihou Reef - South West Cay (vegetated)	423	76	17.97 %
Diamond Islet - West (vegetated)	411	55	13.38 %
Lihou Reef - Betty Cay	254	29	11.42 %
Lihou Reef - Turtle Islet (vegetated)	179	28	15.64 %
Lihou Reef - Kathy Cay	128	9	7.03 %
Lihou Reef - Carol Cay	121	1	0.82 %
Lihou Reef - Hermit Crab Islet (vegetated)	101	23	22.77 %
Diamond Islet - South (vegetated)	90	3	3.33 %
Lihou Reef - Helen Cay	37	11	29.73 %
Lihou Reef - Fanny Cay	4	0	-
Lihou Reef - Margaret Cay	3	0	-
Lihou Reef - Phoenix Cay	1	0	-
Lihou Reef - Little Margaret Cay	0	0	-
Lihou Reef - Frankie Cay (awash)	0	0	-
Lihou Reef - No Name Cay (submerged)	0	0	-
Totals	16,613	1,166	Average 7.02 %



Voyage 1. Cays and islets that carried significantly more than the 7 percent average **plastic bottle load**

1. Helen Cay - 29.7 %
2. Hermit Crab Island - 22.8 %
3. South West Cay - 18 %
4. Turtle Islet - 15.6 %
5. Georgina Cay - 13.9 %
6. West Diamond Islet - 13.4 %
7. Betty Islet - 11.4 %



Next steps:

Tangaroa Blue Foundation Coral Sea Marine Park clean-up voyage - November 2022

- **\$164,000 grant** - Parks Australia's 'Our Marine Parks Grants - Round 3' program
- Voyage to **4 x Diamond Islets and 11 of the Lihou Reef cays/islets**
- Marine debris analysis from this voyage will provide the following data:
 - MD load on cays/islands 16 months after being cleaned in Jul '21
 - accumulation of MD on East Diamond Islet just 4½ months after being cleaned in Jun '22
 - opportunity to reassess analysis and hypothesis of effects of SE Trade-winds on light-weight high-floating marine debris (i.e. plastic bottles)



Coral Sea Marine Park



Australian
Marine Parks

