



GEO Blue Planet 5th Symposium

Local action in support of global traction

24 - 28 Oct 2022 | Accra, Ghana

5th Symposium | Accra, Ghana | 24 – 28 October 2022



Fisheries Support through OCIMS and MarCOSIO projects

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Council for Scientific and Industrial Research*



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 - National Oceans and Coastal Information Management System (OCIMS)
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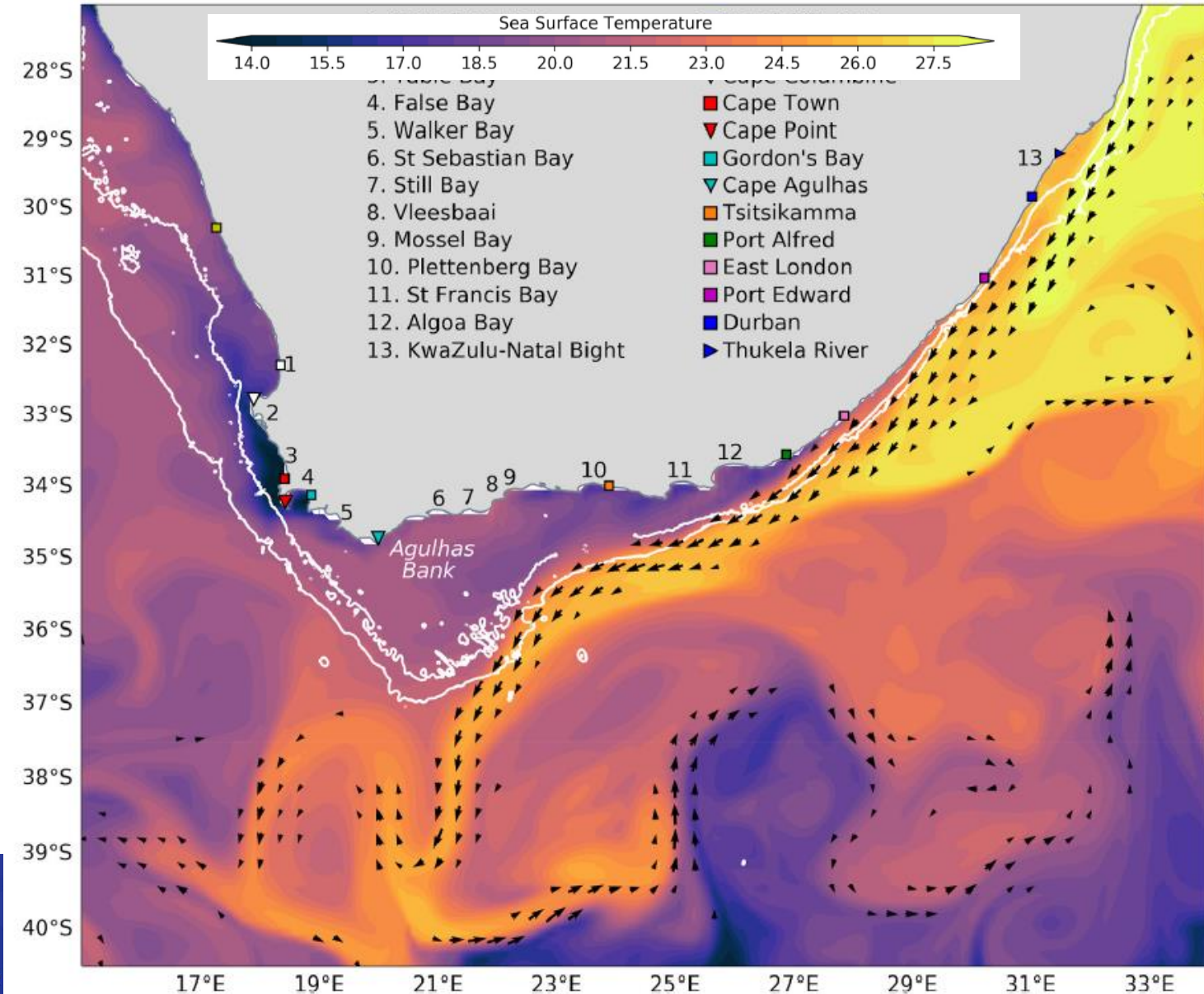


Environmental overview



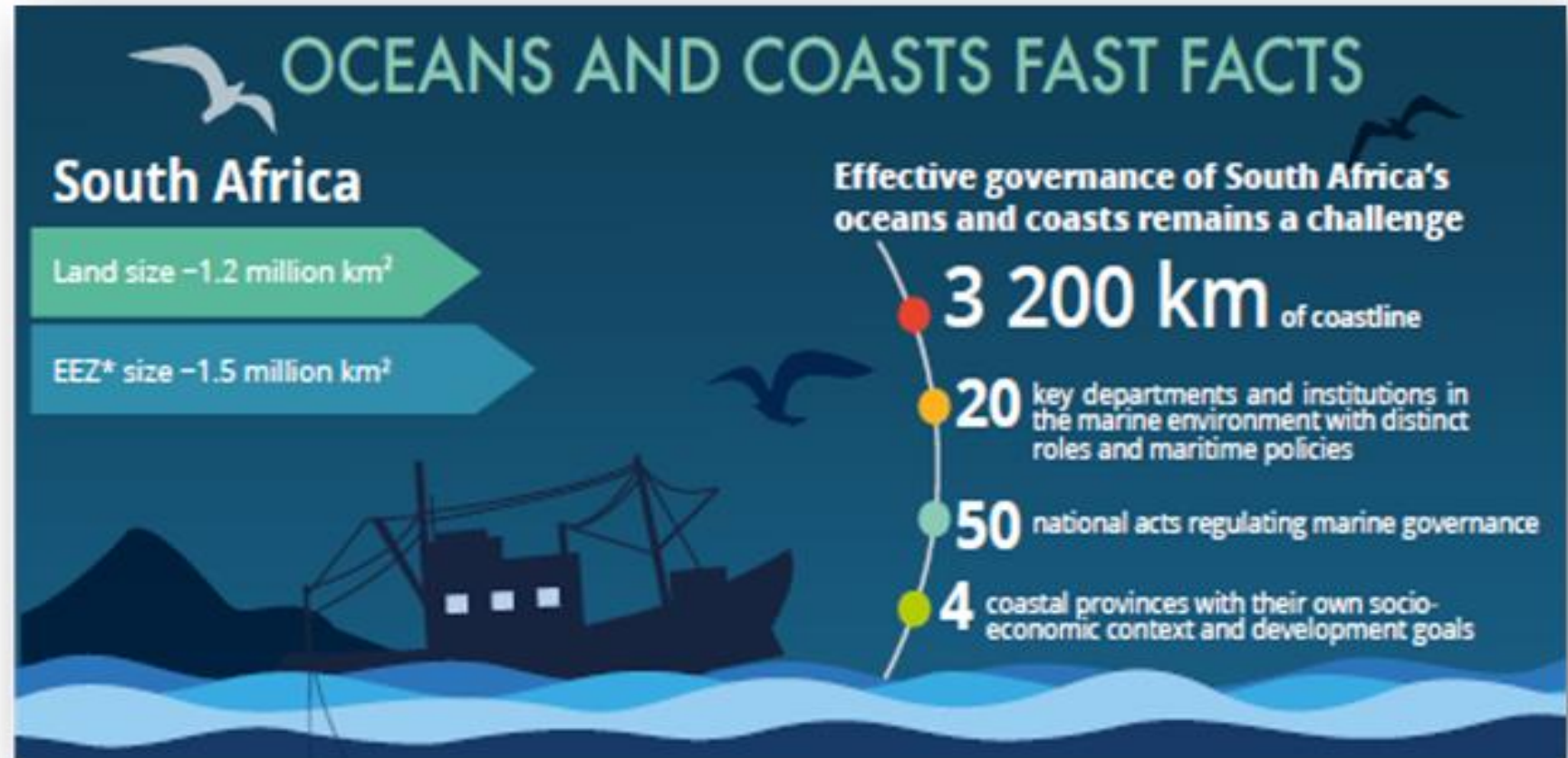
Southern African Coastal Environment

- Dynamic environment with great variability in physical and biological characteristics
 - Productive upwelling on the west
 - Warm Agulhas current, subtropical environment on the east



Southern African Marine Environment

- SA marine environment covers vast spatial scales
- Earth Observation-based information helps with
 - ✓ Monitoring
 - ✓ Protection
 - ✓ Management
 - ✓ Policing



Environmental threats : Harmful algal blooms

- Some phytoplankton can be harmful to the marine ecosystems through:
 - Toxins
 - Mechanical damage
 - Low oxygen water
- These blooms can change the colour of the water, and are often referred to as “red tides”



Devastating farmed abalone mortalities attributed to yessotoxin-producing dinoflagellates

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^c Independent Researcher, Stanford, South Africa

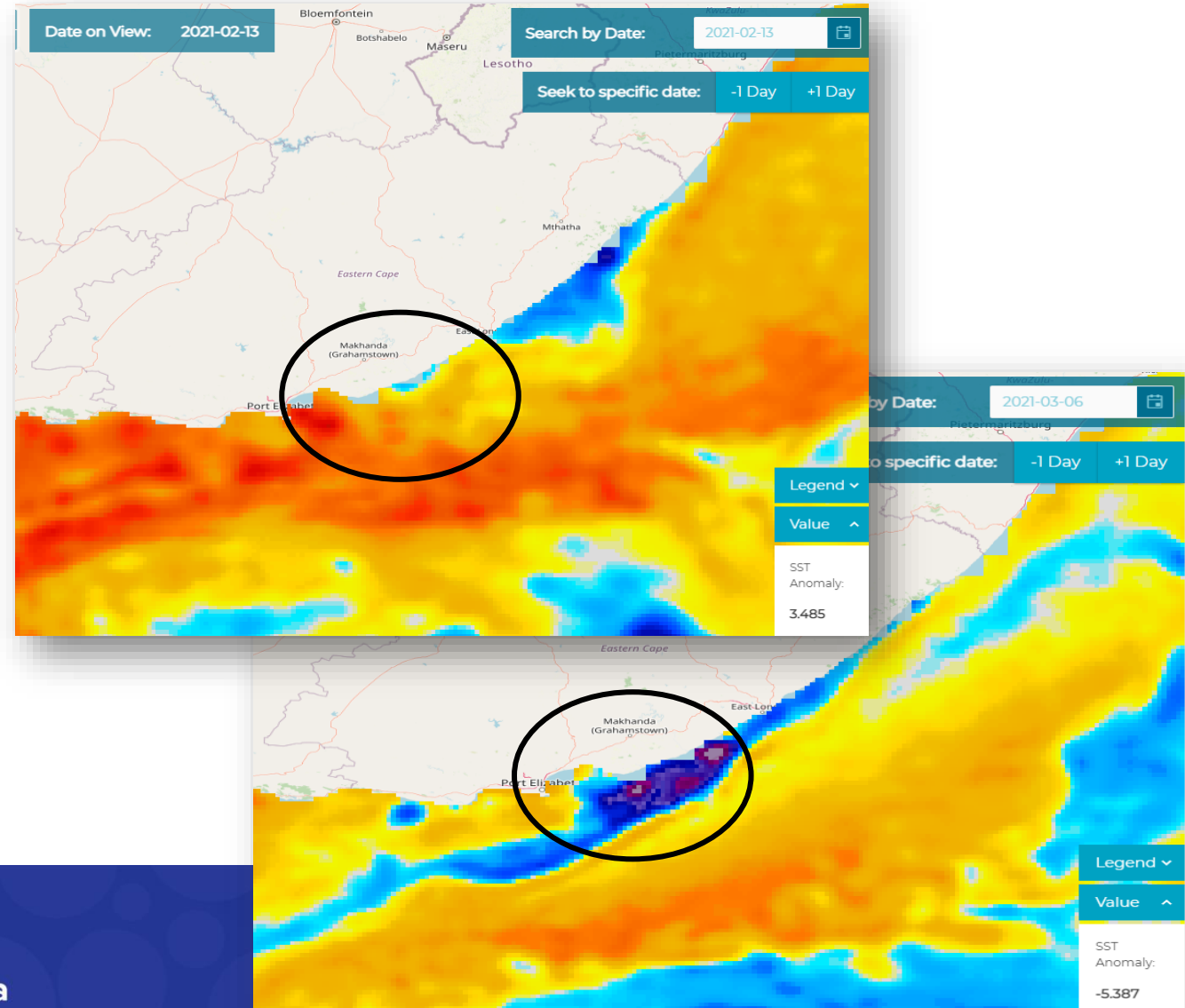
^d NRE Earth Observation, Council for Scientific and Industrial Research, Cape Town, South Africa

^e Amanzi Biosecurity, Sandbaai, South Africa

^f Food and Beverage Laboratory, Aspirata, Cape Town, South Africa

Environmental threats : marine heatwaves

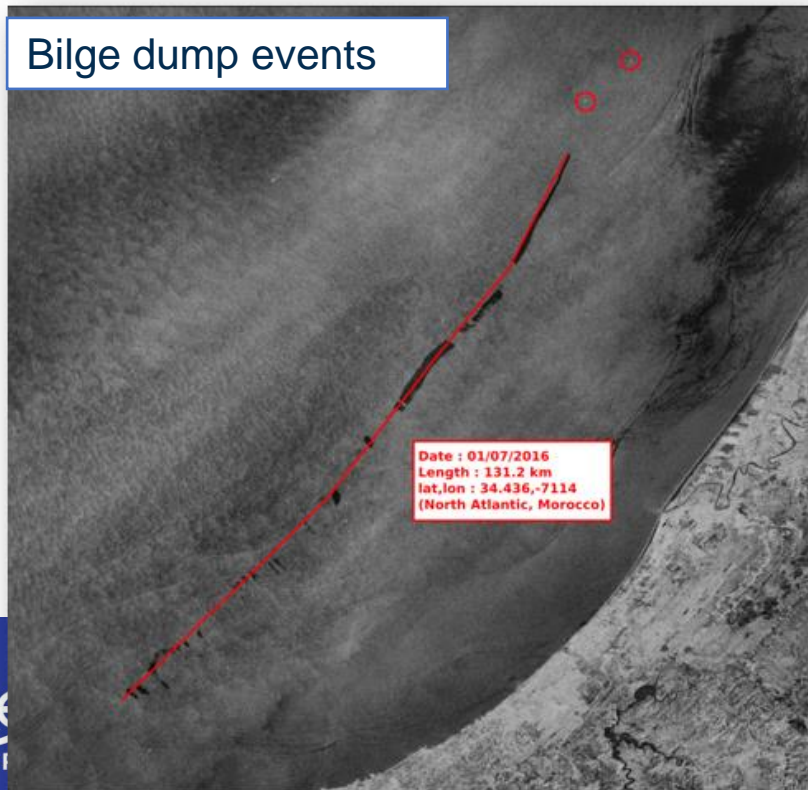
- Some dynamic coastal areas may experience sudden extreme changes in water temperature
 - Thermal shock
 - Bleaching of seaweeds
- Persistent marine temperature increases can lead to **coral bleaching**, with cascading impacts for reef ecosystems



Anthropogenic threats : Maritime Pollution

- Some ships bypass costly pollution prevention equipment by simply flushing the bilge water directly into the sea.
- Oil spill events have drastic impacts to the marine environments

Bilge dump events



Brazil Oil Spill incident (2019).



Anthropogenic threats : Illegal, Unreported and Unregulated (IUU) Fishing

NATURE | NEWS

South Africa tackles crime at sea with ship-spotting satellites

Automated vessel-tracking system aims to spy poachers and smugglers.

Linda Nordling

10 November 2017

Rights & Permissions



Maritime Security

Navy plays major role in impounding 600 tons of squid and other fish as well as foreign trawlers

defenceWeb - 26th May 2016



The three foreign fishing vessels, escorted into East London harbour earlier this week by the SA Navy replenishment vessel and the DAFF vessel, Sarah Baartman, were carrying 600 tons of squid as well as other fish caught illegally.

The vessels have been inspected and searched by a team comprising representatives of the SA Police Service, SARS Customs, Department of Home Affairs (Migration) and the SA Maritime Safety Authority

'Rogue' fishing vessel seized in PE harbour



3 Chinese squid jiggers in South African waters – Illegal fishing or innocent passage ?

Fu Yuan Yu fishing fleet – built in China to exploit unregulated squid and tuna stocks on the high seas In recent months, the Fu Yuan Yu fleet has come into focus for illegal tuna fishing in the southern Indian Ocean. Back in March this year i wrote about the ...

ARTICLES, IUU FISHING



KORYO Maru 811

forestry, fisheries & the environment

Department of Forestry, Fisheries and the Environment
REPUBLIC OF SOUTH AFRICA

Earth Observation Product Development



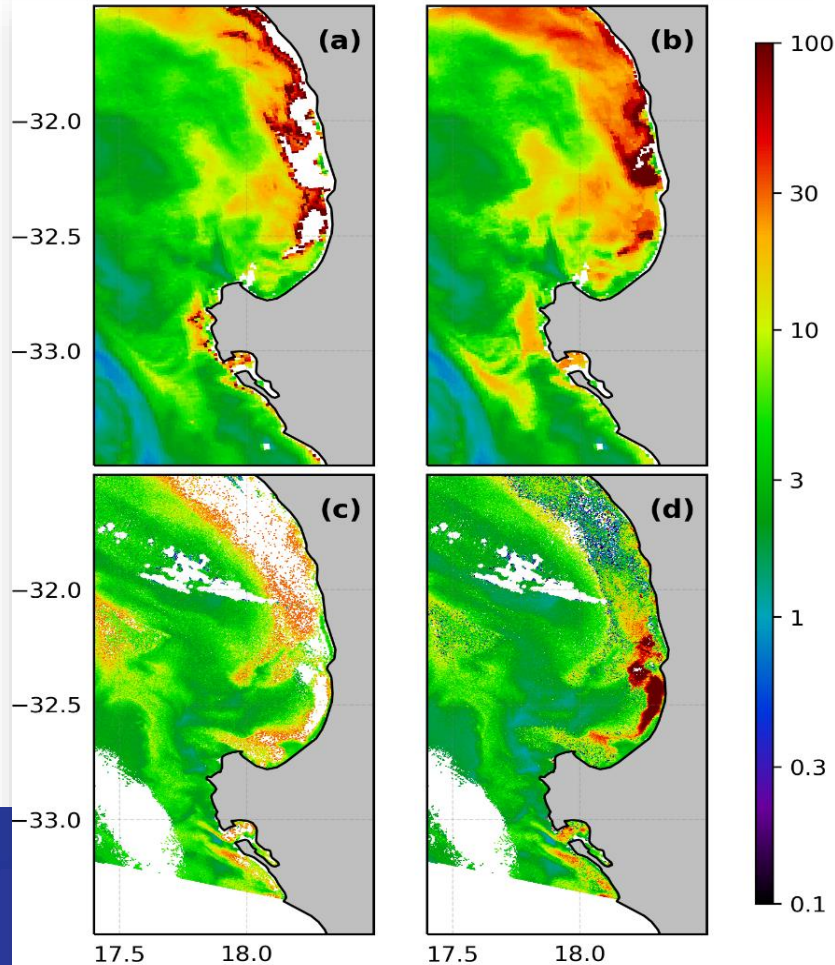
Regional ocean colour products

Standard products
flagged out

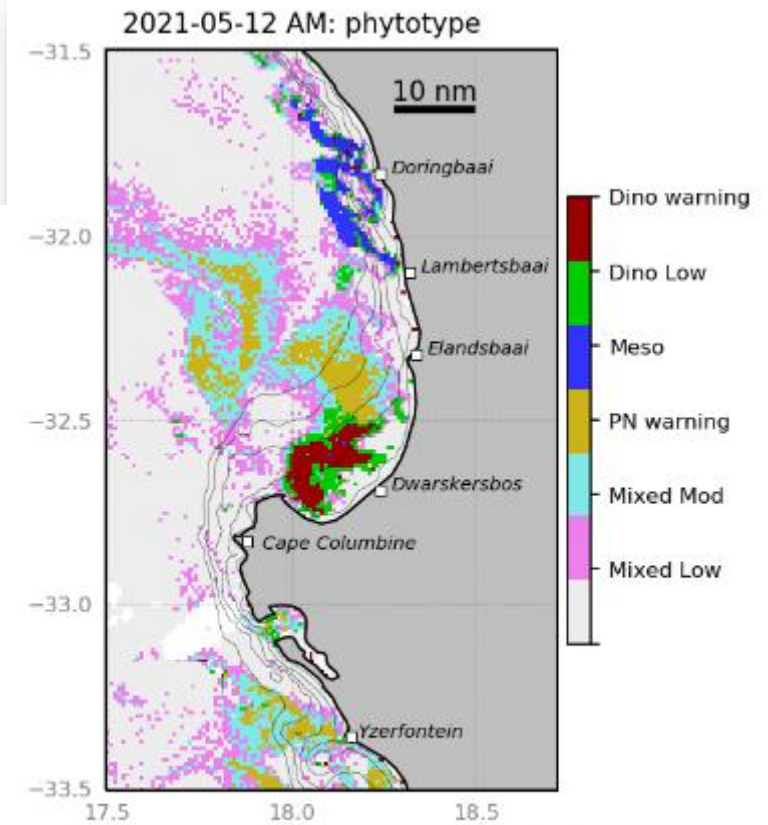
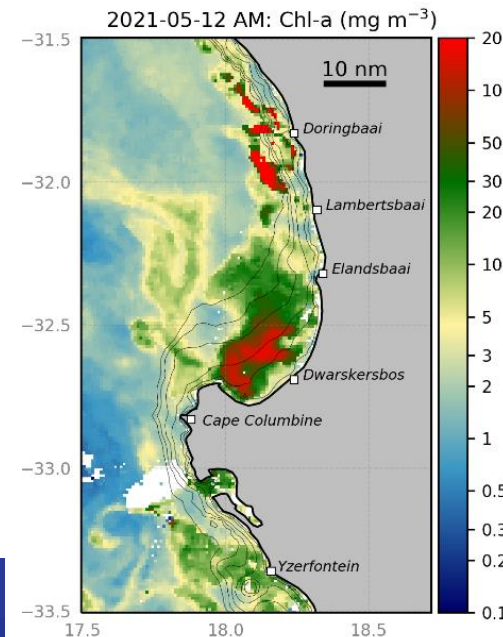
New improved
regional products

- Chl-a products optimized to cope with high biomass coastal waters

- Phytoplankton type products

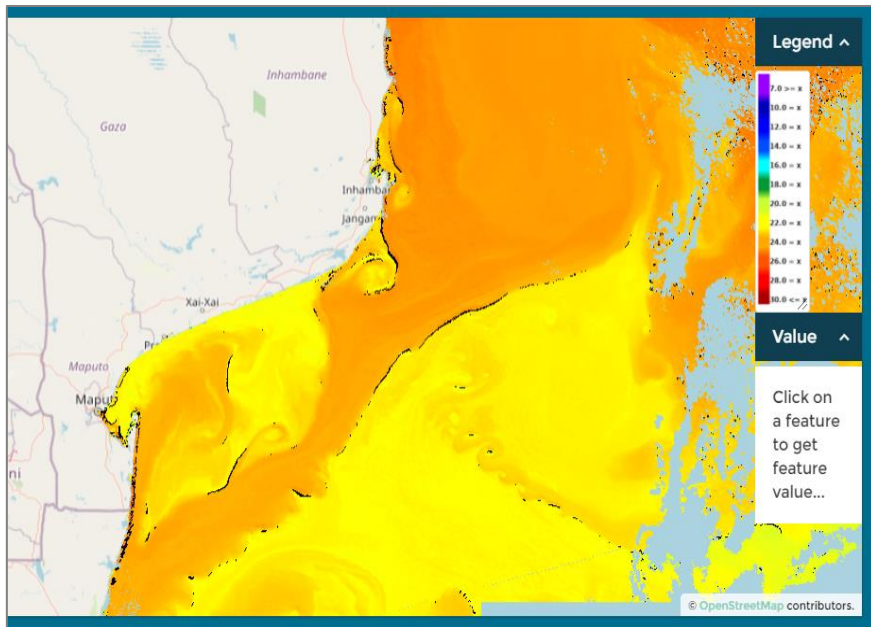


Accra, Ghana

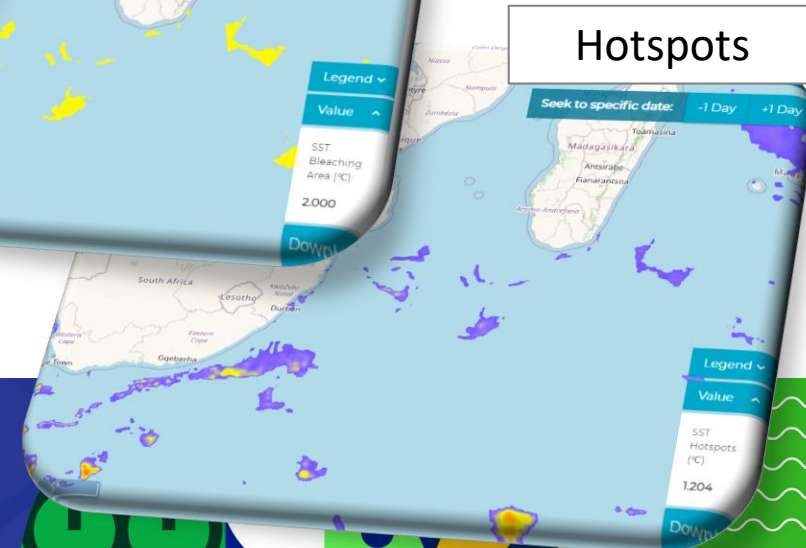
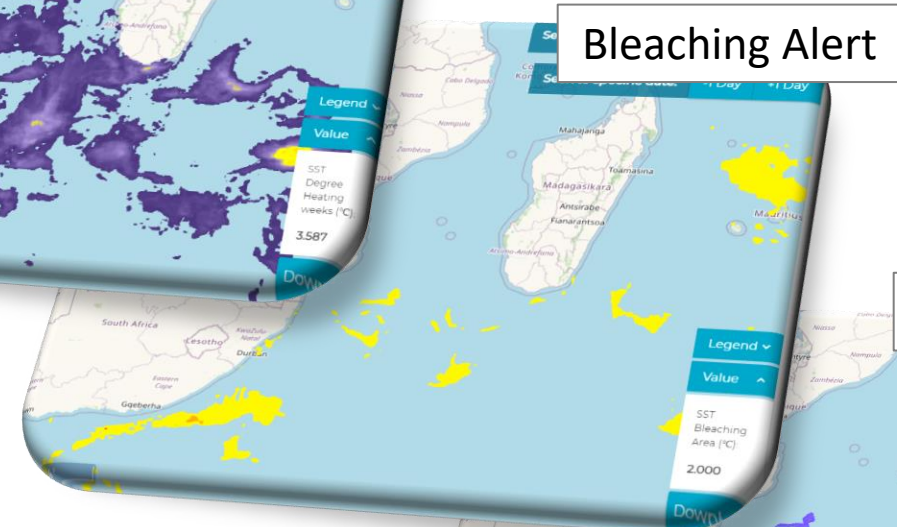
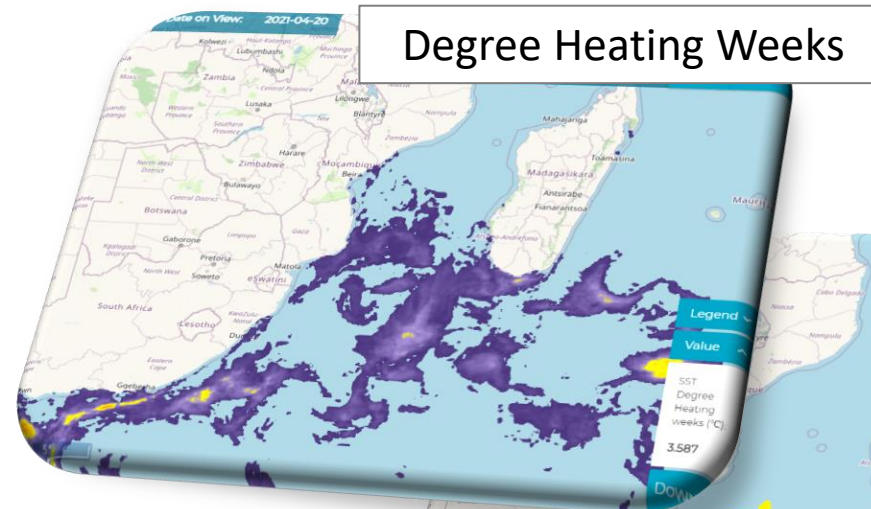


Sea surface temperature products

- Twice daily near-real time temperature with frontal gradients

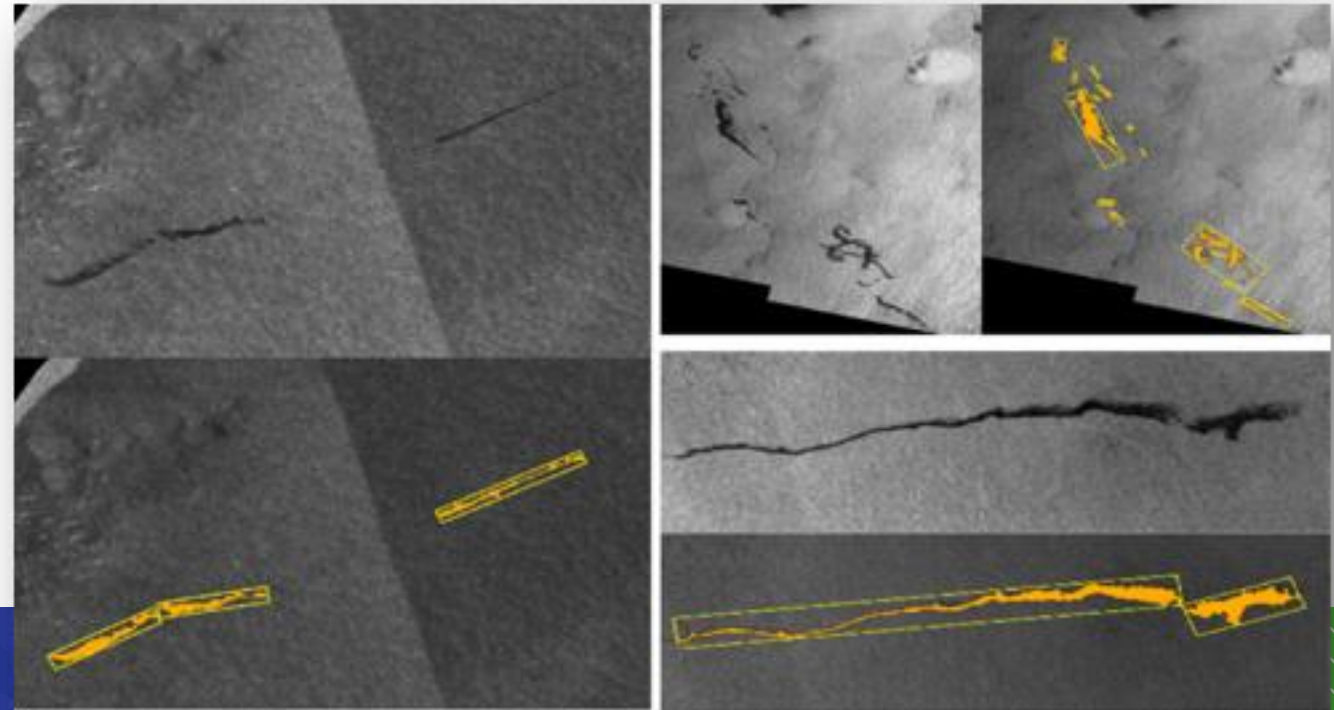
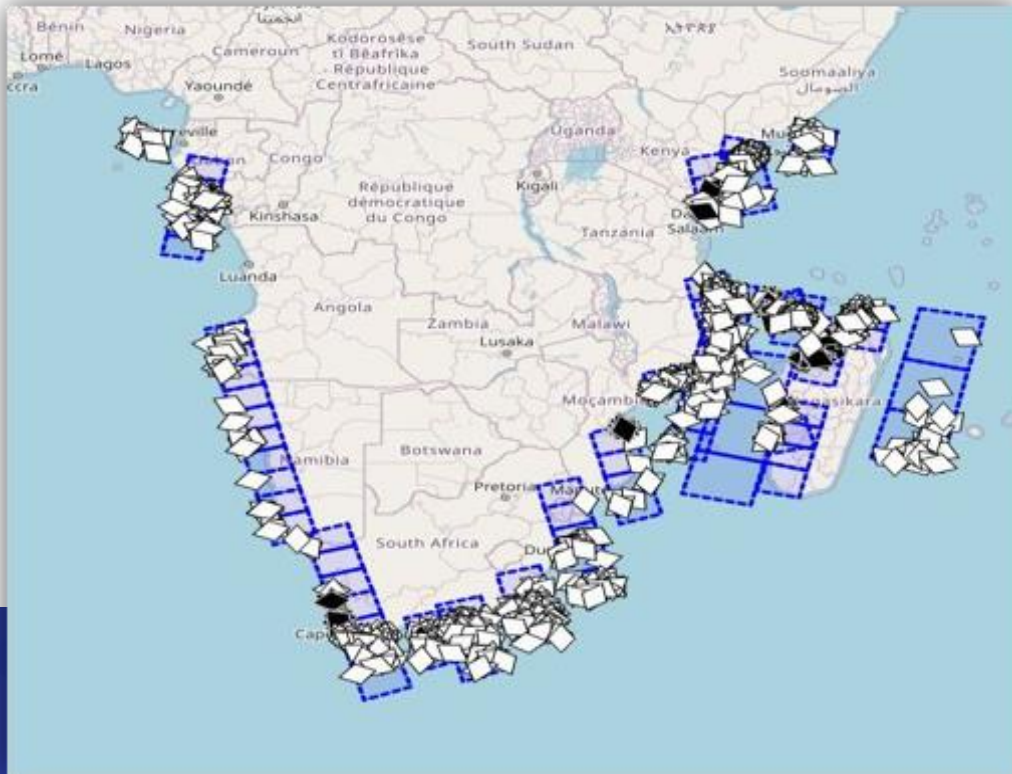


- Thermal stress products



Synthetic Aperture Radar (SAR) products

- When merged with AIS transponder data, SAR is used to detect ships known as “dark targets”
- Automatic detections of oil spill events and Bilge Dump events



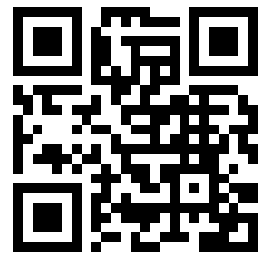
National and regional initiatives supporting fisheries



National Oceans and Coastal Information Management System

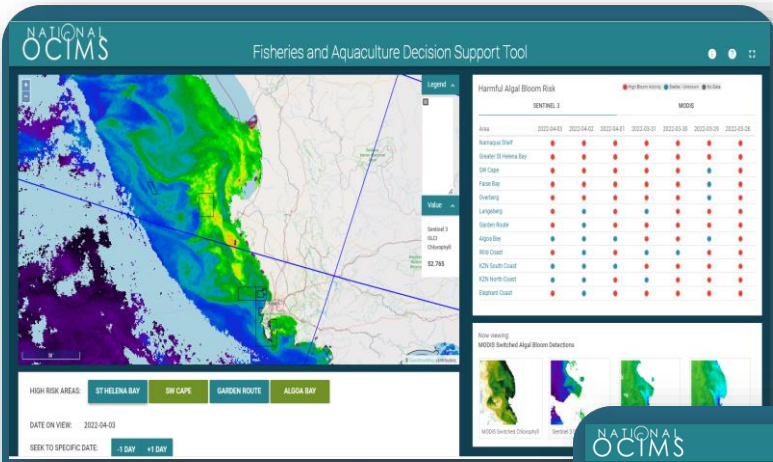


- OCIMS is a national system built on multiple partnerships in response of Operation Phakisa Initiative 6 : Ocean protection and governance
- The goal is to promote FAIR data access, information sharing & adhere to international best practices
- Decision Support Tools are developed through consultations between developers and stakeholders



National Oceans and Coastal Information Management System

Fisheries-related Information dissemination services



OCIMS Fisheries and Aquaculture Decision support tool

Government advisories

Fish and shellfish washouts and mortalities on the west coast of South Africa

25 March 2021

Over the past week large fish and shellfish aggregations, in the shallow nearshore, as well as mortalities have been observed in three different parts of the coast from Elands Bay to north of the Olifants River Estuary of Cape Town and in False Bay. The stressed and washed animals include sandling, basslets, white shrimp and octopus. Surprisingly, no lobster, sweet-lobsters or krib have been reported whereas in False Bay, the (baasops) have washed up on the shore.

The phytoplankton identified at Elands Bay is not toxic and therefore unlikely responsible for the mortalities there. The washouts and mortalities are more likely a result of the current sea and anoxic nearshore conditions that which are probably driving fish and shellfish into the warmer, shallower and more nearshore. Some of these stressed fish become too weak to avoid being stranded or washed up on the beach. This non-toxic confirmation is only for Elands Bay and does not preclude the red-tide to the north including toxic forms of phytoplankton. This, and the possibility that some of the fish and shellfish may be rolling for longer than thought, makes a wise choice to not feed any to family, friends, or pets.

The fish mortalities in False Bay are almost exclusively of the six-eye pufferfish (baasops) with counts of 300 to 400 dead fish per km² of shore. There are no reports or data of any adverse water conditions or red-tide toxins that may have caused this.

The Pufferfish carry the deadly neurotoxin (Tetrodotoxin) and should be avoided to keep their pets away from them. If one's dog does eat a reduced immediately, and a veterinary surgeon consulted.

Satellite composite map, red areas showing the highest phytoplankton and extent of the red tide on the West Coast.

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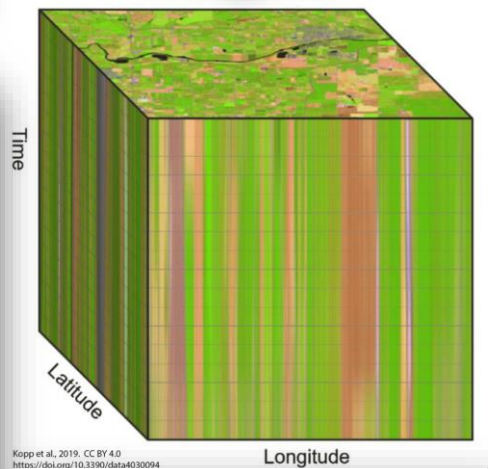
Government advisories

Regional WhatsApp groups

Email HAB bulletins



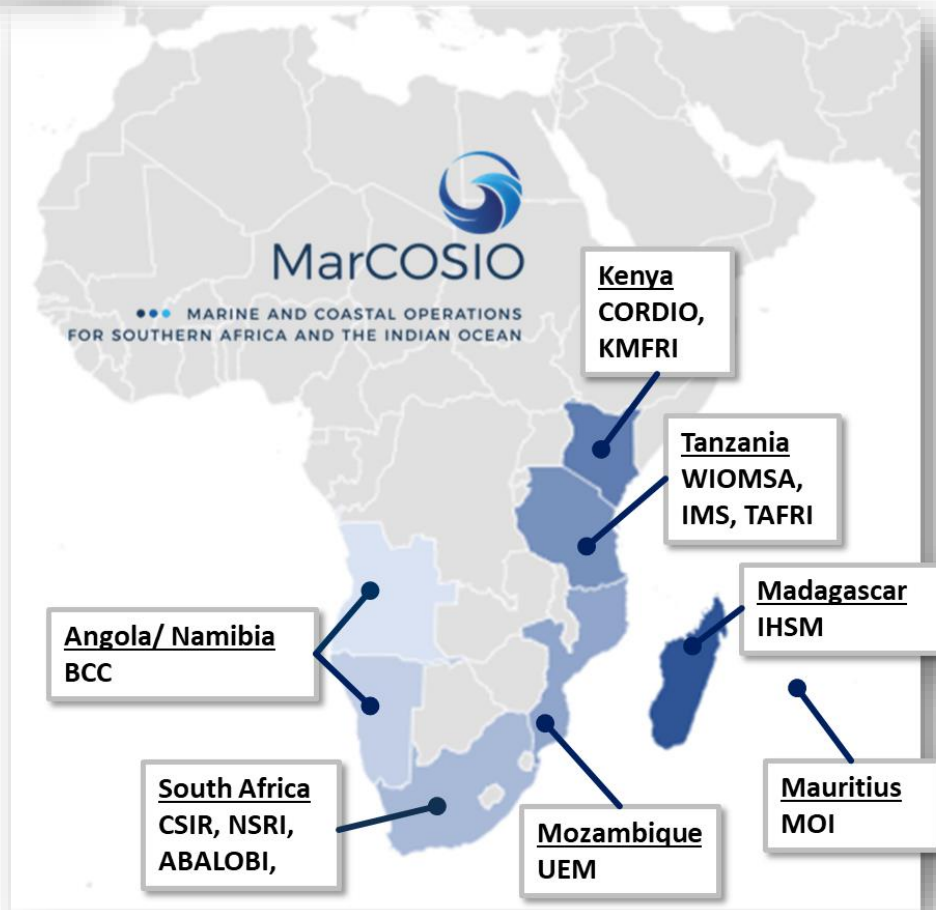
Data cubes



OCIMS Integrated Vessel Tracking Decision support tool

OCIMS Integrated Vessel Tracking Decision support tool

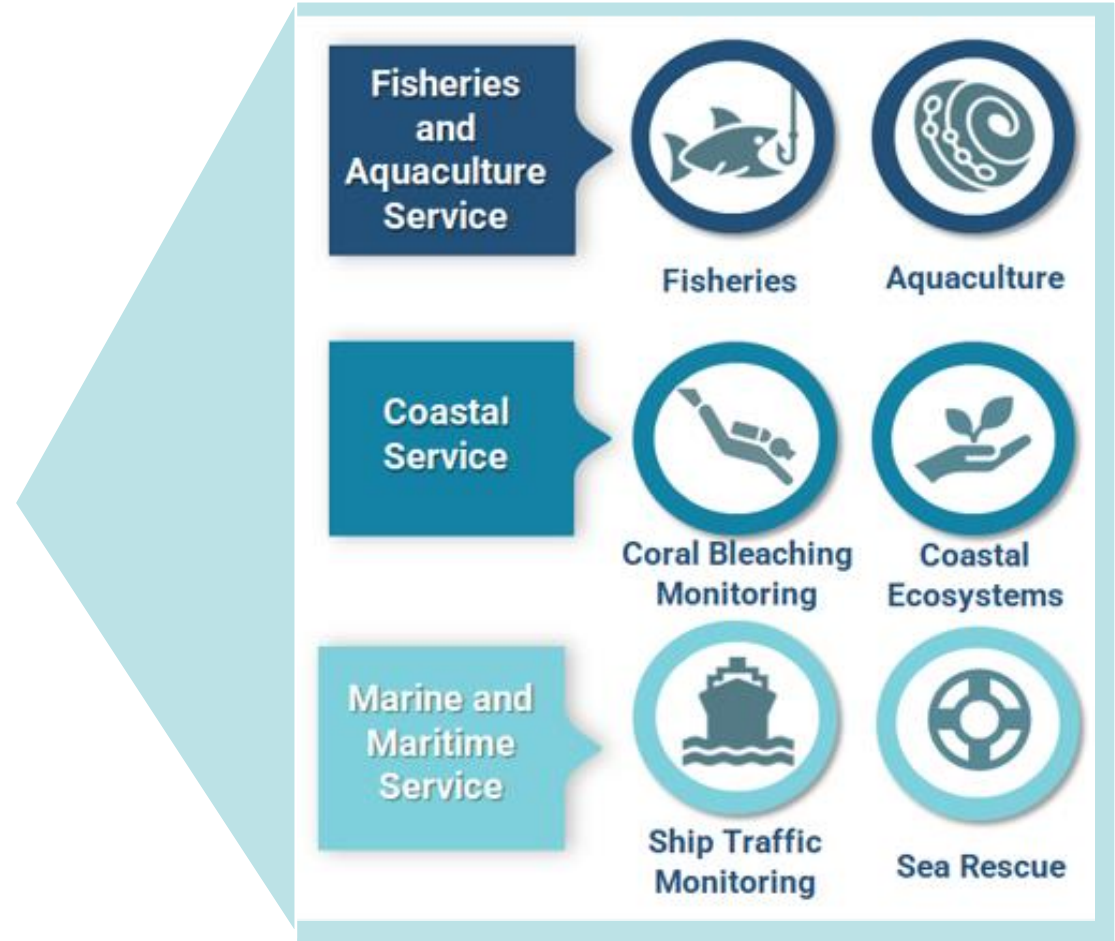
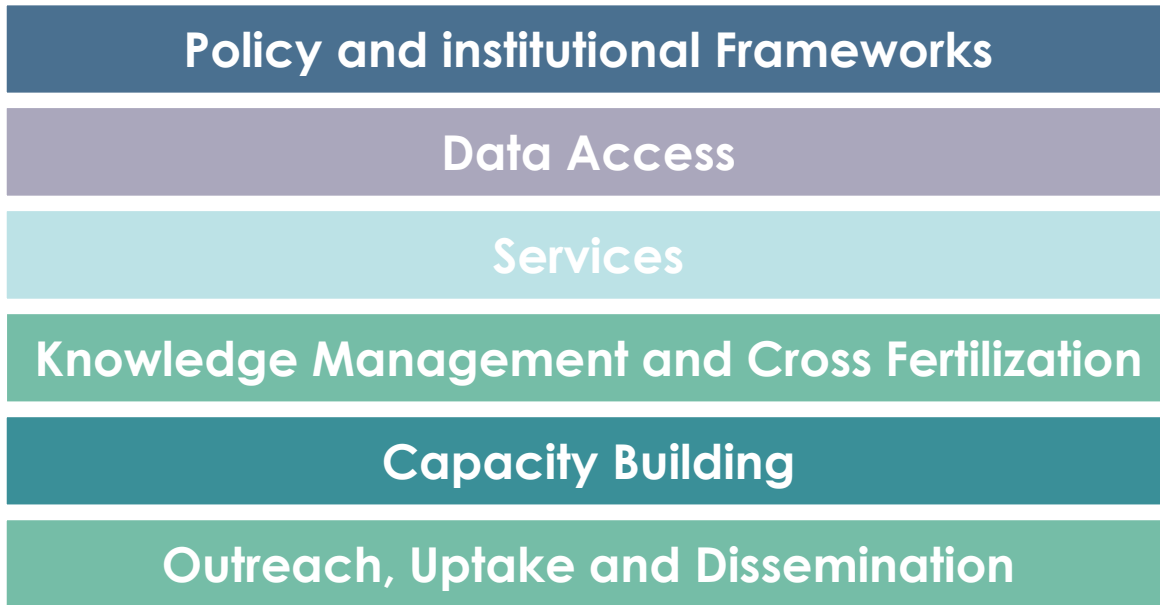
CURRENT SHIPS	COORDINATES	SAR	CAMERA	IMAGES
35378000	YM NAVIGATOR	329C	Panama	
63002048	YM PIONEER	DS20	Libia	
60187300	YOLD (GOLD SALON)	29795	South Africa	
35134000	YONGSHENG OCEAN	3PL8	Panama	
41102000	YU JIAO TENG	88PL	China	
41230000	YU GUAN TENG	88PC	China	
60139000	ZAMANI 1	2C099	South Africa	
53805042	ZH KIAN ZH KING	V7A2174	Marshall Is	
63002162	ZM PACIFIC	SL209	Libia	



- Previously known as MarCOSouth
- Regional expansion of OCIMS services
- One of 2 marine consortia within the GMES&Africa programme
- The MarCOSIO project is lead by the CSIR (South Africa)
- The project represents 12 partners in 8 countries in Southern Africa and the Western Indian Ocean (WIO) region



Project pillars





The Marine and Coastal Operations for Southern Africa and the Indian Ocean



Connect with us!

- We are in the 1st year of a 4 year implementation and support project
- We have the data and the products, so tell us how we can support YOU in fisheries and aquaculture domains
- Whether its with statistical summaries, case studies, virtual stations, api access for your regional app
- Come chat to me at the MarCOSIO poster in the fisheries booth





Thank You.
Medaase.
Oyiwaladon.

