DEVELOPMENTS IN SPILL RESPONSE

+ ILLUSTRATIVE CASE STUDY

15th February 2024

PAJ Oil Spill Workshop 2024

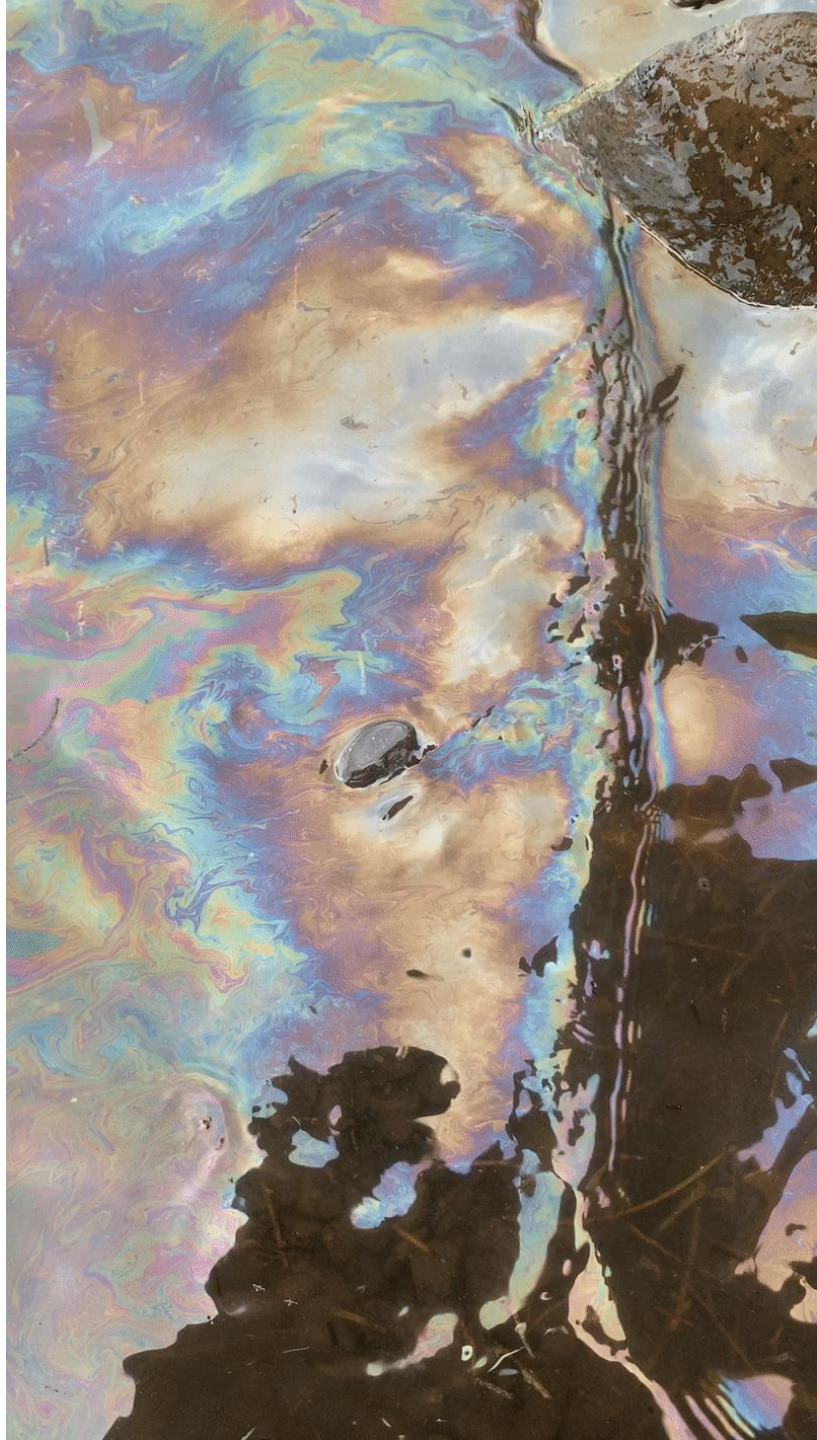
ITOPF

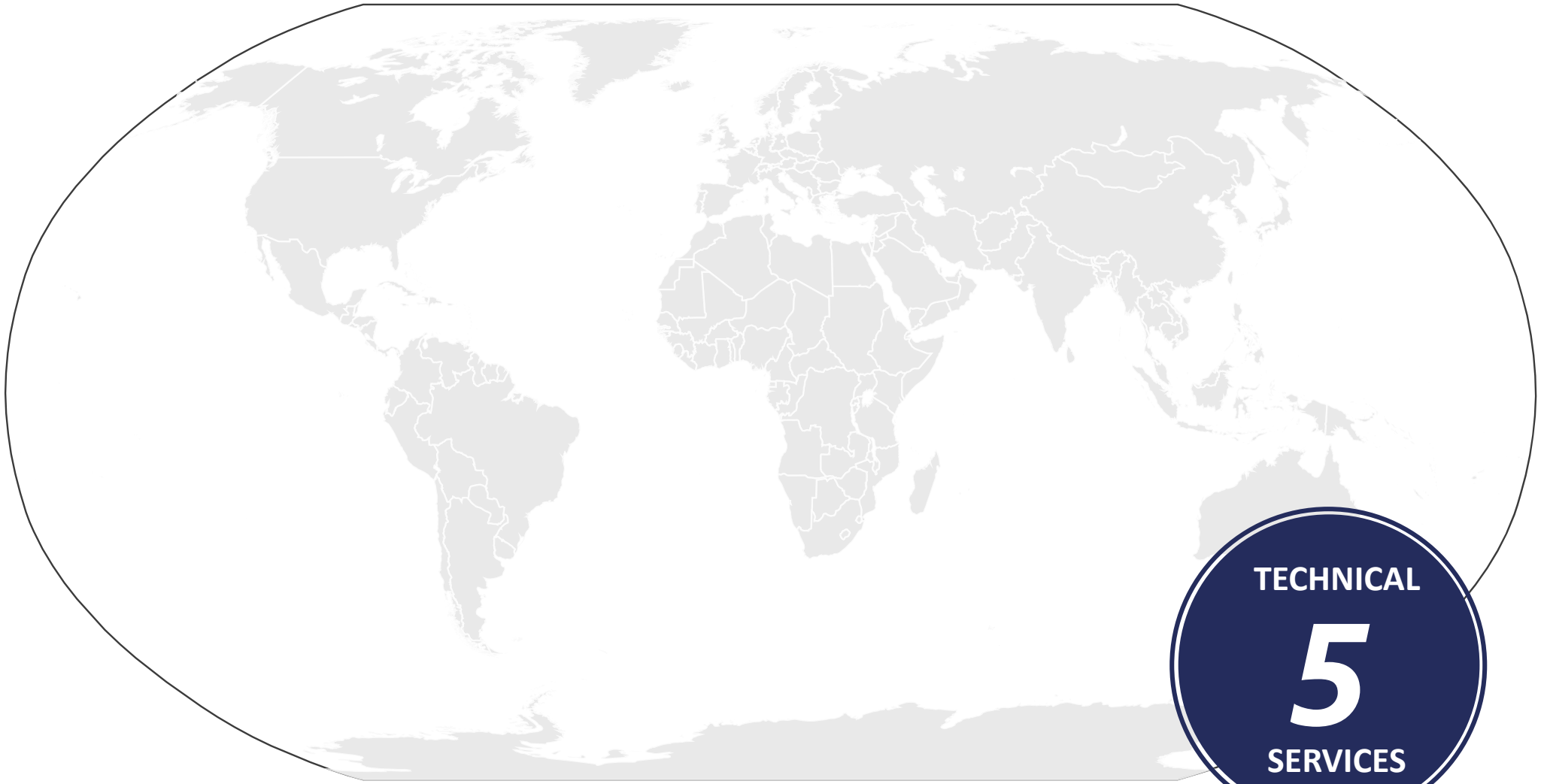
CONTENTS

ITOPF'S AIM:

ITOPF

PROMOTING EFFECTIVE
SPILL RESPONSE



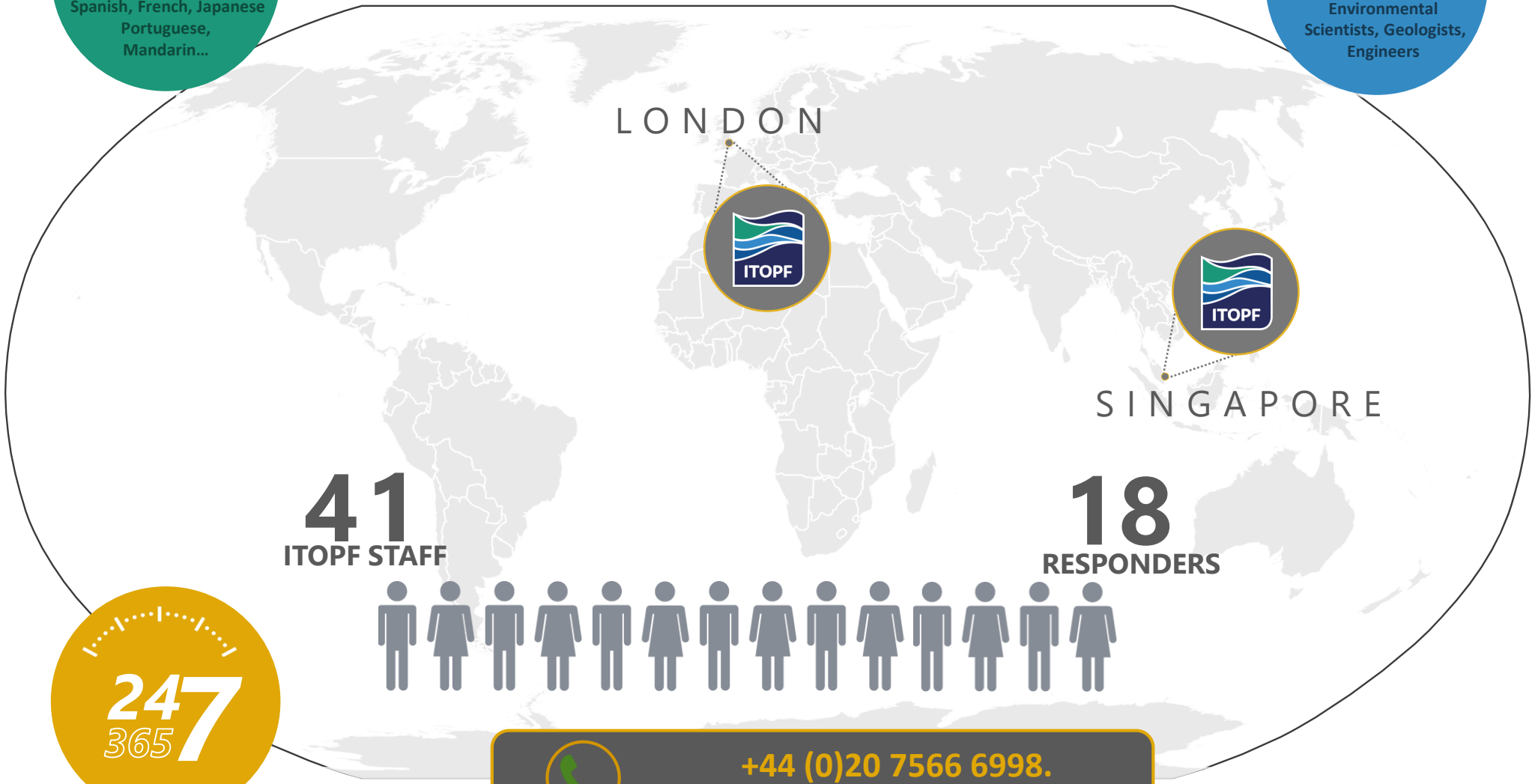


ITOPF

ITOPF
BACKGROUND

Multi-lingual
Fluency in **English, Spanish, French, Japanese Portuguese, Mandarin…**

Multi-skilled
Biologists, Chemists, Environmental Scientists, Geologists, Engineers



41
ITOPF STAFF

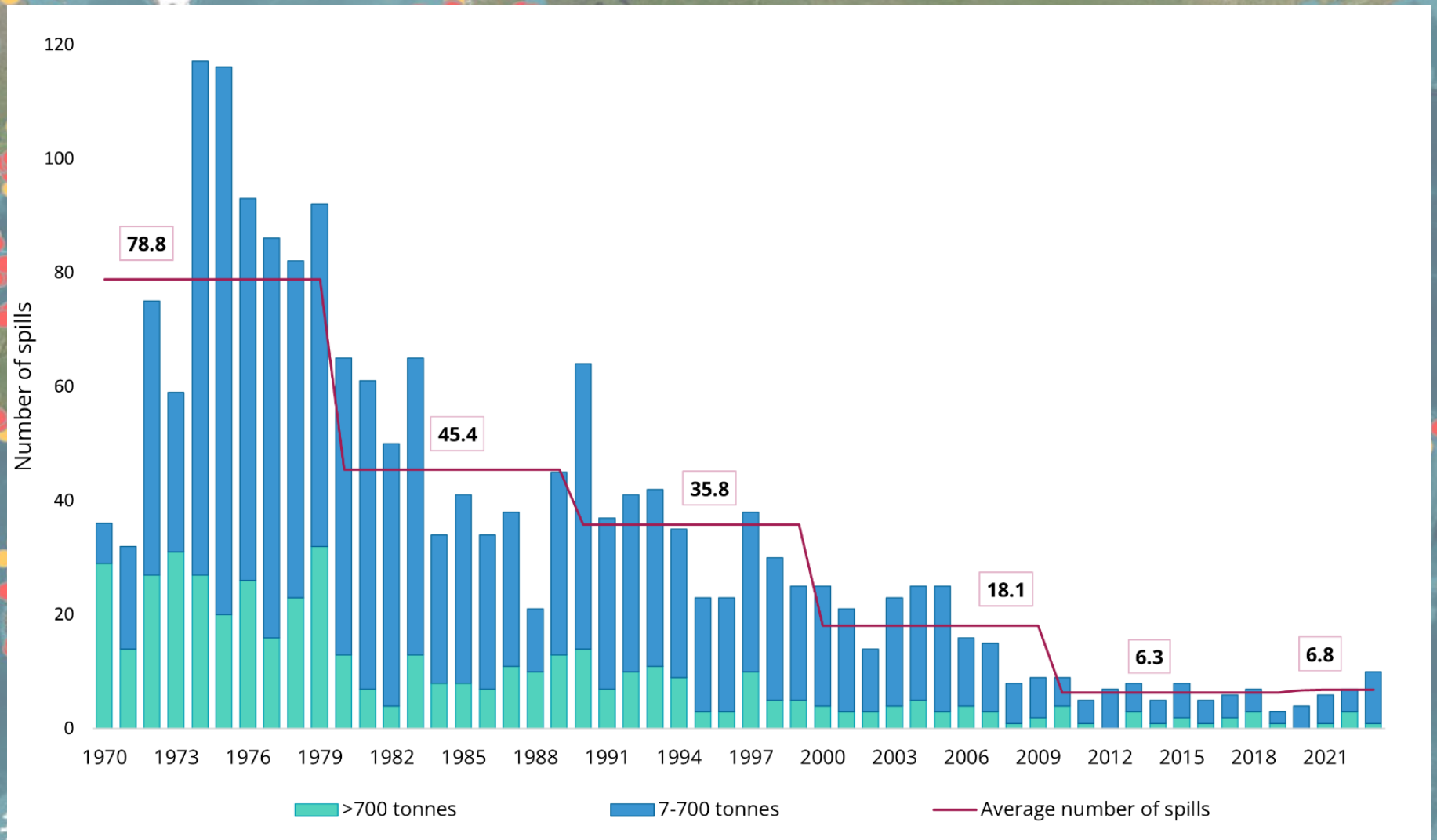
18
RESPONDERS

24 7
365

+44 (0)20 7566 6998.
(Please do not email for an emergency situation)

GLOBAL SPILL TRENDS

1970 - 2023

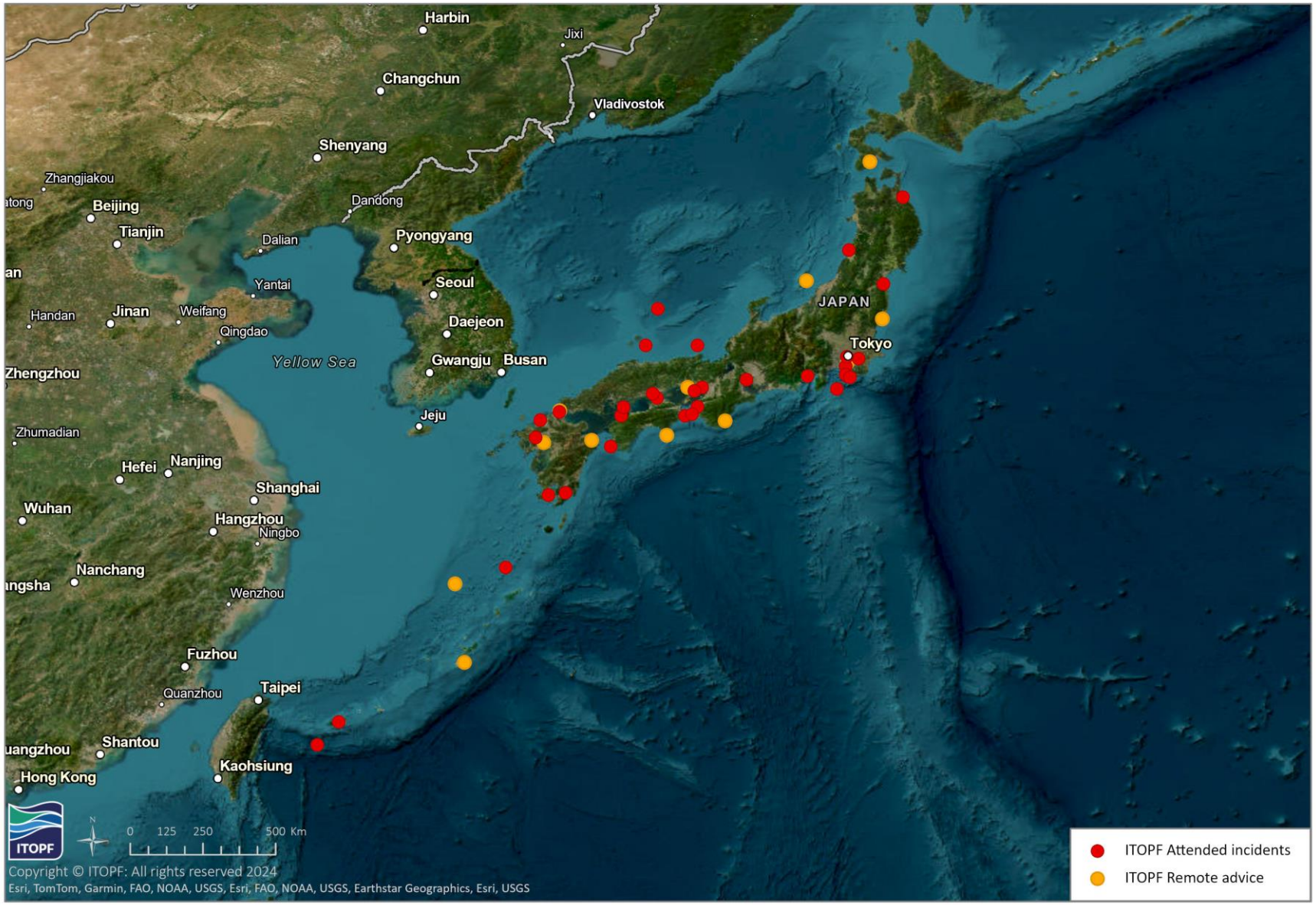


THE ISSUE

Lack of preparedness
Lack of awareness
Lack of experience

But spills
can and do
still happen

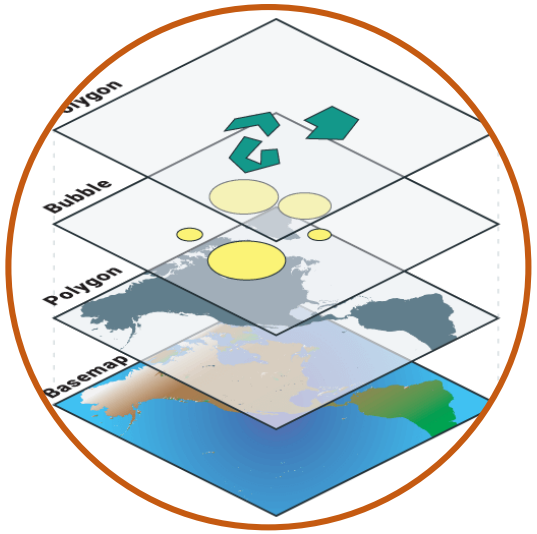
ITOPF IN JAPAN



NEW TECHNOLOGY

DRONES

SATELLITES



GIS

NEW TECHNOLOGY

DRONES

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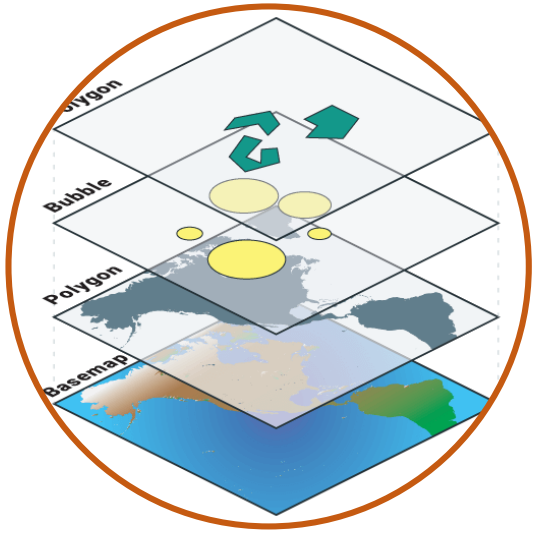
NEW TECHNOLOGY

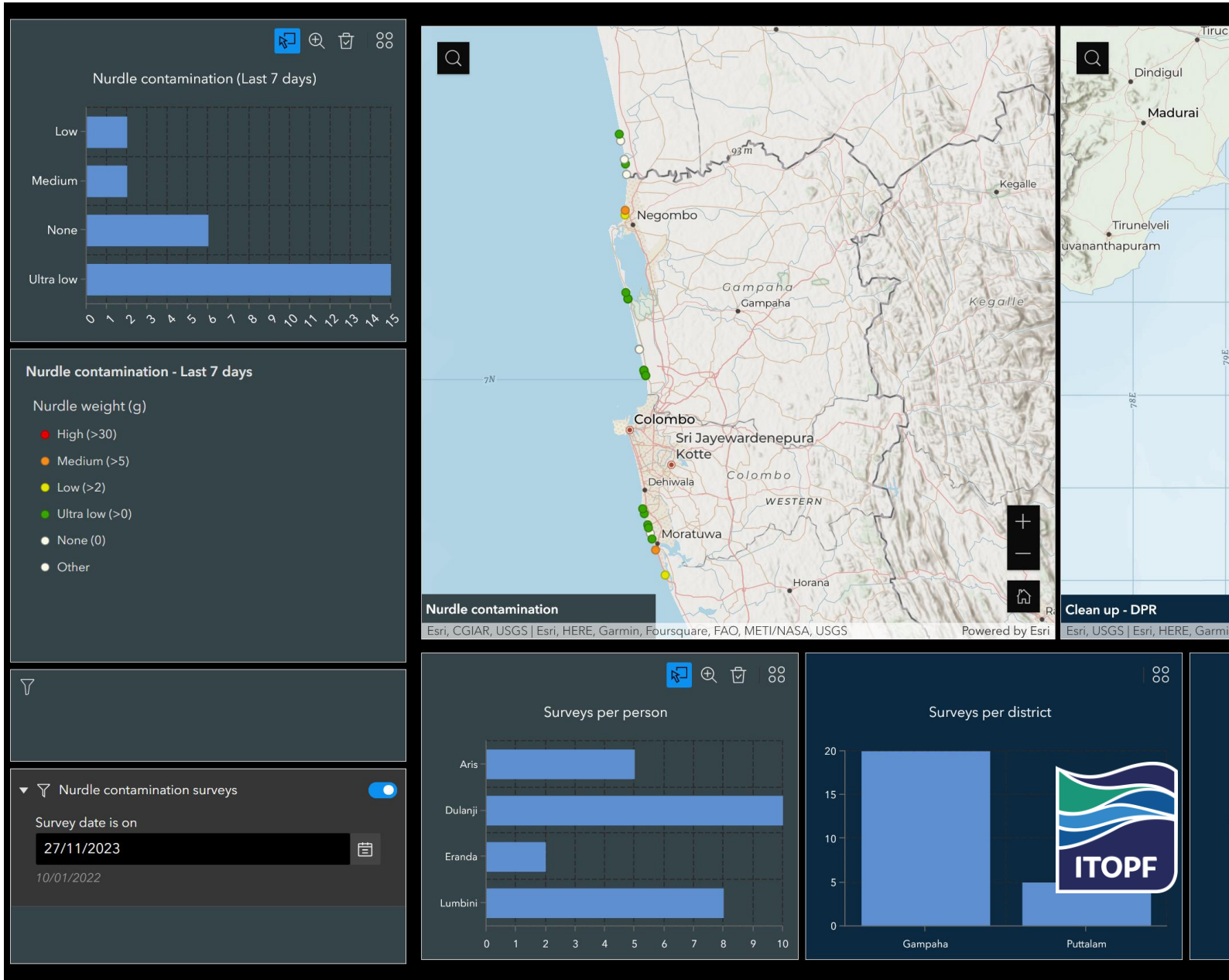
SATELLITES

NEW TECHNOLOGY



GIS

X-Press Pearl - Survey data summary (FOG)



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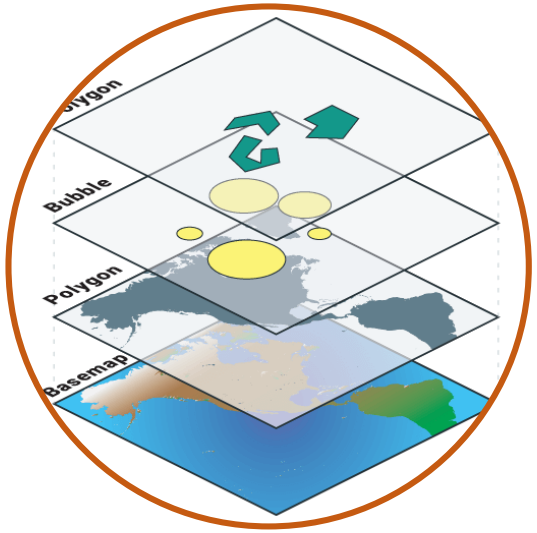

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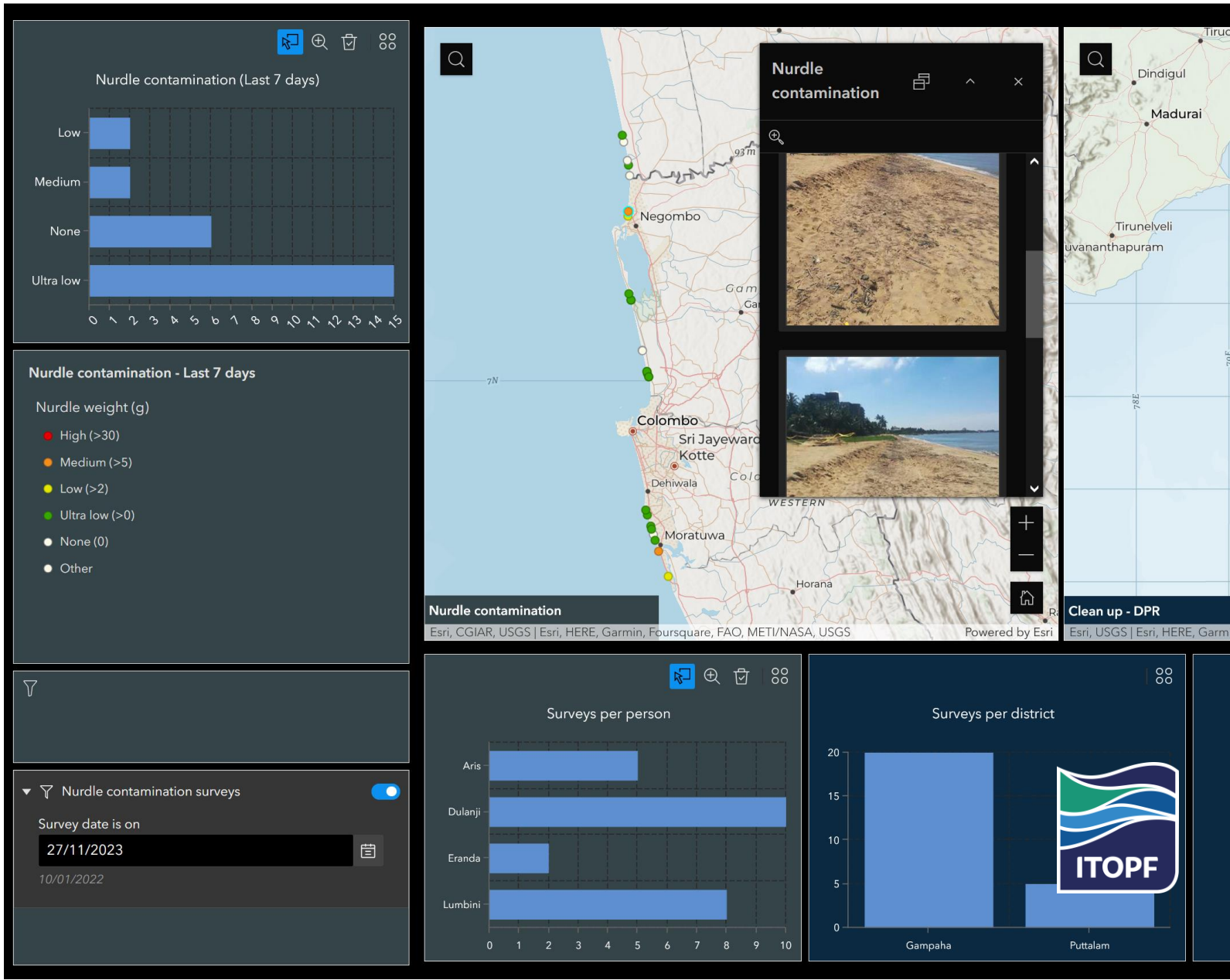
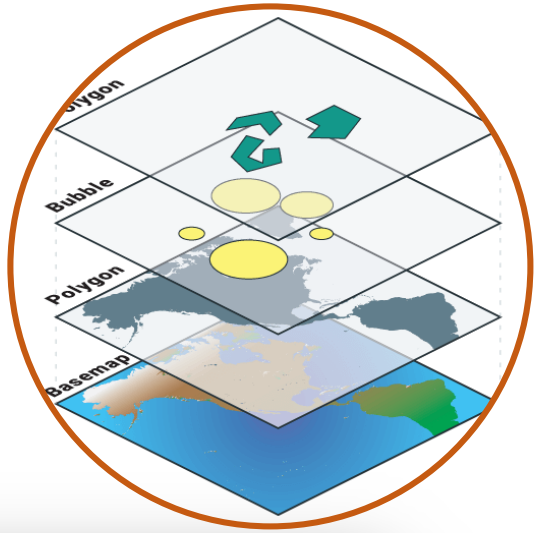


NEW TECHNOLOGY

DRONES

SATELLITES

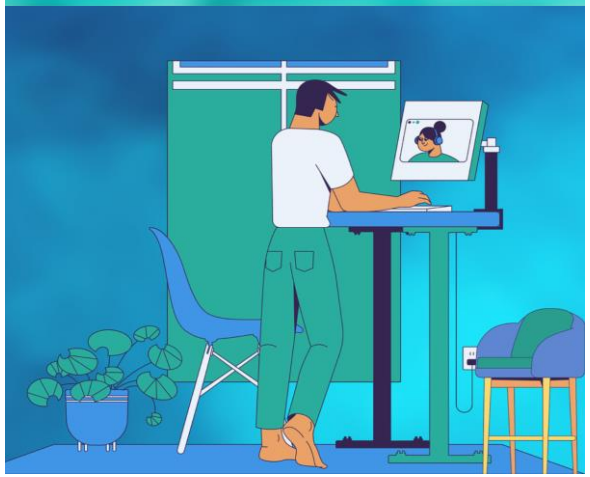


GIS

REMOTE ADVICE

VIRTUAL PLATFORMS

WORK FROM HOME



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REMOTE ATTENDANCE

PROS

- **Reduces impacts on quality of life** for responders and their families;
- **Reduces worker stress** and tiredness by avoiding jet lag, fatigue etc, thereby increases productivity;
- **Reduces the overall costs** of mobilising and supporting large command centres of personnel;
- **Reduces the GHG footprint** of the response.

CONS

- **Limits the ability to build relationships;** as a result trust between different parties is harder to establish;
- **Reduces** the range of **perspectives** and limits the amount of technical input that can be provided;
- **Key aspects may be missed** by inexperienced responders;
- **Training** opportunities are **limited**.

ITOPF

ESG
ENVIRONMENT, SOCIAL, GOVERNANCE

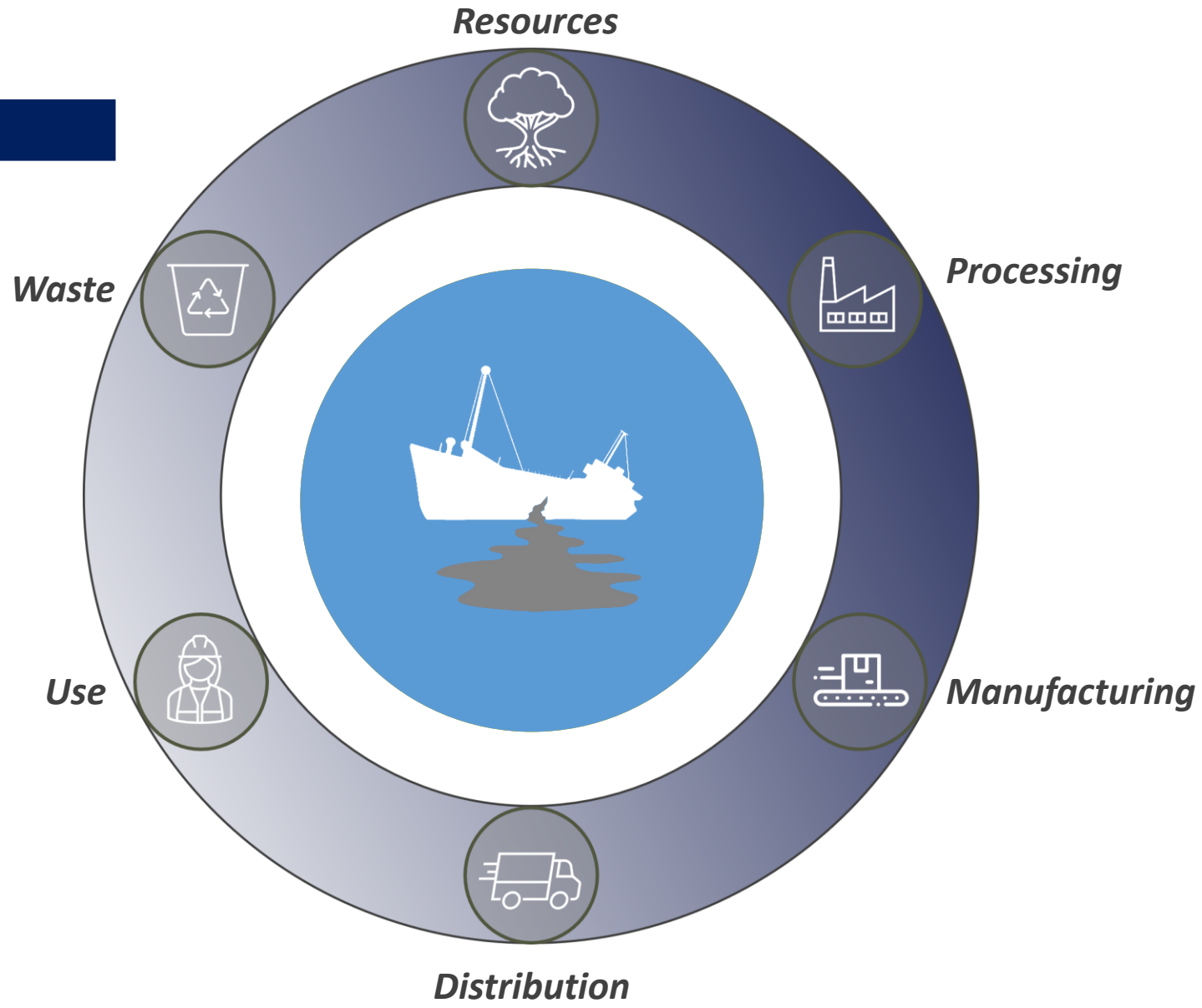
- **MEASURING GHG**
  IN CASUALTY RESPONSE

- **ESG IMPACTS**
  OVERALL MANAGEMENT

ITOPF

LIFE CYCLE ANALYSIS

Cradle to Grave



POTENTIAL APPLICATIONS

CONTINGENCY PLANNING

Technical expertise

Stockpiles

OPERATIONS

Waste Management

End-points

PROJECT EVALUATION

Wreck removal

Tendering

ITOPF

- Relatively new fuel that has seen widespread uptake due to IMO 2020 Regulations.
- Research ongoing in fate and behaviour in marine environment.
- Range of behaviours depending on physical and chemical properties.

LOW SULFUR FUEL OIL

Ultra low	<0.1%
Very low	<0.5%
Low	<3.5%

Parameters	Units	Test Results	Specification Limits
Density @ 15°C	kg/m3	878.9	(975.0 Max)
viscosity @50°C	cSt	9.2	(30.0 Max)
Upper Pour Point	°C	21	(24 Max)
Carbon Residue	% (mass)	0.01	(10.00 Max)
Flash Point	°C	> 70.0	(60.0 Min)
Water	% (vol)	0.1	(0.5 Max)
Sulphur	% (mass)	0.36	(0.50 Max)

ITOPF

NURDLES

What are nurdles?

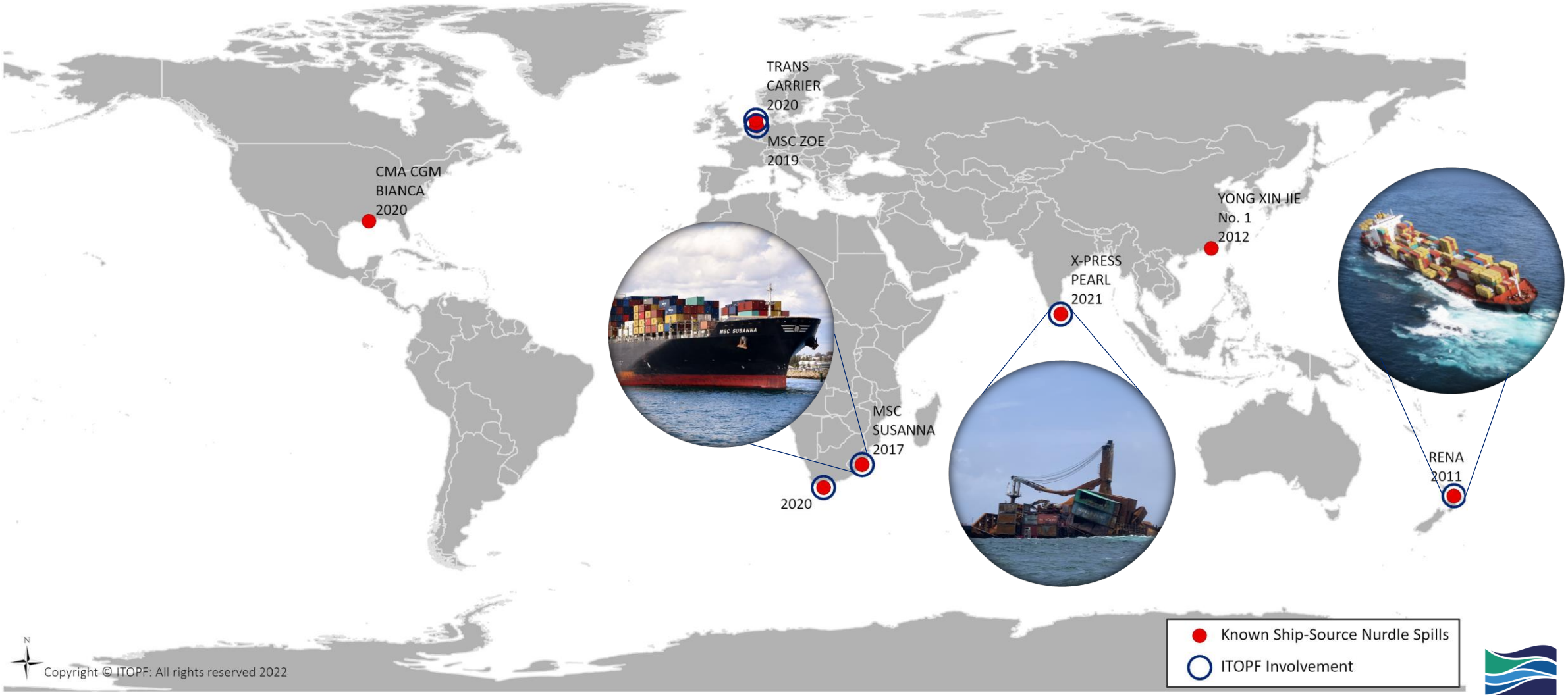
- Pre-production plastic pellet
- Shipped in one tonne pallets of 25 kg bags
- Mixed with melted plastic fragments

175

700

1,000

HOW ARE NURDLES LOST?



CASE STUDY:

PRINCESS EMPRESS

INCIDENT BACKGROUND

BATANGAS

MINDORO

CALUYA

TABLAS STRAIT

Oil tanker **PRINCESS EMPRESS** sank on 28th February 2023, 8 km off Naujan, Oriental Mindoro.

ITOPF attendance (Mindoro): 1st Mar

Pollutants of Concern

Cargo: 825 MT **IFO 380**

Bunkers: 113 MT **diesel oil**

OIL DRIFT MONITORING

Aerial Surveillance

3rd March: Joint PCG/ITOPF aerial surveillance mission

OIL DRIFT MONITORING

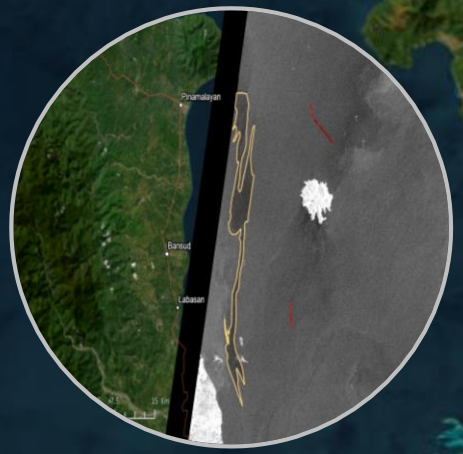
Aerial Surveillance

ITOPF

OILING EXTENT

TABLAS STRAIT

SATELLITE IMAGERY



1st March 2023

AERIAL SURVEY

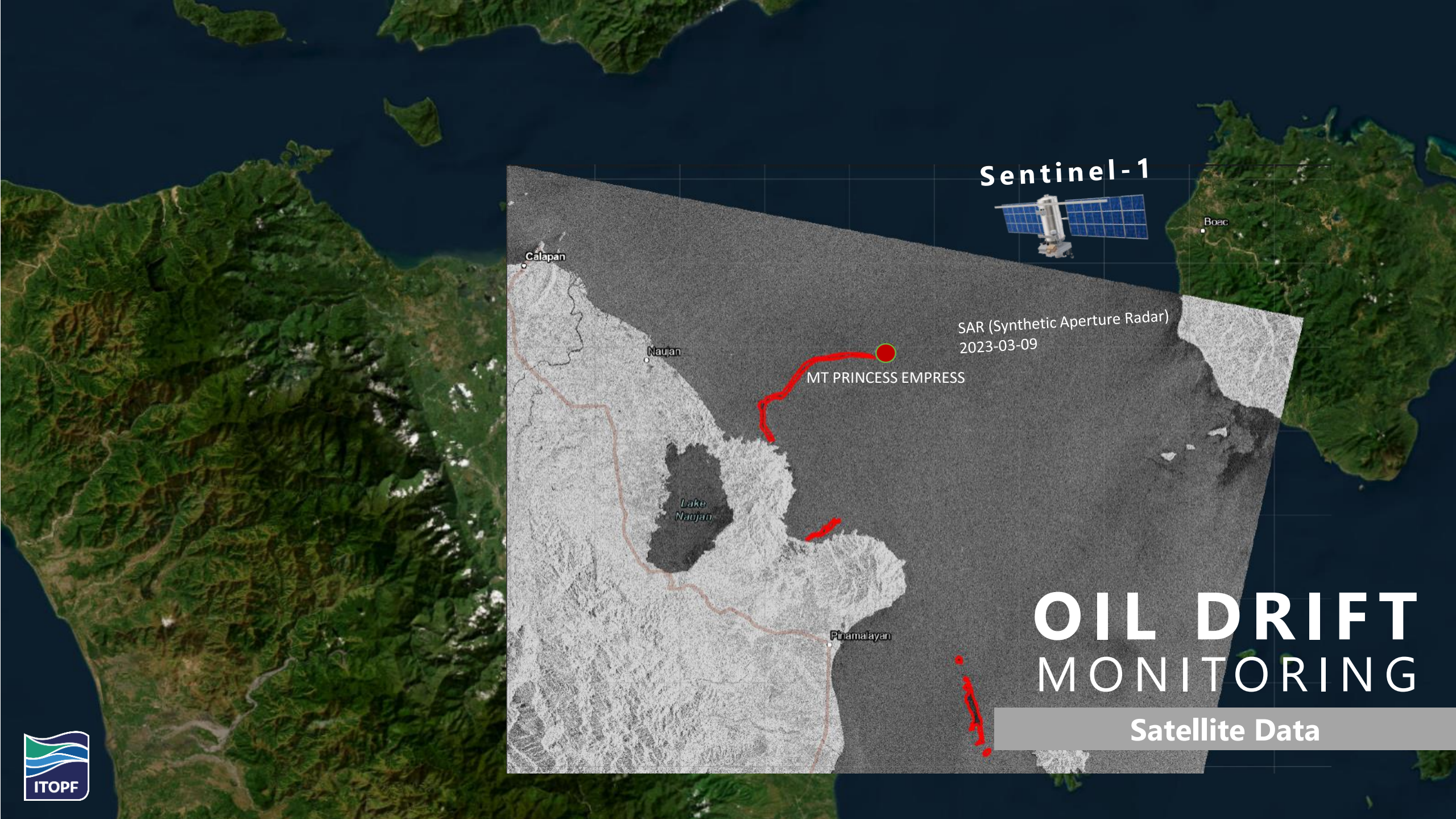
1st March 2023 at 13:52 LT

AERIAL SURVEY

4th March 2023 at 11:22 LT

OILING EXTENT

Western Visayas



OIL DRIFT MONITORING

Satellite Data

ITOPF

OIL DRIFT MONITORING

Modelling Data

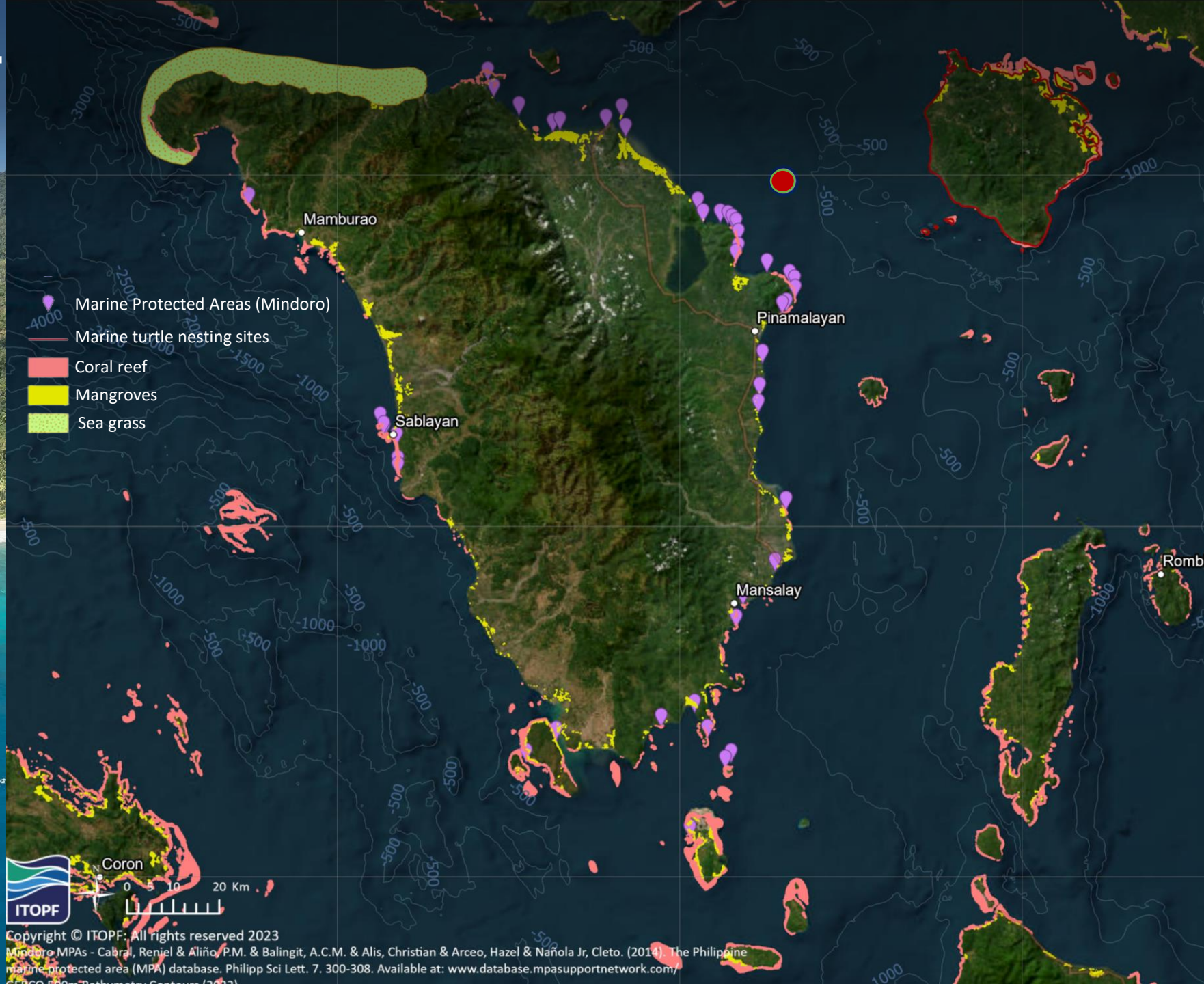
ITOPF

AT-SEA RESPONSE

ITOPF

ENVIRONMENTAL SENSITIVITIES

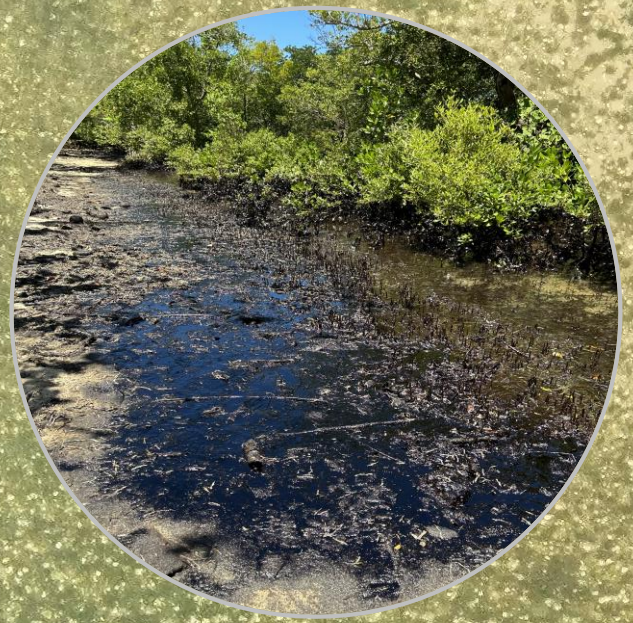
ITOPF prepared environmental sensitivity maps to characterise the ecological risks posed by the incident.



Mindoro MPAs - Cabral, Reniel & Aliño, P.M. & Balingit, A.C.M. & Alis, Christian & Arceo, Hazel & Nañola Jr, Cleto. (2014). The Philippine marine protected area (MPA) database. Philipp Sci Lett. 7. 300-308. Available at: www.database.mpasupportnetwork.com/

ENVIRONMENTAL SENSITIVITIES

Mangroves



SOCIO-ECONOMIC SENSITIVITIES

Fishing & Tourism

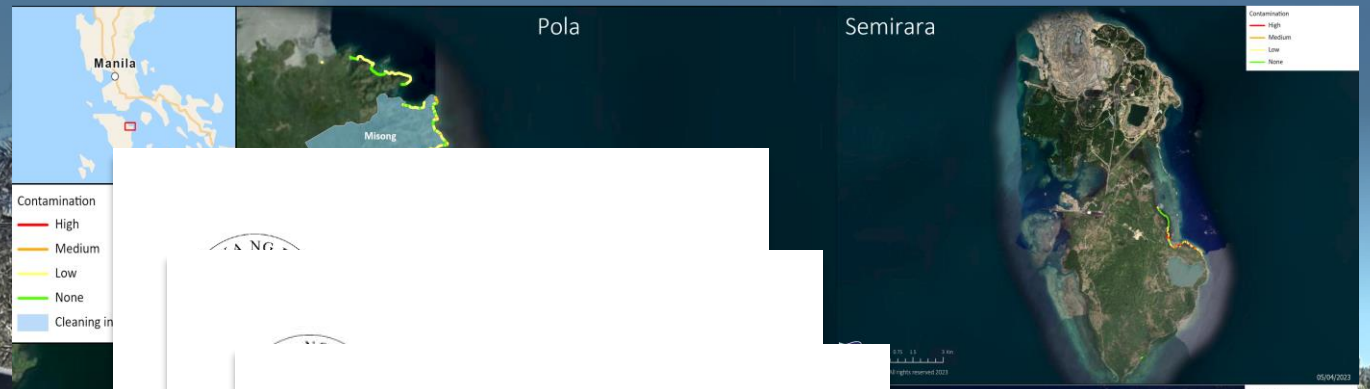
SHORELINE SURVEYS

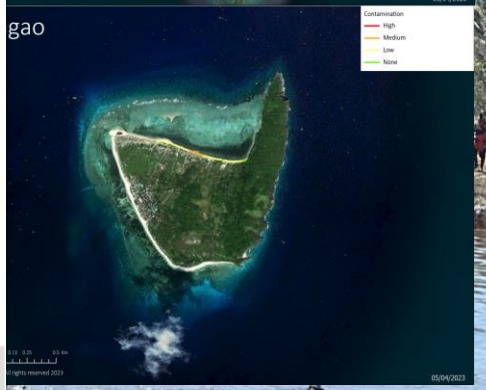
Oriental Mindoro

Western Visayas

SHORELINE SURVEYS

SHORELINE SURVEY REPORTING





REPUBLIKA NG PILIPINAS

PHILIPPINE COAST GUARD

PRINCESS EMPRESS INCIDENT, THE PHILIPPINES

NATIONAL SHORELINE CLEAN-UP PLAN

Initial Draft: 29th March 2023

Produced in collaboration with:

ITOPF

LE FLOCH DEPOLLUTION

HARBOR STAR SHIPPING SERVICES, INC.

EXTENT OF OIL

SITE	*Segment:* Sabang F / Oonong A – B *Barangay:* Tinogboc
DATE	08/03/2023
SURVEY START LOCATION	Lat: 12°02'27.3"N Long: 121°24'55.1"E
TOTAL LENGTH	Segment: 1.40 km Surveyed: 1.40 km
NOTES	Site is difficult to access – have to climb over large boulders to get from one beach to another. Some access routes available for fit and active responders. Further south cannot be surveyed due to no access by foot. High energy environment and therefore difficult to bring equipment via boat.

Length: ~ 120 m
Lightly oiled:
- Stains on pebbles and cobbles
- No pooled oil noted

Oily waste debris present in this area. Continuous to patchy stains and coats on rocks.

Length: ~ 80 m
Moderately oiled:
- Covers on pebbles and cobbles
- Oiled organic materials noted on the backshore

Some oil present within the pores of the coarse sediment.

Length: ~ 20 m
Heavily oiled:
- Organic matter and natural debris
- Cobbles and pebbles

Continuous 20m band of heavily oiled debris and sediment. Liquid oil is present escaping from between the pores.

Length: ~ 200 m
Lightly oiled:
- Tar balls
- Heavy staining on the strandline
- Sporadic oiled debris

Frequent occurrences of oil-impregnated sand, oiled plastic waste and debris.

RESPONSE STRUCTURE

NDRRMC
NATIONAL DISASTER RISK REDUCTION AND MANAGEMENT COUNCIL

BFAR

DSWD
of Social Welfare and Development

DOLE

DILG

LGU

PHILIPPINE COAST GUARD

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES · 1987 ·

ITOPF

P&I

IOPC FUNDS
FIPOL FIDAC

SALVTUG
MALAYAN TOWAGE AND SALVAGE CORPORATION

LE FLOCH DEPOLLUTION

HARBOR STAR
SHIPPING SERVICES, INC.

ITOPF

AT-SEA OPERATIONS

SALVTUG
MALAYAN TOWAGE AND SALVAGE CORPORATION

LGU

PHILIPPINE COAST GUARD

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES · 1987 ·

ITOPF

P&I

IOPC FUNDS
FIPOL FIDAC

SHORELINE OPERATIONS

LE FLOCH DEPOLLUTION

HARBOR STAR
SHIPPING SERVICES, INC.

LOCAL WORKFORCE

RESPONSE STRUCTURE

SHORELINE RESPONSE

Emergency PCG Response

SHORELINE RESPONSE

Contractor Response

PHASE I:

BULK REMOVAL

Manual Collection

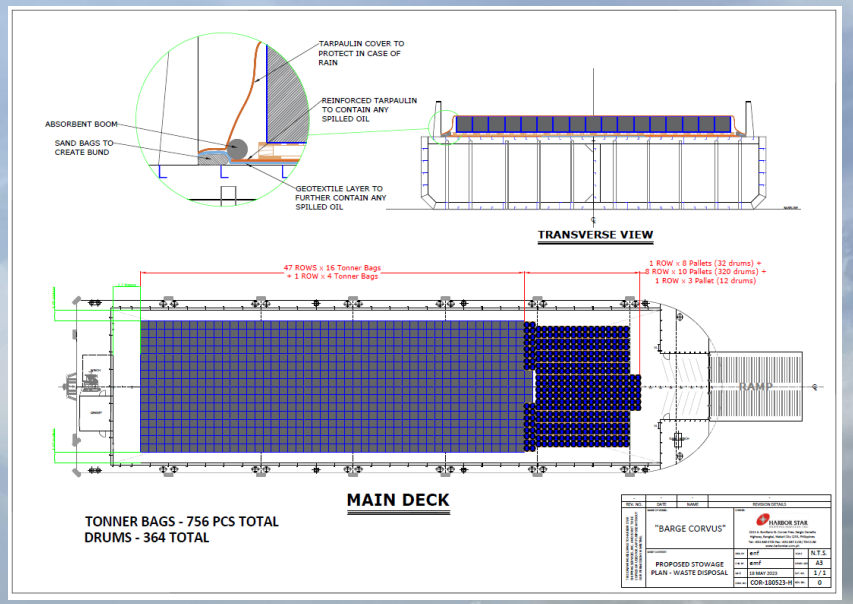
PHASE II:
RESIDUAL OIL REMOVAL

Low Pressure Flushing

PHASE II:
RESIDUAL OIL REMOVAL

Manual cleaning

CLEAN-UP PROGRESS



WASTE
MANAGEMENT

CHALLENGES

MANGROVES

OIL vs CLEAN-UP IMPACTS

LOGISTICS

MANY INACCESSIBLE AREAS

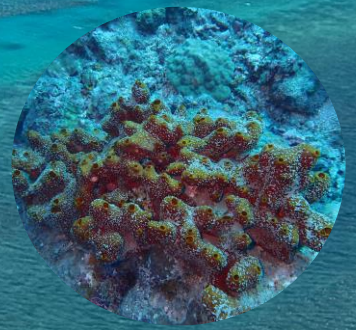
WASTE MANAGEMENT

COMPLEX LOGISTICS & UNCLEAR FRAMEWORK

ENVIRONMENTAL DAMAGE
RAPID ASSESSMENT

MANGROVE
FORESTS

CORAL
REEFS



FISH SAFETY
& CHEMICAL ANALYSIS

ROCKY
SHORES

SEAGRASS
BEDS

CLAIMS
OFFICES

FISHING & AQUACULTURE
ECONOMIC IMPACTS

RESPONSE
OFFSET

LOCAL FISHERIES
CHARACTERISATION
ASSESSMENT

SUMMARY OF
ITOPF'S INFLUENCE

PROMOTING
EFFECTIVE
RESPONSE

CLAIMS
ANALYSIS

CAPACITY
BUILDING

ENVIRONMENTAL
IMPACT
ASSESSMENT


Thank you
ITOPF
PROMOTING EFFECTIVE
SPILL RESPONSE