

RESPONSE TO HNS INCIDENTS

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WORKSHOP ON THE 2010 HNS CONVENTION
3 – 4 April 2023, IMO headquarters

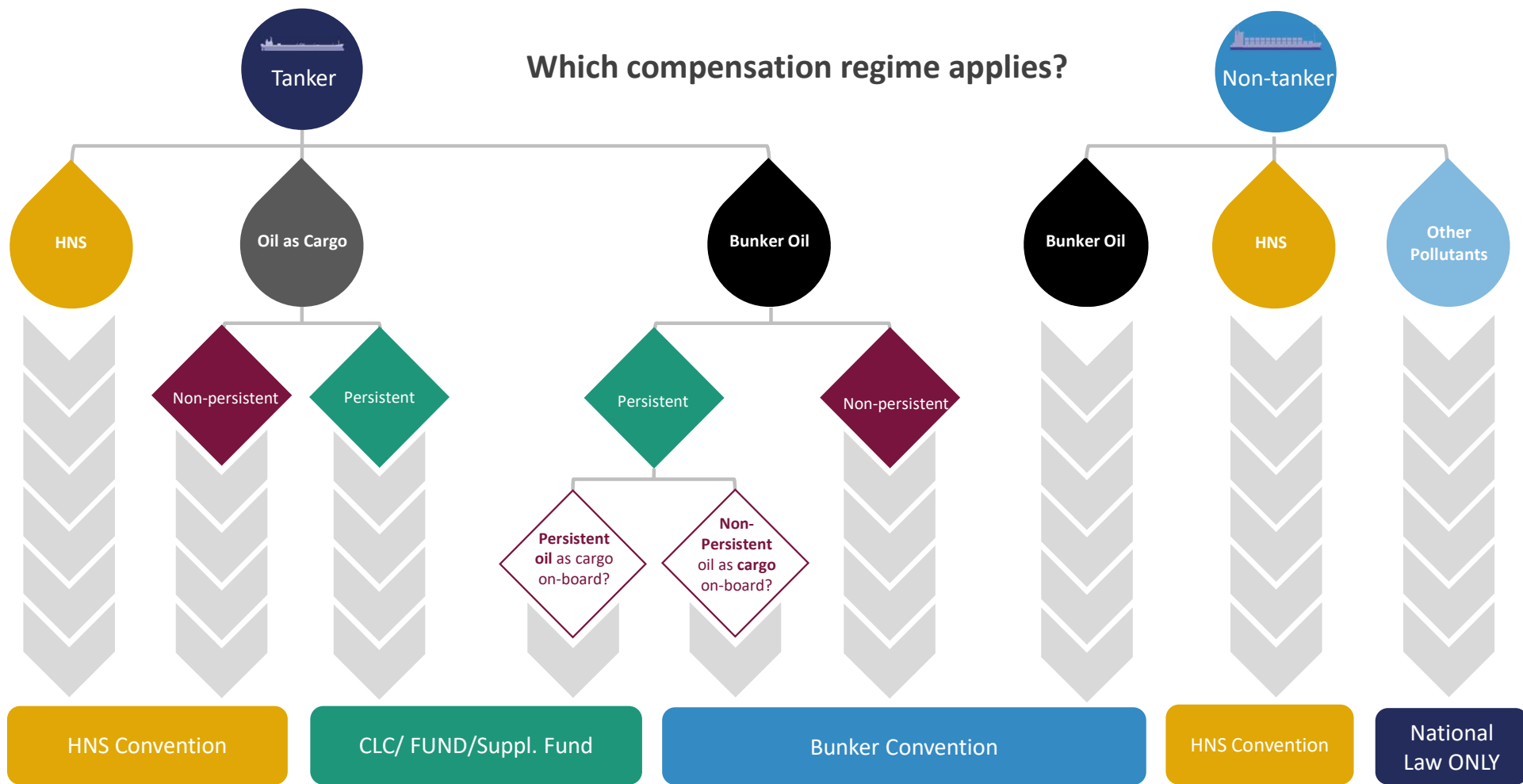


OVERVIEW

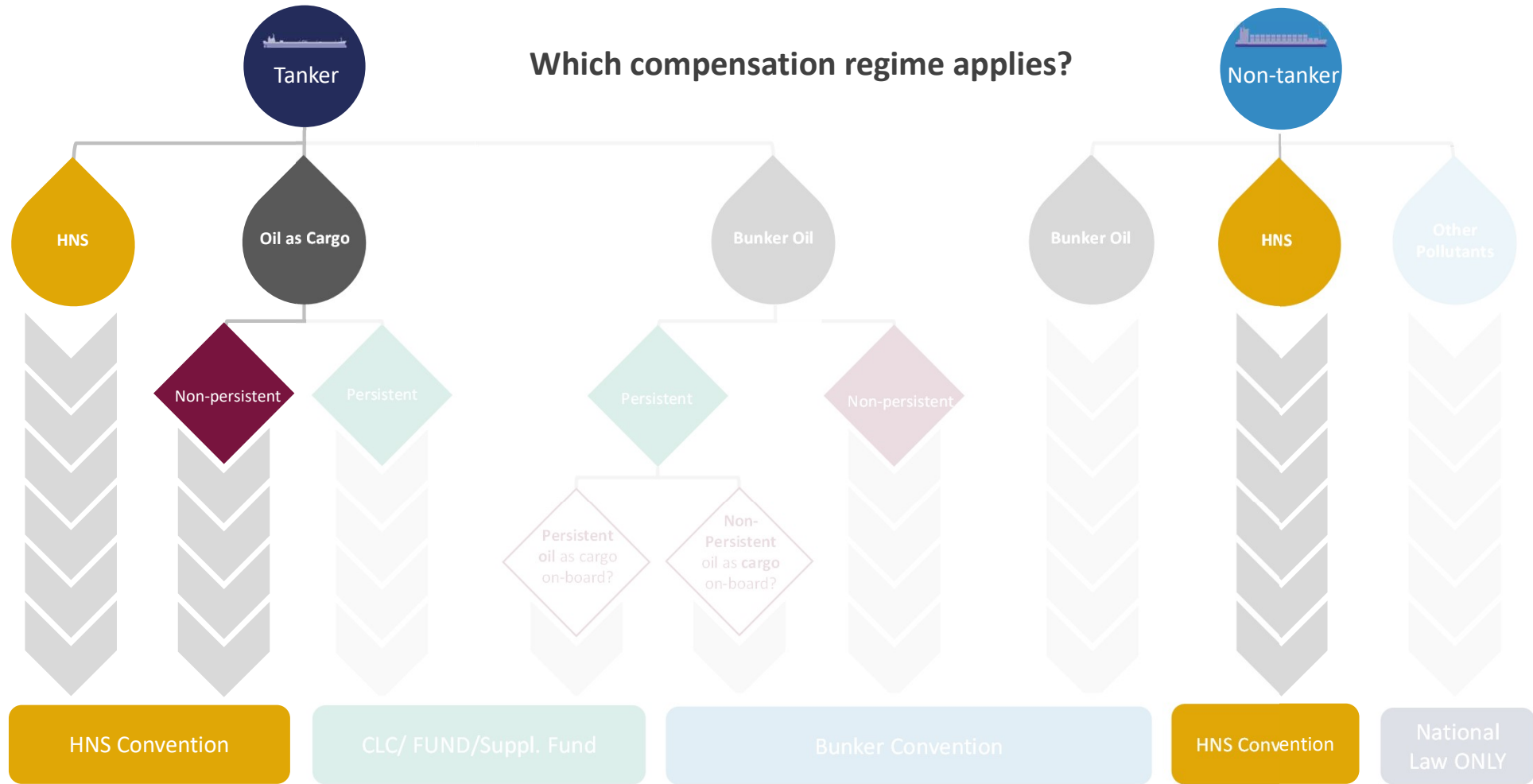
- How are **HNS incidents** different to **oil incidents**?
- **Operational challenges** in responding to HNS incidents
- The **role of monitoring** in HNS incidents

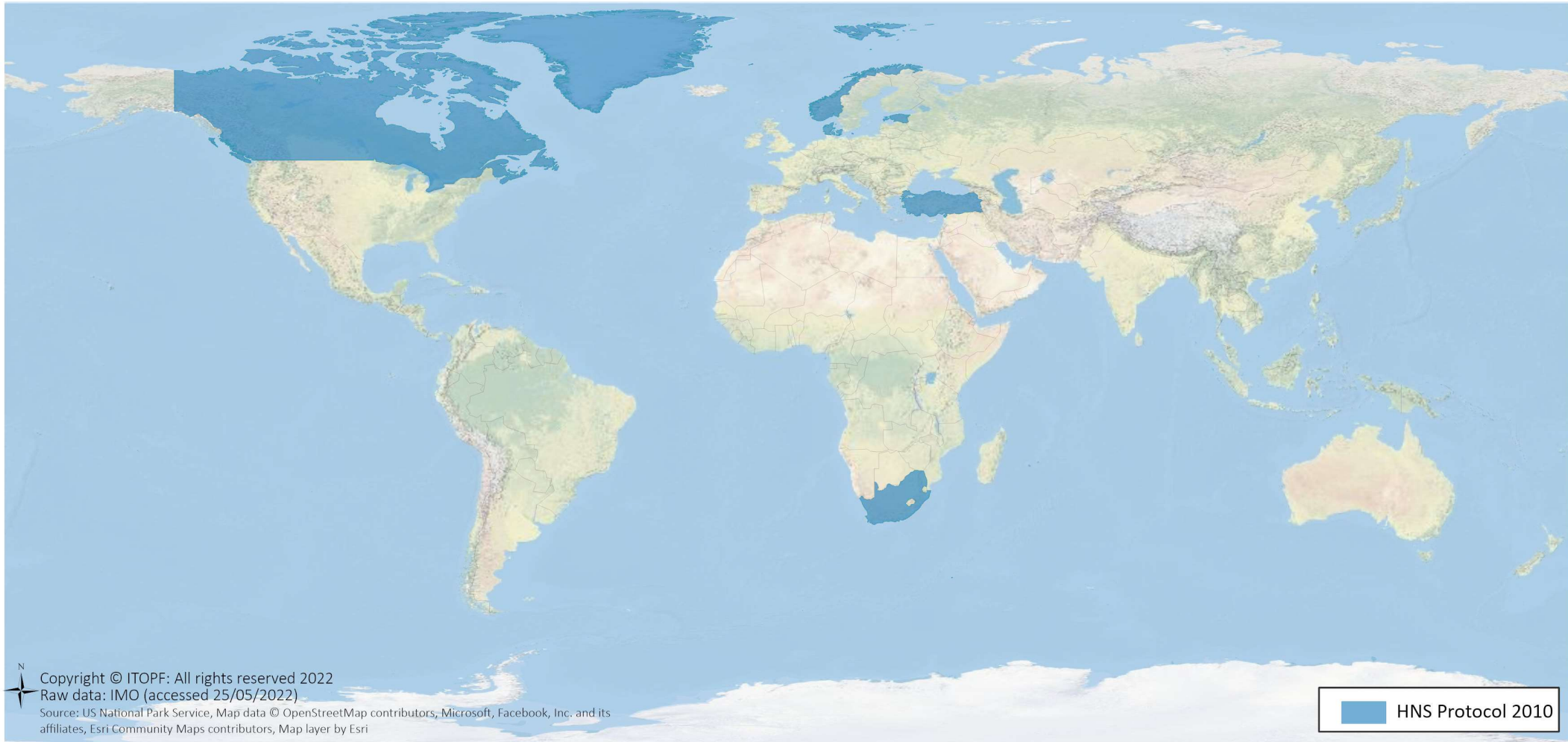


Which compensation regime applies?



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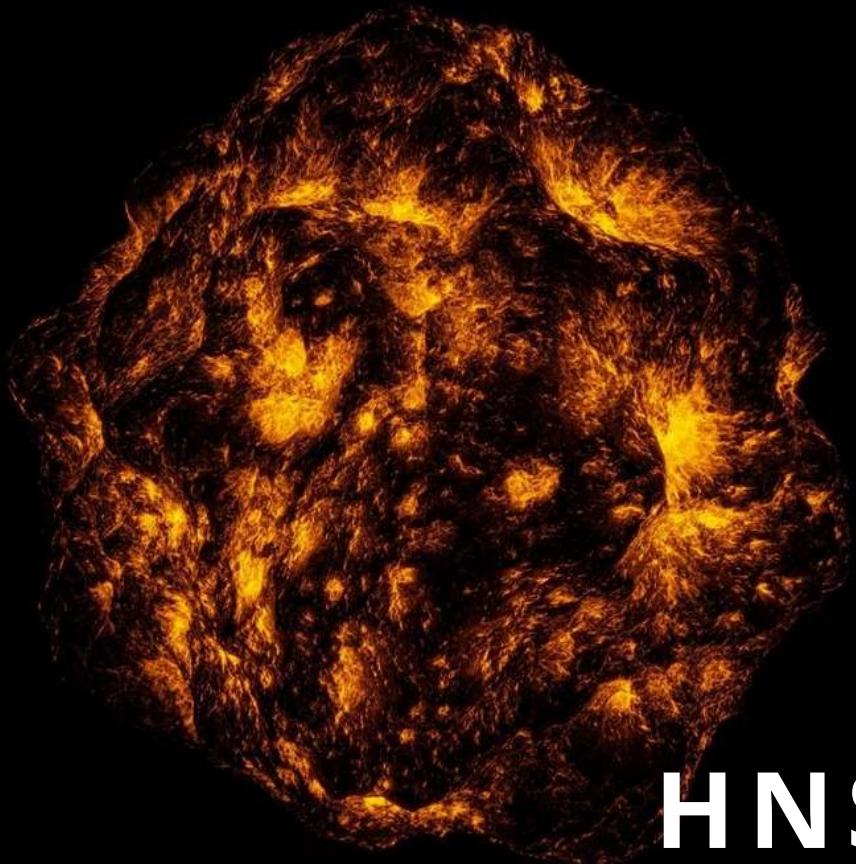
PARTIES TO

HNS Convention



RESPONSE CONSIDERATIONS





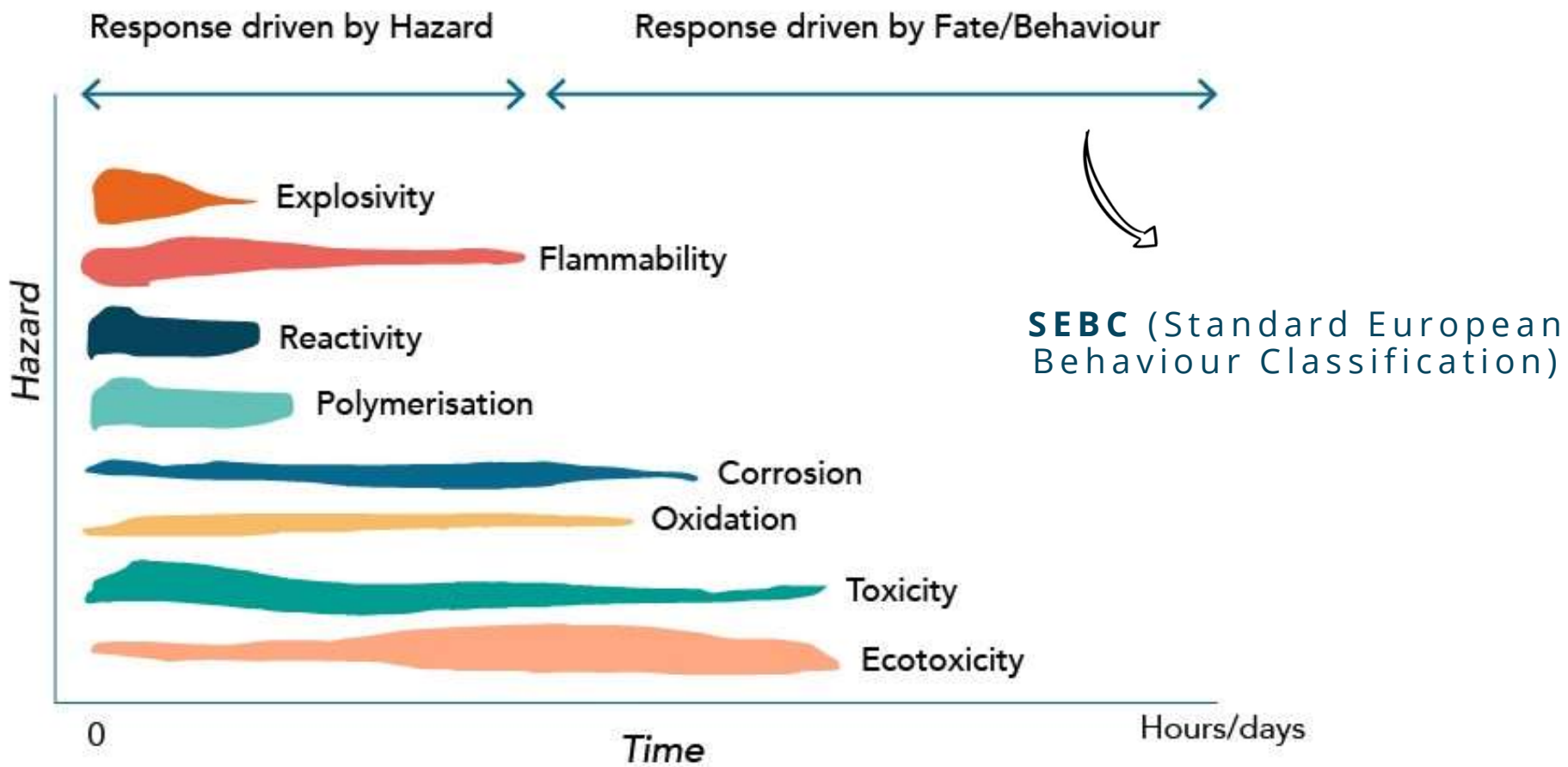
HNS

Hazard-driven
response



OIL

Behaviour-driven
response



HAZARD CLASSES



CLASS 1-Explosives

CLASS 2-Gases

CLASS 3-Flammable liquids

CLASS 4-Flammable solids

CLASS 5-Oxidizers

CLASS 6-Toxic materials

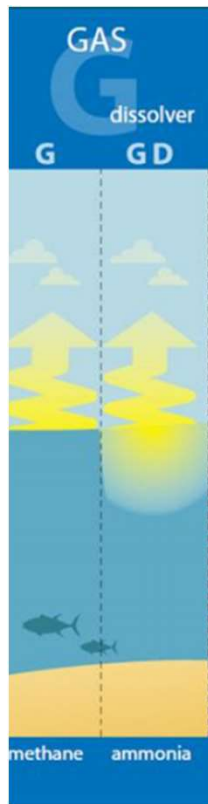
CLASS 7-Radioactive materials

CLASS 8-Corrosive materials

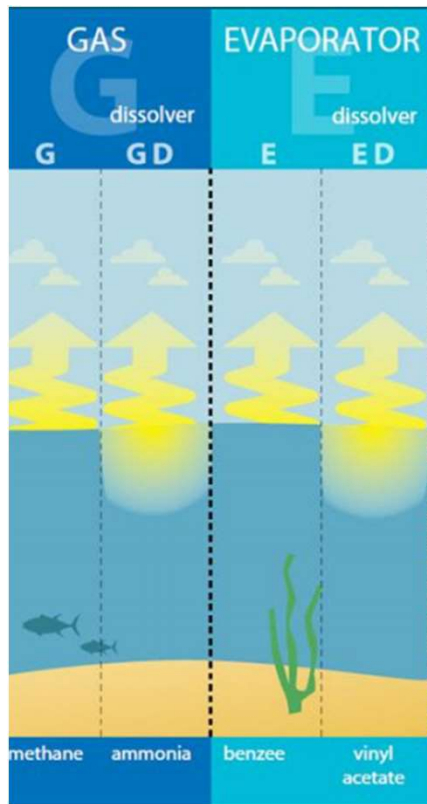
CLASS 9-Miscellaneous dangerous goods

DANGEROUS- Indicates a mixed load of hazardous materials

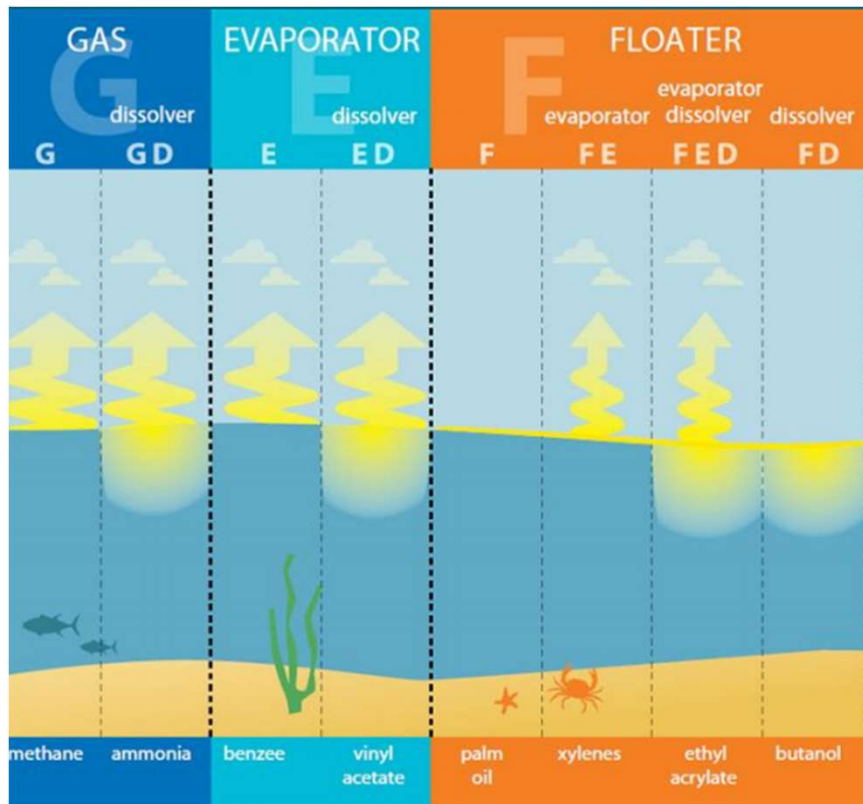
BEHAVIOUR CLASSIFICATION



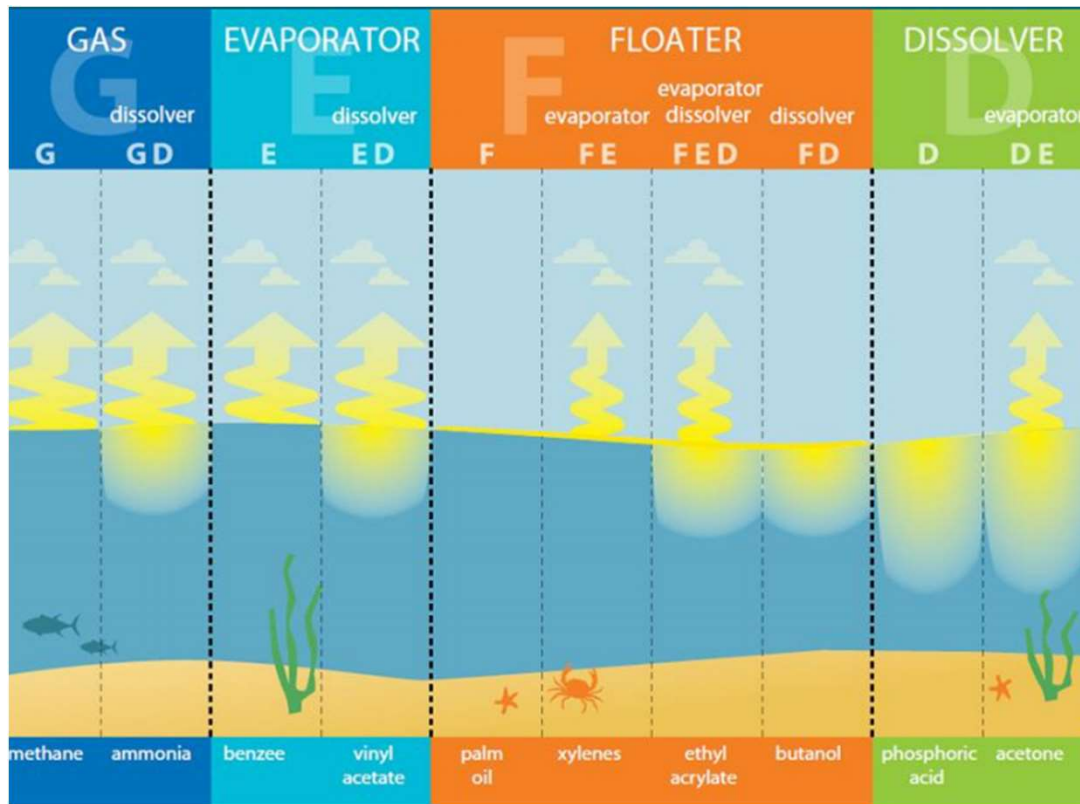
BEHAVIOUR CLASSIFICATION



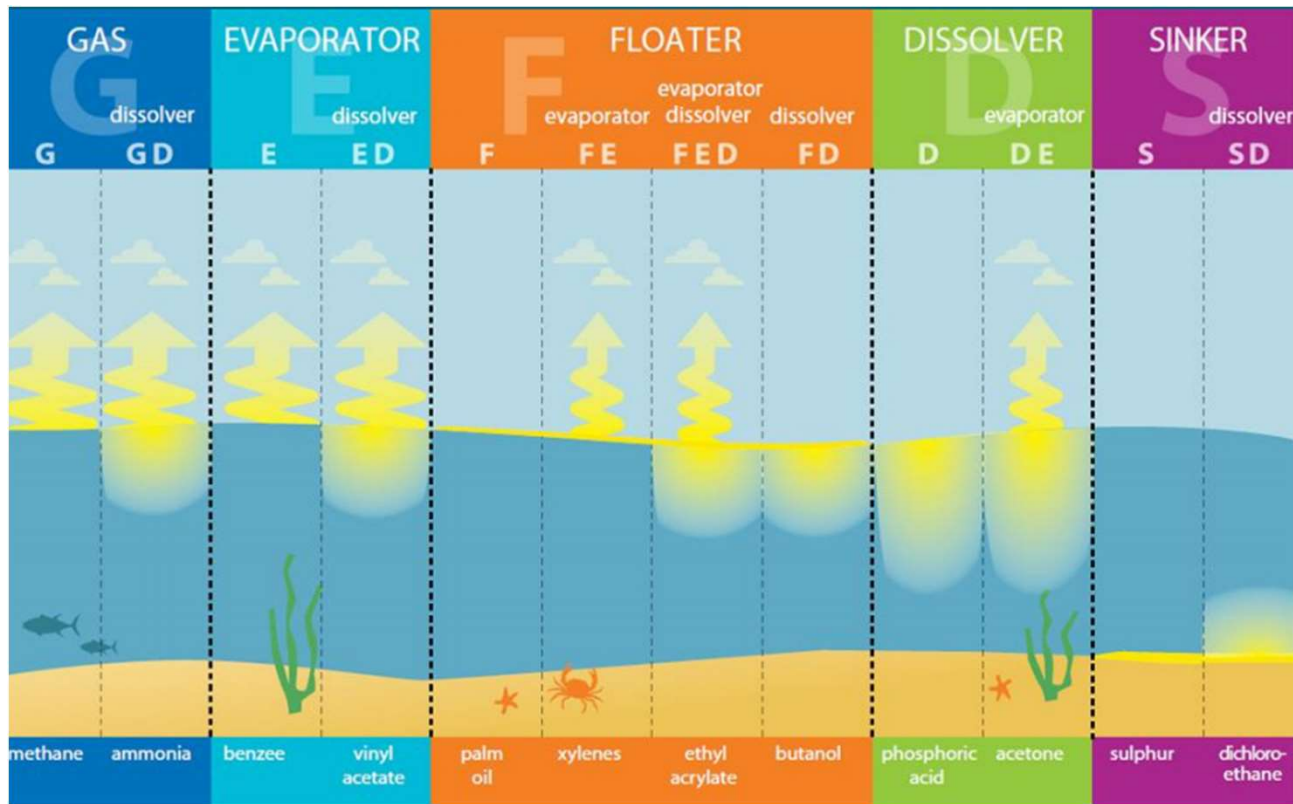
BEHAVIOUR CLASSIFICATION



BEHAVIOUR CLASSIFICATION



BEHAVIOUR CLASSIFICATION



OPERATIONAL CHALLENGES



UNCLASSIFIED / NON CLASSIFIÉ

OPERATIONAL CHALLENGES

Chemical mixtures - reactivity

Difficult to
predict their
health and
environmental
impact

Containerships carry
hundreds of substances that
can react with water, fire, air,
or with each other



OPERATIONAL CHALLENGES

Specialised knowledge

Technical knowledge and experience required

Circumstances of maritime incidents are unique – experts also require unique credentials



UNCLASSIFIED / NON CLASSIFIÉ

OPERATIONAL CHALLENGES

Personal Protection Equipment

More
protection is
not always
better

Balance between **chemical compatibility** and the ability
to **work safely**



OPERATIONAL CHALLENGES

Misdeclaration

Accurate identification of DG can be challenging

Salvage and clean-up operations, local population





UNCLASSIFIED / NON CLASSIFIÉ

OPERATIONAL CHALLENGES

Waste management

Storage and
transport may
require special
considerations

Controlled conditions,
further segregation,
specialised PPE

OPERATIONAL CHALLENGES

Detection

Detection is vital for protecting resources

Drones, multi-gas monitors, ROVs, sensors, mobile robots



MONITORING IN HNS INCIDENTS



Monitor & Evaluate



Containment & Recovery



Chemical Dispersion



In-situ Burning



AT-SEA RESPONSE

Technique toolbox

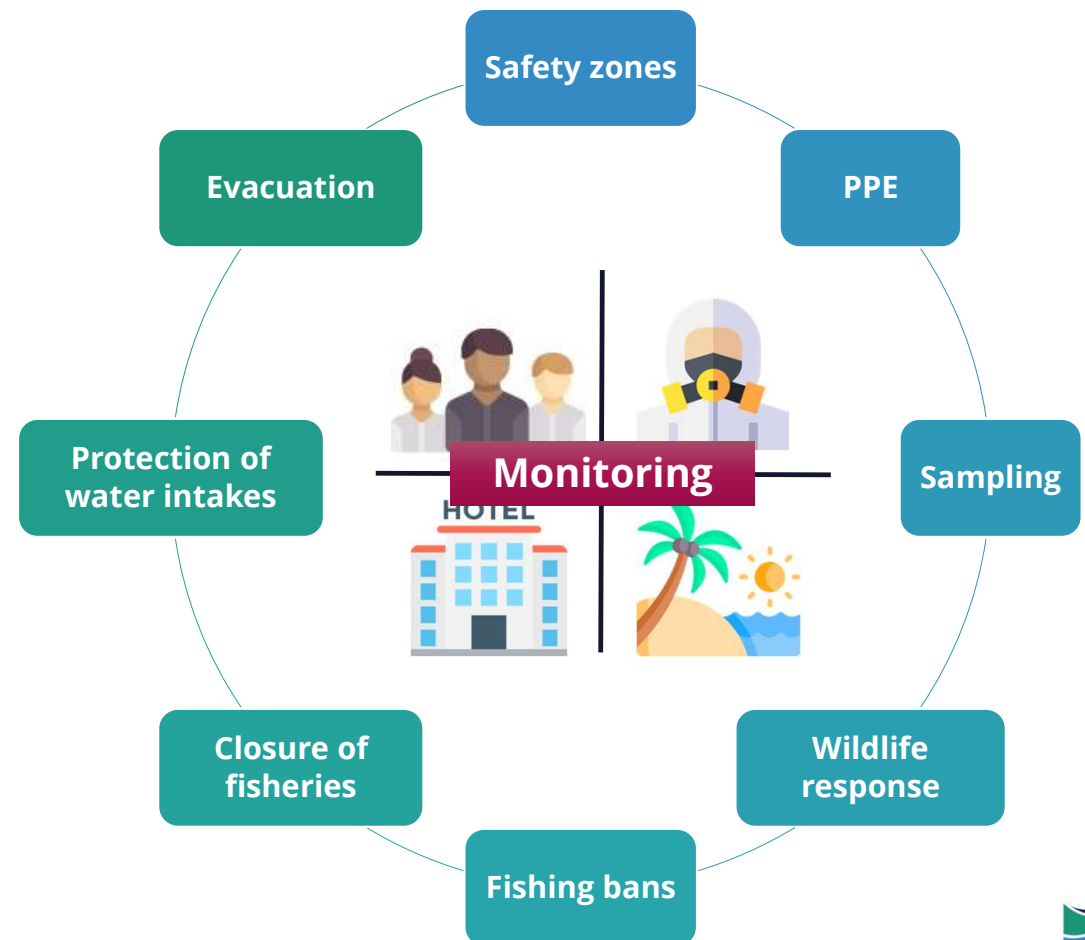


MONITORING

Monitoring plays a central role in

HNS incidents:

- Mapping
- As a response technique
- Shaping a suitable response strategy

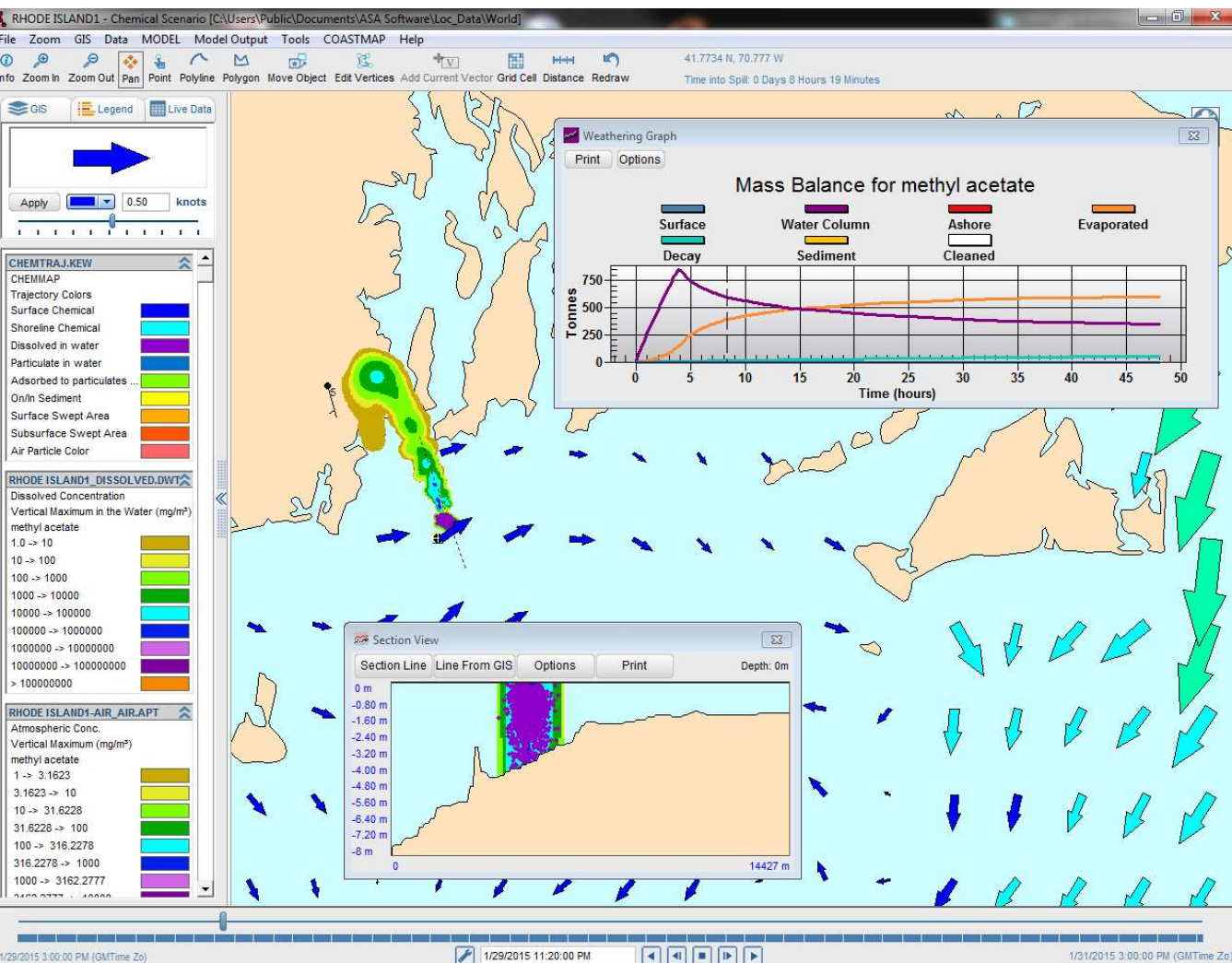


MONITORING APPROACHES

Modelling

3D modelling may be required – evaporators, dissolvers

Reactivity not accounted for. Expert knowledge required for correct interpretation



MONITORING APPROACHES

Sampling

What, where,
when, and how
often?

Sediment, water, biota.
SEBC behaviour defines
sampling scheme

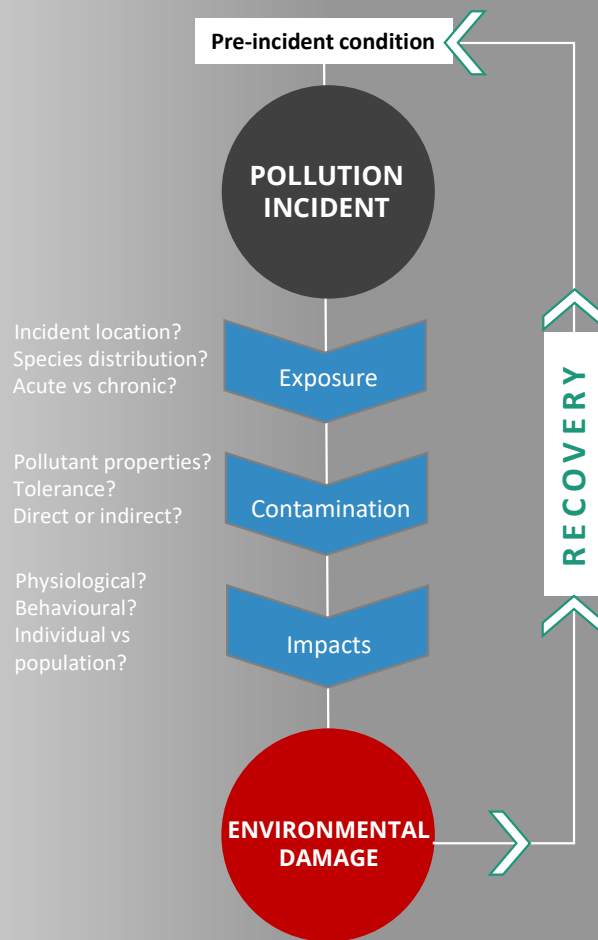


MONITORING APPROACHES

Sampling

What, where, when, and how often?

Sediment, water, biota.
SEBC behaviour defines sampling scheme



SUMMARY

- HNS are generally subject to **hazard-driven response** rather than behaviour-driven response and present numerous operational challenges;
- Containerships pose particular challenges due to the high number of substances potentially involved in an incident;
- Recent experience of incidents show that monitoring is often the only available response strategy.



Thank you

