



Marine Invasive Species and the Nairobi Convention

Lynn Jackson

IOC Resource person

Nairobi Convention Focal Point Meeting

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Outline

- The IOC Biodiversity Project
- Recommendations to NC
- Overview of MIS
- Legal obligations
- Implications for the Protocol



The IOC Biodiversity Project

- IOC-EU funding agreement in Jan 2013
- Project document included an IAS component
- In July 2014 expanded to include marine IAS (MIS)

Phase 1:

- Baseline assessment (desktop)
- Regional workshop in July 2015



Baseline: MIS in the WIO

- ASCLME Report (2012): 104 alien, 45 cryptogenic, few invasive
- IOC Report (2015) – a number of new records
- Some countries: no official records but aliens introduced for mariculture.
- HABS – many reports but not known if introduced



Asian mussel (*Musculista senhousia*) forms mats in the sediment, causing significant habitat alteration & dominating benthic communities. Recorded in Tanzania, Mauritius Madagascar

Other suspected MIS :

- black-striped mussel (*Mytilopsis adamsi/sallei*)
- *Caulerpa*, *Eucheuma*, *Lyngbia*
- Sea-urchin (*Salamciella erythraxis*)
- Barnacles

BUT – few targeted surveys

Crown of Thorns Starfish

- Outbreaks on all islands in the region (Comoros, Madagascar, Mauritius, Reunion, Seychelles)
- Considered either cryptogenic or native
- Feed on corals with significant impacts on reef viability



Other cryptogenic or native spp showing invasive behaviour: Spotfin Lionfish, *Drupella cornus*

Workshop recommendation

Strengthen the NC provisions on MIS:

2 alternatives put to the IOC Workshop in 2015

i. New Protocol specifically dealing with MIS

ii. Amendment/strengthening of existing Protocol on PA's & Wild Flora & Fauna

Recommendation was (ii) for practical reasons – amendment process already underway BUT was agreed that a final decision should be taken at NC Focal Point meeting



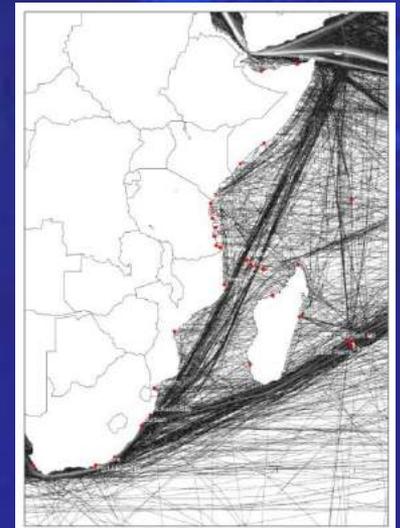
Nairobi Convention

- NC text itself does not cover MIS, but Article 7 of the Protocol on PAs & Wild Fauna & Flora states:

“ The Contracting Parties shall take all appropriate measures to prohibit the intentional or accidental introduction of alien or new species which may cause significant or harmful changes to the Eastern African region ”

Needs to be strengthened to provide a sound basis for MIS management

What does this mean?



Terminology: Invasive and Alien?

- ***Alien species*** – a species that has been intentionally or unintentionally introduced to a location, area, or region where it does not occur naturally. Synonyms = exotic, foreign, non-native, non-indigenous, introduced.
- ***Invasive species*** – species that spread causing harm to biodiversity, the economy and/or public health. NB: indigenous species may become invasive.
- ***Invasive alien species* (IAS)** – an alien species that causes, or has the potential to cause, harm to the environment, economies, or human health. Because the majority of invasive species are alien, this term is widely used by practitioners in the field. However, AIS is also used.

Terminology cntd



- MIS – Marine invasive species
- IMP's – Introduced marine pests
- HAOP – Harmful aquatic organisms and pathogens (BWM Convention)
- Cryptogenic species
- Pathways – eg. shipping
- Vectors – eg. ballast water, ship's hulls

Pathways for the transfer of Marine Species



- shipping, offshore platforms, floating docks

- canal developments



- floating marine debris (e.g. discarded/lost fishing gear and plastics)

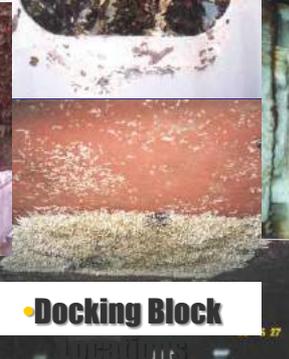
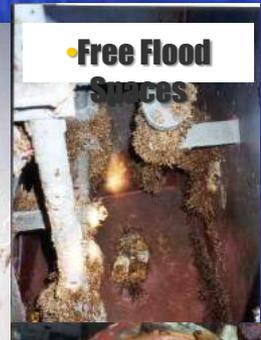
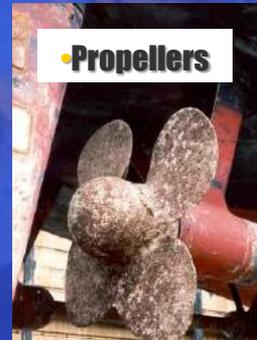
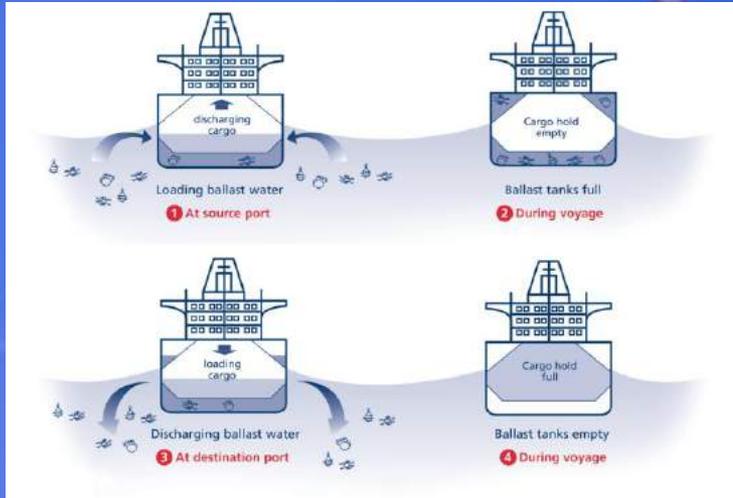
- aquarium trade (escape or release private or public aquaria)



- introductions for fisheries, aquaculture and coastal management purposes

Shipping vectors

Ballast water

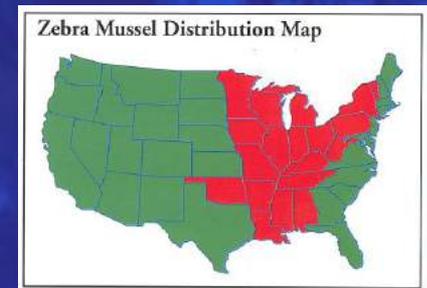


Biofouling

Impacts of MIS



- Economic – eg. loss of productivity (mariculture & fisheries) , ship speed, damage to infrastructure, treatment, quarantine & clean-up costs eg. Black Sea fisheries – losses of US\$ 240 million/year.
- Ecological – loss of native spp due to competition, predation, disease, etc; changes to ecosystem function, nutrient cycles, water quality etc
- Health & wellbeing – human health through disease (eg. Cholera) and/or toxicity (HABS); loss of recreational opportunities



Legal obligations

- Major Conventions & Institutions relevant to MIS management:

- ❖ Convention on Biological Diversity (UNEP)
- ❖ UNCLOS (UNDOALOS)
- ❖ Ballast Water Management Convention (IMO)



- Voluntary agreements

- ❖ Voluntary guidelines on biofouling on ships (IMO)
- ❖ FAO Code of Conduct for Responsible Fishing (FAO)



The Convention on Biological Diversity (CBD)

Only international agreement which addresses IAS in a comprehensive manner

Article 8(h) of the Convention requires Parties:

“As far as possible and as appropriate, (to) prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species.”

Many subsequent COP decisions on IAS, including: Decision VI/23
– Guiding Principles (2002)



United Nations Convention on Law of the Sea (UNCLOS)

- Framework for regulation of the world's oceans and seas

Article 196 provides that: “States shall take all measures necessary to prevent, reduce and control ... the intentional or accidental introduction of species, alien or new, to a particular part of the marine environment, which may cause significant and harmful changes thereto”

The IMO Ballast Water Management Convention

Provides for:

- Flag State requirements
- Port State requirements
- Ballast water exchange as interim measure
- Focus on treatment of ballast water
 - Standards
- Multiple guidelines for implementation

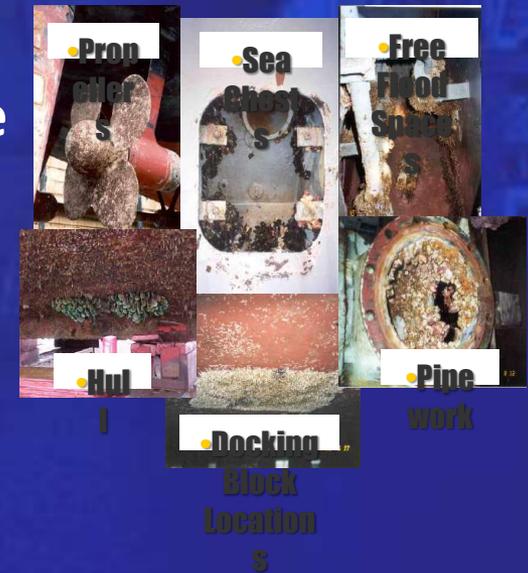
Not yet in force – requires 30 countries & 35% of tonnage

• Feb 2016: 47 countries, 34.35% of tonnage



IMO Voluntary Guidelines on Hull-fouling

- Adopted by MEPC in July, 2011
- Goal: to minimize the risks associated with biofouling for all types of ships
- Shipboard biofouling management: plans & anti-fouling systems (install & maintain)
- Ship maintenance & recycling facilities
- In-water inspection, cleaning & maintenance
- Design & construction



FAO Framework



Management of intentional introductions:

- **FAO Code of Conduct for responsible fisheries (Articles 7 & 9)**
 - Precautionary approach, regional cooperation/ consultation
 - Compliance with international instruments
 - Measures for reducing spread of disease
- **Technical Guidelines for Responsible Fisheries – Precautionary Approach to Capture Fisheries & Species Introductions**
- **International Council for the Exploration of the Seas (ICES) Code of Practice (covers aquarium-related transfers, GMO's & procedures)**
- **Database on Introductions of Aquatic Species**
- **The Asia Regional Technical Guidelines and the Beijing Consensus (measures to reduce risk of pathogens transfer via live animal movements)**

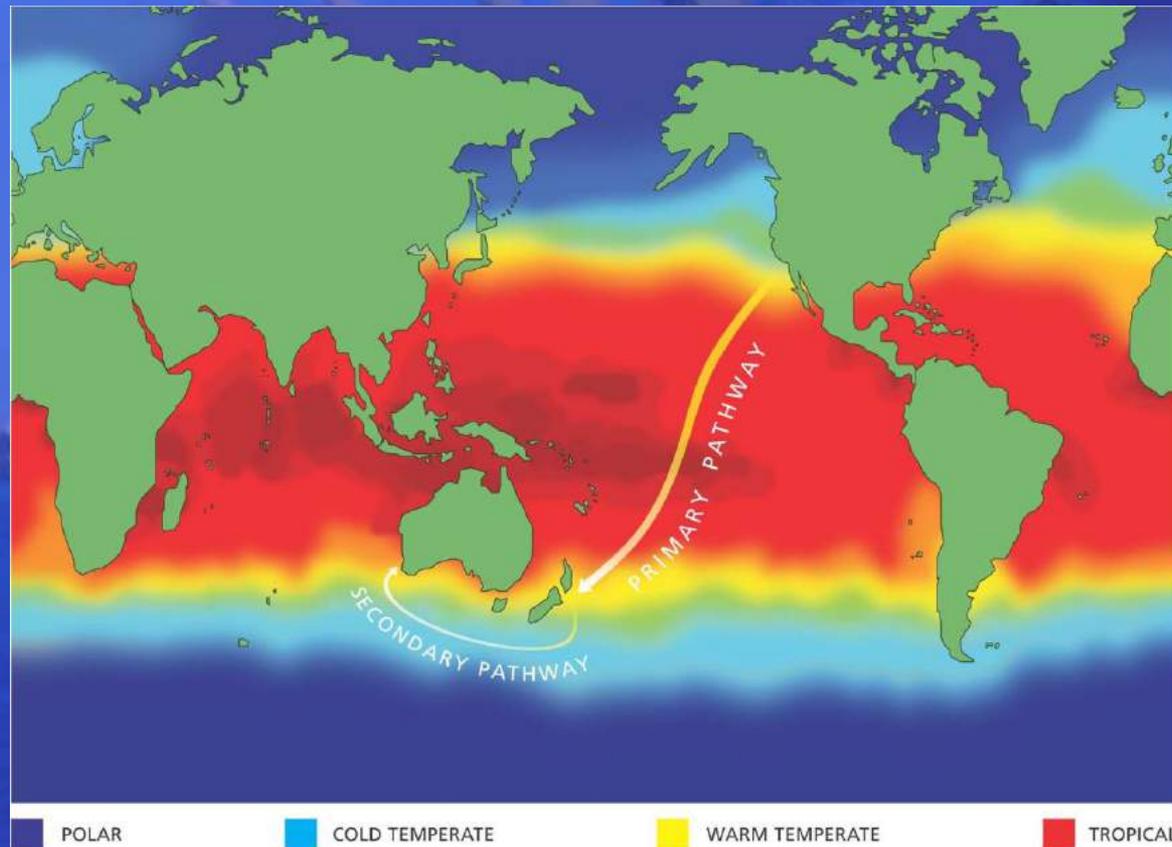
Status of ratification

Country	CBD	UNCLOS	BWM
Comoros	29.9.1994	21.6.1994	X
Kenya	26.7.1994	2.3.1989	14.1.2008
Madagascar	4.3.1996	22.8.2001	X
Mauritius	3.9.1992	4.11.1994	X
Mozambique	28.5.1995	13.3.1997	X
France/Reunion	1.7.1994	11.4.1996	24.9.2008
Seychelles	22.9.1992	11.9.1991	X
Somalia	11.9.2009	X	X
South Africa	2.11.1995	23.12.1997	April 2008
Tanzania	8.3.1996	30.9.1985	X

Conclusion: ALL NC countries have legal obligations in terms of international agreements to manage invasive alien species in the marine environment.

Importance of a Regional Approach to MIS Management

- IAS are by definition a transboundary issue & therefore best managed at a regional level
- Regional Seas a platform for implementation of international agreements



What does MIS management imply?

Hierarchical Approach

1. Prevention
2. Early detection/rapid response
3. Containment
4. Eradication
5. Long term control

Most desirable



Least desirable

“An ounce of prevention is worth a pound of cure”

How do we prevent introductions?

2 layers of prevention

i. Manage pathways i.e. prior to arrival at the border, and at border

ii. If the 1st level fails, early detection & rapid response i.e. monitoring and contingency planning



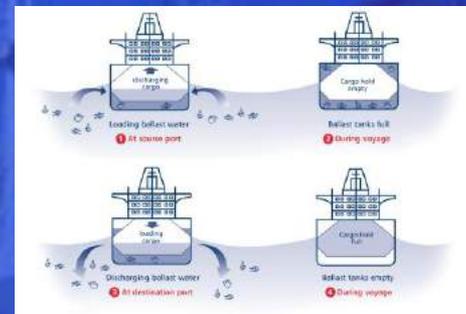
Management of pathways

❖ Unintentional introductions

- ballast water – eg. on board treatment
- hull-fouling – eg. anti-fouling, cleaning
- port/coastal state inspections

❖ Intentional introductions

- fisheries/mariculture – risk/ impact assessments
- permits/border controls

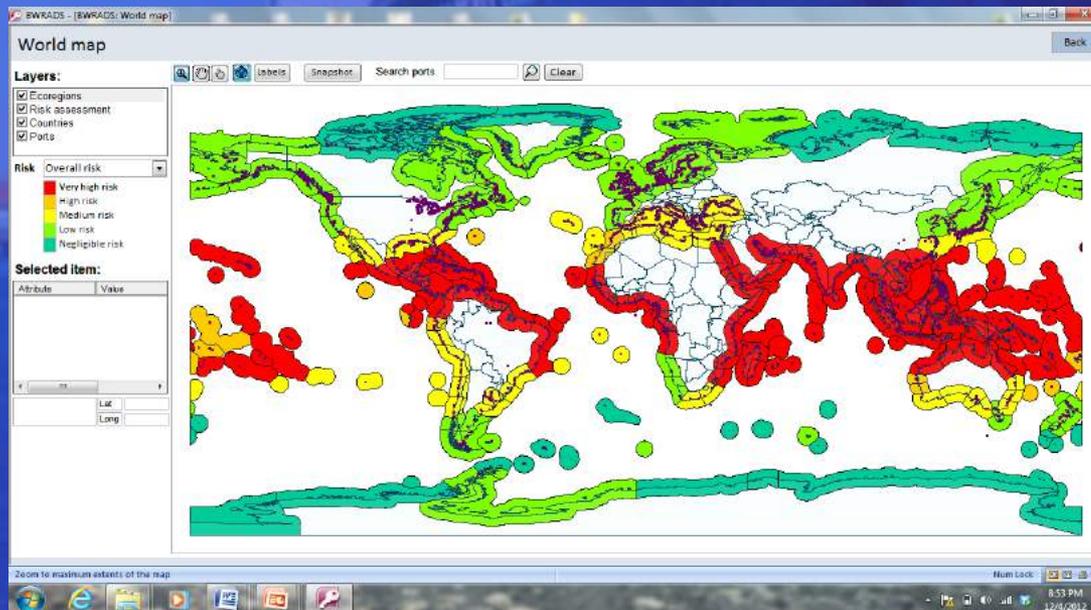


“An ounce of prevention is worth a pound of cure”

Early Detection & Rapid Response

When 1st layer of prevention fails, need to prevent establishment:

- Early detection – monitoring for listed priority species
- Rapid response – contingency/emergency plans



Need to address existing MIS

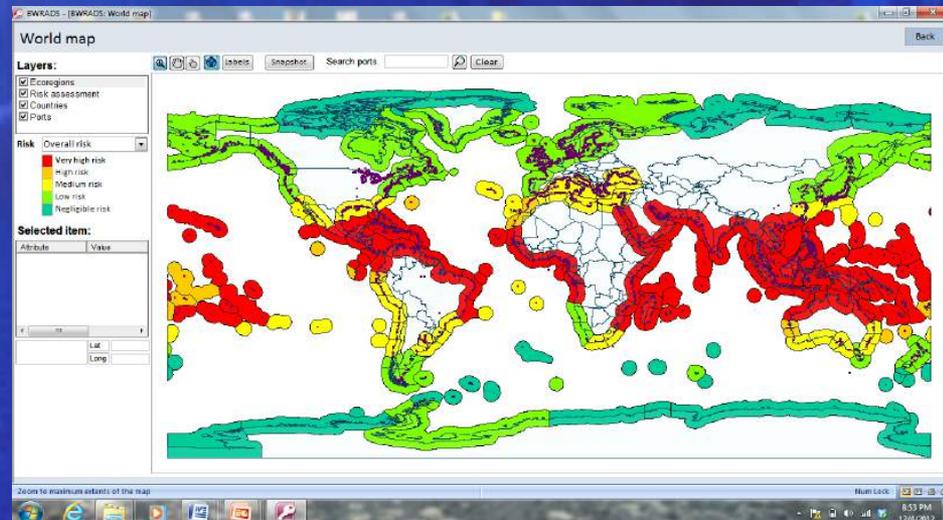
- Containment/eradication/ongoing control
- Regional plans/ guidelines
- Can include indigenous invasives



Regional species lists

Role:

- Priorities for monitoring/surveillance – prohibited spp i.e. not yet present, but high risk
- Listed invasive alien species – already present in the region & constitute a threat (priorities for eradication or control)
- Alien species which are present, but which do not constitute a threat.



CBD's Aichi Target 9

Strategic Plan for Biodiversity: 2011 – 2020 sets a number of targets:

- Aichi Target 9:

“ By 2020, invasive alien species and pathways are identified and prioritised, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.”



Contents of Protocol?

- Definitions
- Pathways management – promote harmonisation of policies & approaches through guidelines and best practice (consistent with international law)
- Regional lists of priority species – prohibited & invasive (eradication & control) – in Annexes
- Regional monitoring plan
- Regional management plans for priority species
- Cooperation – reporting/consultation
- Information sharing mechanisms
- Emergency response



New Protocol or amendment?

- Personal concern is that one of the main priorities should be **pathways management** i.e. NOT consistent with the focus of the existing Protocol





Thank You