Two Decades of Research on Introduced Species: Experience from ICES and BMB

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Fact File

- Biological invasions are considered as one of the top four anthropogenic threats of the world’s oceans (same status as “global warming”) – Convention on Biological Diversity (Rio 1992)
- Considerably impact local economies (loss in harvest, coastal zone damage, impact tourism, extinction/impairment of native species)
- Key introducing vectors are shipping and aquaculture
- Pacific hosts several of the world’s major shipping routes. Increase in traffic expected due to growth of oil and gas exports
- Discharge of “unmanaged” ballast water will negatively impact on e.g. aquaculture
History of ICES WGITMO

• First meeting in early 1970
• Consecutive meetings since 1978
• Chairmen
  Carl Sinderman (1978-1990),
  Jim Carlton (1991-2000),
  Stephan Gollasch (since 2001)
• Key item update ICES on
  species movements
• Key instrument
  “National Reports”
ToRs of WGITMO

• Current Terms of Reference include
  – update on previously introduced species
  – review proposals for planned introductions
  – report accidental releases and their ecological and economical consequences
  – develop report on rapid response and control options
  – plan Aliens Species Alert Reports
  – develop risk assessment guidelines

• WGITMO reports to the ICES Marine Habitat Committee and Advisory Committee of the Marine Environment
History of WGBOSV

- First meeting in 1997 as SGBWS, renamed to SGBOSV to better address non-ballast vectors in shipping. Since 2003 WGBOSV
- Chairmen Jim Carlton (1997-2000), Stephan Gollasch (since 2001)
- Meets back to back with WGITMO
- “Mini-symposium” format until 2004
- Workshop format from 2005
ToRs of WGBOSV

• Current Terms of Reference include
  – review and report on the status of ballast water research
  – review Codes of Best Practice for Ballast Water Management (OSPAR, HELCOM, GloBallast)
  – risk assessment of ship mediated invaders
  – techniques for the rapid detection of non-indigenous species

• WGITMO reports to the ICES Marine Habitat Committee and Advisory Committee of the Marine Environment
History of BMB NEMO

• Working Group on Non-indigenous Estuarine and Marine Organisms (NEMO) within the Baltic Marine Biologists (BMB)
• Established in 1994 (initiative of E. Leppakoski & S. Olenin) - with its first meeting in Klaipeda, Lithuania in 1995
• Advanced PhD and MSc courses on biological invasions
• Joint publications and projects
• Baltic Sea Alien Species Database (Klaipeda Database), online since 1997 <www.ku.lt/nemo/>
Current BMB NEMO ToRss

• to support activity of a Baltic research network on biological invasions which was established in 1994-1997;
• to promote cooperation between biologists dealing with NEMOs in the Baltic Sea and other aquatic areas;
• to further develop the information system on alien species in the Baltic Sea (Baltic Sea Alien Species Database);
• to support educational activities in invasion ecology (e.g. advanced courses for MSc and PhD students);
• to elaborate recommendations on alien species studies for the revised HELCOM Guidelines for the Baltic Sea Monitoring;
• to transfer applicable know-how of international and regional organizations elaborated in order to minimize risk of introductions (in cooperation with HELCOM).
ICES Code of Practice

• This task triggered the “birth” of WGITMO
• The code covers Introductions and Transfers of Marine Organisms
• Several updates (1994, 2002)
• Updated version including GMOs - to be published soon
• Avoid un-intentional introductions and accidental releases (non-target species)
• Other codes in preparation (EU, IUCN)
Publications I

- ICES CRR (Cooperational Research Reports)
  - covers plants (with an emphasis on Caulerpa taxifolia), invertebrates and fish
  - information provided is based upon “National Reports” prepared for WGITMO Meetings
- A status report covering 1992-2002 is in preparation by WGITMO and should be ready soon
Publications II

• Alien Species Alert Reports
  – “The intentional introduction of the marine Red King Crab *Paralithodes camtschaticus* into the Southern Barents Sea”, prepared by WGITMO, final version submitted in 2004

• Invasion vectors report
  – “Vector pathways and the spread of exotic species in the sea“, prepared by WGITMO and reviewed by WGBOSV, final version submitted in 2004
The ICES-PICES linkage on Biological Invaders

• Close cooperation on biological invaders is seen as mutually beneficial

• Information pathways are well established as:
  – PICES representatives are on the mailing list of WGITMO and WGBOSV
  – PICES representatives attend WGITMO and WGBOSV meetings since 2003
  – ICES representatives attend PICES Annual Meetings
  – ICES representatives are on the mailing list of relevant PICES bodies
Thoughts for consideration of PICES

• A strong and efficient regional network is a key issue when dealing with biological invasions
• A global network is also needed as invaders may originate in non-PICES member countries
• Consider to join ICES/IOC/IMO WGBOSV and/or ICES WGITMO meetings. The geographic coverage of the group is not limited to ICES-Member countries
• Consider to establishment of a working group dealing with biological invasions (not focus HABs only)
• Consider to follow the ICES Code when planning species introductions
PICES Group on Biological Invasions

- Inventory of aquatic alien species in ALL PICES Member Countries
- Not to focus on marine organisms only – include brackish and freshwater species
- Development of an online database on alien species for PICES
- Raise awareness within the PICES scientific arena
- Consult with PICES HAB group for mutual benefit
- Be open for south Pacific countries and other regions to contribute
- Discuss preventive measures (ICES Code, IMO Convention etc.)