WG 21: Non-indigenous Marine (Aquatic) Species

Intersessional FUTURE-AP Meeting
Seoul, Aug. 16-18, 2010

Thomas W. Therriault

Parent Committee:

- Marine Environmental Quality Committee (MEQ)

Co-Chairs:

- Ms. Darlene Smith (Canada)
- Dr. Vasily Radashevsky (Russia)

Members:

Canada(3), China(5), Japan(4), Korea(4), Russia(3), USA(5)

Duration

- Approved at PICES 2005 in Russia and term was extended following MAFF funding (2005 – 2012)

WG-21 Terms of Reference

1. Assesses the status of Non-Indigenous Aquatic Species in the PICES area by:
   - completing an inventory of currently reported estuarine and marine aquatic non-indigenous species in PICES member countries;
   - compiling definitions of terms and making recommendations on use of terms;
   - summarizing the situation on bioinvasions in the North Pacific; and
   - comparing and contrasting to other regions.
2. Assemble an inventory of expertise and programs related Non-Indigenous Aquatic Species in PICES member countries by:
   - compiling a list of existing databases of Non-Indigenous Aquatic Species experts; and
   - compiling sources of information on relevant national research and monitoring programs in PICES member countries.
3. Prevention and mitigation measures:
   - summarize initiatives on prevention and mitigation measures and
   - develop recommendations for best practices for prevention and mitigation.

WG-21 Terms of Reference

4. Promote collaboration between ICES and PICES Working Groups on NIS:
   - holding joint meetings of the ICES and PICES WG-21 as conveniently as practical; and
   - developing and recommending an approach for enhances linkages between ICES and PICES on Non-Indigenous Aquatic Species.
5. Develop a comprehensive Non-Indigenous Aquatic Database.
   - MAFF funded project
6. Establish a North Pacific Marine Non-Indigenous Aquatic Species taxonomy initiative.
   - MAFF funded project
7. Publish an interim report in 2010 and a final report in 2012 summarizing results and recommendations.

Key WG-21 Milestones

1. Two Major Initiatives Developed at PICES 2007 in Victoria
   - MAFF funded Database Project (Henry Lee II, USA as lead)
   - MAFF funded Taxonomy Initiative (Thomas Therriault, Canada as lead);
2. Intersessional Database Meeting in Busan, Korea: Winter 2008
3. First Rapid Assessment Survey for Non-indigenous Species in Dalian, China, Oct 2008
4. Full day Session on Invasive Species at PICES 2008 in Dalian
5. Support of 6th International Conference on Marine Bioinvasions, Portland, OR, USA, Aug 2009
6. Second Rapid Assessment Survey for Non-indigenous Species in Jeju, Korea, Oct 2009
7. Demonstration Survey on RAS Techniques for Southeast Asian (Developing) Countries, Awaji Island, Japan, July 2010
8. Third Rapid Assessment Survey for Non-indigenous Species in Newport, OR, USA, Oct 2010

Potential Linkages to FUTURE

Objective 1: Understanding Critical Processes in the North Pacific

(1) What determines an ecosystem's intrinsic resilience and vulnerability to natural and anthropogenic forcing?

(2) How do ecosystems respond to natural and anthropogenic forcing, and how might they change in the future?

(3) How do human activities affect coastal ecosystems and how are societies affected by changes in these ecosystems?

WG 21 activities touch on all 3 themes

- **marine non-indigenous species can serve as indicators of anthropogenic forcing and can significantly influence coastal ecosystems and societies**

Potential Linkages to FUTURE

(1) What determines an ecosystem's intrinsic resilience and vulnerability to natural and anthropogenic forcing?

Non-indigenous species can represent a significant stressor in aquatic ecosystems. The rapid assessment surveys (RAS) and country reports are providing baseline data on non-indigenous species across the North Pacific: data that is being entered into WG 21's Database. This data can help identify ecosystems with greater resilience/vulnerability to this forcing.

Additional biological or environmental data could be collected for sites with contrasting diversity/abundance of non-indigenous species.

Potential Linkages to FUTURE

(2) How do ecosystems respond to natural and anthropogenic forcing, and how might they change in the future?

Non-indigenous species can represent a significant stressor in aquatic ecosystems. Research on the impacts of non-indigenous species in different ecosystems can help identify "priority" species for monitoring/mitigation/control. Further, the distribution and potential impact of non-indigenous species is expected to change in the future owing both to changes in vectors of introduction/spread and changes in the receiving environment possibly allowing new species to establish or existing populations to erupt.

Potential Linkages to FUTURE

(3) How do human activities affect coastal ecosystems and how are societies affected by changes in these ecosystems?

Non-indigenous species are largely redistributed globally by human-mediated activities (e.g., commercial shipping, aquaculture related activities, recreational boating, live food sales, etc.). For many non-indigenous species the impacts are often difficult to determine and/or measure. However, for "invasive" species, the impacts on society are clear. For example, globally, the impacts of non-indigenous tunicates on shellfish aquaculture are becoming very clear with significant losses in productivity and societal benefits.

Human-mediated introductions will continue. An understanding of introduction vectors, prevention strategies, and monitoring programs will help limit societal losses.