

SMITHSONIAN interested in US-Baltic cooperation

Greg Ruiz wrote Febr. 13, 2005

A research project started to examine several dimensions of biotic exchange between the Baltic region and North America, focusing especially on the Great Lakes region.

US-Baltic cooperation

We are intending to examine effects of salinity exposure as well as examine attributes associated with invasion success (colonization).

I. Salinity Tolerance

- Salinity tolerance of organisms from the Baltic region
- Test the effect of mid-ocean ballast water exchange on survivorship
- Identify the pool of species that may be entrained in northern European ports --- including both Baltic and further west (e.g., Rotterdam, Kiel, etc.)
- Select a subset of these taxa to test salinity tolerance in standardized laboratory experiments.

Salinity Tolerance

- **Collecting organisms from the field and exposing them to changing salinities that simulate open-ocean ballast water exchange.**
- **Comparing survivorship among several treatments: (a) rapidly elevated salinity, as experienced during empty-refill ballast water exchange; (b) more gradual salinity change, as experienced under flow-through exchange; (c) control conditions, whereby the water is changed but salinity remains as the initial starting condition.**

Salinity Tolerance

- **Similar experiments conducted on resident biota of Chesapeake Bay, focusing on low salinity reaches, so the potential to examine this question in reverse is also being developed.**

II. Species Attributes

- **As a component of this initial phase, we would also like to collect existing information on the biology and ecology of species with plankton stages in low salinity waters of the Baltic and western Europe, including both native and non-native species.**

Species Attributes

- We are also open to developing a collaborative project, for those who are interested in these sorts of questions.
- This could include a joint effort in data collection, laboratory experiments, and data analyses / publications.
- At this stage, we would like to discuss further your interest in this analysis and ways we might work together.

III. Comparison of Native and Non-native populations

- We are comparing demography of species with native populations in eastern North America to introduced populations in western North America. e.g., *Rhithropanopeus* and *Balanus*

Comparison of Native and Non-native populations

- We are now actively seeking locality records for collections of *Rhitropanopeus* and *Balanus improvisus*, and associated environmental data.
- If this is something of interest to you, we would be happy to collaborate on this effort.
- The initial product is modeling the environmental conditions associated with existing distributions, using these data to predict the future range.

Species Attributes

- One of the interesting things to us is the extent to which environmental tolerances are different among populations and can be used to predict potential range (in different geographic regions) and possible differences in life history / ecology.