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Notice

GAAS: Group on Aquatic Alien Species at the Zoological Institute in St. Petersburg, Russia

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Russian hydrobiologists, as members of the international scientific community, are facing the many challenges of the global problem of aquatic alien species introductions. Research is beginning on such issues as the ecological and environmental impacts of aquatic invasive species and on developing tools for the forecasting and prevention of new introductions. The invasion (as the result of ballast water release) of the North American ctenophore (comb jelly) *Mnemiopsis leidyi* in the Black Sea and the Ponto-Caspian cladoceran crustacean (water flea) *Cercopagis pengoi* in the Baltic Sea are among recent examples of invasions that have resulted in significant changes in tropho-dynamic processes and in large economic losses for Russian and other fisheries. The recent colonization by the Baikalian amphipod *Gmelinoides fasciatus* of large areas of northwest Russia, including the basin of Lake Ladoga (the largest European lake), after the headlong practice of deliberate introductions of aquatic organisms, has caused significant changes in biodiversity.

Growing concern in the Russian scientific community about the consequences of alien species introductions resulted in 1998 in the establishment of the Group of Aquatic Alien Species (GAAS) at the Zoological Institute of the Russian Academy of Sciences in St. Petersburg. GAAS is the first research group in Russia focusing on biological invasions. Support for GAAS has come from the government's 'Biodiversity' program through two projects. In 1998 GAAS was funded through the 'Dynamics of Biodiversity of Aquatic Communities in the Baltic Sea Basin under the Influence of Alien Species' project. In 1999-2000 GAAS is part of the project entitled 'Development of the Scientific and Methodological Basis for the Organization of Biodiversity Monitoring and Recommendations for the Prevention and Control of Alien Species Introductions in Water Systems Lake Ladoga - Neva River-Neva Bay - eastern Gulf of Finland and lower Volga River - north Caspian Sea'.

The general goal of GAAS is both basic and applied biological invasions research, with emphasis on the Baltic and Caspian Seas and on large European lakes (Ladoga, Onega, and Peipsi). Specific objectives of GAAS include research on the taxonomy, distribution and life history of established alien species and species showing significant range expansions; research on community and ecosystem effects of alien species, including modelling on both community and ecosystem levels; development of a theory of ecosystem resilience relative to the establishment of alien species; development of an Internet-based information system on aquatic alien species; dissemination of information on aquatic invasive species for legislators, decision-makers and the general public in Russia; development of scientific recommendations for the control of invasive species and the prevention of future invasions via transoceanic and transcontinental (Ponto-Caspian -Baltic Sea) shipping routes, and promotion of international networking on regional and global scales.

GAAS includes eight scientists affiliated with the Zoological Institute. These researchers are Drs Irena V. Telesh, Marina I. Orlova, Piotr I. Krylov, Andrei L. Lobanov, Mikhail B. Dianov, Vadim E. Panov and Professor Vladislav V. Khlebovich, under the supervision of the Director, Professor Alexander F. Alimov (who is also President of the Russian Hydrobiological Society). In addition, several senior scientists from partner institutions, as well as PhD and other graduate students, are involved in GAAS research projects. These projects include the taxonomy, distribution and life history of the water fleas *Cercopagis* and *Bythotrephes;* the ecological effects of *Cercopagis* in the Gulf of Finland; the utilization of *Cercopagis* by fishes in the Gulf of Finland; the distribution, life history and ecological effects of the

zebra mussel *Dreissena* and other ben-thic alien species in the Gulf of Finland; the distribution, life history and ecological effects of the Baikalian amphipod *Gmelinoides;* the invasion dynamics of the North American polychaete worm *Maren-zelleria* in the Gulf of Finland; experimental studies of alien species' environmental requirements; development of a geographic information system on aquatic alien species (GIS 'INVADER') as an international internet database, and scientific recommendations for the prevention of new alien species introductions into the Gulf of Finland.

Considering the global nature of the problem of biological invasions, the promotion of international networking to facilitate information exchange is a core objective of GAAS. The need for developing tools for information exchange is now recognized worldwide (such as in the Global Invasive Species Program (GISP) and in President Clinton's 1999 Executive Order on Invasive Species). As part of the efforts to fulfill this objective, GAAS (with the cooperation of the Great Lakes Environmental Research Laboratory, National Oceanic and Atmospheric Administration, USA) initiated a special workshop in 1998 at the Congress of the International Association of Theoretical and Applied Limnology (SIL) focused on developing a scientific information exchange network in aquatic invasive species.

This effort resulted in the establishment of new SIL Working Group on Aquatic Invasive Species. At a workshop panel presentation, GAAS' GIS 'INVADER' program was noted as a potential model international information system on aquatic invasive species. In 1999 GAAS opened a web home page (http://www.zin.ru/-projects/invasions/), which includes information on GAAS' goals and current projects, key species with an illustrated database, the present state of international networking, news and meetings, and biographical information on GAAS research scientists. As of June 1999 the illustrated database consists of five key species: *Cercopagis pengoi, Bythotrephes* spp., *Gmelinoides fasciatus, Dreissena polymorpha* and *Marenzelleria* spp. The entry on *Cercopagis* is as an example of a completed database with information on taxonomy, biology, and ecological, environmental and economic impacts, along with its patterns of distribution in donor and recipient areas, as illustrated by the GIS-generated maps.

Eighteen GAAS partner institutions are in Belarus, Canada, Estonia, Finland, Germany, Lithuania, Sweden, The Netherlands, Ukraine and the USA. GAAS is closely connected with the Baltic Marine Biologists Working Group on Non-Indigenous Estuarine and Marine Organisms (BMB WG NEMO; see http://www.ku.lt/nemo/mainnemo.htm), which held its most recent meeting in December 1998 at the Zoological Institute in St. Petersburg (see http://www.ku.lt/nemo/petrep.htm).