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Information system on aquatic non-indigenous and cryptogenic species AquaNIS with integrated DNA barcode information

Maiju Lehtiniemi¹, Sergej Olenin², Henn Ojaveer³, Ann Bucklin⁴

¹Marine Research Center, Finnish Environment Institute, P.O.Box 140, FI-00251 Helsinki, Finland

²Coastal Research and Planning Institute, Klaipeda University, Klaipeda, Lithuania

³Estonian Marine Institute, University of Tartu, Pärnu, Estonia

⁴Department of Marine Sciences, University of Connecticut, Groton, CT 06340 USA

Non-indigenous species (NIS) are considered globally as a major threat to biodiversity, ecosystem functioning and economy. Monitoring their presence and impacts is considered a prerequisite for marine environmental management and sustainable development. Presently, molecular methods including metabarcoding offer promising tools for early detection and identification of NIS. Accurate metabarcoding-based species identification requires a taxonomically complete and geographically comprehensive reference database of DNA sequences for each species. Species data from monitoring programs should be verified and stored in a publicly accessible and routinely updated information system. One operational, regularly updated database is AquaNIS (Information system on aquatic non-indigenous and cryptogenic species). This information system covers marine, brackish and coastal freshwater environments of Europe and adjacent regions. In the species block where details of the origin, environmental tolerances, biological traits and transport vectors are shown, it is also indicated whether molecular markers are available for the species. If there are barcodes for the species, a link to BOLD (The Barcode of Life Data Systems) and/or NCBI (National Center for Biotechnology Information) is provided. At present molecular information is available for 102 species in the database, the dominating phyla being Mollusca and Arthropoda (mostly shrimps and crabs).

Keywords: Non-indigenous species, monitoring, early detection, database, DNA barcodes

Contact author: Maiju Lehtiniemi, ¹Marine Research Center, Finnish Environment Institute, P.O.Box 140, FI-00251 Helsinki, Finland, email: maiju.lehtiniemi@ymparisto.fi