

International instruments

Information sources on alien aquatic species

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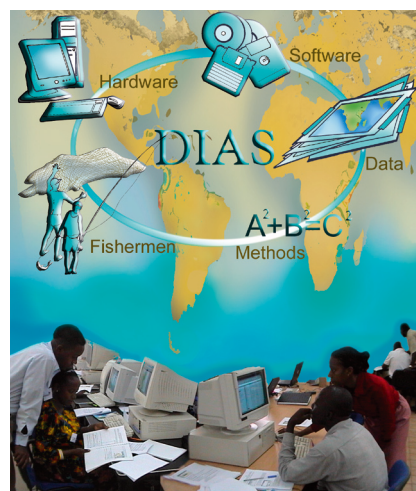
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Over centuries there have been many deliberate introductions of non-indigenous species (among others): to use in aquaculture, to provide new or additional food resources for human consumption, to increase target species available for hunting or angling, for biological control, for research, or for recreational or esthetic purposes (Welcome, 1988; IUCN, 1999). This practice can be expected to continue. Fora dealing with species introductions and or biodiversity state that information on species introductions is lacking, while this information is vital for risk assessments. The purpose of this paper is to examine which information sources can provide information needed for risk assessments and to examine in detail, what kinds of data is are available in three databases relevant to the Mekong/Lancang Basin: the Database on Introduced Aquatic Species (DIAS), the Global Invasive Species Database, and the Mekong Fish Database, and what governments can do to keep track of introductions into and within their country.

Information for risk assessment

Risk assessment will require information on a number of areas such as socio-economics, biology, ecology, genetics of the alien species, and information on the area where the alien is supposed to be transferred to. Many feel that the socio-economic aspects of an introduction are the most an especially important part of the risk assessment. It is the level of socio-economic benefits that should determine the actual need for the introduction or transfer. This need should be weighed against the risks to the environment and and the potential detrimental socio-economic impacts of the introduction. or transfer that determine the financial risk to society.

Many publications deal with introductions of species, specifically the biological, ecological, and genetic issues related to these introductions. A list of databases dealing with aquatic introduced species can be found in the text-box below. Some databases contain data on socio-economic impacts, such as like the Database on Introductions of



Aquatic Species (whether or not there was a socio-economic effect of the introduction, and if there was an effect, if this effect was positive or negative). Other databases, such as the Global Invasive Species Database, focus more on biodiversity impacts. In both cases, information is quite limited and should therefore be treated as a primer for further research.

LIST OF SELECTED DATABASES DEALING WITH INTRODUCED AQUATIC SPECIES ISSUES

- Database on Introductions of Aquatic Species (DIAS)*
<http://www.fao.org/fi/figis/Introsp/index.jsp>
- Global Invasive Species Database; IUCN/SSC Invasive Species Specialist Group (ISSG)
<http://www.issg.org/database/welcome/>
- Mekong Fish Database
Available at: http://www.mrcmekong.org/shopping/productsByCategory.asp?intCatalogID=2&strCatalog_NAME=Fisheries
- Nonindigenous Aquatic Species US Geological Survey*
<http://nas.er.usgs.gov/>
- US State and Federal invasive species activities
<http://www.invasivespecies.gov/>
- Invasive non-native species in the UK
<http://www.appliedvegetationdynamics.co.uk/IAAPwebsite/index.asp>
- Regional Biological Invasions Center (RBIC) for the Baltic Region*
<http://www.zin.ru/projects/invasions/>
- Baltic Sea Alien Species Database*
<http://www.ku.lt/nemo/mainnemo.htm>
- Fishbase
<http://www.fishbase.org>
- Aquatic Animal Pathogen and Quarantine Information System (AAPQIS)
<http://www.aapqis.org>

* Contains information on socio-economic impacts

The Mekong Fish Database

The Mekong Fish Database (MFD) contains information on fish species in the Lower Mekong Delta (Cambodia, Viet Nam, Laos, Thailand). Information contained in the MFD 2003 is fully referenced and was obtained both from published material and from the results from surveys coordinated by the Mekong River Commission (MRC) Fisheries Programme in collaboration with riparian line agencies. Key information for each species includes taxonomy, migration, common names, synonyms, pictures, occurrence data, maps, and biological information. Besides this information the status of the species (introduced or native) is also mentioned.

The Database on Introductions of Aquatic Species

The FAO Database on Introductions of Aquatic Species (DIAS) was initiated by R. Welcomme in the early 1980's. It considered primarily only freshwater species of fish and formed the basis for the 1988 FAO Fisheries Technical Paper no. 294. The database has been expanded to include additional taxa, such as molluscs and crustaceans, and marine species. In the

mid 1990's a questionnaire was sent to national experts to gather additional information on introductions and transfers of aquatic species in their countries. The database, which contains now more than 3200 records, can be queried either on the world wide web, or via a Microsoft Access database which is available on CD-ROM. Another way to search data from DIAS is to have a look at the records in Fishbase, which has incorporated DIAS records in 1997. FishBase is a global information system about more than 28 000 species of fish.

The database includes records of species introduced or transferred from one country to another and does not consider movements of species inside the same country. Coverage of accidental introductions of organisms (e.g., through ship ballast waters) is not complete and records on this topic have been generally entered only when important impacts on fisheries, aquaculture or the environment have been caused.

Each record in DIAS deals with the introduction of a species to a country. These records contain information on:

- ▶ which country has exported the species to the country;
- ▶ when this was done, who made the introduction;
- ▶ what was the reason for introduction, if the species is established in the wild;
- ▶ if there are socio-economic and ecological effects of the introduction, and if so, if these effects were beneficial, or adverse.
- ▶ Also the reference for the information is given (if available).

Efforts are made to use currently accepted scientific names, however, designation of subspecies taxa is often inconsistent in the literature and in the questionnaires' responses.

Users aware of other introductions of aquatic species not already included in the database or that have additional information on the records in the database are requested to report these, either through the web-site of DIAS, or through an input form of which the template is supplied with the CD-ROM version of DIAS.

The Global Invasive Species Database

The goals of the Global Invasive Species Database are to raise awareness about invasive alien species (IAS) by providing easy access to authoritative information and to facilitate effective prevention and management of invasive species problems by disseminating specialist's knowledge and experience globally.

The Global Invasive Species Database (GISD) was developed by the IUCN/SSC Invasive Species Specialist Group (ISSG) as part of the global initiative on invasive species led by the Global Invasive Species Programme (GISP). Development of the database followed extensive consultation and user analysis beginning in 1998.

The developers of the GISD are building a global picture of the invasive species issue by capturing and displaying the results of work being done by individuals and in programs all over the world. The core information elements in the GISD include:

- ▶ taxonomy, names, descriptions, images to help identify invasive species;
- ▶ distribution records describing where the species occurs;
- ▶ impacts describing what effect the species has there;

- ▶ pathways, vectors describing how and why the species was introduced;
- ▶ prevention & management information to describe how to deal with the species;
- ▶ contacts details of specialists for advice.

Each species profile in the database contains links back to local, national and regional resources where more detailed and locally specific information can be found. Users can search the database by scientific, common name or synonym, country or location, life form, habitat type or by any combination of these. A taxonomic search is also available. The GISD is being populated with species profiles and distribution records on an ongoing basis and a CD-ROM will be distributed in 2004.

Information gathering

The three above mentioned databases should be considered a start in the search for information needed for a risk assessment of an intended introduction of an aquatic species. The databases will provide 'leads' (through references for instances) of introductions in similar environments, or similar species, which need to be researched further through other information sources, e.g. like literature. DIAS can provide also an insight in the status of introductions of aquatic species and their effects (socio-economically and ecologically) in the recipient habitat.

DIAS could be regarded as a model for national registries on species introductions. Many international fora (e.g. like for instance the Convention of Biological Diversity) call for countries to develop national databases on movements of species (Bartley and Fleischer 2004). These national registries should not only contain records on movements of species into and out of a country, but also on movements of species between ecological zones within a country. By setting up and maintaining such a national registry, countries will be able to assess impacts of introductions, and advice neighbouring countries on providing information to other interested groups or countries on the impacts, both positive and negative, of alien species.

References

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