

Fish Database in Taiwan

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There are many different kinds of biological related databases. The database presented here is the one related to fish taxonomy, ecology and distribution. The purposes to establish such a biological or taxonomic database is not only for our own research need in facilitating data management and utilization, but also to promote scientific exchange, education and propagation as well as the application on the sustainable of agricultural or fisheries resources. Basically, there are five kinds of taxonomic databases: curatorial (specimen), biogeographic (distribution), nomenclature (synonym), bibliographic (literature) and descriptive (characters) database. Among these databases, curatorial and distributional databases should be created and maintained by local scientists in each different country (area). The nomenclature, description and bibliographical databases can be handled by few leading museums or institutions globally. Taxonomists have the responsibility to help or to carry out the database work under the assistance of information engineering on programmers.

Figure I show the overall structure of the fish database in Taiwan which we developed in the past few years at the Laboratory of Fish Ecology and Evolution, Institute of Zoology, Academia Sinica. Three distributional databases already can be accessed through WWW [[http://com5.iis.sinica.edu.tw:8000/ ...](http://com5.iis.sinica.edu.tw:8000/)]. The rest databases are still establishing and will be available on the internet within two or three months.

Introduction (Background)

- Distribution Database of Inshore Economical Fishes of Taiwan -- sponsored by Council of Agriculture.
- Distribution Database of Coastal Fishes of Taiwan -- sponsored by National Science Council
- Distribution Database of Freshwater and Estuary Fishes of Taiwan
- Curatorial Database of Fish Specimens deposited at Museum of Institute of Zoology, Academia Sinica
- Inquiring System for Chinese Fish names of the World Fishes
- Most Update Version of Fish Checklist of Taiwan & Its' Changing Records
- Bibliographic Database of Taxonomic, Ecological or Distributional Related Literatures of the Fishes in Taiwan
- Basic Information of Each Fish Species Including Specimen Photo
- Fish Database of King Men & Machu
- Fish Database of South China Sea

Under the technical support of the Institute of Information Engineering, Academia Sinica, the three fish distributional databases of Taiwan now can be accessed interactively on the internet. They were constructed on the GRASS (Geographic Resources Analysis and Support System) and Informix Online with dbSQL interface. Users can easily check the actual distribution areas of each fish species on the map and get a species list distributed for each grid of coastal waters around Taiwan. The database contains fish scientific names, Chinese names, both English and

Chinese common names, localities (in a grid system, 10' each), seasons (months), fishery methods" and abundance data. Four categories of abundance data: abundant, common, occasional or rare for each month can even be plotted or marked by different colors on the map for each fish species. The specimen photos and detailed description of each species including morphological character, ecological habitats, or geographical distribution throughout the world are also provided for further browsing on the WWW. Original fish data were collected region by region every year. For economical fishes, so far we gave completed the data of north, northeastern, southeastern, south, and Southwestern parts of Taiwan. Total numbers of economical fish species recorded in the above regions are 404, 304, 370, 530 respectively, This database will be completed in this year after the data of northwestern part of Taiwan are installed. This project was supported by the Council of Agriculture in order to promote the utilization, management, and conservation of coastal fishery resources in Taiwan.

For coastal marine fishes of Taiwan: 676 (north), 1,100 (south), 664(west), 717(east), 648(Penghu), 608(Hsiao-liu-chiu), 602(Green Isl.), 561(Orchid Isl.), and fishes in South China Sea: 264(Tung-sha), and 421(Nan-sha) species have been recorded under the support of National Science Council. The basic difference of this coastal fish database from previous inshore economical one is that this database including lots of non-economical smaller fishes, such as coral reef fishes. All data were recorded by ourselves personally from or field collecting, not indirectly from fishermen's questionnaires. For the freshwater and estuary fishes, three rivers of Tzeng-wen, Ho-lung, and Tam-shuei river systems and most estuaries along the western coast were investigated by ourselves. Fish faunistic data of the rest rivers were mainly collected from literatures.

For curatorial database, an inventory system has been established by using Win95. A total number of 3,500 lots of fish specimens including 30 type specimens will be catalogued shortly. The basic data include catalog number, fish order, family and species name, original authors, collector, collecting date, method, and locality etc. The system itself can support a minimum service of data entry, editing, inquiring, label making, catalog listing, summary table production. In the future, this computer catalog database can be available for online searches on WWW, the same as other leading museums such as Jsmithsonian Institution, [<http://www.nmnh.si.edu/vert/fish.html>]