

**STATUS, AND RULES AND PROCEDURES GOVERNING OCEANOGRAPHIC, ENVIRONMENTAL, AND  
FISHERIES DATA BASES MAINTAINED  
AT THE ICES SECRETARIAT**

by

ICES Secretariat

## **INTRODUCTION**

### **Background**

During the last several years, it has become increasingly apparent that data are a most important and valuable commodity. As ICES work, conducted by working and study groups carrying out terms of reference stipulated in Council Resolutions, becomes more dependent on quantitative science, developments require greater access to data bases. Although there is an understandable feeling amongst individual scientists that access to data should be as unrestricted as possible, it is also true that various data bases have been established and maintained in the ICES Secretariat for particular purposes and under a number of "understandings". Additionally, in the present era of limited budgets, and changing philosophies towards funding (e.g., implementation of Agency status to several institutions in ICES Member Countries), data are becoming synonymous with monies and omnipotence in "open-competition" tenders or bids.

The ICES Secretariat today maintains several oceanographic, environmental (e.g., contaminants/pollution related), and fisheries data bases in its in-house computer system. Some of the data bases are for the sole use of ICES, some are for "customer/client" organizations (e.g., OSPARCOM), and some are kept for multiple users (e.g., the Secretariat acts as a regional oceanographic data centre).

Acting as custodians of the data bases maintained at ICES Headquarters, the Secretariat is receiving a greater amount and range of requests for access to its data bases. It has become apparent that various institutions and scientists within the ICES Member Countries have differing recollections of procedures and guidelines governing access to and use of these data bases. It is also evident that some of the previously unwritten but generally accepted "agreements" and "understandings" are not sufficiently clear for the Secretariat to conduct its custodian's role with regard to the data bases without being the brunt of occasional reproach.

As a result of the uncertainty regarding guidelines and codes of practice for the data bases maintained at the ICES Headquarters, this document has been produced by the Secretariat with the intention of:

1. Providing an overview of the origins, history, and contributors and users of the data bases maintained by the Oceanography, Environment, and Fishery sections (each under the supervision of their respective Secretaries),
2. Drawing attention to the current policy and procedures, including uncertainties when present, governing the access to and use of the particular data bases,
3. Providing an instrument for securing a consensus on agreed guidelines and procedures, thus facilitating the task of the Secretariat and avoiding misunderstandings in the future.

## **THE DATA BASES MAINTAINED AT ICES HQ**

### **OCEANOGRAPHIC DATA BASES**

The Oceanography section primarily maintains two data bases in the ICES Secretariat:

1. The ROSCOP data base
2. The hydro-chemistry data base

The ROSCOP data base is essentially a structured information file providing details of almost 25,000 research cruises conducted by ICES Member Countries since 1967. This data set was formerly published in manuscript form (microfiche from 1976 to 1984) in the ICES Oceanographic Data Lists and Inventories (IODLI) series of publications. About 700 cruises per year are added to the data set, information being submitted either on forms (Cruise Summary Reports) or by Form Entry software supplied by the ICES Secretariat. This data set additionally serves as a catalogue for the contents of the main hydro-

chemistry data set, and is currently being extended to world-wide coverage by means of an arrangement with the World Data Centre for Oceanography, Washington DC, USA. The digitised ROSCOP forms and supporting selection/retrieval software is made available to ICES scientists by means of anonymous ftp or on DOS diskettes.

The hydro-chemistry data base is one of the largest oceanographic profile collections in the world (containing about 500,000 profiles from 1902 to the present, half of which include oxygen/nutrient/chlorophyll/pH data) and about one million values of t, S surface data values originating from the ICES ship route programme. Part of the historical holding currently remains "temporary" pending review as part of data archaeology activities. The data base is expanding at about 20,000 water-bottle and CTD stations per year; all data being re-formatted, validated and thoroughly quality assessed before passing into the data bank. In addition to these data, time series stations from some coastal stations, and from the North Atlantic Weather Ship stations are maintained. Most ICES oceanographic projects are also being maintained as a subset of these data. These include the Overflow experiments, Joint Skagerrak Expedition, the IBTS, BOSEX, JONSDAP, SKAGEX, NANSEN, and the Greenland Sea Project. The data sets of these projects often contain a much broader suite of parameters, including current meter and biological data. In general, there is a moratorium on the use of project data sets up to two years after the completion of the project, but every effort is made to comply with the wishes of particular projects.

The procedures governing the exchange of ICES oceanographic data are similar, but not identical, to those adopted in the IOC International Oceanographic Data and Information Exchange (IODE) system. The IODE system permits free (at no cost) exchange between IODE members (ie., between data centres). Most of the older data is passed into the World Data Centre/IODE system via the World Data Centre in Washington. In addition, more recent data and the OWS data are passed to Washington DC if so requested by the data originator. As a result, all Polish, Danish, and Icelandic data are in WDCA Washington who are free to publish the data on CD-ROM. In the case of most other countries, it is the responsibility of the National Oceanographic Data Centres (NODCs) to pass the data to Washington, but in practice very few do so.

If so requested by them, the approval of the originators is required in order to release data collected within the past 10 years. This applies only in the case where a request is for raw-data (about 20% of requests), but products are supplied in an unrestricted way. ICES, however, currently reserves the right to refuse or hinder a request if the applicant is also a potential data supplier (i.e., source of data) but presently refrains from supplying or exchanging data with the ICES Secretariat. The strict application of this rule is the only means at the Secretariat's disposal to encourage recalcitrant suppliers to part with their data. It

is, however, the policy of IOC's IODE community to charge only material costs: even this is waived when data are supplied to submitting ICES institutes. Given that most requests are now satisfied via Internet, such costs are nearly immaterial. Most suppliers insist that the ICES Secretariat may not supply data for commercial use, but when approved a standing charge (up to several thousand DKK) has been levied on several occasions. The above procedure does not apply in the case of ROSCOP data and data management software, both of which are presently provided free of charge to all requesters. None of the software developed in the Secretariat is copyrighted, although consideration might be given to doing so in the future, and some of it has already been made available to the IOC Ocean-PC programme.

Currently all ICES member countries contribute to the data set. Some supply data via their national data centre, but data are mainly received from individual scientists within an institute. The arrangements and obligations within the IODE system oblige the ICES Secretariat to channel all data exchange via national data centres in those countries with national data centres. Acquiescence with this, however, would virtually result in a lack of oceanographic data being supplied to ICES. A minuscule amount of data is derived from the Environment section's Seawater Contaminants data set.

#### *Users and Purposes*

The ICES ROSCOP system is a portable database which is freely available by ftp from the ICES computer, and is also distributed widely on diskettes. It is also included on IOC's OCEAN-PC package. Consequently several hundred packages have been distributed worldwide. The most frequent user is probably the Oceanography Group in the Secretariat, partly because the database serves as a catalogue of the hydro-chemistry data base, and partly because it is the main tracking system used by the Secretariat to identify missing data. One of the uses it has been put to by others is as a starting point for the compilation of new data sets which are not currently compiled by ICES, for example primary production, ammonia and carbon dioxide, DMS and other parameters of interest mainly to the Climate-related programs.

An average of 1 request per week is made for selected extracts or products from the oceanographic data base. Almost all of these requests come from individual scientists in the institutes of Member Countries, and in particular from university departments. An increasing number of users are those scientists who have commenced their data search on the NODC CD-ROM from which all data submitted to the Secretariat until about 1980 are copied. In

this case scientists are usually looking to supplement the CD-ROM data with the more recent data available in ICES. Other users include the Secretariat staff for the purpose of making products and overviews for working group activities, and the assessment working groups from whom occasional requests for statistical summaries are received.

A particularly valuable user of the data base is the data supplier. Without them there would be no data base. In return they get their data formatted in a consistent way, and more important from their point of view, they get their data quality controlled in a consistent way and compared with data from other institutes from the same area. At times data sets can be submitted in a very poor condition and several hundred quality flags may have to be discussed and agreed upon before individual data sets can be entered to the data base. The overall result is that the quality of oceanographic data collected by ICES institutes is gradually improving.

The purposes of the oceanographic data base are probably many and varied. No specific track of all the purposes is made because data are supplied unconditionally, and it is known that many data sets are passed on to third parties. Amongst the most recent purposes are:

- 1) The Secretariat staff made a significant contribution to the 1993 QSR of the North Sea. Many of the diagrams depicting nutrient and hydrographic conditions in the North Sea were generated directly from the data base.
- 2) Annual summary products for the IBTS.
- 3) Oceanographic Modellers and physical oceanographers. This is a rapidly growing area of usage as modellers have very demanding data requirements, especially for gridded products. From the data Base a consistent CTD data set of the North Sea to facilitate procedures for the validation and intercalibration of models was recently produced, at the request of the EC/NSTF.
- 4) Remote sensing oceanographers. This group have very specific requirements in terms of time and location in order to develop algorithms for various sensors.
- 5) Data bank developers. A number of countries have set up their own databases for their specific areas of interest. The ICES data bank forms the basis of these. A case in point is the Baltic Oceanographic Data base maintained in Sweden.
- 6) Fisheries Scientists. This group have, over many years, provided the main thrust for the data base. Requests by this group can be wide ranging and demonstrate the continued need for long time series. Recent requests by this group have related to studies

on squid, herring, and whales.

- 7) Biological Oceanographers. The use again is quite varied, but recent activities have very much focussed on interannual variability of water column stability and its effect on recruitment success.
- 8) Projects funded by the EU. This has become a very rapidly expanding area with a number of projects having a great demand for historical data. Cooperation in this area is being strictly controlled, pending the development of formal relations with specific projects and with EU data management initiatives in general. The prime criterion currently being employed is that the ICES data bank should be significantly enhanced by any collaboration.
- 9) Climatologists. Climatologically averaged data sets required for a variety of scientific and technical (engineering) applications are prepared several times a year on request.
- 10) IODE. Data are frequently supplied to National Oceanographic Data Centres for their specific purposes. Although under no formal obligation to do so data sets, especially historical data sets, are regularly transferred to the World Data Centre in Washington. In reciprocation Washington supplies ICES with a significant amount of data, especially from the North East Atlantic Area, that have been submitted to them direct.

#### **ENVIRONMENT/POLLUTION DATA BASES**

The Environmental Data Bank, although relatively new, is probably the largest international data bank on contaminants in marine media. Computerized in 1983, the data bank contains data back to 1978 for contaminants for which the data are considered to be valid, mainly trace metals in finfish and shellfish.

At present, the data bank contains the following components:

- 1) contaminants in finfish and shellfish (ca. 225,000 records),
- 2) contaminants in sea water (ca. 120,000 records),
- 3) contaminants in sediments (ca. 65,000 records),
- 4) data from measurements of the biological effects of contaminants: enzyme assay (EROD) and oyster embryo bioassay (ca. 3000 records), and
- 5) fish disease prevalence data (ca. 15,000 records).

The data bank covers many parameters, including over 150 contaminants and many species of finfish and shell-

fish, as well as data on quality assurance measurements.

All data must be submitted according to the ICES Environmental Data Reporting Format, which contains certain mandatory fields to ensure the reporting of all information necessary to a proper assessment of the data. Mandatory fields now also include information on quality assurance procedures employed in obtaining the data, such as the results of analyses of certified reference materials. A screening program is supplied to data originators to check that requirements are met before submission to ICES. After submission, the data files are further screened, any problems identified, and files returned to the data originator for final validation before they are included in the data bank.

ICES serves as the data centre for the Oslo and Paris Commissions (OSPARCOM), under which a considerable proportion of the data on contaminants and biological effects are submitted. Thus, most data are for coastal regions of the Northeast Atlantic, including the North Sea. Very few data have been submitted thus far for the Baltic Sea or the Northwest Atlantic. However, a project data set for the Baseline Study on Contaminants in Baltic Sea Sediments will begin to be compiled in the latter part of 1994.

In addition, from mid-1994 ICES will serve as a Thematic Data Centre for marine contaminants for the Arctic Monitoring and Assessment Programme (AMAP), under which data are expected to be submitted for contaminants in marine media in the Arctic area. This will expand both the geographical coverage and the number of countries reporting data to the Environmental Data Bank.

Data maintained for ICES or OSPARCOM are freely available to members of relevant ICES or OSPARCOM Working Groups. No fee is charged for providing such data upon request to these groups or their members. For scientists/institutions who are not members of these groups, there is a 2-year moratorium on the distribution of OSPARCOM data to allow time for them to be reviewed, assessed, and published before being made available to outside parties.

Since the contaminants data bases are relatively new, compared to the oceanographic and fisheries data bases, very few requests from outside the ICES/OSPARCOM contributors/users have been received. Such requests are treated very carefully to ensure the proper use and interpretation of the data, some of which have been subjected only recently to first-time statistical analyses. As a result, persons requesting access to these data bases have been encouraged to make use of the several publications containing assessments of these data bases prepared by ICES/OSPARCOM Working Groups.

#### *Users and purposes*

The data in the Environmental Data Bank are used pri-

marily for assessment and research purposes. Specific portions of the OSPARCOM data are subject to assessment by an OSPARCOM (or occasionally joint ICES/OSPARCOM) working group on an annual basis, with a few exceptions. Such assessments involve review of either time series data for evaluation of temporal trends of contaminant levels, or quasi-synoptic data obtained over a large geographical area to determine geographical distributions of contaminants in a particular medium, e.g., sediments.

ICES Working Groups use the data for more research-oriented purposes, such as testing statistical models for the assessment of temporal trends in contaminant levels, testing the use of geostatistical methods, or studying data for relationships among various environmental parameters.

Requests for environmental data in 1993/1994 are listed below. It should be noted that, while there is not an extensive number of requests, there is very intensive use of the data bank, as handling some of these requests, e.g., the JMG requests, may require many person-months of work.

#### 1. Biota

- a) WGSSEM – method for statistical analysis of temporal trends in contaminants in biota.
- b) JMG – Ad Hoc WG on Monitoring – 1993 assessment of temporal trends in contaminants in biota within the OSPAR convention area.
- c) MCWG – Relationship between fat content and dry matter content in biological tissue.
- d) MCWG – The use of fat/dry/wet weight as normalising factors for trace metal measurements in biological tissue.
- e) Norway – Transfer all biological data to the national data centre.

#### Forthcoming projects:

- f) WGSAAEM – Further development of methods for statistical analysis of temporal trends in contaminants in biota.
- g) WGSAAEM – A study exploring appropriate normalising factors for trace metal measurements in biological tissue.
- h) WGSAAEM – Analyse within-batch and between-batch variations in chemical measurements of contaminants under the Coordinated ICES Monitoring Studies programme.
- i) Poland – Transfer all biological data to the national data centre.
- j) ICES/HELCOM – Assessment of temporal trends in contaminants in biota for the Third Periodic Assessment of the Status of the Baltic Sea.
- k) Netherlands – Transfer all biological data to the national data centre.

#### 2. Sediments

- a) WGSAAEM – A new method for mapping spatial distribution of trace metals in marine sediments.
- b) WGMS – A study exploring appropriate normalizing factors for trace metal measurements in marine sediments.

#### Forthcoming project

- c) WGBME – Raw data incorporation and data projects for the 1993 Baltic Sediments Baseline Study.

#### 3. Water

- a) MCWG – The geochemical fate/behaviour of trace metals in estuarine water.

#### Forthcoming project

- b) MCWG – Workshop on the above subject.

#### 4. Biological effects

- a) WGBEC – The geographical distribution of EROD activity in livers of various fish species in the North Sea.

#### 5. Fish disease

- a) WGPDMO – The geographical distribution of diseases in various fish species in the North Sea.

#### Forthcoming project

- b) WGPDMO – 1995 assessment of the previous subject.

#### Other Forthcoming projects:

- 1) Data products for AMAP (biota, sediments, water).
- 2) Transfer all ICES-assessed HELCOM data to EDC.

#### **FISHERIES DATA BASES**

Five fisheries-related data bases are maintained at ICES Headquarters. In addition a number of software packages are held in the Secretariat for use by ICES Working Groups and some of these are interfaced to the relevant data bases.

#### 1. STATLANT 27 data

ICES has published official fishery statistics since 1903 in "Bulletin Statistique" (renamed "ICES Fisheries Statistics" in 1988). The data used in this publication are the official catch and effort statistics for STATLANT area 27 provided by national statistical reporting offices on the STATLANT 27 forms distributed on behalf of ICES by FAO. The data consist of STATLANT 27A data (annual landings of fish and shellfish by ICES Statistical Area) and STATLANT 27B data (monthly landings and fishing effort by ICES Statistical Area and vessel or gear category) which are held in separate data bases. As from 1 January 1993, the provision of STATLANT 27B data has been discontinued (C.Res. 1992/4:1).

The STATLANT 27A data base holds data from 1973 to the present, but the last year for which data from all countries are available is 1988. The STATLANT 27B data base contains data from 1976-1992 but data are incomplete. The STATLANT data base is kept under review as one of the terms of reference of the Statistics Committee Liaison Working Group which meets about every other year.

The STATLANT data are entered into the STATLANT 27 data base which can be accessed in a number of predetermined formats via a series of COBOL programs and SAS routines.

#### *Users and purposes*

This data base is used to provide a data service for outside customers. The main customers for these data are governmental bodies of ICES member countries, ICES

Working Groups and scientists working in Government institutions and universities. No restrictions are put on providing these data to outside bodies and individuals.

## 2. FISHSTAT AQ data

ICES has also received aquaculture production statistics since 1982. These were provided on the STATLANT 27 AQ form up to 1986 (C. Res. 1981/4:1), since when the data have been provided on the FAO FISHSTAT AQ form which is distributed by FAO (C.Res.1986/ 4:11). These data, which are very incomplete, are maintained in paper form only and published in "Bulletin Statistique"/"ICES Fisheries Statistics".

## 3. The IBTS data base

Data from the International Young Fish Survey carried out in the North Sea and Division IIIa in February are maintained in the ICES Secretariat in accordance with C. Res. 1982/4:14. Data are held for the years 1970 to the present, although the first year for which data from all countries taking part in the surveys are available is 1983. The data stored consist of the raw haul-by-haul data provided on exchange tapes together with various levels of aggregation.

In C.Res.1990/4:3, it was decided to expand the data base to include the results of quarterly bottom trawl surveys of the North Sea planned to take place from 1991–1995.

This data base is provided to the Secretariat by the national contact persons of each country supplying data. Responsibility for the data base rests with the International Bottom Trawl Survey Working Group who periodically review the development of the data base and prepare an annual report on the results of the survey.

### *Users and purposes*

This data base is widely used by ICES Assessment Working Groups and a report is issued every year with a series of standard outputs giving number and mean length at age by ICES statistical rectangle for the most important species. There are also requests for data from many other users. A list of recent requests for access to the IBTS data base is given in Table 1.

No rules for granting access to this data base have been agreed by the Council. The practice adopted in the Secretariat, however, is based on the ACFM Minutes of May and November 1987 which, in turn, generated the relevant sections of Bureau Doc. No. 817 issued in June 1989. In that document it is stated that:

*"Partial or summarized data from general purpose ICES data bases in a form which would normally be included in publications (including working group*

*reports) may be made freely available by ICES, but should be accompanied by a requirement to make due acknowledgement in any publications. Neither the whole nor any substantial part of the unsummarized data from such data bases may be released without the agreement of the General Secretary, the Statistician, and the chairmen of ACFM and the relevant working group(s)."*

It is further stated that:

*"there seems to be general agreement that data held by ICES should be available to the scientific community and that the releasing of such data, although it needs to be controlled, should not be unduly limited. One major uncertainty, however, is whether to process requests for data when they will be used for commercial purposes (ie someone will profit from their use)."*

The main rules of access for this data base operated until this year have been based on the passages from the various documents quoted above. In particular, raw data in the IBTS data base may only be made available with the permission of the national contact persons, while data raised to ICES rectangle have been made available on request, on the grounds that they are processed data in a form that is published in the annual report of the survey and in Working Group reports.

The procedures currently adopted in the Secretariat were questioned at the 1994 meeting of the International Bottom Trawl Survey Working Group (C.M.1994/H:6). The relevant statements from the report are given below:

*"Apart from a number of Assessment Working Groups the IBTS data provide valuable information for a wide variety of users, and the ICES Secretariat receives several requests for data at different levels of aggregation from within, and outside ICES. The Working Group discussed the availability of the data for other users than the institutes participating in the surveys, and decided to express its concern about the distribution of raw survey data in a letter to the General Secretary of ICES.*

### ***Access to the IBTS Data Base***

*The IBTS data base contains valuable information on abundance and spatial distribution of a large number of commercial and non commercial species which could be of interest to a large number of users both within and outside ICES. This is demonstrated by an increasing amount of requests for data from the data base at different levels of aggregation. The data could therefore be used for quite different purposes than initially intended. The need of multidisciplinary approaches to marine issues will lead to extended use of various data bases within ICES. The growing interest has raised questions and some concerns about the rules and principles of*

access to the data and at which level of aggregation different users should have access.

Over the years the IBTS Working Group has evolved and operated a gentlemen's agreement on principles of access to the data. It has been understood that full access to the data base is only granted, via the national contact persons, to the national laboratories involved in the survey, as well as to working groups within ICES. It has also been understood that this user-group should never export raw data from other participating laboratories without prior contact with the national contact persons. Other users of results from the surveys have been referred to published ICES reports or aggregated data which have been in the public domain.

*The IBTS data base is only a small part of the data collection within ICES and the Working Group therefore felt that there is a need for more general guidelines on data access and data security."*

As mentioned in the first extract quoted above, the Chairman of the Working Group wrote to the General Secretary on 10 March 1994. In his letter he stated, in addition to the points made in the report, that:

*"In addition ICES can of course also provide aggregated data.*

*The survey data, as they are submitted to ICES by the participating institutes in an agreed exchange format, are to be considered as raw data. The exchange data give an exact description of each haul made during the survey. The information is contained in different record types.*

*As soon as the data are aggregated on a statistical rectangle basis, or sampling area, they are generally no longer to be considered as raw data."*

The Chairman further proposed that:

*"future requests should be handled as follows:*

- 1. The ICES Secretariat contacts the Chairman of the IBTS WG and the national IBTS contact person(s) for approval;*
- 2. Only aggregated data are provided;*
- 3. The data may only be used for the project for which the data were asked for;*
- 4. The data will not be made available to other persons;*
- 5. The source of data (IBTS) should be included in all tables, figures etc.;*

#### *6. Full acknowledgment to ICES should be made.*

*By no means should it be made impossible for others to make use of the survey data. The main idea behind setting up the IBTS data base was to facilitate access to the data for the scientific community, and to ensure that the data could be used for a wide variety of research purposes. We should nevertheless take care that the data are not used by outsiders for commercial purposes. Also a restriction on the use of the data will always be necessary to prevent the wrong interpretation of the results by outsiders who are not familiar with the ways in which the data were collected."*

This letter has clarified the position about what precisely is meant by the term "raw data". Subsequently, all requests for IBTS data have been referred to the Chairman of the Working Group and to the national contact persons.

#### *Proposals*

In the light of the above comments, the ICES Secretariat proposes that all requests for raw data in the IBTS data base should be passed directly to the appropriate national contact persons. In the case of aggregated data, it is proposed that all persons requesting data should be asked to state the purpose for which the data are required and whether they will receive payment for any use to which they put the data. They will then be asked to sign a declaration along the lines indicated by the Chairman of the Working Group above. If consultancy fees are involved the request will be passed to the national contact persons for appropriate action. Where fees are not involved, a copy of the request will be passed to the national contact person of the country from which the request originated, or in the case of requests from third countries to the Chairman of the Working Group.

If no objections are received within a reasonable time period, the data will be sent with a covering letter stating that:

The ICES Secretariat supplies the data on the strict understanding that:

- 1. They will be used only for the project described in the applicant's letter;*
- 2. They will not be made available to other persons;*
- 3. The source of the data ("ICES International Bottom Trawl Survey Database [IBTS]") is included in all tables, figures, reports, publications etc that make use of the data;*
- 4. Full acknowledgment is made to ICES.*

A listing of the data will be enclosed with each letter and

an appropriate charge may be made, at the discretion of the General Secretary, for the costs of extraction.

#### 4. The Fish Stock Assessment data base (IFAP)

This data base, which contains the data required by ICES Assessment Working Groups, was first set up as the FISHDAT system under the guidance of the ADP Working Group (C.Res.1979/2:19). The data in the IFAP data base consist of catch in tonnes, catch in numbers at age, fishing effort and biological data and parameters by stock, and in some cases also by fleet.

The data base is maintained under the guidance of ACFM, who have set up an IFAP Steering Committee which meets informally during the course of other meetings as convenient.

While IFAP consists primarily of the stock assessment data base, it also includes certain assessment programs (the prediction and yield-per-recruit programs) and tabulation and plotting procedures as integral components. In addition, IFAP is interfaced to the Lowestoft VPA package in such a way that assessments can be carried out from within the IFAP program, and in such a way that assessment outputs are transported back into IFAP for tabulation and plotting, and as a way of storing and documenting the assessments carried out by Working Groups. However, the VPA package is not an integral part of IFAP and all maintenance and development of the package is carried out by the owners, the MAFF Fisheries Laboratory, Lowestoft (UK).

The data in IFAP are provided by Working Group members for assessment purposes and data use is restricted to Working Groups and Working Group members working intersessionally. They are not made available to other bodies or individuals, although many of the data are available in tables and figures in the Working Group reports.

The VPA package is freely available to Working Groups when they are working at ICES Headquarters, but those wishing to use the package outside the Secretariat (either Working Groups or individual Working Group members), must contact the owners of the package (i.e., MAFF Fisheries Laboratory, Lowestoft, UK) who are marketing the package in the form of a diskette and manual.

Some approaches have been made by a number of Fishery Institutes in ICES Member Countries to make the IFAP database and associated programs more widely accessible. The main possibilities that have been considered are:

- a. Provision of a DOS or MS Windows version of IFAP that could be used on PCs;
- b. Installation of the UNIX version of IFAP currently available at ICES on the computers of collaborating

institutes;

- c. The use of Internet to provide direct access to IFAP on the ICES computer. This is currently being explored on a trial basis by two Norwegian Fishery Institutes.

The last of these possibilities would be the easiest and least expensive to maintain and manage. Nevertheless, there would need to be appropriate security arrangements to limit the use to approved users and to protect the ICES computer system. In view of the control on the availability of the VPA package outside the ICES Secretariat and in view of the need to consider what security arrangements are required for the use of the IFAP data base, no decisions or action have been taken on this issue within the ICES Secretariat. In the meantime, access to IFAP is strictly limited to Working Groups working within ICES Headquarters.

#### 5. The STCF data base

The data base on the North Sea set up by the Scientific and Technical Committee on Fisheries of the European Community (STCF data base) is described in a report issued by STCF in September 1991 (Report of the Meeting of the STCF Working Group on Improvements of the Exploitation Pattern of the North Sea Fish Stocks, Charlottenlund, 4-14 June 1991). In 1992, it was agreed that the Council should take over the maintenance of the data base (ICES Annual Report, 1992, p 179). Since then the Danish Institute of Fisheries and Marine Research has completed the development of the data base and included it in a new program package (4M) which includes the latest version of the ICES multispecies VPA and forecast programs and the STCF prediction program (ABC). Subject to agreement by the Council, it has been proposed that the entire package should be transferred to the ICES Secretariat (Report of Working Group on Long-Term Management Measures, C.M.1994/Assess:11). At the present time, the data base and package have not been transferred to the ICES Secretariat, but it is understood that ICES is now recognised by the European Commission as the custodian of the data base.

At present the data base contains the highly disaggregated data shown below for the years 1989 and 1991:

1. Fleet specifications by country, year and fleet;
2. Gear selection parameters by country, year, fleet and species;
3. Effort data by country, year, quarter, fleet and ICES statistical rectangle;
4. Total catch data (weight and value) by country, year, quarter, fleet, category and species;
5. Catch in weight by country, year, quarter, fleet,

- category, ICES statistical rectangle and species;
6. Catch at age data (numbers, mean weight and mean length) by country, year, quarter, fleet, category, ICES statistical rectangle, species and age;
  7. Price at age by country, year, quarter, fleet, category, species and age;
  8. Price flexibility data by country, year and species;
  9. Distribution of landings by country, year, quarter, fleet, category and country of destination;
  10. Whole fish/gutted fish weight ratio by country and species.

It has yet to be decided whether data for further years will be provided in future.

#### *Users and purposes*

As pointed out in the report of the Working Group on Long-Term Management Measures, the STCF data base contains very detailed information about national fleets fishing in the North Sea. These data were provided to STCF on the understanding that they are to be treated as confidential. The STCF Working Group made strict rules for the access rights and use of the data (Appendix 1). At its meeting in May 1993, ACFM agreed to set up a small Steering Committee to determine the protocols and confidentiality rules for the use of the STCF data base (C.M.1993/A:3). It was subsequently decided at the 1993 Council Meeting, however, that the Working Group on Long-Term Management Measures should be asked (C.Res.1993/2:6:15):

*"in relation to the transfer of the STCF data base, to discuss hardware and software facilities, maintenance requirements, checking procedures, error corrections, updating procedures, extraction procedures, confidentiality protocol, access rights, etc.";*

At its meeting in January 1994, the Working Group made the following proposals (C.M.1994/Assess:11):

*"a) The full, disaggregated database should only be used by relevant ICES Working Groups, Study Groups, Workshops etc. A difficulty arises in the need to prepare for such groups and in completing relevant work intersessionally. It is desirable to permit such work. Strict guidelines on the distribution and use of the database need to be established as a matter of urgency. The Working Group suggests that in the ICES context, a useful procedure might be that the ICES General Secretary or Fishery Secretary and the Chairman of the present Working Group, would have to approve access to the database on a given request from a member of*

*a Working Group, Study Group etc. If that member wants to publish her/his work the General Secretary/ Fishery Secretary and the Chairman would have to approve.*

- b) National institutes providing data to the database should have access to data restricted to a level of aggregation where national data cannot be traced, e.g. total international landing-at-age by rectangle but **not** by fleet. Such data might be useful in relation to estimating migration of fish or in relation to ecosystem effects of fisheries.*
- c) National institutes not providing data to the database, other organizations, commercial enterprises, NGOs, individuals, etc. should only have access to highly aggregated data published in ICES papers and reports.*
- d) It should be made clear to scientists gaining access to the detailed database that data should not be made available to others. It may be necessary to establish a formal procedure where receivers of data agree to conditions relating to use, publication and distribution of data.*
- e) Data from the database should in principle be free of charge. The ICES Secretariat will, however, incur expenses in terms of manpower, computer costs, postage costs and overheads due to a given request. These costs may have to be covered by the recipient.*

*The present Working Group recognises that the questions about confidentiality protocols and access rights probably have to be considered and agreed upon at the national institute/delegate level. The Working Group would like this to happen as soon as possible."*

Since this report was written, the ICES Secretariat has received a number of requests for the use of the STCF data base and, in the absence of any agreed guidelines, notified the Delegates and ACFM members of those countries that had supplied data for this data base. The requests as detailed in a letter to Delegates were as follows:

- "1. The Study Group on the North Sea "Plaice Box" (C.Res.1993/2:6:21), Chairman Dr R. Millner (UK) is due to meet in Charlottenlund, Denmark from 12–15 April 1994 to:*
  - a) investigate appropriate modifications to the "plaice box" as defined in EEC Regulation No. 3094/86, Article 9, Paragraph 3;*
  - b) quantify the expected short- and long-term effects of such modifications on both yield and biomass for plaice and all other rele-*

vant species;

- c) identify possible additional regulations associated with the "plaice box".

*I have been informed by the Chairman that the Study Group will need access to the STCF database, and in particular to the catch and effort by nine fleets by ICES Statistical Rectangle. These data will be used in a GLIM analysis to convert all fleet data into the same effort units.*

2. *The Working Group on Ecosystem Effects of Fishing Activities (C.Res.1993/2:6:22) (Chairman: Mr H. Gislason, Denmark) will meet at ICES Headquarters from 20-27 April 1994. The relevant item in the terms of reference is:*

- a) *analyze existing data on discards and offal to study temporal and spatial variations in the amounts produced by different fisheries and their utilization by, and effects on, different components of the system.*

*The Chairman has informed me that the group would like to have access to the STCF database (catch by rectangle by fleet) in order to utilize additional discard data. They will, however, not include in their report any disaggregated data or any data that can be traced back to the country of origin.*

3. *Mr Peter Lewy of the Danish Institute for Fisheries and Marine Research has written asking for permission to use data for 1991 in the STCF database. The data required will be aggregated by statistical rectangle where national data cannot be traced. In principle he would like to have access to the whole database aggregated by rectangle, for instance total international catch-at-age, mean weight and mean length at age and catch in weight by rectangle for all species included in the database.*

*He also explains that the data would be used for scientific purposes such as estimation of migration rates between sub-areas and estimation of "local" suitability parameters by sub-area. Results may be published in scientific journals and may be used in the Working Group on Long-term Management Measures."*

A further application was received following a request for advice from the European Commission. This was sent to the appropriate Delegates in a further letter as follows:

*"Following a request from the Commission of the European Union, additional terms of reference have*

*been passed on to the Working Group on the Ecosystem Effects of Fishing Activities which is due to meet at ICES Headquarters from 20–27 April. Although it will not be possible for the Working Group to provide a full answer (via the Advisory Committees of course) to all the questions this year, the Chairman of the Working Group has asked if it would be acceptable to use economic data in the STCF database (value of fish landings by rectangle by gear type). Since this is a request to use different data from those listed in my earlier FAX, we need approval to provide these data to the Working Group. After discussion, the Chairman has agreed that any tables or charts making use of the data would not show national fleet data."*

The responses received from Delegates indicated that they were content to allow the data base to be used by ICES Working and Study Groups, both at their meetings and to carry out preparatory work on the understanding that no data published in the reports would be identifiable to country of origin. There was, however, less unanimity about the use of the data base by individual scientists working outside the framework of an ICES resolution. The responses may be summarised as follows:

France: Requests to use the data base by ICES Working or Study Groups should come from the Chairman and not from individual members. The data base may be used by the Plaice Box Study Group and by the Working Group on the Ecosystem Effects of Fishing Activities. In the case of requests from individuals, data should only be provided in a highly aggregated form and access and the form of publication should be approved by the Chairman of the Working Group on Long-term Management Measures. All requests from individuals should be endorsed by the Institute to which they belong.

Denmark: Access to ICES data bases should be granted to anyone nominated by Delegates subject to the condition that the data are to be used only for scientific purposes and that they will not be made available to other bodies or individuals. The granting of access should be left to the discretion of the General Secretary based on a recommendation from Delegates. Having to refer every decision to the Chairman of the Working Group on Long-term Management Measures would not be appropriate.

United Kingdom: The legal position is that the intellectual property rights to raw data as supplied to ICES belong to the source organisations and these must be preserved. Access to national data supplied to ICES data bases should be granted only for Member Countries' Government purposes, and even then only in a suitably aggregated form. Unless there is a formal agreement to transfer these rights, requests from third parties for raw data should be referred to the source organisations. Consideration should be given to placing data in the public domain after an appropriate period, say three-five years. The recommenda-

tion of the Working Group on Long-term Management Measures that "data from the database should in principle be free of charge" is not acceptable and further consideration should be given to the question of fees and charges.

There is no objection to the STCF data base being used by ICES Working and Study Groups and individuals working for Government Institutions that participated in the provision of data for the data base. On this basis access can be given for the purposes stated by those ICES groups and individuals that applied.

Belgium: It is acceptable for the STCF data base to be used by the Plaice Box Study Group and the Working Group on the Ecosystem Effects of Fishing Activities. The question of access for individual scientists should be discussed by ACFM and the Council.

#### *Proposal*

On the basis of the replies received from Delegates, the ICES Secretariat proposes that this data base should be freely available to ICES Working Groups and Study Groups (including preparatory and intersessional work) for purposes included in their terms of reference. Any reports prepared, however, should not include raw data and any information published should not be identifiable to the countries of origin. All requests for raw data should be referred to the originators. Individuals should be given access to data only in an aggregated form and only with the approval of the appropriate Delegate or his designee. Data would be provided to individuals only after they had provided a written undertaking that they would use the data only for the purposes stated and that they would not pass the data on to other persons or bodies.

#### Other fisheries-related programs

In addition to the databases described above, a number of programs are developed by various ICES Working Groups and the question of their ownership often arises. In the past year, for example, there have been a number of requests for access to the Multispecies Virtual Population Analysis program (MSVPA) and its associated database. Although this program and database is not maintained by the ICES Secretariat, a copy is available at ICES Headquarters. There is also a recognition that the program is a component of the ICES facilities for stock assessment and as a result requests for access to the program and database are directed to the Secretariat. Up to now the requests have been referred to the Chairman of the Multispecies Assessment Working Group and to the originators of the program at the Danish Fisheries Institute. However, it is not clear where the responsibility lies to grant access to this program and whether the program and the associated data need to be treated separately in this respect.

## **PROPOSALS**

Relevant comment and discussion on the matter of data bases maintained at the ICES Secretariat are invited. Some generic proposals for change are merited, while various more specific (e.g., related to given data bases) ones need to be determined. Some of the specific proposals are to be found in the text of this document in the sections dealing with the particular data bases. Amongst other things, several of the more obvious proposals for change include:

1. A form should be developed and implemented which would define any restrictions in the use of the particular data which are supplied. Such restrictions would be based on a clearly stated policy. The reasons for which the applicant requires the data must be stipulated, and uses for other purposes later require prior sanction. It should be accepted that data must not be divulged to third parties without prior approval. Every recipient of data or products of data maintained at the ICES Secretariat would be required to sign the form. The purpose of the form would be to prevent or reduce the possibility of restricted data from being put to improper or unsanctioned use, or from being passed on to any "black listed" scientists/institutions.
2. In any publications, reports or other documents, suitable acknowledgement of ICES or the specific source of the data is expected.
3. With regard to fees to be charged, all commercial enterprises and persons/bodies receiving con-

sultancy fees for their work (regardless of who pays such fees), should pay the full cost incurred by the Secretariat. Such costs would be determined, subject to the discretion of the General Secretary, on the basis of appropriate knowledge of personnel, material and computing costs (determination of this would be based on information registered in the ICES Secretariat's Timesheet and Costing System [TACS], which provides details of appropriate staff salary, overheads etc.).

4. All non-governmental organizations (NGOs), on having their data requests vetted and sanctioned, should be charged based on the above costing principle.
5. Information should be supplied only to persons affiliated with identifiable corporate bodies, e.g., institutes, universities, commercial enterprises, NGOs). This would hinder the use of ICES material by private individuals who lack any obvious affiliation with a *bona fide* organization.

The Advisory Committee on Fisheries Management (ACFM), the Advisory Committee on the Marine Environment (ACME), and the Consultative Committee and the Bureau during their meetings in May - June 1994 were urged to provide appropriate comments and proposals regarding the data bases maintained at the ICES Secretariat. An *Ad Hoc* group (to include the Chairman of the Consultative Committee and representatives from the ICES Secretariat) to review the status, and rules and procedures governing the data bases, and as a result make suitable recommendations has been sanctioned.

Table 1. Requests for IBTS data from non-members of the IBTS WG

Name and date	Organization	Data type	Purpose
R.T. Kragelund 09.09.1992	NINA	Herring and sprat No/hr by age, year, rectangle 1982-1992	Oilspill seabirds in Skagerrak
R. Cook 20.11.1992	Aberdeen	Indices by age and No/hr by year, haul, species, and age	North Sea Demersal Working Group, tuning data for VPA
H.Skov 03.12.1992	Ornis Consult	Argos raw data 1982–1993	Fish/Seabird interactions in Division IIIa
J.Pope 03.12.1992	Lowestoft	No/hr by length, haul, and age for 1991 for whiting, haddock and cod	For analysis of stomach data from the 1991 stomach project
Ø. Stokland 02.02.1993	Oceanor	No/hr by rectangle, species, age	Modelling ecosystems, harmful substances
J. Støttrup 23.02.1993	DIFMAR	ALKs for cod and length at age by rectangle	Effects of restocking of cod in Division IIIa
T. Moth 01.03.1993	DIFTA	No/hr by species and length for whiting and haddock 1992	Gear selectivity experiments
T. Moth 30.08.1993	DIFTA	No/hr by species and length for whiting and haddock 1993	Gear selectivity experiments
P. Lewy 06.10.1993	DIFMAR	No/hr by species, rect. age for 1991 all quarters	Data for merging with the STCF fleet database
H. Skov 30.12.1993	Ornis Consult	Argos raw data 1993	Fish/seabird interactions in Div.IIIa
H. Jensen 03.02.1994	DIFMAR	No./hr by length, rectangle for herring and sprat 1983–1993	Distribution of seabirds and prey fish stocks in the North Sea and adjacent areas
D. Pelletier 07.04.1994	IFREMER	Raw data for main species 1992–1993 and for plaice and dab 1981-1993	Basic research
P. Lorance 20.04.1994	IFREMER	No/hr by age*length and roundfish area 1980-1993 (-1994?) for herring	Basic research