

## DATA COLLECTION

### A. Reporting System

#### 1. One-ticket vs. Two-ticket Reporting System

The commercial data collection system of the ACCSP requires all fishermen and all dealers to report every commercial trip and commercial fishery transaction they make. Reporting forms will be supplied to all commercial fishermen and dealers and should be filled out at the completion of each trip or transaction. Due to regional differences in how fishermen and dealers interact, the ACCSP will accept forms from these two different reporting systems. An agency complying with the ACCSP standards must determine which data reporting system would best suit its needs. Choosing the appropriate reporting system will result in increased compliance and more accurate data.

The two commercial reporting systems are often referred to as the one-ticket system, where fishermen and dealers fill out separate portions of the same form, and the two-ticket system where fishermen and dealers report on separate forms. These two systems will allow accurate data collection for transactions where the fishermen and dealers have direct contact (one-ticket) or are separated by large distances, often several states (two-ticket). Basic descriptions of the two different reporting systems can be found in the [Atlantic Coast Fisheries Data Collection Standards](#). However, each agency will need to develop the specifics of the data collection programs to best suit their requirements and priorities.

Choosing the ACCSP reporting style that most closely resembles current reporting procedures will decrease the amount of time needed for the fishermen and dealers to learn the new forms, and will consequently increase compliance and reduce the number of reporting errors. However, when choosing a reporting style, an agency should also consider fisherman-dealer interactions, the amount of paperwork that can be handled, timeliness of data submission, and enforcement capabilities. For example, if transactions occur locally, but dealers and fishermen currently report separately, the agency might consider using the one-ticket reporting system to decrease the amount of paperwork that will be sent in.

In some cases, it may be necessary for a reporting agency to allow both reporting systems for different fisheries. Protocol should be established as to when dealers and fishermen should report using each system. The fisheries that should use each reporting system should be explicitly identified to reduce confusion as to which reporting style should be used.

## **2. Form Design**

Once a reporting system has been determined, it will be necessary to design reporting forms for each of the reporting units. Generic reporting forms have been designed for reporting single trips for the one- and two-ticket systems, and for reporting multiple trips for the two-ticket system fisherman. These forms can be used as designed, or can be used as models from which to design forms that are more specific to the needs of a specific agency.

When designing forms agencies may use any design and layout they wish. However, the ACCSP requires that a set of minimum data elements must be included on all reporting forms. These data elements will maintain consistency among the individual programs under the ACCSP, and allow stock assessment biologists to perform direct comparisons of the data.

Agencies should consider several aspects of the form design that will allow for accurate and consistent data collection by all users. Some issues that should be considered when developing reporting forms are listed below.

### **a. Minimum Data Elements**

The data elements that must be included on any commercial reporting form can be found in the [Atlantic Coast Fisheries Data Collection Standards](#) document. It is recommended that these minimum data elements be broken into a header region, that will be used to describe and identify the trip, and other data elements that are not necessary for trip identification. The data elements Trip Date, License Number, and Trip Number will be combined into a Unique Trip Identifier and should be included in the header to allow data managers to easily identify and track the data from each specific trip.

### **b. Other Data Elements**

It is unlikely that an agency will be able to collect all the necessary information through just the minimum data elements. Each agency should consider using additional questions to collect information on specific aspects of the local fishing practices, etc. These data elements could be based on program priorities, and be specific for each gear type or fishery.

### **c. Logical Layout**

Although each agency should instruct fishermen and dealers how to properly fill out the reporting forms, properly designed forms will allow the collection of more consistent and reliable data. Data forms should be straightforward and easy to use, and have a logical, a hierarchal layout. The order and positioning of questions should not require

someone to jump all over the form or flip pages. Questions of similar subjects should be grouped together. The questions should have a clear meaning, and be large enough to read. Similarly, there should be sufficient space for recording responses. Forms with too many questions will discourage fishermen and dealers from reporting and the data that is reported will be less accurate

**d. Form Type/Version Number**

All reporting forms should be identified with a form type and form version number. This will ensure that fishermen and dealers are using the correct form and the most up to date version of that form.

**e. Multiple Forms and Precoding**

Some programs have benefited from having separate reporting forms for specific gears or fisheries. It would be possible to precode these forms for certain fields, such as gear used, or primary species landed. Precoded forms have been found to be efficient and user friendly. They save time for fishermen and dealers because there are fewer fields to fill in, and they decrease the amount of staff time necessary to review and keypunch each form.

**f. Multi-trip Reporting Form**

The multi-trip reporting form was developed to decrease the reporting burden of fishermen involved in high frequency fisheries (i.e., fisheries that take many trips in a short period of time). These forms will be allowed for other fisheries so long as using this form does not result in the loss of detail in the data.

The multi-trip reporting form allows fishermen to report trip level information of several trips on the same form, as opposed to using a separate form for each trip. This decreases the amount of work the fishermen are required to do, and the amount of paperwork that is received by the agency. To decrease confusion and increase compliance and accuracy of reporting, specific protocols must be established by the reporting agency as to which fisheries and under what circumstances the multi trip reporting forms may be used.

**B. Sampling Frame**

ACCSP requires a unique identifier for every commercial fisherman and dealer. Reporting of data is mandatory for all commercial fishermen and dealers. A complete sampling frame would be very beneficial by identifying everyone who is expected to report data. If data were not being received from certain individuals, the licensing frame would provide information on how to contact those individuals.

Each agency should consider developing a registration system that would allow the development of a comprehensive sampling frame. The registration system should allow for timely updates of the sampling frame, and should collect sufficient information on how to contact every commercial fisherman and dealer for data verification. The registration process should be simple so that it is not a burden to the fishermen and dealers. A difficult registration process might discourage industry from registering, thereby greatly reducing the utility of the sampling frame and validity of the data.

### **C. Training and Outreach**

In order to increase compliance and decrease the number of reporting errors when using new reporting forms and procedures, each agency might consider developing a training program to instruct fishermen and dealers of proper reporting procedures, such as which form to use in which circumstances, how to fill out each form, who to report to, how often to report, and who to contact for further assistance.

Information that is covered in the training program could also be developed into a user's manual for fishermen and dealers to use as reference. A 1-800 number would be valuable for the fishermen and dealers to call for assistance with reporting or to give feedback on how the system is working.

## **DATA VERIFICATION**

The ACCSP provides all the fisheries data collection agencies along the Atlantic coast with a consistent and compatible data collection system. This will result in more valid stock assessments and appropriate management decisions. In order for these goals to be realized, the data that is collected must be accurate and reliable. Self-reported data from the fishermen and dealers have the potential of being very biased, fabricated, or just not reported. It is therefore necessary for each reporting agency to develop methods to verify the data that is reported.

Requiring 100% reporting by both fishermen and dealers allows the reporting agencies to compare data from the two groups. If there are discrepancies or inconsistencies between dealer and fishermen reported data for a certain trip, the agency will be able to contact both parties to clarify the problem.

Although comparing dealer and fisherman reported data will be useful for verification, there are several other methods that should also be used. These include, but are not limited to the following methods:

1. Fishery dependent methods such as port sampling and at-sea observer programs
2. Periodic summary forms sent to fishermen and dealers for them to verify their reports
3. Requiring updates on activity before license renewal; and
4. Random audits of dealers and/or fishermen

*Fishery dependent methods:* Fishery dependent programs such as at-sea observers and port sampling collect more detailed data at the trip and haul level, but are also a powerful verification tool for data reported by fishermen and dealers. If at-sea observer or port sampling programs are used, they should collect unique trip identification information from each trip that is sampled in order to link the fishery dependent program data to the industry reported data from the same trip.

Information on developing an at-sea observer program can be found here in the [Atlantic Coast Fisheries Data Collection Standards](#) document.

Information on port sampling procedures can be obtained from manuals for biological data collection programs such as the Southeast Trip Interview Program (SE TIP) and the Northeast Biological Sampling Program.

*Periodic summary reports:* Periodic summary reports, similar to monthly bank statements, sent to fishermen and dealers would be beneficial for several reasons.

1. It will allow the fishermen and dealers to see the data after it has been entered, and give them confidence that the data is being used, and that reporting is not just a burden to them.

2. It allows them to make any changes to mistakes in the data, giving them more confidence that the data used for management is accurate.
3. It provides them with an official record of what they have caught and how much they have made.

Periodic statements are potentially very useful verification tools, but protocols must be established in order to maintain the integrity of the data. Agencies must develop a schedule for these statements, and follow it exactly. The schedule should include how soon the statements are sent out after the raw data is received, how often they are sent (weekly, monthly, quarterly, etc), and how much time should be allowed for fishermen and dealers to respond with changes or comments.

Since fishermen and dealers will undoubtedly want to make changes after the deadline has passed, protocols should be developed on what to do with changes that are reported after the deadline. The program should also develop protocol on how to verify that the reported changes are accurate, and should limit the number of personnel who are allowed to make changes to the database (see **Data Management** section below). The program must also ensure that the data is sent only to the fisherman or dealer who reported the data to maintain confidentiality of the data.

*Audits:* Another potential verification tool is auditing dealers' and fishermen's records. This will allow agencies to determine if the data that is reported is consistent with the information contained in the dealer's or fisherman's personal records. When developing an auditing program, agencies should consider all the legal issues to ensure that audits and auditors are fully compliant with the law.

Audits should be random and unannounced to prevent dealers and fishermen from changing their books when they are aware an audit will be performed. Agencies should develop protocol on when audits are done, who will do them, how to select who will be audited, what authority auditors have, and what to do when a violation is found.

## **DATA MANAGEMENT**

Data collected by each agency through the commercial fisherman and dealer reporting system will eventually be incorporated into a coastwide ACCSP database. Before the data is submitted to the database, it needs to be edited and checked for accuracy. This will ensure that all data in the ACCSP database are verified and as accurate as possible. Agencies should perform the following data editing procedures in order to finalize the data before submission.

### **A. Data Form Review**

Before the reported data is entered forms should be checked for accuracy and consistency. Items and records that should be checked include, but are not limited to the following:

1. Legibility
2. All necessary fields are filled in
3. Reasonable dates and times (e.g., date landed should be after date sailed)
4. Accurate species/gear combinations

When an incorrect or inconsistent entry is found, the person who reported the data should be contacted to clarify the data before any changes are made. Protocol should be established for what to do when an entry needs to be changed. For example, it is recommended that any changes should be documented as to why it was changed, the original entry, what it was changed to, and who made the change.

Fishermen and dealers who make mistakes on their forms should be notified of their errors in an attempt to reduce errors in the future. If errors are made consistently by the same person or organization, agencies might consider additional training for these reporters. If errors continue, an agency may want to take legal action (fines, revoke license, etc.). Protocol should be established as to when legal action should be taken, and the extent of the action for violations of these reporting protocols.

### **B. Data Entry**

Once the data forms have been reviewed, they should be entered into a computer database. Data entry clerks should be screened for qualifications and training to ensure accurate data entry. Data entry procedures should have protocols to decrease the number of transcription errors that are made. An error rate of less than 0.5% of all entries is recommended and can be achieved using a double entry system (each entry is entered twice and not accepted unless both entries are identical). Other systems may also be used if they meet or do not exceed the recommended maximum error rate.

It is recommended that 5-10% of all yearly entries undergo a spot check for errors. This review should be performed by someone other than the person

who entered it. The percentage of entries that is spot-checked might be increased if the error rate is found to be greater than 0.5% or when a new contractor is used (if contractors are used for data entry). It is also recommended that a portion of each individuals work be checked for errors when new data entry clerks are used. Protocol must be established on who performs the review, how it is performed, and how often it is performed.

### **C. Computer Audit**

Even after the data have been spot checked, it is necessary to run further data editing programs for errors that are not as obvious, including, but not limited to, the following:

1. Species ranges, lengths, and weights
2. Dates
3. Fishermen and dealer licenses
4. Fishing gear used
5. Invalid codes
6. Outliers
7. Blank fields (blank fields are valid answers in some cases, but not in others)
8. Comparisons with tracking database

These data checks can be conducted with a computer audit. A computer audit is a computer program or series of programs that checks for errors and flag entries that are potentially incorrect. It is possible to incorporate some of these programs into the data entry system, so that they are recognized, checked, and changed if necessary before reaching the database. Entries that are flagged should always be checked against the original data sheets, and possibly with the fisherman or dealer who reported the data to check for accuracy before any changes are made. If it is necessary to make a change to the database, protocol should be established for how and where to document any changes. Authorization to make changes to the database should be restricted to as few employees as possible.

### **D. Tracking of Timeliness**

Commercial fisherman and dealer data will be entered into a local database by each reporting agency (or a contractor). Data entry checks and audits will be performed at the local level, and then the data will be submitted to a regional or centralized ACCSP database to allow access to other users. Each reporting agency must submit data to the main ACCSP database regularly to ensure the timeliness of the data. Data for each trip should be submitted to each agency by the tenth of the month following the reporting month. Data should be edited by the agency and submitted to the ACCSP database in a timely manner (e.g., within one to five weeks of receiving it).

To ensure that the data is submitted on-time a schedule of data processing should be established and followed. Specific dates associated with each trip should be recorded to allow data personnel to recognize instances where



data may be behind schedule and allow them to speed up the processing of that data. Dates that could easily be tracked include the following:

1. Date landed
2. Date data are received by the agency
3. Date data are entered locally
4. Date the computer audit is completed
5. Date of submission to main database

## **ENFORCEMENT AND COMPLIANCE**

In order to collect the most useful and accurate data possible, it is necessary to have a high rate of compliance by industry. Several ways to get a high compliance rate are:

1. Develop a strong working relationship with the industry
2. Have active inspections for violations
3. Reduce the amount of reporting burden on the industry as much as possible
4. Conduct training programs and provide assistance to industry on how to properly fill out the reporting forms
5. Don't sell licenses to individuals with outstanding violations or reports
6. Inform industry members when they are not reporting correctly

However, one of the most important ways to ensure high compliance is to have strong support from law enforcement. Law enforcement personnel must be dedicated to enforcing data reporting requirements and disciplining any offenders. There must be a good working relationship between the reporting agency and the law enforcement division, and consistent communication and feedback will keep both groups informed of the others actions and concerns.

Protocols for enforcement must be established and followed in order to ensure high compliance rates. A penalty system should be developed for offenders. This penalty system could increase in severity as the number of offenses by a single person increase. Protocol must be established on the different types of offenses, the types of penalties, and what offenses receive which penalty.

In order to ensure accurate enforcement, all significant interactions between agency staff and a fisherman or dealer should be documented. This will allow law enforcement personnel to go to the documented interaction to see what took place. Interactions could include first contact with an industry member, informing industry member of reporting procedures and requirements, or problems with reported data.