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Sampling Guidelines

There are many difficulties inherent in dockside sampling; nevertheless, the TIP strives to ensure that the data collected are representative of the fisheries which are surveyed. To that end, the procedures in this document are guidelines which promote the collection of data in a consistent and well-documented manner. Without a set of standard procedures for data collection and reporting, analysis of the data becomes very difficult if not impossible. Although the TIP seeks to avoid bias in the collection of data, it provides for recording of bias, real or potential, where it may occur. Such documentation is extremely important to fisheries managers.

Guidelines are provided for the following aspects of the TIP

- the goal of the TIP
- which fisheries to target
- where to sample
- selecting trips to sample
- selecting the fish to measure or sample
- recording data
- safety and sanitation
- sampling non-commercial fisheries

A. The Goal of the TIP

The goal of TIP is to **obtain representative samples** from targeted fisheries. A representative sample is a sample that meets sound statistical criteria for (at minimum) describing a population. The populations are defined by fishery-time-area strata. For practical reasons area is defined here by area of landing, not the fishing area. Agents are assigned target numbers of measurements needed for stock assessment. Sampling targets will be assigned according to the historical landings within the fisheries.

B. Which Fisheries to Target

As stated in the previous section, the primary focus of the TIP is to collect representative size frequency data for use in stock assessments. An initial step in the data collection procedures is to identify fisheries which regularly land species that are the subject of current assessments or for which assessments are planned. These will be known as '**Priority Fisheries'** for the purpose of this documentation. Of course, it is desirable to obtain data on all fisheries, but fisheries for assessment species must be prioritized until sampling targets are met. A list of "assessment species" for NOAA Fisheries is presented in the following table. Partners in the ACCSP and COMFIN will have their own lists of 'priority fisheries'. Ultimately, prioritization for sampling of all fisheries will be coordinated by these two organizations.

Table 1. Assessment Species

Common Name	Scientific Name
Red Snapper	Lutjanus campechanus
Vermilion Snapper	Rhomboplites aurorubens
Yellowtail Snapper	Ocyurus chrysurus
Mutton Snapper	Lutjanus analis
Lane Snapper	Lutjanus synagris
Gray Snapper	Lutjanus griseus
Red Grouper	Epinephelus morio
Cubera Snapper	Lutjanus cyanopterus
Black Grouper	Mycteroperca bonaci
Gag Grouper	Mycteroperca microlepis
Scamp	Mycteroperca phenax
Snowy Grouper	Epinephelus niveatus
Yellowedge Grouper	Epinephelus flavolimbatus
Warsaw Grouper	Epinephelus nigritus
Speckled Hind	Epinephelus drummondhayi
King Mackerel	Scomberomorus cavalla
Spanish Mackerel	Scomberomorus maculatus
Cobia	Rachycentron canadum
Dolphinfish	Coryphaena hippurus
Wahoo	Acanthocybium solandri
Red Drum	Sciaenops ocellata

Golden Tilefish	**Lopholatilus chamaeleonticeps**
Greater Amberjack	**Seriola dumerili**
Lesser Amberjack	**Seriola fasciata**
Banded Rudderfish	**Seriola zonata**
Almaco Jack	**Seriola rivoliana**
White Grunt	**Haemulon plumieri**
Red Porgy	**Pagrus pagrus**
Jolthead Porgy	**Calamus bajonado**
Littlehead Porgy	**Calamus proridens**
Margate	**Haemulon album**
Black Sea Bass	**Centropristis striata**
Gray Triggerfish	**Balistes capriscus**
Wreckfish	**Polyprion americanus**
Hogfish	**Lachnolaimus maximus**
Spiny Lobster	**Panulirus argus**
Golden Crab	**Geryon fenneri**

As detailed in the following sections, fisheries which land species in this list on a regular basis should be considered priority targets for trip selection and sampling. In sampling landings from such trips, sample the species on the list first, then the rest of the catch as the situation permits.

C. Where to Sample

Reports will be provided listing landings of the NOAA Fisheries, SEFSC assessment species by county and month for the most recent available data. These reports will be on the TIP web site and are also available from the TIP Coordinator. Samplers can refer to these reports when making decisions concerning which areas to focus on. Any considerations which may bias or limit areas of coverage should be documented. Electronic Mail is a good medium for documenting all situations where sampling is affected. The TIP coordinator will then make the notes available to the fisheries managers.

The location where sampling takes place will vary trip by trip. In the TIP, there are typically two locations involved; the landing dock and the dealer site. Vessels will not always land at the same dock or sell to the same dealer. Dealers may handle landings differently from day to day. The preferred method is to sample the catch at the initial point of off-loading. This is really the only way the samplers can be sure at the time of sampling that they are seeing the entire catch. Sometimes the dealer is this initial point. In other cases, dealer sites can be used as back-up locations only if the sampler has access to the entire catch of a particular species/market category from the trip.

Although it is preferred that the entire catch of all species from a trip be available for sampling, this is not always possible. Sampling may take place if the agent can be sure he/she is seeing the entire catch of the sampled species/market category for a particular trip. **Do not take size-frequency samples of any given species/market category unless the entire catch of that species/market category is available.** This does not apply to non-random biological sampling such as for the taking of hard-parts, gonads and tissues. See the upcoming section on **Selecting Fish to Measure** for guidelines on what size samples to take.

D. Trip Selection

Selected trips should be commercial in nature. This means trips which are undertaken solely for the purpose of selling the catch. On occasion samplers will be asked to fill quotas for biological samples. In these cases recreational or fishery independent data may be entered into the TIP database, but it must be properly recorded as such. Trips should be primarily from the priority fisheries. Any time a sampler has left can be directed towards other fisheries.

In order to select sampling sites, it is necessary to project landings in that fishery/area/time frame by vessel or dealer. This usually will be done on the basis of historical landings. At the start of the fishing season, the landings from the prior season will be used as a starting point. The rest of the time, the most recent available data will be used. NOAA Fisheries Logbook Data and state 'trip ticket' data are valuable sources of historical landings. **Samplers will be provided with target guidelines initially by their respective agencies and eventually through the ACCSP and the COMFIN.** Timely knowledge of the sampler will often supercede historical data. The samplers are generally aware of changes in the fishery long before they are reflected in the database. In these instances, samplers should prioritize sampling as best they can. The TIP coordinator is ready to assist in providing any historical landings the sampler may need to make target adjustments.

There are practical problems involved such as time considerations. In most fisheries, it is difficult to schedule an intercept very far in advance. In addition, the time of landing may not coincide with the samplers' normal working hours. Samplers should document where odd landing hours become a hindrance to sampling. In order to sample at the point of landing, the sampler must remain in close contact with the selected vessel or dealer. Cellular phones are preferred over radios as they offer direct contact as well as privacy. In any case, it is required of the fishermen and dealers that they make their catch available for sampling. Try to maintain contact throughout the week with the vessels or dealers you have selected and be ready to sample if the landing time is within your schedule.

If there are questions regarding sampling priorities, contact your immediate supervisor. Feedback on the conditions and situations at the docks is very useful. If fishing patterns change so that certain priority species are not available for sampling, or other local conditions affect your ability to meet sampling targets, that information should be documented in written correspondence to the area supervisors.

E. Selecting Fish To Measure

Because trip selections are made on a priority basis from the Assessment List, the emphasis for selecting fish to measure is also related to the Assessment List. As with trip selection, the fish should be measured to provide data that are as representative as possible of the catch. **If fish from**

a trip are measured to meet biological sampling quotas such as for hard-parts, etc. and are not randomly selected, make sure that the data from this trip are clearly labeled in the TIP database as 'Quota Samples'.

It is possible to introduce bias into the data by not selecting the fish randomly. Try to avoid selecting fish in a manner that will introduce biases, e.g., always selecting large or small fish. If the catch is sorted, the potential for size bias is reduced. If possible, the total number and/or weight of the sorted group should be recorded. **It is best not to begin taking individual measurements until the sample(s) have been separated from the catch.** Having the sample(s) already set aside and under the sampler's control will facilitate taking the individual measurements. It is not usually necessary to measure all of the fish of the same species from a trip. Measure 30 fish per species or as many as possible up to 30. It is best to follow some simple process like selecting every third or fifth fish to measure in order to avoid non-representative selection. Estimate the number of fish in the catch or sorted portion of the catch, divide by 30 and round down to obtain the order of selection. In the case of large catches, it may be desirable to measure more than 30, but it should not be necessary to measure more than 50 **as long as the selection is random. The emphasis in the TIP is on sampling more individual trips rather than taking a large number of measurements from a few trips; of course, the number of trips available within a set of strata will depend on the fishery.**

F. Recording the Data

Refer to **Section III - Data Entry and Reporting Form Procedures** for instructions on what to record. Refer to **Part II: Data Entry System** for instructions on how to enter the data on the PC. How the data are recorded in the field is left up to the sampler to some degree. The TIP Data Entry Form may be used or agents may devise their own standard forms for field use and transcribe the data to the Entry Form prior to data entry. The TIP Entry Forms can then be filed neatly away as a valuable hard-copy reference. TIP Data Entry Forms are available on the website or from the TIP coordinator. Several methods exist for recording data in the field. Field forms, a tape recorder(not standard issue), punch sheets, and electronic measuring boards(not standard issue) are among various field recording methods.

G. Safety and Sanitation: The following are some general guidelines on seafood sanitation and safety in biological sampling:

HACCP - Hazard Analysis Critical Control Point Systems: Samplers should be aware that dealers have HACCP plans which they have submitted to the FDA to ensure that their product is safe. These plans follow a basic outline but differ from dealer to dealer. Dealers may have a person designated to oversee the HACCP at their dealership. The dealer should point out the guidelines to the sampler where they exist. Samplers should observe these guidelines. When samplers visit new sites, they should inquire what sanitation/safety guidelines the dealer requires prior to taking samples. In the absence of more specific standards, samplers should adhere to general guidelines which follow.

Instruments: Instruments should be calibrated and maintained according to manufacturer's specifications. Sampling instruments which contact the fish should be disinfected each day prior to taking samples and each time the sampling location changes during the day. More frequent cleaning may be necessary. Instruments need to be corrosion resistant; nevertheless, they may be treated with a rust preventative when stored. In this case, the instrument must be thoroughly washed

with disinfectant soap and water to remove any traces of lubricant prior to sampling. A rusty instrument should be replaced. Tables, containers, and measuring boards provided by the sampler should be cleaned with disinfectant soap and water prior to each day's sampling and when location changes. More frequent cleaning may be necessary. Paper overlays to sampling boards such as 'punch sheets' should be cleaned or changed between locations. All instruments and contact surfaces must be rinsed to remove residue of soap or other cleaning agent prior to sampling. All water used for cleaning purposes should be from a treated source; for example, a municipal water supply system. There may be more than one source of water at a given location (ie. one may be treated, the other untreated). When in doubt, ask the dealer. Samplers should carry a source of clean water when going into situations where it may not be available (ie. at a boat ramp). Any ice used by the sampler should also be from a treated source. Ice should be discarded after use at each location or more frequently if necessary.

Personal Hygiene: Samplers should wear outer garments suitable to the operation in a manner that protects against contamination of fish, fish contact surfaces or fish-packing materials. Samplers must maintain adequate personal cleanliness. Samplers must wash hands thoroughly (and sanitize if necessary) in an adequate hand washing facility before starting work, and after each absence from the work station. Hands should be dried with clean dry towels or other sanitary drying device. Samplers must remove all unsecured jewelry and other objects that might fall into the food or containers, and remove or cover any hand jewelry that cannot be properly sanitized. If gloves are used, they should be in an intact, clean, and sanitary condition. Gloves should be of an impermeable material. Samplers should not eat, chew gum, drink beverages, or use tobacco where the fish may be exposed or where equipment and utensils are washed.

Fish Handling: Fish should be handled in a manner so as not to decrease their market quality. Fish should be placed on surfaces or in containers, not thrown. If the fish have been on ice or in cold storage, they need to be put back there as soon as possible. This is especially true of shellfish and pelagic fish (tunas, mackerels, dolphinfish, wahoo). Fish should be replaced as they were before being selected. The dealer may want his own personnel to do this job; if not, it is up to the sampler. In general, the sampler should allow the fishermen or fish house personnel to handle the fish as they wish, as long as this does not interfere with proper sampling. When handling heavy fish, samplers should use gloves having a friction surface. For heavy fish in awkward locations (ie. at the bottom of a container), the sampler may wish to employ a device such as a snare to grab the tail so that the sampler can use adequate leverage when lifting the fish from the container. Any device such as a snare or hook should be approved by the dealer prior to use. If a fish is too heavy for the sampler, he/she should ask for assistance from fish house personnel.

Sampling Safety: Samplers should wear shoes with adequate traction. When sampling on a board a vessel or transport vehicle, samplers should enter and exit by the proper access/egress points. Samplers should always have both hands free to assist them in boarding or exiting a vessel or transport vehicle. No sampling should ever be done in a moving vehicle. Sampling may be done on board a moving vessel as the captain permits. When setting up a sampling station, samplers should avoid potential safety hazards such as mechanical processors, forklifts, etc. Samplers should be mindful of proper fish handling procedures such as outlined previously in order to avoid potential injury. Samplers should wear safety gloves when using a knife. Samplers should avoid confrontations with fishermen or fish house personnel. If ordered off the sampling location, the sampler should comply and refer the manner to their supervisor. Such incidents should be well documented.

H. Sampling of Non-Commercial Fisheries: Although TIP is a commercial dockside sampling program, occasionally samplers will be asked to obtain interviews and samples from non-commercial sources. Unless specifically instructed otherwise by the area supervisor, samplers should always put commercial trips ahead of non-commercial trips on their agenda. When non-commercial trips are sampled in TIP, biological sampling for hard-parts, gonads, and tissues should be emphasized. In areas and times where commercial fishing is light or non-existent, non-commercial trips may receive increased attention. Such trips would be charter boats, 'head' boats, private/rental boats, tournaments, and scientific survey (fishery independent). Special instructions for these are as follows.

Charter Boats: These trips fall into a 'gray' area in that many charter vessels are also permitted as commercial vessels and many charter captains and crew have licenses to sell their catch. Since the TIP defines commercial trips as undertaken **solely** for the purpose of selling the catch, trips where passengers were taken along for a fee are excluded. Even though the TIP considers them non-commercial, catch may be sold commercially from these trips. When charter trips are sampled where fish are sold commercially and a 'trip ticket' is filled out the samplers should obtain the information from that ticket the same as if it were a commercial trip. In any case, Vessel ID or individual license number are required. Trip landing date, MRFSS site, gear, and primary area of catch are required.

Head Boats: A 'head' boat is a vessel where customers pay by the person. Generally these vessels have a large customer capacity relative to charter boats. There may be cases where catch is sold and a trip ticket filled out. In these cases, the sampler should obtain that information. Otherwise, vessel id, landing date, MRFSS site, gear, and primary area of catch required.

Private/Rental: Very rarely sampled in TIP. An exception would be a sampler happening on a very unusual catch. Landing date, vessel/boat id, MRFSS site, gear, and primary area of catch required.

Tournaments: Sampling of tournaments should be cleared in advance with the area supervisor. Often the catch will be sold be the tournament organizer. If so, the sampler should obtain the trip ticket information. Landing date, MRFSS site, gear, primary area of catch required.

Scientific Survey: This means fishery independent data. Vessel ID, sampling date if done on board vessel, landing date if shore based, gear, area of catch. Record each tow or trawl as a separate interview if they are sampled individually. Notify the TIP coordinator with any questions on how to enter fishery independent data in TIP.