Artbasic case study

Part 7: Common data collection scenarios

The presented Artbasic implementation was based on a close-to-real but simple enough fishery. In this part of the case study users will be presented with varying data collection schemes and the means by which Artbasic is configured to respond to specific statistical needs.

Data collection variations are in general categorized into:

(a) Structural, i.e. relating to stratification or species or boat/gear classifications
(b) Relating to sampling frames, i.e. spatial extrapolating factors for fishing effort
(c) Sampling for boat activities/fishing effort
(d) Sampling for landings

Table 1. Structural variations.

Variation	*Artbasic action*	*Remarks*
1. New major or minor strata.	These are added to the tables and new linkages are set-up.	Typical Artbasic maintenance/expansion.
2. Need for estimating catch/effort for an important port.	Port will become itself a minor stratum	It is recalled that catch/effort estimates are always produced at minor stratum level.
3. Sampling sites are not fixed but are selected in a rotational manner.	In this case all sites must appear in the frame survey.	It is recalled that in the presented examples sites not participating in data collection have been grouped under OTHERS.
4. Boat/gear types are grouped, based on statistical tests of significance. or, Boat/gear types are disaggregated, based on statistical tests of significance.	Frame survey must be re-set to reflect the new boat/gear classification.	Usually such re-structuring is done at the end of a full operational year, so as not to disrupt continuity of estimates.

5. Species are grouped, based on statistical tests of significance. **or,** **Species are disaggregated, based on statistical tests of significance.**	**New species list is set-up.**	**Usually such re-structuring is done at the end of a full operational year, so as not to disrupt continuity of estimates.**
6. Species classification must conform to international standards, such as ISCAAP.	**ISCAAP code(s) added to main species description or in the remarks.**	**Usually issues of comparability/harmonization come at a much later stage.**

Table 2. Variations relating to sampling frames.

Variation	*Artbasic action*	*Remarks*
1. Frame survey data outdated.	**Effort data should be collected on the same number of sample days, so as to aim at relative rather than absolute frame survey accuracy.**	**If the overall decrease or increase is proportional in all sites, effort will still be estimated with the same accuracy.**
2. Migration of fishing units within the same minor strata.	**No action required.**	
3. Migration of fishing units across minor strata.	**Artbasic allows for "monthly" sampling frames, provided that segmentation of the data has been provided for by the census on fishing units.**	**Artreg is the Artfish component that handles this type of segmentation (see also Artfish overview).**
4. Multiple use of fishing gear by the same boats.	**Frame surveys must contain separate entries for each gear encountered. For instance, if ten boats use gillnets and the same ten boats use hook & line, these numbers must both be included.**	**Multiple entries will not result-in double-counting. It is reminded that estimates are produced separately for each context consisting of a month, minor stratum and boat/gear type.**

Table 3. Sampling for boat activities/fishing effort

Variation	Artbasic action	Remarks
1. All boats at a site are checked for activity status.	Typical Artbasic handling. Users specify on each sampling day the total number of boats that were found active.	
2. Too many boats at a site.	This is in fact the case presented by the case study. Recorders went to sites with a list of ten pre-selected boats. Ten is a sufficient number if data collection takes place during six or more days.	This technique is used when the number of boats is higher than 20-30. Pre-selection of boats must be random. The list may change after one or two months.
3. Recorders only check fishing activities of boats that landed. The question refers to "yesterday, before yesterday, and the day before yesterday", that is three days back and NOT INCLUDING the landing day.	This is equivalent to the sub-sampling approach described above.	Days that refer to the previous month should be included into the effort data of that month.
4. Total effort is made available by the port authorities.	Effort is divided by the number of calendar days. The result is used as representing active boats. Note: In this manner there will be no need for active days. These will be set to the calendar days.	Example: Port has 20 boats. Total effort for April was reported to be 300 days. Dividing 300 by 30 we find 10. Artbasic will then use the proportion 10/20 in the boat activity screen, entered on any day.
5. At the end of the month a number of boats was sampled and effort was reported. Effort of previous month is reported by boats landing during current month.	Same technique as above. Effort ought to be included in previous month datasets.	 Not very reliable due to seasonal variations.

Table 4. Sampling for landings

Variation	Artbasic action	Remarks
1. Very large landings. Recorder used a sub-sample for species composition.	Typical Artbasic handling. Sub-sample will be indicated in the "sample total", total landings in the "total".	
2. More boats worked together and landed together.	The number of boats will be indicated in the "# of units".	Important for computing correctly the CPUE.
3. A boat went out fishing but did not catch anything.	Normal entry with zero catch.	In order to influence the overall CPUE.
4. Due to bad weather boats did not go out.	In this case zero landings MUST NOT be recorded. This is an effort-relating problem and must be handled in the active days.	In order NOT to influence the CPUE of other "normal" days.
5. A boat went out twice during a day. Only one trip was sampled.	Effort must be specified as 0.5 days.	In order to express correctly the daily catch rate.
6. A boat from a different homeport landed at the current site.	It does not matter. Sampling can be done normally.	Associated sites (homeports) are important for effort, not for landings.
7. A boat only transporting fish landed.	It should not be sampled.	Unless it is possible to obtain information on associated fishing effort.
8. A boat using multiple gear landed its catch.	Better focus on boats using single gear.	