**Estimation of total catches by area**

To conduct the current stock assessment of bigeye tuna (Xu *et al.* 2018), the catch data in the IATTC da-ta bases are stratified according to fishery definitions based on gear, area, and time (quarter). Some CPCs report catch in numbers and others in weight. For each area two fisheries are defined, one in numbers and one in weight, so that average weight used to convert between numbers and weight is calculated internally in the assessment model. The detailed longline catch data are missing for some nations. For recent years the monthly reports are used where available. For catch data that is either not spatially or temporally detailed, assumptions need to be made about how to distribute the catch between the fisher-ies and among quarters within a year. For data that are available from monthly reports the catch is as-signed to the fisheries based on the distributions in recent years. For catch data that are aggregated at the annual level, it is split evenly among the quarters and assigned to one of the fisheries. This procedure was made manually and several decisions on data substitution had to be made, which resulted in a time-consuming process. For the spatial model in development, the catches also need to be distributed on space and time, with different potential spatial configurations.

An algorithm was developed to compute the catches in a timely and standardized way.

To calculate the longline catches two types of data are used:

a. Total catch from the Task I data by year compiled for the Fisheries Status Report (“FSR” data) in Tb3\_AnnualCatchBET\_LL&otherGears) plus any monthly report for the current year.

b. Catch in 5°x 5°–month resolution, with information on gear configuration and target species –Level 3 data from Resolution C-03-05 (“gridded” data).

The catches by area are calculated as follows. The algorithm was coded in R (Appendix II) and checked in Excel. The pseudo-code is as follows:

I. If catch numbers are available in the gridded data, we use it and assume 100% coverage.

II. If only weight is available in the gridded data, we:

a. Default algorithm: compare the total catch in weight on a year from the gridded data to the aggregated FSR data, if it is less, split the FSR by area and quarter using the ratio from the weight in the gridded data set, if it is more, use the gridded weight directly.

b. Alternative algorithm: for special countries for which there is previous knowledge that the gridded data set has less than 100% coverage (KOR, TWN):

i. If both numbers and weight are available in the gridded data, compare total weight on a year to the FSR data, if it is less, split the FSR by area and quarter using the ratio from the weight in the gridded data set, if it is more, use the gridded number directly.

ii. If only weight is available in the gridded data, compare total weight on a year to the FSR data, if it is less, split the FSR by area and quarter using the ratio from the weight in the gridded data set, if it is more, use the gridded weight directly.

III. If there are no weight or numbers in the gridded data for a year, split the FSR using the closest year of gridded data available, prefer the data in weight, if it is not available, use numbers.

IV. If there is only FSR data, and it is a coastal country, allocate the catches to the country’s EEZ.

V. If there is only FSR data, and it is not a coastal country, use expert knowledge/best judgement (*e.g*. country reports).

VI. For the current year in the series, if the countries had not yet sent the information, assume the catch is the same as the previous year.