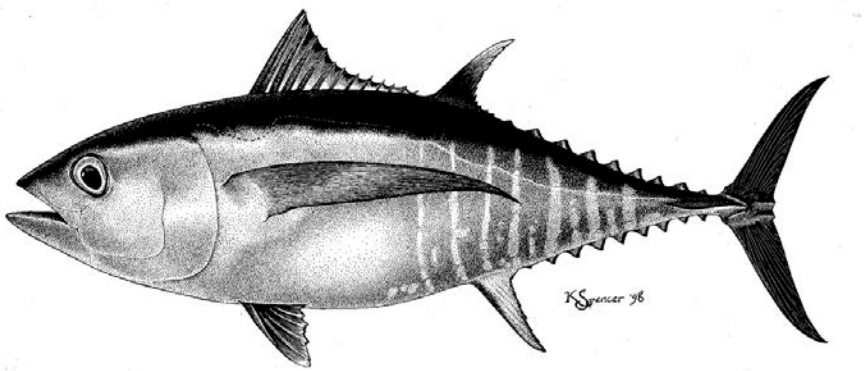
Summary of data available for yellowfin tuna in the eastern Pacific Ocean and its use in stock assessment



Additional details provided in the document prepared for the bigeye tuna review (BET-01-07)

EPO yellowfin tuna data sources

- Canner and processor data
- Vessel logbooks
- Observer records
- Port sampling
- At sea weekly reports
- (Monthly longline reports: only for BET)
- Data provided by countries
- Vessel information
- Biological and other data
- Tagging

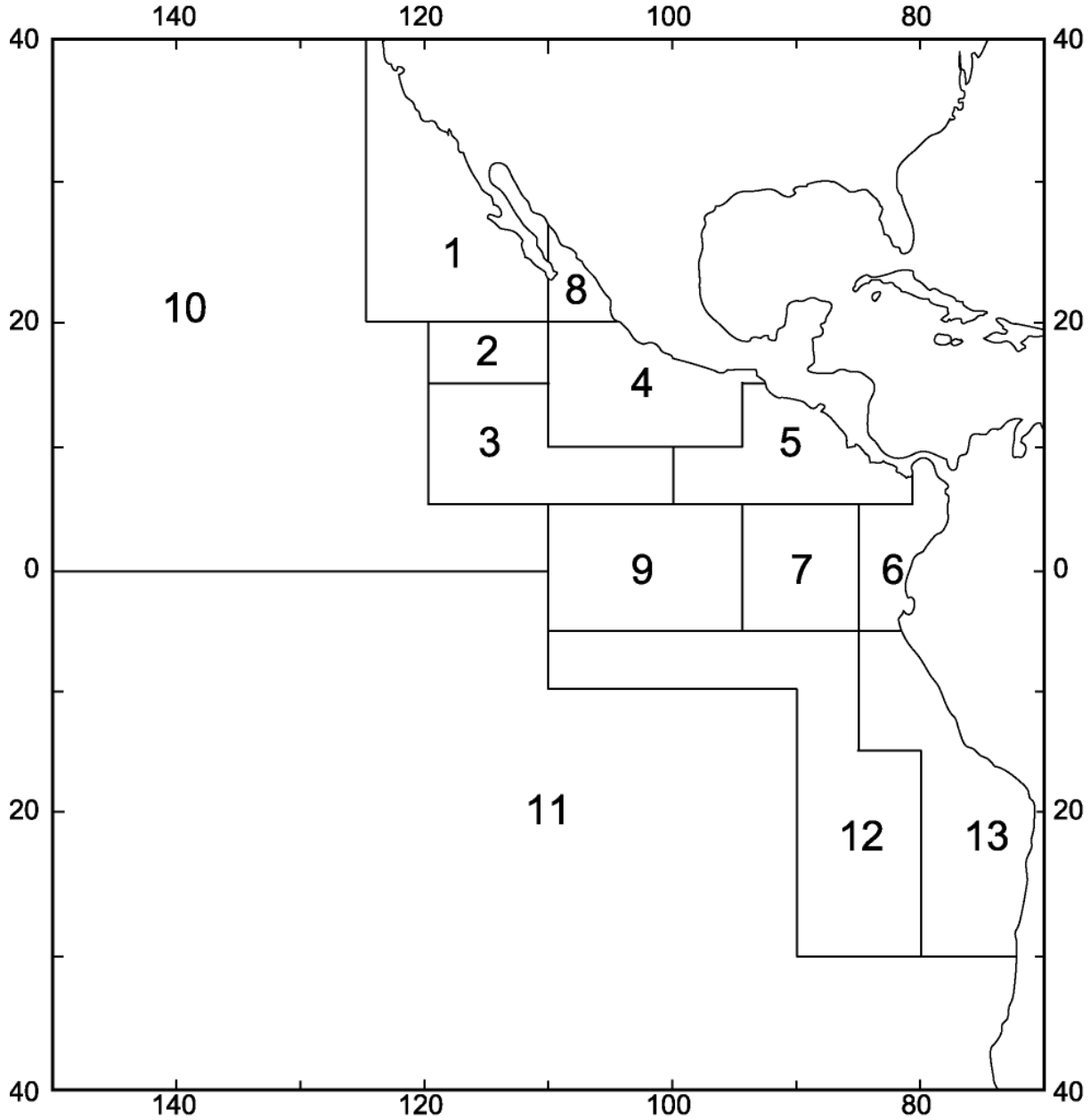
Catch

- Most of the catches are made by the purse-seine and longline fleets
- Total catch by purse-seine vessels are based principally on data from unloadings.
- Details of the purse-seine catch are based on observer and logbook data.
- Catch of the larger longline vessels are obtained from governments
- Data from smaller longliners, artisanal vessels, and other vessels were gathered either directly from the governments, from logbooks, or from reports published by the governments.

Surface fishery species composition

- The recording of species composition for some catch is unreliable.
- The unloading data are adjusted based on the species composition sampling
- Species composition sampling program began in 2000
- Raised to well then to strata
- The catch data for the previous years were adjusted using the ratio from 2000-2004

Port sampling strata (optimized for YFT)



Longline catch

- The availability of catch data from the longline fisheries varies among the countries.
- Data for recent years is not available for some nations
- Spatial and temporal distribution is not available for some nations
- Some of the catch is reported in numbers of fish, some in weight, and some in both.
- Data from other nations are available aggregated by year.

Discards

- Data for fish discarded at sea on purse seiners have been collected by observers since 1993.
- Discards recorded in three size groups: small fish (<2.5 kg), medium fish (2.5-15.0 kg), and large fish (>15 kg).
- These data are used to determine discard rates to scale the total discards based on the total purse-seine landings by fishery.
- Some fisheries and quarters don’t have adequate data

Purse seine indices of abundance

- Catch per days fished
- Don’t have days fished by set type
- Use a regression of days fished on sets by set type

$$D_i = \beta_{FO} FO_i + \beta_{UA} UA_i + \beta_{DOL} DOL_i + \varepsilon_i$$

- The number of days fished by set type is the coefficient times the number of sets

longline indices of abundance

- Only Japanese longline data
- Catch per hook
- Standardized using a delta-lognormal general linear model
- Latitude, longitude, and hooks per basket

Surface fishery length composition

- Collected by IATTC personnel at ports of landing
- Adjusted for species composition sampling
- Raised to well then to strata catch

Longline length composition

- Available for Japan and Chinese Taipei, but only Japanese used
- Provided in two latitude-longitude resolutions 5˚x5˚ and 10˚x20˚ over the years. Only the 5˚x5˚ are used in the assessment
- Weight composition may also be available

Age

- Wild's data consists of ages, based on counts of daily increments in otoliths, and lengths for 196 fish collected between 1977 and 1979.
- The sampling design involved collection of 15 yellowfin in each 10-cm interval in the length range of 30 to 170 cm.

Maturity, fecundity, and sex ratio

- The spawning potential of the population is estimated from the numbers of mature females adjusted for batch fecundity and spawning frequency (Schaefer 1998).

Tagging

- Both conventional and archival recent tag data are available for EPO yellowfin
- Some historical conventional tag data also available
- Tagging data is not yet used in the assessment

Oceanographic data

- There is a variety of oceanographic data available that could be used in the yellowfin assessment.
- The IATTC staff is collaborating with Dale Kiefer at the University of Southern California to facilitate the access to environmental data
- In previous assessments environmental data has been correlated with recruitment.
- In previous assessments it has also been assumed that oceanographic conditions might influence the efficiency of the various fisheries described. However, only SST for the southern longline fishery was found to be significant.
- No environmental variables are used in the current assessment.