Glossary of Terms

Abundance: an individual measure, or a time-series, of estimates of the absolute biomass of the stock (can be obtained from fishery independent surveys; current fishing mortality rate from recent length compositions, natural mortality rate, maturity, growth, and stock recruitment relationship; or from habitat/relative density extrapolation).

Catch: total annual fish harvest, including dead discards.

Catch-at-age: the distribution of fish ages in the catch. Usually presented annually for a single fleet (can be obtained from the age composition of catches (e.g. analysis of otoliths)).

Catch-at-length: the distribution of fish lengths in the catch. Usually presented annually for a single fleet (can be obtained from the length composition of catches (e.g., length samples)).

Conventional Stock Assessment: a process where one or more data streams of historical catch, effort, and population trends are analyzed using quantitative models and expert knowledge to estimate biological reference points, stock status relative to those reference points, and predict the impact of future catches on stock dynamics.

Data-Limited: (encompasses data-poor and data-moderate): a situation where data are insufficient to conduct a conventional stock assessment (usually because an index of either relative abundance or fishing mortality is missing for the time period of fishing).

Fleet selectivity: a relationship that describes the pattern which individuals of a certain size or age are vulnerable to being captured by the fishing gear of a fishing fleet (can be obtained from the length composition of catches, the growth curve and natural mortality rate, or estimates for a similar fleet from a stock assessment targeting a comparable species).

Harvest Control Rule (HCR): a rule which converts the output of data analysis to management recommendations.

Index of Abundance: a relative time-series that is assumed proportional to the actual abundance of the stock, and is used to determine the trends in the population abundance over time. (can be obtained from catch-per-unit-effort (e.g., kg/trawl) or fishery independent surveys).

Input Control: a size limit, time-area closure, effort control.

Length-at-maturity: the length at which individuals become mature. Because individual fish tend to mature at different sizes, length-at-maturity is often presented as L_{50}, the length at which there is a 50% probability that an individual in the population is mature (can be measured directly or from growth and natural mortality estimates).

Length-weight conversion: a relationship which describes the expected weight of individuals at a given length, and vice versa (can be obtained from paired length and weight observations and equivalent data from similar species).

Life history information: information relating to the growth pattern, natural mortality, size or age at maturity, and reproductive characteristics of a stock.

Management Procedure (MP): a reproducible approach that takes you from raw data to a management recommendation (a.k.a., 'harvest strategy' or 'management strategy').

Management Recommendation: a total allowable catch (TAC), total allowable effort (TAE), minimum size limit, marine reserve etc, which is intended to modify fishing mortality in an appropriate manner.

Management Strategy Evaluation (MSE): the process of using simulation testing to examine the performance of alternative management strategies against a set of performance criteria under realistic conditions of process variability and observation error.

Maturity-at-length: the probability that an individual of a given length is reproductively mature.

Maximum Sustainable Yield (MSY): the theoretical (and hypothetical) highest possible annual catch that can be sustained indefinitely over time.

Natural Mortality Rate (M): the removal of fish from the stock due to causes not associated with fishing, including: old age, disease, competition, cannibalism, predation, pollution or any other natural factor (can be deduced from maximum age studies, tagging data, or early fishery catch composition data).

Observation Model: a theoretical framework for generating data that may be biased and imprecise (the lens through which MPs 'see' the operating model).

Operating Model: a credible representation of fishing and population dynamics (the simulated reality).

Output Control: a catch limit (overfishing limit or total allowable catch).

Performance Metric (PM): a measure for comparing the performance of different management strategies or procedures that can be based on biomass, fishing mortality, yield, economic benefits and other measures of value to stakeholders and management bodies.

Recruitment Index: a time-series of data which is assumed proportional to the abundance of the newest age class that joins the stock each year (can be obtained from a recruitment index (e.g., spawn survey); VPA of age-composition data).

Stock-Recruitment Relationship: the understanding of how the abundance of annual recruits (i.e., new entrants to stock) is determined by the spawning stock size (can be obtained from a stock assessment of comparable species).