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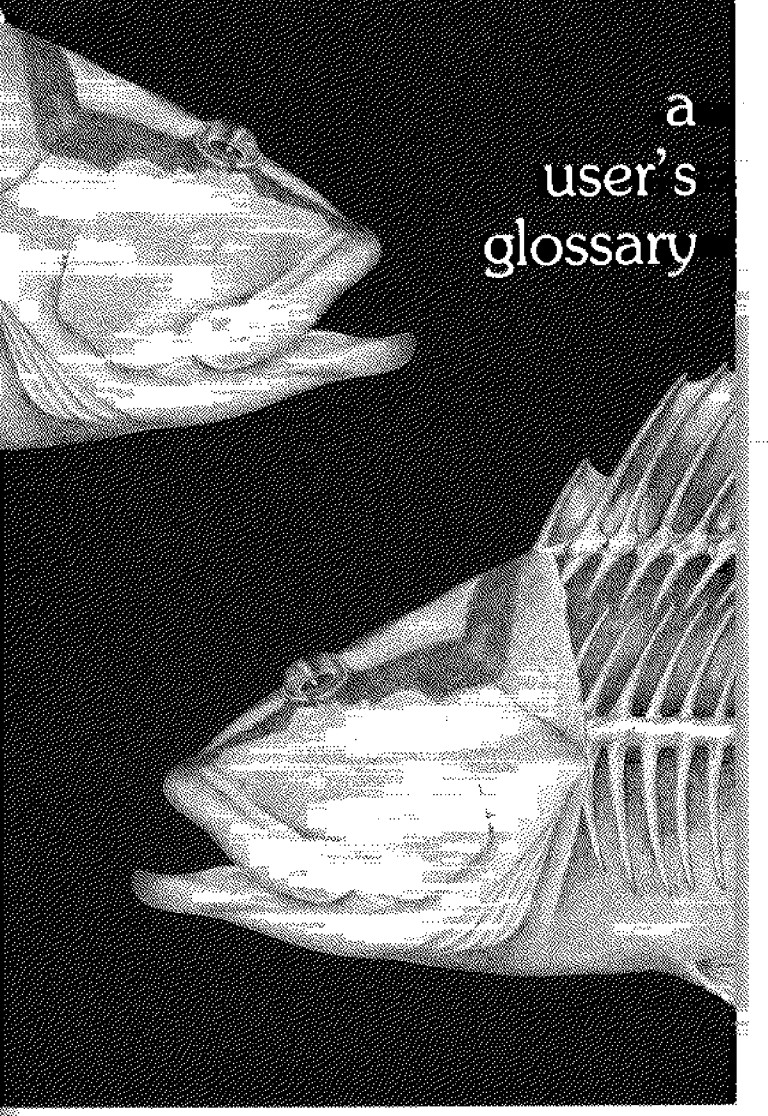

DEFINING FISHERIES

A User's Glossary

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INTRODUCTION

The harvest of fish by commercial and recreational fishermen is regulated by federal and state agencies that develop plans by which to manage fishery resources. In so doing, agencies seek advice from fishermen and others involved with the fishing industry. Management plans include technical words and terms that are difficult to understand. This glossary gives definitions that should help fishermen understand the scientific basis of management. Thus, their comments and advice will be more useful in planning and management.

Putting fishery management terms in nonscientific words may make some definitions too simple, but the authors sought to get the main idea across on each term. Some terms are referred to by scientists as letters or groups of letters (acronyms) and these are listed at the end of the publication for quick reference. The word *fish* is used throughout, and includes finfish and shellfish species. A mail-in form is provided to identify words and terms that need to be included in a future printing.

A

A See *annual mortality.*

ABC See *allowable biological catch.*

AP See *advisory panel.*

Absolute Abundance The total number of a kind of fish in the population. This is rarely known, but usually estimated from relative abundance, although other methods may be used.

Abundance See *relative abundance* and *absolute abundance.*

Advisory Panel (AP) - A group of people appointed by a fisheries management agency to review information and give advice. Members are usually not scientists, but most are familiar with the fishing industry or a particular fishery.

Age Frequency or Age Structure A breakdown of the different age groups of a kind of fish in a population or sample.

Allocation Distribution of the opportunity to fish among user groups or individuals. The share a user group gets is sometimes based on historic harvest amounts.

Allowable Biological Catch (ABC) A term used by a management agency which refers to the range of allowable catch for a species or species group. It is set each year by a scientific group created by the management agency. The agency then takes the ABC estimate and sets the annual *total allowable catch (TAC).*

Anadromous Fish that migrate from saltwater to fresh water to spawn.

Angler A person catching fish or shellfish with no intent to sell. This includes people releasing the catch.

Annual Mortality (A) The percentage of fish dying in one year due to both fishing and natural causes.

Aquaculture The raising of fish or shellfish under some controls. Ponds, pens, tanks, or other containers may be used. Feed is often used. A hatchery is also aquaculture but the fish are released before harvest size is reached.

Artisanal Fishery Commercial fishing using traditional or small scale gear and boats.

Availability Describes whether a certain kind of fish of a certain size can be caught by a type of gear in an area.

B

Bag Limit The number and/or size of a species that a person can legally take in a day or trip. This may or may not be the same as a possession limit.

Benthic Refers to animals and fish that live on or in the water bottom.

Billfishes The family of fish that includes marlins, sailfish and spearfish.

Biological Reference Point Benchmark used to evaluate given levels of fishing mortality (such as F_{max}, $F_{0.1}$, F_{SPR}).

Biomass The total weight or volume of a species in a given area.

Bony Fishes Fish that have a bony skeleton and belong to the class Osteichthyes. Basically, this is all fish except for sharks, rays, skates, hagfish and lampreys.

Bycatch The harvest of fish or shellfish other than the species for which the fishing gear was set. Examples are blue crabs caught in shrimp trawls or sharks caught on a tuna longline. Bycatch is also often called *incidental catch.* Some bycatch is kept for sale.

C

C/E See *catch per unit of effort.*

CPUE See *catch per unit of effort* .

Capital Stuffing Refers to the investment decisions of commercial fishermen in regard to restrictive regulations. They invest more money in fishing capacity to offset regulations that make fishing effort less effective.

Catadromous Fish that migrate from fresh water to saltwater to spawn.

Catch The total number or poundage of fish captured from an area over some period of time. This includes fish that are caught but released or discarded instead of being landed. The catch may take place in an area different from where the fish are landed. Note: Catch, harvest, and landings are different.

Catch Curve A breakdown of different age groups of fish, showing the decrease in numbers of fish caught as the fish become older and less numerous or less available. Catch curves are often used to estimate total mortality.

Catch (Fishing) Rights A fisheries management agency may develop a limited entry program. In some the fishermen are given a share of the allowable catch from a stock of fish. This share might better be viewed as a privilege rather than a "right".

Catch Per Unit of Effort (CPUE; C/E) The number of fish caught by an amount of effort.

Typically, effort is a combination of gear type, gear size, and length of time gear is used. Catch per unit of effort is often used as a measurement of relative abundance for a particular fish.

Catch Stream The catch statistics for a kind or stock of fish over a period of time.

Catchability Coefficient (q) The part of a stock that is caught by a defined unit of effort.

Charter Boat A boat available for hire, normally by a group of people for a short period of time. A charter boat is usually hired by anglers.

Coastal Migratory Pelagic Fishes Several species of fish that live in open waters near the coast, grouped together by the Gulf of Mexico Fishery Management Council and South Atlantic Fishery Management Council for management purposes. This includes king and Spanish mackerel, cobia, dolphin, and little tunny.

Cohort A group of fish spawned during a given period, usually within a year.

Cohort Analysis See *virtual population analysis*

Commercial Fishery A term related to the whole process of catching and marketing fish and shellfish for sale.

Common Property Resource A term that indicates a resource owned by the public. It can be fish in public waters, trees on public land, and the air. The government regulates the use of a common property resource to ensure its future benefits.

Compensatory Growth An increase in growth rate shown by fish when their populations fall below certain levels. This may be caused by less competition for food and living space.

Compensatory Survival A decrease in the rate of natural mortality (natural deaths) that some fish show when their populations fall below a certain level. This may be caused by less competition for food and living space.

Condition A mathematical measurement of the degree of plumpness or general health of a fish or group of fish.

Confidence Interval The probability, based on statistics, that a number will be between an upper and lower limit.

Control Date The date often established by the National Marine Fisheries Service for a fishery after which new participants are not guaranteed a right to fish.

Council Indicates a regional fishery management group. The Fishery Conservation and Management Act of 1976 as amended created the regional councils. For example, the Gulf of Mexico Fishery Management Council develops fishery policies designed to manage those species most often found in Gulf federal waters.

Crowding Externality The impact a fisherman's catch of a species has on another fisherman's catch of the same species.

Crustacean A group of freshwater and saltwater animals having no backbone, with jointed legs and a hard shell made of chitin. Includes shrimp, crabs, lobsters, and crayfish.

Cumulative Frequency Distribution A chart showing the number of animals that fall into certain categories, for example, the number of fish caught that are less than one pound, less than three pounds, and more than three pounds. A cumulative frequency distribution shows the number in a category, plus the number in previous categories.

D

Demersal Describes fish and animals that live near water bottoms. Examples are flounder and croaker.

Directed Fishery Fishing that is directed at a certain species or group of species. This applies to both sport fishing and commercial fishing.

Disappearance (Z') Measures the rate of decline in numbers of fish caught as fish become less numerous or less available. Disappearance is most often calculated from catch curves.

E

EEZ See *exclusive economic zone.*

EIS See *environmental impact statement.*

ESO See *economics and statistics office.*

Economic Efficiency In commercial fishing, the point at which the added cost of producing a unit of fish is equal to what buyers pay. Producing fewer fish would bring the cost lower than what buyers are paying. Producing more fish would raise the cost higher than what buyers are paying. Fish harvesting at the point of economic efficiency produces the maximum economic yield. See *maximum economic yield* and *economic rent.*

Economic Overfishing A level of fish harvesting that is higher than that of economic efficiency; harvesting more fish than necessary to have maximum profits for the fishery.

Economic Rent The total amount of profit that could be earned from a fishery owned by an individual. Individual ownership maximizes profit, but an open entry policy usually results in so many fishermen that profit decreases. See *maximum economic yield.*

Economics and Statistics Office (ESO) A unit of the National Marine Fisheries Service (NMFS) found in the regional director's office. This unit does some of the analysis required for developing fishery policy and management plans.

Effort The amount of time and fishing power used to harvest fish. Fishing power includes gear size, boat size, and horsepower.

Elasmobranch Describes a group of fish without a hard bony skeleton, including sharks, skates, and rays.

Electrophoresis A method of determining the genetic differences or similarities between individual fish or groups of fish by using tissue samples.

Environmental Impact Statement (EIS) An analysis of the expected impacts of a fisheries management plan (or some other proposed action) on the environment.

Equilibrium (Steady State) The condition that exists when fishing pressure remains constant over time.

Escapement The percentage of fish in a particular fishery that escape from an inshore habitat and move offshore, where they eventually spawn.

Euryhaline Fish that live in a wide range of salinities.

Ex-vessel Refers to activities that occur when a commercial fishing boat lands or unloads a catch. For example, the price received by a captain for the catch is an exvessel price.

Excess Profit A level of profit above normal profit that could arise from limiting entry to a fishery.

Exclusive Economic Zone (EEZ) All waters from the seaward boundary of coastal states to 200 nautical miles. This was formerly called the *Fishery Conservation Zone.*

Exploitation Pattern The exploitation rates throughout the life of a fish.

Exploitation Rate The probability that a given fish will die during the year because of fishing.

Externality See *crowding externality* and *stock externality.*

F

F See *fishing mortality.*

Fmax The level of fishing mortality (rate of removal by fishing) that produces the greatest yield from the fishery.

FCMA See *Fishery Conservation and Management Act.*

FCZ See *fishery conservation zone.*

FMC- See *fishery management council.*

FMP See *fishery management plan.*

Fecundity A measurement of the egg-producing ability of a fish. Fecundity may change with the age and size of the fish.

Fishery Conservation and Management Act (FCMA) A federal law that created the regional

councils and is the federal government's basis for fisheries management in the EEZ. Also known as the Magnuson Act after a chief sponsor, Senator Warren Magnuson of Washington.

Fishery All the activities involved in catching a species of fish or group of species.

Fishery Conservation Zone (FCZ) The area from the seaward limit of state waters out to 200 miles. The term is used less often now than the current term, *exclusive economic zone.*

Fishery Dependent Data Data collected on a fish or fishery from sport fishermen, commercial fishermen, and seafood dealers.

Fishery Independent Data Data collected on a fish by scientists who catch the fish themselves, rather than depending on fishermen and seafood dealers.

Fishery Management Council (FMC) See *council*

Fishery Management Plan (FMP) A plan to achieve specified management goals for a fishery. It includes data, analyses, and management measures for a fishery.

Fishing Effort See *effort.*

Fishing Mortality (F) A measurement of the rate of removal of fish from a population by fishing. Fishing mortality can be reported as either *annual* or *instantaneous.* Annual mortality is the percentage of fish dying in one year. Instantaneous is that percentage of fish dying at any one time. The acceptable rates of fishing mortality may vary from species to species.

Fork Length The length of a fish as measured from the tip of its snout to the fork in the tail.

G

GLM See *general linear model.*

GSI See *gonosomatic index.*

General Linear Model (GLM) A mathematical formula that relates one biological factor to another. Once a mathematical relationship is established, scientists use the formula to predict one factor over another.

Gonosomatic Index (GSI) The ratio of the weight of a fish's eggs or sperm to its body weight. This is used to determine the spawning time of a species of fish.

Groundfish A species or group of fish that lives most of its life on or near the sea bottom.

Growth Usually an individual fish's increase in length or weight with time. Also may refer to the increase in numbers of fish in a population with time.

Growth Model A mathematical formula that describes the increase in length or weight of an individual fish with time.

Growth Overfishing When fishing pressure on smaller fish is too heavy to allow the fishery to produce its maximum poundage. Growth overfishing, by itself, does not affect the ability of a fish population to replace itself.

H

Harvest The total number or poundage of fish caught and kept from an area over a period of time. Note that landings, catch, and harvest are different.

Head Boat A fishing boat that takes recreational fishermen out for a fee per person. Different from a *charter boat* in that people on a head boat pay individual fees as opposed to renting the boat.

High Grading The discarding of a portion of a vessel's legal catch to have a higher or larger grade of fish that bring higher prices. It may occur in quota and nonquota fisheries.

Histogram A method of showing data in a graph. The data appear as bars running up and down (vertical) or sideways (horizontal).

I

ITQ See *individual transferable quota.*

Incidental Catch See *bycatch.*

Individual Quota Generally a percentage of the total allowable catch (TAC) of a fish stock, allocated to an individual or a vessel. Often an individual quota is transferable and referred to as an Individual Transferable Quota (ITQ).

Industrial Fishery A fishery for species not directly used for human food. An example is menhaden.

Instantaneous Mortality See *fishing mortality, natural mortality,* and *total mortality.*

Intrinsic Rate of Increase (z) The change in the amount of harvestable stock. It is estimated by recruitment increases plus growth minus natural mortality.

Isopleth A method of showing data on a graph which is commonly used in determining yield-per-recruit.

J

Juvenile A young fish or animal that has not reached sexual maturity.

L

Landings The number or poundage of fish unloaded at a dock by commercial fishermen or brought to shore by recreational fishermen for personal use. Landings are reported at the points at which fish are brought to shore. Note that landings, catch, and harvest are different.

Latent Species A species of fish that has the potential to support a directed fishery.

Length Frequency A breakdown of the different lengths of a kind of fish in a population or sample.

Length-Weight Relationship Mathematical formula of the weight of a fish in terms of its length. When only one is known, the scientist can use this formula to determine the other.

License Limitation Legally restricting the number of commercial fishermen licensed to fish. Often a management agency uses this as a means of limited entry.

Limited Entry A program that changes a common property resource like fish into private property for individual fishermen. License limitation and the individual transferable quota (ITQ) are two forms of limited entry.

M

mm See *millimeter.*

M See *natural mortality.*

MEY See *maximum economic yield.*

MRFSS See *marine recreational fishery statistics survey.*

MSY See *maximum sustainable yield.*

Magnuson Act See *Fishery Conservation and Management Act.*

Mariculture The raising of marine finfish or shellfish under some controls. Ponds, pens, tanks, or other containers may be used, and feed is often used. A hatchery is also mariculture but the fish are released before harvest size is reached.

Marine Mammal Animals that live in marine waters and breathe air directly. These include porpoises, whales, and seals.

Marine Recreational Fishery Statistics Survey (MRFSS) An annual survey by the National Marine Fisheries Service (NMFS) to estimate the number, catch, and effort of recreational fishermen. It serves as a basis for many parts of fisheries management plans.

Mark-Recapture The tagging and releasing of fish to be recaptured later in their life cycles. These studies are used to study fish movement, migration, mortality, and growth, and to estimate population size.

Maximum Economic Yield (MEY) This is the total amount of profit that could be earned from a fishery if it were owned by an individual. An open entry policy usually results in so many fishermen that profit higher than opportunity cost is zero. See *economic rent.*

Maximum Sustainable Yield (MSY) The largest average catch that can be taken continuously (sustained) from a stock under average environmental conditions. This is often used as a management goal.

Mean Another word for the average of a set of numbers. Simply add up the individual numbers and then divide by the number of items.

Meristics A series of measurements on a fish, such as scale counts, spine counts, or fin ray counts, which are used to separate different populations or races of fish.

Millimeter (mm) Metric measurement of length that is 1/25 of an inch long.

Model In fisheries science, a description of something that cannot be directly observed. Often a set of equations and data used to make estimates.

Mollusk A group of freshwater and saltwater animals with no skeleton and usually one or two hard shells made of calcium carbonate. Includes the oyster, clam, mussel, snail, conch, scallop, squid, and octopus.

Moratorium The closure of a fishery to participation by new fishermen. Generally, this closure occurs for a specific period of time.

Morphometrics The physical features of fish, for example, coloration. Morphometric differences are sometimes used to identify separate fish populations.

Multiplier A number used to multiply a dollar amount to get an estimate of economic impact. It is a way of identifying impacts beyond the original expenditure. It can also be used with respect to income and employment.

N

NMFS See *National Marine Fisheries Service.*

National Marine Fisheries Service (NMFS) A federal agency—with scientists, research vessels, and a data collection system—responsible for managing the nation's saltwater fish. It oversees the actions of the Councils under the Fishery Conservation and Management Act.

National Standards The Fishery Conservation and Management Act requires that a fishery management plan and its regulations meet seven standards. The seven standards were developed to identify the nation's interest in fish management.

Natural Mortality (M) A measurement of the rate of removal of fish from a population from natural causes. Natural mortality can be reported as either *annual* or *instantaneous*. Annual mortality is the percentage of fish dying in one year. Instantaneous is the percentage of fish dying at any one time. The rates of natural mortality may vary from species to species.

Neritic Refers to fish that live in nearshore waters.

Nursery The part of a fish's or animal's habitat where the young grow up.

O

OY See *optimum yield.*

Open Access Fishery A fishery in which any person can legally participate.

Opportunity Cost An amount a fisherman could earn for his time and investment in another business or occupation.

Optimum Yield (OY) The harvest level for a species that achieves the greatest overall benefits, including economic, social, and biological considerations. Optimum yield is different from *maximum sustainable yield* in that MSY considers only the biology of the species. The term includes both commercial and sport yields.

Overcapitalization A situation in which there is more harvesting capacity than is needed to catch the available fish in an economically efficient manner.

Overfishing Harvesting at a rate greater than that which will meet the management goal.

P

Panel See *advisory panel.*

Pelagic Refers to fish and animals that live in the open sea, away from the sea bottom.

Population Fish of the same species inhabiting a specified area grouped together for management purposes.

Population Dynamics The study of fish populations and how fishing mortality, growth, recruitment, and natural mortality affect them.

Possession Limit The number and/or size of a species that a person can legally have at any one time. Refers to commercial and recreational fishermen. A possession limit generally does not apply to the wholesale market level and beyond.

Predator A species that feeds on other species. The species being eaten is the prey.

Predator-Prey-Relationship The interaction between a species (predator) that eats another species (prey). The stages of each species' life cycle and the degree of interaction are important factors.

Prey A species being fed upon by other species. The species eating the other is the predator.

Profit The difference between revenue from sales of the catch and the cost of fishing.

Primary Productivity A measurement of plant production that is the start of the food chain. Much primary productivity in marine or aquatic systems is made up of phytoplankton, which are tiny one- celled algae that float freely in the water.

Pulse Fishing Harvesting a stock of fish, then moving on to other stocks or waiting until the original stock recovers.

Put and Take Fishery The placing of hatchery-raised fish in waters to be caught by fishermen. There are few marine fisheries that fit this description. Most cases are found in inland streams and lakes.

Q

q See *catchability coefficient.*

Quota The maximum number of fish that can be legally landed in a time period. It can apply to the total fishery or an individual fisherman's share under an ITQ system. Could also include reference to size of fish.

R

RD See *regional director.*

RIR See *regulatory impact review.*

Recreational Fishery Harvesting fish for personal use, fun, and challenge. Recreational fishing does not include sale of catch.

Recruit An individual fish that has moved into a certain class, such as the spawning class or fishing-size class.

Recruitment A measure of the number of fish that enter a class during some time period, such as the spawning class or fishing-size class.

Recruitment Overfishing When fishing pressure is too heavy to allow a fish population to replace itself.

Reef Fish Complex A term used by the Gulf of Mexico Fishery Management Council to describe the many species of fish found around natural reefs, artificial reefs, ledges, and mud lumps. Snappers, groupers, and tilefish are examples.

Regional Director (RD) The person in charge of the National Marine Fisheries Service (NMFS) for a given region. The office of the *Regional Director* for the South Atlantic and Gulf of Mexico states is located in St. Petersburg, Florida.

Regression Analysis A statistical method that estimates any trend that might exist among important factors. An example in fisheries management is the link between catch and other factors like fishing *effort* and *natural mortality.*

Regulatory Impact Review (RIR) The part of a federal fishery management plan that describes the impacts resulting from the plan.

Relative Abundance An index of fish population abundance used to compare fish populations from year to year. This does not measure the actual numbers of fish, but shows changes in the population over time.

Rent See *economic rent.*

S

s See *survival rate.*

SAFE See *stock assessment and fishery evaluation report.*

SEFC See *Southeast Fisheries Center.*

SPR See *spawning potential ratio.*

SSBR See *spawning stock biomass per recruit.*

SSC See *scientific and statistical advisory committee.*

Scattergram A graph that shows how factors relate to each other. This is visual, not statistical, and is used when it is necessary to compare two factors, like fish age and size .

Scientific Assessment Panel A group of biologists, economists, and sociologists put together by a federal fishery management council to review scientific data on the condition of a stock of fish and the interests of the fishermen and seafood processors who use the stock. Panel members generally come from universities and state and federal fisheries agencies.

Scientific and Statistical Advisory Committee (SSC) A group of scientific and technical people giving advice to a council.

Secretarial Management Plan A term used to describe a plan developed by the Secretary of the U.S. Department of Commerce in response to an emergency or a council's failure to act.

Selectivity Te ability of a type of gear to catch a certain size or kind of fish, compared with its ability to catch other sizes or kinds.

Simulation An analysis that shows the production and harvest of fish using a group of equations to represent the fishery. It can be used to predict events in the fishery if certain factors changed.

Size Distribution A breakdown of the number of fish of various sizes in a sample or catch. The sizes can be in length or weight. This is most often shown on a chart.

Slot Limit A limit on the size of fish that may be kept. Allows a harvester to keep fish under a minimum size and over a maximum size, but not those in between the minimum and maximum.

Social Impacts The changes in people, families, and communities resulting from a fishery management decision.

Socioeconomics A word used to identify the importance of factors other than biology in fishery management decisions. For example, if management results in more income fishing, it is important to know how the income is distributed between small and large boats or part-time and full-time fishermen.

Southeast Fisheries Center (SEFC) Headquarters for the scientific staff of the National Marine Fisheries Service (NMFS) in the South Atlantic and Gulf of Mexico states. The center is located in Miami, Florida, with smaller laboratories at several other locations.

Spawner-Recruit Relationship The concept that the number of young fish (recruits) entering a *population* is related to the number of parent fish (spawners).

Spawning Potential Ratio (SPR) The ratio of the egg-producing ability of all the mature fish in a fished stock to the egg-producing ability that would exist if the stock were unfished. An SPR percentage is sometimes used as a target for managing or rebuilding fisheries stocks.

Spawning Stock Biomass The total weight of the fish in a stock that are old enough to spawn.

Spawning Stock Biomass Per Recruit (SSBR) The ratio of the total weight of mature fish in a fished stock to the total weight that would exist if the stock were unfished. Frequently, these percentages are used as target figures for managing or rebuilding fisheries stocks. The percentages may change for different species.

Species A group of similar fish that can freely interbreed.

Sport Fishery See *recreational fishery.*

Standard Length The length of a fish as measured from the tip of the snout to the hidden base of the tail fin rays.

Standing Stock See *biomass*.

Stock A grouping of fish usually based on genetic relationship, geographic distribution, and movement patterns.

Stock Assessment Group A group of scientists, skilled in the study of fish population dynamics put together by a federal fishery management council to review the scientific data on the condition of a stock of fish. The scientists generally come from universities and state and federal fisheries agencies.

Stock Assessment and Fishery Evaluation Report (SAFE) A report that provides a summary of the most recent biological condition of a stock of fish and the economic and social condition of the recreational fishermen, commercial fishermen, and seafood processors who use the fish. The report provides information to the federal fishery management councils for determining harvest levels.

Stock Externality The impact on a nontargeted stock of fish caught when a targeted group of fish is harvested.

Stock-Recruit Relationship See *spawner-recruit relationship*.

Stressed Area An area in which there is special concern regarding harvest, perhaps because the fish are small or because harvesters are in conflict.

Surplus Production Model A model that estimates the catch in a given year and the change in stock size. The stock size could increase or decrease depending on new recruits and natural mortality. A surplus production model estimates the natural increase in fish weight or the sustainable yield.

Survival Rate (s) The number of fish alive after a specified time, divided by the number alive at the beginning of the period.

Sustainable Yield Amount of harvest (yield) that can be removed from a population while allowing the population to perpetuate itself into the future given average environmental conditions.

T

TAC See *total allowable catch*.

TIP See *trip interview program*.

Territorial Sea The area from average low-water mark on the shore out to three miles for the states of Louisiana, Alabama, and Mississippi, and out to nine miles for Texas and the west coast of Florida. The shore is not always the base line from which the three miles are measured. In such cases, the outer limit can extend farther than three miles from the shore.

Total Allowable Catch (TAC) The annual recommended catch for a species or species group. The regional council sets the TAC from the range of the allowable biological catch.

Total Allowable Level of Foreign Fishing (TALFF) The portion of the annual optimum yield of a fishery that will not be harvested by United States vessels.

Total Length The length of a fish as measured from the tip of the snout to the tip of the tail.

Total Mortality (Z) A measurement of the rate of removal of fish from a population by both fishing and natural causes. Total mortality can be reported as either annual or instantaneous. Annual mortality is the percentage of fish dying in one year. Instantaneous mortality is that percentage of fish dying at any one time. The rate of total mortality may vary from species to species.

Trip Interview Program (TIP) A management agency's face-to-face interviewing of commercial fishermen to collect data. Length of trip, location, catch, and other data are collected.

U

Underutilized Species A species of fish that has potential for large additional harvest.

Unit Stock A population of fish grouped together for assessment purposes which may or may not include all the fish in a stock.

V

VPA See *virtual population analysis.*

Virgin Stock A stock of fish with no commercial or recreational harvest. A virgin stock changes only in relation to environmental factors and its own growth, recruitment and natural mortality.

Virtual Population Analysis (VPA) A type of analysis that uses the number of fish caught at various ages or lengths and an estimate of natural mortality to estimate fishing mortality in a cohort. It also provides an estimate of the number of fish in a cohort at various ages.

W

Windfall Profit A one-time gain arising from limiting entry. It comes from the increased value of a license or individual quota when the fishery is limited. It can only be obtained by a fisherman's selling his fishing privilege.

Y

Year-Class The fish spawned and hatched in a given year, a "generation" of fish.

Yield The production from a fishery in terms of numbers or weight.

Yield Per Recruit A model that estimates yield in terms of weight, but more often as a percentage of the maximum yield, for various combinations of natural mortality, fishing mortality and time exposed to the fishery.

Z

z See *intrinsic rate of increase.*

Z See *total mortality.*

Z' See *disappearance.*

ACRONYMS

A	Annual Mortality
ABC	Allowable Biological Catch
AP	Advisory Panel
C/E	Catch Per Unit of Effort
CPUE	Catch Per Unit of Effort
EEZ	Exclusive Economic Zone
EIS	Environmental Impact Statement
ESO	Economics and Statistics Office
F	Fishing Mortality
FCMA	Fishery Conservation and Management Act
FCZ	Fishery Conservation Zone
FMC	Fishery Management Council
FMP	Fishery Management Plan
GLM	General Linear Model
GSI	Gonosomatic Index
ITQ	Individual Transferable Quota
mm	Millimeter
M	Natural Mortality
MEY	Maximum Economic Yield
MRFSS	Marine Recreational Fishery Statistics Survey
MSY	Maximum Sustainable Yield
NMFS	National Marine Fisheries Service
OY	Optimum Yield
q	Catchability Coefficient
RD	Regional Director
RIR	Regulatory Impact Review
s	Survival Rate
SAFE	Stock Assessment and Fishery Evaluation Report
SEFC	Southeast Fisheries Center
SPR	Spawning Potential Ratio
SSBR	Spawning Stock Biomass Per Recruit
SSC	Scientific and Statistical Advisory Committee
TAC	Total Allowable Catch
TALFF	Total Allowable Level of Foreign Fishing
TIP	Trip Interview Program
VPA	Virtual Population Analysis
z	Intrinsic Rate of Increase
Z	Total Mortality
Z'	Disappearance

SUGGESTIONS

Use the form below to send suggestions for other words or terms that should be defined in later editions of this glossary.

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