

**Alaska Groundfish Fisheries
Final Programmatic SEIS**

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ACRONYMS AND ABBREVIATIONS

AAC	Alaska Administrative Code
ABC	Acceptable Biological Catch
ACC	Alaska Coastal Current
AD	Automatic Differentiation
ADCED	Alaska Department of Community and Economic Development
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
AEB	Aleutians East Borough
AFA	American Fisheries Act
AFSC	Alaska Fisheries Science Center
AKAPAI	Alaska Peninsula and Aleutian Islands
AKKO	Alaska Kodiak Region
AKR	Alaska Region
AKSC	Southcentral Alaska
AKSE	Southeast Alaska
ANCSA	Alaska Native Claims Settlement Act
ANHSC	Alaska Native Harbor Seal Commission
AP	Advisory Panel
APA	Administrative Procedure Act
APAI-SP	Alaska Peninsula and Aleutian Islands Shore Plant
APEC	Asia Pacific Economic Cooperation
APICDA	Aleutian Pribilof Island Community Development Association
A-R-S-O	Atka Mackerel-Rockfish-Sablefish and Other Groundfish Species
AYK	Arctic-Yukon-Kuskokwim
B	Biomass Proxy Value
BBEDC	Bristol Bay Economic Development Corporation
BiOp	Biological Opinion
BRD	Biological Research Division
BSAI	Bering Sea and Aleutian Islands
BSP	Bering Sea Pollock
BSP-SP	Bering Sea Pollock Shore Plant
BTLC	Bird Treatment and Learning Center
CS-	Conditionally Significant Adverse
CS+	Conditionally Significant Beneficial
CAFF	Conservation of Arctic Flora and Fauna
CAR	Comment Analysis Report
CBSFA	Central Bering Sea Fishermen's Association
CCAMLR	Convention for the Conservation of Antarctic Marine Living Resources
CDQ	Community Development Quota
CEQ	Council on Environmental Quality
CFEC	Commercial Fisheries Entry Commission
CFIVSA	Commercial Fishing Industry Vessel Safety Act
CFR	Code of Federal Regulations
CFZ	Contiguous Fishing Zone

ACRONYMS AND ABBREVIATIONS (Cont.)

CG	Central Gulf of Alaska
CH	Critical Habitat
CIMMC	Cook Inlet Marine Mammal Commission
cm	Centimeter
cm/sec	Centimeters per Second
CMSA	Consolidated Metropolitan Statistical Area
COAR	Commercial Operations Annual Report
CP	Catcher Processor
CPUE	Catch-Per-Unit-Effort
CV	Catcher Vessel
CVM	Contingent Valuation Method
CVRF	Coastal Villages Region Fund
CWT	Coded Wire Tag
CZMA	Coastal Zone Management Act
°C	Degrees Celsius
DAH	Domestic Annual Harvest
DAP	Domestic Annual Processing
DCED	Alaska Department of Community and Economic Development
DCPL	Daily Cumulative Production Logbook
DDT	<i>Para</i> -dichlorodiphenyltrichloroethane
DFA	Directed Fishing Allowance
DNA	Deoxyribonucleic Acid
DOC	Department of Commerce
DPS	Distinct Population Segment
DSR	Demersal Shelf Rockfish
E	East
EA	Environmental Assessment
EAI	Eastern Aleutian Islands
EA/RIR	Environmental Assessment and Regulatory Impact Review
EBS	Eastern Bering Sea
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EFP	Exempted Fishing Permit
EG	Eastern Gulf of Alaska
EIS	Environmental Impact Statement
EIT	Echo-Integrated-Trawl
EJ	Environmental Justice
ENSO	El Niño - Southern Oscillation
EO	Executive Order
EPA	Environmental Protection Agency
EPAP	Ecosystem Principles Advisory Panel
EPIRB	Emergency Position Indicating Radio Beacons
ESA	Endangered Species Act
ESU	Evolutionary Significant Unit
EVOS	<i>Exxon Valdez</i> Oil Spill
F	Fishing Mortality Rate
FAO	Food and Agriculture Organization

ACRONYMS AND ABBREVIATIONS (Cont.)

FEIS	Final Environmental Impact Statement
FEP	Fisheries Ecosystem Plan
FGCV	Fixed Gear Catcher Vessel
FIM	Fisheries Industry Model
FLAT	Flatfish
FLP	Floating Inshore Processor
FMP	Fishery Management Plan
FMU	Fisheries Management Unit
FOCI	Fisheries Oceanography Coordinated Investigation
FPA	Federal Power Act
FR	Federal Register
FRFA	Final Regulatory Flexibility Analysis
ft	Feet/Foot
FT-CP	Fillet Trawl Catcher Processor
FTE	Full-Time Equivalent
FWCA	Fish and Wildlife Coordination Act
FY	Fiscal Year
G&H	Gut-and-Head
GEF	Global Environmental Facility
GFOP	Groundfish Observer Program
GHL	Guideline Harvest Level
GLM	Generalized Linear Model
GOA	Gulf of Alaska
H&L	Hook-and-Line
HACCP	Hazard Analysis and Critical Control Point
HAPC	Habitat Area of Particular Concern
HT-CP	Head-and-Gut Trawl Catcher Processor
HMAP	Halibut Mortality Avoidance Program
I	Insignificant
IAI	Impact Assessment, Incorporated
ID	Identification
IFQ	Individual Fishing Quota
IMALF	Incidental Mortality of Albatross in Longline Fisheries
INPFC	International North Pacific Fisheries Commission
IPHC	International Pacific Halibut Commission
IRFA	Initial Regulatory Flexibility Analysis
IR/IU	Improved Retention/Improved Utilization
ISO	International Organization for Standardization
ISWG	Interagency Seabird Working Group
IUNC	International Union for Conservation of Nature
IWC	International Whaling Commission
JV	Joint Venture
JVP	Joint Venture Processor
kg	Kilogram
KIB	Kodiak Island Borough
km	Kilometer

ACRONYMS AND ABBREVIATIONS (Cont.)

km ²	Square Kilometers
K-SP	Kodiak Shore Plant
L-CP	Longline Catcher Processor
LCV	Longline Catcher Vessel
LL	Lower Limit
LLP	License Limitation Program
LOA	Length Overall
LP	Linear Programming Constrained Optimization Algorithm
m	Meter
MARPOL	International Convention for the Prevention of Pollution from Ships
mb	Millibar
MCA	Marine Conservation Alliance
mi ²	Square Miles
μM	Micrometer
M	Mortality
mm	Millimeter
MMPA	Marine Mammal Protection Act
MPA	Marine Protected Area
MRA	Maximum Retainable Amount
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSST	Minimum Stock Size Threshold
MSY	Maximum Sustainable Yield
mt	Metric Ton
N	North
NAS SF	National Academy of Sciences Policy Recommendations for Sustainable Fisheries
NEPA	National Environmental Policy Act
NFS	Northwest Food Strategies
NFWF	National Fish and Wildlife Foundation
NIOSH	National Institute for Occupational Safety and Health
nm	Nautical Mile
nm ²	Square Nautical Miles
NMFS	National Marine Fisheries Service
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries	National Marine Fisheries Service
NORPAC	NOAA Fisheries Observer Database
NPAFC	North Pacific Anadromous Fish Commission
NPFMC	North Pacific Fishery Management Council
NPFVOA	North Pacific Fishing Vessel Owner's Association
NPI	North Pacific Index
NPO	North Pacific Ocean
NPOA	National Plan of Action
NPRB	North Pacific Research Board
NRC	National Research Council
NS&T	National Status and Trends Program
NSEDC	Norton Sound Economic Development Corporation

ACRONYMS AND ABBREVIATIONS (Cont.)

NSG	National Standard Guidelines
NTE	Not To Exceed
OCSEAP	Outer Continental Shelf Environmental Assessment Program
OFL	Overfishing Level
OMB	Office of Management and Budget
OPA	Oil Pollution Act
ORCO	Oregon Coast
OSCURS	Ocean Surface Current Simulations
OY	Optimum Yield
PA	Preferred Alternative
PBR	Potential Biological Removal
PCB	Polychlorinated Biphenyl
PCC	Pollock Conservation Cooperative
PCOD	Pacific Cod
P-CP	Pot Catcher Processor
PCV	Pot Catcher Vessel
PFMC	Pacific Fishery Management Council
PICES	North Pacific Marine Science Organization
PLCK	Pollock
POP	Pacific Ocean Perch
PRA	Paperwork Reduction Act
PRD	Protected Resources Division
PRR	Product Recovery Rate
PSC	Prohibited Species Catch
PSG	Pacific Seabird Group
PSMFC	Pacific States Marine Fisheries Commission
PSR	Pelagic Shelf Rockfish
psu	Practical Salinity Unit
PWS	Prince William Sound
QA	Qualitative Analysis
RACE	Resource Assessment and Conservation Engineering
RD	Regional Direction
RFA	Regulatory Flexibility Act
RFMC	Regional Fishery Management Council
RIR	Regulatory Impact Review
ROD	Record of Decision
RPA	Reasonable and Prudent Alternative
RPN	Relative Population Number
RPW	Relative Population Weight
R/V	Research Vessel
S-	Significantly Adverse
S+	Significantly Beneficial
SAFE	Stock Assessment and Fishery Evaluation
SC-SP	Southcentral Alaska Shore Plant
SEBSCC	Southeast Bering Sea Carrying Capacity
SEIS	Supplemental Environmental Impact Statement

ACRONYMS AND ABBREVIATIONS (Cont.)

SEO	Southeast Outside
SE-SP	Southeast Alaska Shore Plant
SFA	Sustainable Fisheries Act
SIAWG	Seabird Inter-Agency Working Group
SoC	Secretary of Commerce
SP	Shore Plant
SPELR	Shoreside Processor Electronic Logbook Report
SPR	Spawning Biomass Per-Recruit
SSC	Scientific and Statistical Committee
SSL	Steller Sea Lion
ST-CP	Surimi Trawl Catcher Processor
STWG	Seabird Technical Working Group
TAC	Total Allowable Catch
TALFF	Total Allowable Level of Foreign Fishing
TCV	Trawl Catcher Vessel
U	Unknown
UL	Upper Limit
U.S.	United States
USGS	U.S. Geological Survey
U.S.S.R.	Union of Soviet Socialist Republics (Soviet Union)
USC	United States Code
USCG	U.S. Coast Guard
USFWS	U.S. Fish and Wildlife Service
USGS/BRD	U.S. Geological Survey/Biological Resource Division
VDE	Voluntary Dockside Examination
VIP	Vessel Incentive Program
VMP	Vessel Monitoring Program
VMS	Vessel Monitoring System
W	West
WAIW	Washington Inland Waters
WG	Western Gulf of Alaska
WPR	Weekly Production Report
WSGP	Washington Sea Grant Program
YDFDA	Yukon Delta Fisheries Development Association

GLOSSARY

abiotic: not living.

acceptable biological catch (ABC): the range of allowable catch for a species or species group set by a scientific calculation of the sustainable harvest level of a fishery; a target reference point that management aims to achieve.

advection: horizontal or vertical movement of a mass of fluid, i.e. air or ocean current.

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.

alcids: small birds that fly with rapid wing beats and use their wings to swim underwater.

Alaska Coastal Current: a persistent flow of buoyant water circumscribing the inner shelf of the Gulf of Alaska shelf over 2000 km from its origin in the southeastern Gulf of Alaska to where it enters the Bering Sea in the southwestern gulf.

Alaska Current: the shallow, highly variable, eastern limb of the counterclockwise-flowing subpolar gyre in the North Pacific

Alaska Stream: the steady, swift current that flows westward approximately 150 km from the coast and reaches to the ocean floor.

albedo: the fraction of light radiation that is reflected by a body, as the moon or a cloud.

alkanes: any of numerous saturated, non-aromatic hydrocarbons; any of a series of open-chain hydrocarbons such as methane and butane.

American Fisheries Act (AFA): enacted 1998, this act requires the determination of whether vessels of 100 feet or greater in registered length comply with the new ownership, control and financing requirements imposed, thereby demonstrating eligibility to receive a fishing endorsement.

amphipods: small crustaceans with flat bodies.

GLOSSARY (Cont.)

anadromous: fish that migrate from saltwater to fresh water to spawn.

anal fin: the fin that lies behind the anus, usually on the back half of the fish.

annelids: long, segmented invertebrates that have a coelom. (e.g., earthworms, various marine worms, and leeches).

anomalous: inconsistent with or deviating from what is usual, normal, or expected.

anoxic: oxygen deficient.

anthropogenic: of or relating to the study of the origins and development of human beings.

anthozoans: sessile marine coelenterates including solitary and colonial polyps; the medusoid phase is entirely suppressed.

apex feeders: those who feed at the top of the food chain.

appendicularia: free-swimming tadpole-shaped tunicate resembling larvae of other tunicates.

aromatic hydrocarbons: a group of over 100 different chemicals that are formed during the incomplete burning of coal, oil and gas, garbage, or other organic substances.

arthropods: invertebrate animals such as crabs that have segmented bodies and jointed appendages, and an exoskeleton.

austral winter: winter in the southern hemisphere.

avian: pertaining to or characteristic of birds.

avifauna: the birds of a region or environment.

GLOSSARY (Cont.)

B: see *biomass*.

B₀: biomass at the starting point of a population at its original or pristine level.

B_{MSY}: the average biomass that would be achieved if fishing continued at a constant fishing mortality rate resulting in the maximum sustainable yield.

barnacle: a marine crustacean with feathery appendages for gathering food, free-swimming as larvae but permanently fixed (as to rocks, boat hulls, etc.) as an adult.

baroclinic: a state in which water surfaces of equal density are influenced by those of equal pressure.

barotropic: a water state in which surfaces of pressure and density coincide at all levels; depth-independent circulation due to changes in surface elevation.

basal metabolic rate: the rate at which heat is given off by an organism at complete rest.

bathyal: refers to organisms or phenomena at depths between 200 & 4000 meters, on the sea bottom; often coincident with the continental slope.

Bathylagidae: Family of fishes in the Class: Actinopterygii; distribution includes the Atlantic, Indian and Pacific Oceans. Physical characteristics include: Adipose fin may be present or absent.

bathylagids: deep-sea smelts.

bathymetric: water depth measurement.

benthic: portion of the marine environment inhabited by marine organisms that live permanently in or on the bottom.

benthic substrate: the base on which an organism lives.

benthypelagic: suspended in the water column near the bottom.

GLOSSARY (Cont.)

benthos: organisms that live on or in the bottom of a body of water.

Bering Sea Gyre: a barotropic, counterclockwise gyre of the Aleutian Basin.

Bering Slope Current: a counter-clockwise flow with an eastern boundary current at the shelf edge

biennial: occurring every second year.

bioaccumulation: an increase in the concentration of a chemical in a biological organism over time, compared to the chemical's concentration in the environment.

biogenic: produced by living organisms.

biomarker: a distinctive usually biochemical indicator of a biological or geochemical process or event.

biomass (*B*): amount of living matter per unit of water surface or volume expressed in unit weight .

biota: all the plant and animal life of a particular region.

biotic: living or related to living units.

biphenyls: a white crystalline hydrocarbon used especially as a heat-transfer medium ($C_6H_5 \cdot C_6H_5$.)

bivalve: having a shell composed of two valves.

boreal: of or located in northern regions.

brash ice: floating ice found between the year's first ice floes and made up of fragments from other ice forms.

bryozoan: one of a phylum of minute, mostly colonial aquatic animals, with body walls often hardened by calcium carbonate and growing attached to aquatic plants, rocks and other firm surfaces.

GLOSSARY (Cont.)

butyltins: organic tin compounds in either single, double, or triple forms and used to inhibit the growth of unwanted organism such as bacteria, algae, and barnacles.

bycatch: harvested species other than that for which the fishing gear was set. Also called *incidental catch*, bycatch is sometimes kept for sale (does not include fish released alive under a recreational catch-and-release program).

C: degrees Celsius.

calanoid (e.g., copepod): large copepod easily recognized by its longer-than-body antennae.

California Current: the eastern limb of the clockwise flowing subtropical gyre in the North Pacific.

cannibalistic: the eating of the flesh of an animal by another animal of the same kind.

caprellid: a species of amphipods commonly known as skeleton shrimp.

carapace: a bony case or shield covering the back or part of the back of an animal as a turtle or crab.

caridean: a group belonging to the crustaceans, commonly known as shrimp.

carrion: dead flesh that is unfit for food.

cartilaginous: composed of cartilage.

catch: the total number or poundage of fish captured from an area over some period of time, including fish that are caught but released or discarded instead of being landed.

catch per unit of effort (CPUE): the quantity of fish caught with one standard unit of fishing effort; e.g. the combination of gear type, gear size, and length of time gear is used. Also used as a measurement of relative abundance for a particular fish.

caudal: at the hind or tail end of the body.

GLOSSARY (Cont.)

caudal fin: the terminal fin, or tail, of a fish.

caveat: an explanation to prevent misinterpretation.

central Pacific Gyre: this gyre is bordered by the southern flowing, cold water California current which runs into the western moving, warm water North Equatorial Current. The North Equatorial Current moves north with the Philippines Current and then northeast into the Kuroshio Current. West winds push the North Pacific current east where it divides at the North American continental plate to form the Alaska Current to the north (part of the North Pacific gyre) and the California Current to the south. This is a clockwise moving gyre.

cessation: end, cease, stop.

cetaceans: aquatic, mostly marine, mammals including whales, dolphins, porpoises, and others that have a torpedo shaped, nearly hairless body, paddle-shaped forelimbs, no hind limbs, one or two nares opening externally at the top of the head, and a flat tail for locomotion.

chaetognath: small free-swimming marine worms with movable curved chaetae on either side of the mouth.

chlordane: a highly chlorinated viscous volatile liquid insecticide ($C_{10}H_6Cl_8$).

chrysene: one of the polycyclic aromatic hydrocarbon compounds formed when gasoline, garbage, or any animal or plant material burns. Usually found in smoke and soot, this chemical combines with dust particles in the air and is carried into water and soil and onto crops.

circumpolar: constantly visible above the horizon.

cladoceran: minute chiefly freshwater branchiopod crustaceans that includes the water fleas.

coastal lowland: a narrow strip of relatively low ground between the sea and the cliffs leading to the plateau with a climate wetter than that of the plateau; with fewer temperature extremes it is more subject to fog.

GLOSSARY (Cont.)

coastal runoff: land-based pollution, i.e., chemicals and other contaminants that make their way into coastal waters.

coccolithophorid: the unicellular marine plant plankton with a calcareous skeleton that form the base of the food chain.

community development quota (CDQ): a federal fisheries program that involves coalitions of communities who have formed six regional organizations. The program allocates a portion of the Bering Sea and Aleutian Island harvest amounts to groups.

concomitant: accompanying, especially in a subordinate or incidental way.

congener: a member of the same taxonomic genus as another plant or animal; something resembling another in nature or action.

continental shelf: a shallow submarine plain of varying width forming a border to a continent and typically ending in a steep slope to the ocean floor.

continental slope: the usually steep slope from a continental shelf to the ocean floor.

control rule: describes a variable over which management has some direct control as a function of some other variable(s) related to the status of the stock.

copepods: a group of small crustaceans, some free-swimming and some parasitic on fish gills or skin.

cottid: member of the family Cottidae, which includes sculpin and bullhead.

covariance: the expected value of the product of the deviations of two random variables from their respective means.

crangonid shrimp: commonly called bay shrimp; there are three species in the Family Crangonidae.

GLOSSARY (Cont.)

critical habitat: a specific area that is necessary for preservation of a threatened or endangered species that may require special protection or management.

crustacean: a group of freshwater and saltwater animals having no backbone, with jointed legs and a hard shell made of chitin.

ctenophore: marine animals superficially resembling jellyfishes but having biradial symmetry and swimming by means of eight meridional bands of transverse ciliated plates.

cumacea: an order of marine crustacea, mostly of small size.

cycloalkanes: alkanes in which at least one of the continuous carbon chains is linked back on to itself in the form of a ring.

davit: a crane that projects over the side of a ship or hatchway and is used for boats, anchors, or cargo.

decapod: crustaceans with five pairs of thoracic appendages one or more of which are modified into pincers, with stalked eyes, and with the head and thorax fused into a cephalothorax and covered by a carapace; cephalopod mollusks with 10 arms.

deep water basin: a collection of water so deep that surface waves are little affected by the ocean bottom; generally characterized as water deeper than one-half the surface wavelength.

demersal: living near the bottom of a water body.

density-dependent mortality: increased risk of death associated with increased population density.

denticulate: fine toothed or serrated.

depredation: to lay waste; to plunder.

depth strata: (also known as depth zone) any of one of the four oceanic environments: the littoral, neritic, bathyal and abyssal zones.

GLOSSARY (Cont.)

detritus: loose material (organic particles) resulting from disintegration.

diatoms: minute planktonic unicellular or colonial algae with silicified skeletons.

dibenzothiophenes: a polynuclear aromatic hydrocarbon; an environmental hazard.

dinoflagellate: chiefly marine phytoplanktonic, usually solitary unicellular flagellates that include luminescent forms and forms that cause red tide.

diurnal: having a daily cycle; occurring in the daytime.

domestic annual harvest (DAH): the domestic annual fishing capacity, modified by other factors (such as economic factors), which will determine estimates of what fishing fleets will harvest.

domestic annual processing (DAP): the amount that will be domestically processed, based not only on physical capacity but on a demonstrated intent and the effects of domestic harvesting, markets, and other fisheries.

donut hole: an area which encompasses approximately 48,000 square miles and comprises 19 percent of the Aleutian Basin or 10 percent of the entire Bering Sea area where the stocks being fished are suspected to straddle or move back and forth across the open area and an area of regulated national jurisdiction.

dorsal: the back of the body.

dorsal fin rays: cartilaginous structures within the dorsal fin.

downwelling: a circulation pattern in which warmer surface waters move down in the water column.

echinoderms: marine animals including starfishes, sea urchins, and related forms.

Echiuroid worm: marine worms that have sensitive but non-retractable proboscis above the mouth.

GLOSSARY (Cont.)

ecosystem: the community of living creatures occurring in an environment.

El Niño Southern Oscillation: an interannual disturbance of the climate system characterized by a periodic weakening of the tradewinds and warming of the surface layers in the equatorial Pacific Ocean every 4 to 7 years.

embayment: a small bay or semi-enclosed coastal water body whose opening to a larger water body is restricted.

endemic: native to a particular country; characteristic of or prevalent in a particular environment.

endocrine system: the system of glands/organs capable of secreting hormones which provide communication in the body

epibenthic: living on the surface of bottom sediments in a water body.

epifauna: invertebrates living on to of the sediment of the seafloor.

epipelagic: the zone of the ocean into which enough light penetrates for photosynthesis.

errantiate: form of the word “errant” meaning to move or wander, usually an irregular motion.

escarpment: a long cliff or steep slope separating two comparatively level or more gently sloping surfaces and resulting from erosion or faulting.

estuary(ies): a water passage where the tide meets a river current.

eunicid: a family belonging to the Polychaetes, characterized by having up to five antennae and pincher-like jaw maxilla.

euphausiid: small, pelagic, shrimp-like crustaceans, e.g., krill.

GLOSSARY (Cont.)

euphotic: constituting the upper layers of a body of water where sufficient light penetrates to permit green plant growth.

ex-vessel: activities that occur when a commercial fishing boat lands or unloads a catch.

exclusive economic zone (EEZ): a zone under national jurisdiction (up to 200-nautical miles wide) within which the coastal State has the right to explore, and the responsibility to conserve and manage, the living and non-living resources.

exogenous: due to external causes; not arising within the organism.

extrapolate: to infer (values of a variable in an unobserved interval) from values within an already observed interval.

extrude: to force out.

F_{MSY} : a continuous fishing mortality rate that results in the maximum sustainable yield.

$F_{\%SPR}$: the fishing mortality rate associated with a stable spawning per recruit level equal to X% of the spawning per recruit level at equilibrium when no fishing has occurred.

faunal: being animal life.

fecundity: the measure of the egg-producing ability of a fish..

filter feeder: an animal that obtains food by filtering organic matter or minute organisms from a current of water passing through some part of its system.

fishery: as defined by the Magnuson-Stevens Fishery and Conservation Act, a fishery is one or more stocks of fish that can be treated as a unit for purposes of conservation and management and that are identified on the basis of geographic, scientific, technical, recreational, or economic characteristics.

fishery management plan (FMP): a plan developed by a regional fishery management council, or by the U.S. Secretary of Commerce, to manage a fishery resource to achieve specified management goals.

GLOSSARY (Cont.)

fishing mortality rate (F): a measurement of the rate of removal of fish from a population by fishing. Expressed as either “annual” or “instantaneous rates;” annual mortality is the percentage of fish dying in one year while instantaneous mortality is the percentage of fish dying at any one time.

fjord: a narrow inlet between cliffs or steep slopes.

fledge: to rear until ready for flight or independent activity.

foraminiferan: marine protozoans usually having calcareous shells that are perforated with minute holes for protrusion of slender locomotors or food gatherers.

forage fish: any fish eaten by larger predatory fish, seabirds, or marine mammals, usually swimming in large schools.

fossil fuel: a fuel (as coal, oil, or natural gas) that is formed in the earth from plant or animal remains.

fry: recently hatched or juvenile fish.

gadoid fish: resembling or related to the cods.

gammarid: a family belonging to the amphipods

gastropods: a large group of mollusks including the snails.

genus (plural, genera): a class or group marked by common characteristics.

gladius: the internal shell, or pen, of cephalopods like squid.

glaucous: of a pale yellow-green or a light bluish-gray or bluish-white color.

gorgonian: an anthozoan with a horny and branching axial skeleton.

GLOSSARY (Cont.)

gradient: the rate of regular or graded ascent or descent; part sloping upward or downward; change in the value of a quantity (temperature, pressure, or concentration) with change in a given variable.

greenhouse gases: gases that contribute to the greenhouse effect by trapping heat within the earth's atmosphere. The chief greenhouse gases are carbon dioxide and water vapor. Other potentially important trace gases are chlorofluorocarbons, methane, ozone, and nitrous oxide.

gregarious: tending to associate with others of one's kind.

groundfish: a species or group of fish that lives most of its life on or near the sea bottom.

guild: a group of species that utilize the same kinds of resources, such as food, nesting sites, or places to live, in a similar manner.

guild diversity: the variation in the number of species that share a common food source.

gyre: a giant circular oceanic surface current.

halocline: a usually vertical gradient in salinity.

harpacticoid copepods: minute crustaceans, often long and cylindrical in shape.

harvest: the total number or poundage of fish caught and kept from an area over a period of time.

holoplanktonic: living in the water column.

harpacticoid: a family belonging to the copepods.

haulout: a resting place.

hydroacoustic: sound waves bounced off the ocean floor.

GLOSSARY (Cont.)

hydrocarbon: an organic compound containing only carbon and hydrogen and often occurring in petroleum, natural gas, coal, and bitumens.

hydroid: of or relating to a hydrozoan; especially resembling a typical hydra.

hyperiid: a family belonging to the amphipods.

ichthyoplankton: fish eggs or larvae.

incidental catch: see *bycatch*.

indigenous: having originated or naturally occurring in a particular region or environment.

individual fishing quota (IFQ): a federal permit under a limited access system to harvest a quantity of fish, expressed by a unit or units representing a percentage of the total allowable catch of a fishery that may be received or held for exclusive use by a person.

infauna: invertebrates living in the sediment of the seafloor.

inflow: the flowing in [of air].

in situ: in the natural or original position or place.

instantaneous mortality: see *natural mortality*.

intertidal: relating to or being the part of the littoral zone above low-tide mark.

intra-annual: occurring during or within a year time span.

invertebrate: any animal lacking a spinal column.

isobath: a line of a map passing through all points of equal depth below water.

GLOSSARY (Cont.)

isomer: one of two or more compounds or ions that contain the same number of atoms of the same elements but differ in structural arrangement and properties.

isopod: a small crustacean with attached eyes and a body composed of seven free thoracic segments each bearing a pair of similar legs.

isotope: two or more species of atoms in a chemical element with the same atomic number and nearly identical chemical behavior but with differing atomic masses and different physical properties.

juvenile: a young fish or animal that has not reached sexual maturity.

kamaboko: white fish filleted and pounded into a paste.

Kamchatka Current: a current which brings water southward from the Bering Sea, where it is associated with the quasi-permanent anticyclonic eddies found close to the western shore.

kinetic energy: energy associated with motion.

kirimi: a fish processing style in which the head and tail are taken off and the guts are left in the fish.

landings: the number or poundage of fish unloaded at a dock by commercial fishermen or brought to shore by recreational fishermen for personal use.

larvaceans: small transparent animals found in marine plankton, e.g., tunicates

License Limitation Program (LLP): a limited access program intended to limit participation in the groundfish fisheries in the Gulf of Alaska and the Bering Sea and Aleutian Islands federal management areas and Bering Sea and Aleutian Islands crab fisheries based on past documented harvests made by each fishermen.

limit reference points: limits (e.g., OFL, MFMT) established by management to be avoided, constrains harvests so that the stock remains within safe biological limits.

GLOSSARY (Cont.)

littoral: of, relating to, or situated or growing on or near a shore. Or, a coastal region, especially the shore zone between high and low watermarks.

M: see *natural mortality*.

macrofauna: small to moderate sized invertebrates living on and in bottom sediments.

macrozooplankton: large, thick, or exceptionally prominent animal life of the plankton.

Magnuson-Stevens Fishery Conservation and Management Act: a federal law that created the regional councils and is the federal government's bases of fisheries management in the EEZ (U.S. Public Law 94-265, as amended through October 11, 1996).

marine mammal: animals that live in marine waters and breathe air directly, i.e., sea lions, porpoises, whales, and seals.

maximum fishing mortality threshold (MFMT): standard determination criteria for determining if overfishing is occurring within a stock; equivalent to OFL in the BSAI and GOA FMPs.

maximum sustainable yield (MSY): the largest average catch or yield that can continuously be taken from a stock under average environmental conditions.

medusae: jellyfish.

meiofauna: benthic animals that can fit a mesh size of 1 millimeter and be retained on a mesh size of 42 micrometers.

Meridional thermal gradient: the vertical (north-south) flow of water of which the surface is made up of warm waters underlain by deep cold waters.

mesopelagic region: relating to oceanic depths from about 600 feet to 3000 feet (200 to 1000 meters).

metabolite: substances which are required as basic raw materials for vital processes, such as glucose in respiration and other metabolic pathways.

GLOSSARY (Cont.)

meteorological regime: circulation air mass.

metric ton: 2,204.62 pounds.

microflora: minute plants not seeable with the naked eye.

micronekton: microscopic free-swimming aquatic animals that move independent of wave and current action.

millimeter (mm): $\frac{1}{25}$ of an inch.

milt: the sperm-containing fluid of a male fish.

minimum stock size threshold (MSST): a standard determination criteria used for determining when a stock is in a overfished condition; usually measured in terms of spawning biomass.

mollusk: an invertebrate animal with a soft unsegmented body usually with one or two hard shells made of calcium carbonate.

molt: to periodically shed hair, feathers, shell, horns, or other outer layer.

morphological: an organisms form and structure.

MSY control rule: a harvest strategy that results in a long-term average catch approximating MSY, enables the use of proxies.

multispecies perspective: a management theory that recognizes the interactions between organisms, for example: predator-prey relationships.

munid crabs: crustaceans belonging to the Family Galathoidae.

myctophids: members of the Family Myctophidae.

GLOSSARY (Cont.)

Myctophidae: deep sea fishes comprising the lantern fishes.

mysids: small, shrimp-like marine crustaceans, the females of which carry their eggs in a pouch beneath the thorax.

naphthalene: a crystalline aromatic hydrocarbon (C₁₀H₈) usually obtained by distillation of coal tar and used especially in organic synthesis.

natal area: area associated with birth.

National Standard Guidelines: seven FMP guidelines and standards required by MSFCMA to identify the nation's interest in fish management.

natural mortality rate (*M*): a measurement of fish deaths from all causes other than fishing such as predation, disease, starvation, and pollution.

nauplius (plural, nauplii): a crustacean larva usually in the first stage after leaving the egg and with three pairs of appendages, a median eye, and little or no segmentation.

nautical mile: 6,076.115 feet or 1,852 meters.

near-shore eddy(ies): inshore waters that run contrary to the current.

Near Strait Inflow: the primary source of inflow in the Bering Sea.

necropsy: an examination of an organism after death to determine the cause of death or the character and extent of changes caused by disease.

necrotic: localized death of living tissue.

nematode: elongated cylindrical worms parasitic in animals or plants or free-living in soil or water.

neoplasia: formation of tumors

GLOSSARY (Cont.)

neritic: region of shallow water adjoining the seacoast.

nocturnal: active at night.

nodal: being or located at or near a node. In a tide area, the point about which the tide oscillates and where there is little or no rise and fall of the tide.

Nor'eastern: a trawl constructed with polyethylene mesh and outfitted with other types of footropes for the Gulf of Alaska, the Aleutian Islands, and the Pacific West Coast shelf surveys, has a 27.2 meter headrope, and a 37.4 meter footrope; the body is 127 millimeter stretched mesh and the codend is 89 millimeter stretched mesh with a 32 millimeter stretched mesh codend liner; floats along the headrope hold the net open vertically.

North Pacific Index: the area-weighted sea level pressure over the North Pacific in the region 30°N to 65°N, 160°E to 140°W.

nuclide: species of atom characterized by the constitution of its nucleus and hence by the number of protons, the number of neutrons, and the energy content.

σ_t : a measure of the density of water, at its current pressure, if it were raised to the surface.

Ocean Current simulations model: ocean simulations models may input climate data, ocean circulation, sea-ice, temperature gradient, nutrient gradient, anthropogenic events and large climatic events (e.g. ENSO) among other information to better understand how the ocean works and predict weather events and possible human impacts on ocean systems (among other uses).

oceanographic: pertaining to the ocean.

offal: the waste or by-product of a process; debris, garbage, etc.

oikopleura: a small pelagic tunicate at the basis of the chordate phylum; larvaceans.

ommatidia: the structural elements forming the compound eye of arthropods, insects, etc.

GLOSSARY (Cont.)

omnivorous: feeding on both animals and vegetables.

ontogeny: the development or course of development of an individual organism.

onuphid: beachworm; a member of the family Onuphidae

optimum yield (OY): the harvest level for a species that achieves the greatest overall benefits, including economic, social, and biological considerations.

ostracods: very small, active, mostly freshwater crustaceans that have the body enclosed in a bivalve shell, the body segmentation hidden, the abdomen rudimentary, and only seven pairs of appendages.

overfished: a stock or stock complex whose size is sufficiently small that a change in management practices is required in order to achieve an appropriate level and rate of rebuilding; a stock is determined to be overfished when it is below the minimum stock size threshold.

overfishing: a rate or level of fishing greater than that which will meet the management goal and that jeopardizes the capacity of a fishery to produce the largest average catch or yield that can continuously be taken under average environmental conditions on a continuing basis.

overfishing level (OFL): a fishing rate that reduces the level of spawning biomass per recruit to some percentage of its original, pristine level; a limit reference point that management seeks to avoid.

overwintering: surviving the winter.

ovoviviparous: producing eggs that develop within the maternal body and hatch within or hatch immediately after being pushed out from the parent.

Pacific decadal oscillations: an El Niño-like pattern (see previous) of Pacific climate variability and persisting for 20 to 30 years with climatic fingerprints most visible in the North Pacific/North American sector.

panmictic: mating randomly.

GLOSSARY (Cont.)

parturition: the action of giving birth to offspring.

pelagic: refers to fish and animals who live in the open sea, away from the sea bottom.

per capita: per unit of population.

perylene: an organic molecule consisting of 20 carbon atoms and 12 hydrogen atoms arranged as five benzene-like rings connected to each other in a plane.

phenanthrenes: a crystalline aromatic hydrocarbon (C₁₄H₁₀) of coal tar isomeric with anthracene.

phyla: primary division of the animal kingdom.

phytoplankton: planktonic plant life.

pinniped: an aquatic carnivorous animal with all four limbs modified into flippers.

piscivorous: feeding on fishes.

planktivorus: feeding on plankton.

plankton: the passively floating or weak swimming animal and plant life of a body of water.

planktonic: of or relating to plankton

pleuronectid: pertaining to the flounder family.

polychaete: chiefly marine annelid worms, i.e., clam worms, usually with paired segmental appendages, separate sexes, and a free-swimming trochophore larva.

GLOSSARY (Cont.)

polychlorinated: PCB - any of several compounds that are produced by replacing hydrogen atoms in biphenyl with chlorine, have various industrial applications, and are poisonous environmental pollutants which tend to accumulate in animal tissues.

polycyclic: having more than one cyclic component, i.e. having two or more rings in the molecule.

polynias: see polynyas.

polynya(s): open water in sea ice.

population: fish of the same species inhabiting a specified area grouped together for management purposes.

predation: the act of preying or plundering; a mode of life in which food is primarily obtained by the killing and consuming of animals.

pre-neoplastic: pre-malignant.

probability density function: a statistical distribution; used in deriving overfishing limits and acceptable biological catch.

procellarid: one of a family of oceanic birds (Procellariid[ae]) including the petrels, fulmars, and shearwaters.

procellariiformes: tube-nosed swimmers, fulmars and albatrosses.

prohibited species catch (PSC): in applicable Bycatch Limitation Zones of the Bering Sea subarea - limits specified for red king crab, *Chionoecetes bairdi* Tanner crab, and *C. opilio* crab; throughout the BSAI - limits specified for Pacific halibut and Pacific herring. Regulations authorize the apportionment of each limit into allowances for specified fishery categories. Seven-and-a-half percent of each limit specified for halibut, crab, and salmon is reserved as a quota for use by the CDQ program.

protease: any of numerous enzymes that hydrolyze proteins.

GLOSSARY (Cont.)

protobranch: a gill structure occurring in bivalves in which gills are small and leaf like with the unmodified appearance occurring in primitive groups.

protozoan: minute cell-less or one-celled animals that often have complex life cycles and frequently are serious parasites to humans and other animals.

protracted spawning: a longer spawning period.

proxy: a substitution; something that is authorized to act in place of another.

pteropods: small mollusks that expand the front lobes of the foot into thin wing-like organs with which they swim.

pyrogenic: caused by or generating heat.

pteropod: holoplanktonic molluscs belonging to the orders of Thecosomata and Gymnosomata. The species have in common that the original foot has developed into a pair of 'wings' (parapodia), increasing the animals' buoyancy and locomotion capacity.

pycnocline: a layer in the water column separating two areas of different density.

quota: the maximum number of fish that can be legally landed in a time period.

radiolarian: spherical marine protozoans having radiating threadlike protrusions for locomotion or food gathering and often a siliceous skeleton of spicules.

radionuclide: a radioactive nuclide.

rebuilding plan: a plan that is designed to recover stocks when they are overfished.

recruit: an individual fish that has moved into a certain class, such as the spawning class or fishing-size class.

GLOSSARY (Cont.)

recruitment: a measure of the weight or number of fish that can enter a defined portion of stock, such as the fishable stock or the spawning stock, during some time period.

reef: a chain of rocks or coral or a ridge of sand at or near the surface of water or within a depth of 20 meters from the surface..

reference points: limits or values that are used to guide management decisions.

regime shift: a transition from one climactic state to another within a period substantially shorter than the lengths of the individual epochs of each of the two climatic states.

regulatory impact review (RIR): the part of a federal fishery management plan that describes the impacts resulting from the plan.

rip (also tide rip): agitation of water caused by the meeting of currents or by a rapid current setting over an irregular bottom. Termed tide rip when a tidal current is involved.

risk averse: avoiding risk.

roe: the eggs of a fish especially when still enclosed in the ovarian membrane.

rookery: the nest, haunt, or breeding ground of a colony, especially of gregarious birds or mammals.

salpa: a transparent barrel-shaped or fusiform free-swimming tunicate that is abundant in warm seas.

satiation: full or excessive satisfaction.

seamount: elevation rising 1000 meters or more from the sea floor and of limited extent across the summit.

sediment: matter that settles to the bottom; material deposited by water, wind, or glaciers.

GLOSSARY (Cont.)

serpulid: a small marine annelid worm which build limey tubes on stones and seaweed and extends a crown of tentacles to feed.

semidemersal: semi-bottom-dwelling.

sessile: permanently attached at the base or foot.

sideboard measures: constraints imposed on a directed fishery that restrict its participation in other directed fisheries.

sill fjord: natural rock barriers occurring at the mouth of a fjord and delineating the extent of the progress of the glacier that carved the fjord.

siphonophores: compound free-swimming or floating pelagic hydrozoans that are mostly delicate, transparent, and colored and have specialized zooids.

spatial dispersion: a movement over space or area.

spawning per recruit (SPR): amount of spawning biomass at a instantaneous fishing mortality rate, influenced by other values including growth, maturity, natural mortality and partial recruitment.

spermatheca: a sac for sperm storage in the female reproductive tract of many lower animals.

spermatophore: a capsule, packet, or mass enclosing spermatozoa extruded by the male and conveyed to the female in insemination.

standard determination criteria: criteria (e.g., MSST, MFMT) used to determine if a stock is in a overfished state, according to the National Standard Guidelines.

stalked ascidians: sea tulips.

steranes: organic molecules with 26 to 30 carbon atoms arranged in four rings.

GLOSSARY (Cont.)

stock or stock complex: a grouping of fish usually based on genetic relationship, geographic distribution, and movement patterns.

stock assessment: a means of estimating fish numbers and predicting how fish populations will respond to harvesting.

Stock Assessment and Fishery Evaluation Report (SAFE): a report that provides a summary of the most recent biological condition of a stock of fish as well as the economic and social condition of the recreational fishermen, commercial fishermen, and seafood processors who use the fish. It is used to determine harvest levels.

stratum: a sheet like mass of sedimentary rock or earth of one kind lying between beds of other kinds; a region of the sea or atmosphere that is analogous to a stratum of the earth.

subarctic: characteristic of, or being regions immediately outside of the arctic circle or regions similar to these in climate or conditions of life.

Subarctic Current: the current which flows eastward from the western Rim of the Pacific Ocean.

sublittoral: benthic region extending from mean low water to a depth of about 200 meters or to the edge of the continental shelf. Situated, occurring, or formed on the aquatic side of a shoreline or littoral zone.

subtidal: the zone that is permanently flooded by tidal water.

surimi: fish product made from inexpensive whitefish and often processed to resemble more expensive seafood (i.e., crabmeat).

Sustainable Fisheries Act (SFA): an amendment to the Magnuson-Stevens Fishery Conservation and Management Act which includes numerous provisions requiring science, management, and conservation action by NMFS.

target reference points: limits and benchmarks (e.g., ABC) to be achieved, but not exceeded, by management.

taxa: a category or group of related organisms.

GLOSSARY (Cont.)

taxonomic: classification of plants and animals according to their presumed natural relationships.

telemetry: the science of automatic data measurement and transmission of data.

teleost: a group consisting of fishes with bony skeletons and rayed fins.

temperate: marked by moderation; not extreme or excessive.

terrestrial: of or related to earth and its inhabitants.

terrigenous: relating to oceanic sediment derived directly from destruction of surface rock.

thermal stratification: horizontal layers of differing densities produced in a lake by temperature changes at different depths.

thermocline: the region in a thermally stratified body of water which separates warmer oxygen-rich surface water from colder oxygen-poor deep water and in which temperature decreases rapidly with depth.

thermoregulation: the maintenance or regulation of temperature, i.e., body temperature.

tide rip: see *rip*.

Tier: each stock or stock complex is categorized into a certain “tier” or level based on the amount of information available for the given stock or stock complex. From these tiers, certain limits are derived using mathematical equations.

tintinnid: marine plankton

topography: the configuration of an earth surface including its relief and the position of its natural and man-made features.

GLOSSARY (Cont.)

total allowable catch (TAC): the annual recommended catch for a species or species group. Set from the range of acceptable allowable catch.

Total Allowable Level of Foreign Fishing (TALFF): that portion of the optimum yield which will not be harvested by domestic vessels. The foreign allowable catch is determined by deducting the expected domestic annual harvest and reserve from the optimum yield (TALFF = OY - [DAH + reserve]).

triennial: occurring every three years.

triterpanes: pentacyclic biological marker hydrocarbons containing between 27 and 35 carbon atoms.

trophic: ecology of or involving the feeding habits or food relationship of different organisms in a food chain.

trophic level: a group of organisms that occupy the same position in a food chain.

trophic guild: a group of species which use similar resources (e.g. insectivorous birds are a trophic guild of birds that eat insects).

tunicate: marine chordate animals with a thick secreted covering layer, a greatly reduced nervous system, a heart able to reverse the direction of blood flow, and only in the larval stage a notochord.

turrid: a family of snails, now reclassified into several subfamilies.

ubiquitous: existing everywhere at the same time; constantly encountered.

µM: micrograms per liter.

uncertainty: a lack of perfect knowledge. Rosenberg and Restrepo (1994) identify five types of uncertainty: 1) measurement error, 2) process error, 3) model error, 4) estimation error, and 5) implementation error.

GLOSSARY (Cont.)

upwelling: the process by which water rises from a deeper to a shallower depth, usually as a result of offshore surface water flow; it is most prominent where persistent wind blows parallel to a coastline so that the resultant Ekman transport moves surface water away from the coast..

uterine cannibalism: while still in the mother's reproductive tract, the first hatchling eats either younger hatchlings or unfertilized eggs to get nourishment.

vertebrate: having a spinal column.

vestigial: sign or evidence of some past thing.

viviparous: producing living young rather than eggs.

voracious: having a ravenous appetite.

vorticity: a swirling motion.

West Wind Drift: (also known as Antarctic Circumpolar Current) the ocean current from west to east through all the oceans around the Antarctic continent.

wind-stress curl: the plot of the energy transferred from the wind to the sea surface.

year-class: the fish spawned and hatched in a given year; a "generation" of fish.

young-of-the-year: fish or animals born in the past year, which have not yet reached one year of age.

zooplankton: plankton composed of animals.