

SHELLFISH KEYWORDS

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Regional Information Report¹ No. 4K99-20

Alaska Department of Fish and Game
Division of Commercial Fisheries
211 Mission Road
Kodiak, AK 99615

February 1999

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SHELLFISH KEYWORDS

INTRODUCTION

The shellfish keywords listed below are commonly used by shellfish managers, researchers, and the industry in their discussions and reports. The definitions provided with the keywords are intended to assist the Board of Fisheries in their deliberations and should not be interpreted as final, legal, or exclusive. This report was originally issued in 1996 and has been re-issued with several modifications: the addition of CDQ group, LLP, terminal molt and a revision of the figures.

3-S management: Management of a fishery based only on **size** limits, an established **season**, and **sex** restrictions; under 3-S management there is no predetermined level of harvest.

ADF&G number: As a condition of delivering or landing of fish or engaging in any commercial fishing activity, a vessel fishing in state waters is required to have a vessel license (Sec. 16.05.490). The vessel license assigns a permanent number to the vessel, often referred to as the ADF&G number.

biodegradable requirements: Pot gear must incorporate an escape mechanism made of cotton twine which rots or a galvanic device which dissolves in salt water. These are used as specified in 5 AAC 39.145 to create an opening in the mesh of lost pots disabling them.

biomass: The amount of animals measured in weight is its biomass.

briefing: A mandatory meeting between ADF&G personnel and the observer to check for necessary equipment and detail specific duties before the observer begins an assignment on a vessel trip (5 AAC 39.143 (b)).

brood year: The year eggs were fertilized is considered the brood year. For Bristol Bay red king crab, a seven year lag occurs between egg fertilization and the recruitment to mature size of the resulting offspring.

brown king crab: A commercially valuable species, *Lithodes aequispina*, found on the slopes of the continental shelf of most Alaskan waters. Brown king crab's marketing name is **golden king crab**.

BSAI: Bering Sea/ Aleutian Islands

buoy sticker or tag: In fisheries where the number of pots per vessel is limited, (for example, 5 AAC 34.125 (g)), the Department issues stickers or tags which must be fastened to the buoys during the fishery in order to control the actual number of pots used by the fisherman.

bycatch: Species caught incidental to the targeted animals are known as bycatch. Prohibited bycatch species (halibut, crab, salmon, etc., also known as **prohibs**) must be immediately discarded at sea. Bycatch is also known as **incidental catch**.

carapace: The main part of the crab shell which covers the body of the crab (Figure 1). **Carapace length** is the biological measurement used to measure king crabs (Figure 2). **Carapace width** is the biological measurement for Tanner and Dungeness crabs (inside the spines) and the legal measurement for all crabs (outside the spines) (Figure 3).

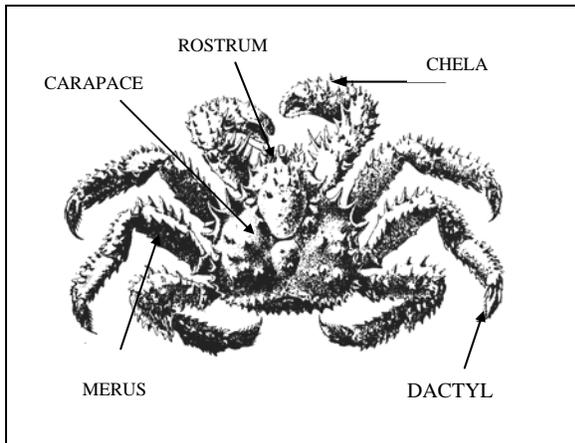


Figure 1. Selected parts of the king crab anatomy, adapted from Dawson and Yaldwyn, 1985.

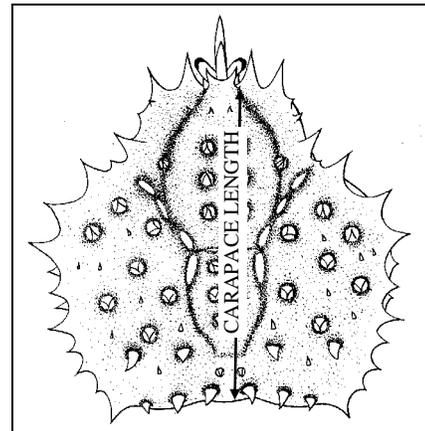


Figure 2. Carapace length, adapted from Marukawa, 1933.

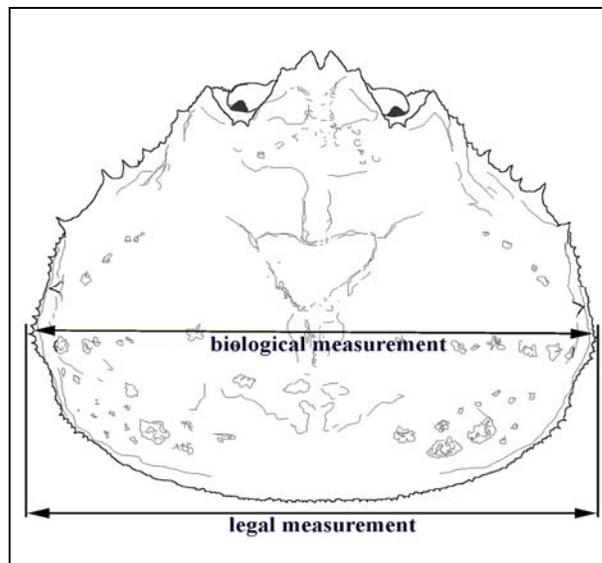


Figure 3. Carapace width measurements shown on a Tanner crab, adapted from Jadamec et al, 1999.

catch: A quantity of animals caught by man, also known as **yield** or **harvest**. It can be measured in either in numbers or weight.

catcher processor: A fishing vessel capable of processing its catch on board.

certified observer: A person that has obtained an observer trainee permit and completed all trainee requirements as specified by 5 AAC 39.143 (f) may then become certified to observe shellfish harvest on board a vessel at sea.

CDQ (Community Development Quota): The Magnuson/Stevens Fisheries Act provided for the crab CDQ fisheries. Those fisheries are Bristol Bay red king crab, Norton Sound red king crab, St. Matthew blue king

crab, Pribilof red and blue king crab, and the Bering Sea *Chionoecetes bairdi* and *opilio* Tanner crab fisheries. Allocation of the above fisheries to the CDQ groups is a percent of the total harvest, in 1998 it was 3.5%, in 1999 the allocation will be 5% and in 2000 and beyond it will be 7.5%. There are 57 communities along the Bering Sea eligible for the CDQ program. These villages aligned into six CDQ organizations and are collectively referred to as CDQ groups: Aleutian Pribilof Island Community Development Association (APICDA), Bristol Bay Economic Development Corporation (BBEDC), Central Bering Sea Fishermen's Association (CBSFA), Coastal Villages Regional Fund (CVRF), Norton Sound Economic Development Corporation (NSEDCC), and Yukon Delta Fisheries Development Association (YDFDA).

chela: (key-lah) A crab claw (Figure 1). The **chela height** can be used to establish the maturity of some crab species. (Figure 4).

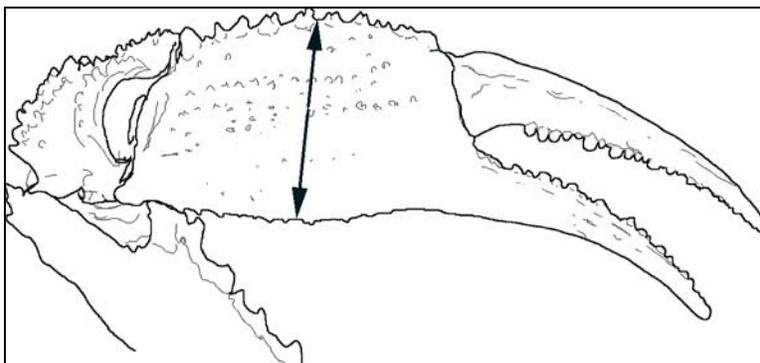


Figure 4. Chela height of a Tanner crab, adapted from Jadamec et al. 1999.

commissioner permit: A permit issued by the commissioner of ADF&G to regulate shellfish fisheries for which there are few established regulations. The permits can specify gear, area, season, size, observer, and other requirements. Regulations specify conditions for commissioner permits for *Lithodes cousei* (5 AAC 34.082), *Chionoecetes tanneri* and *C. angulatus* (5 AAC 35.082), and other miscellaneous shellfish including octopi, squid, Korean hair crab, sea urchins, sea cucumbers, sea snails, coral and other marine invertebrates (5 AAC 38.062).

contractor: Contractors are employers of the observers required in the various shellfish fisheries. They arrange for training and provide logistical support to place their observers on the vessels requesting them. The contractors are paid by the vessels and they in turn pay the observers.

Council: As established by the Magnuson Act, regional councils were set up to establish regulations for federal fisheries. Alaska is under the jurisdiction of the North Pacific Fisheries Management Council (NPFMC), commonly referred to as the "Council".

C/P: Catcher/Processor.

CPUE: Catch Per Unit Effort is a measure of fishery performance. CPUE in crab fisheries commonly refers to the number of legal crab captured per pot.

crab pots: A portable structure designed and constructed to capture and retain fish and shellfish alive in the water (5 AAC 39.105 (d 11)). Depending on the fishery, the pots may be configured as single pots with a buoy setup for each pot (Figure 5), or longlined with a buoy setup on either end of a string of pots (Figure 6).

The various crab pots have definitions established by regulation:

King crab pot: A pot that is no larger than 10 feet long by 10 feet wide by 42 inches high with rigid tunnel eye openings that are a minimum of five inches in one dimension and tunnel opening perimeters that individually

are larger than 36 inches or a pot that is no larger than 10 feet long by 10 feet wide by 42 inches high that tapers inward from its base to a top consisting of one horizontal opening of any size (5 AAC 34.050 (f)). King crab pots in the Kodiak, Alaska Peninsula, and Bristol Bay Statistical Areas and the Pribilof District of the Bering Sea Area must have at least 1/3 of one vertical surface of the pot composed of 9" stretched mesh webbing.

Tanner crab pot: Tanner pots are defined the same as the king crab pots, except that the tunnel eye openings are a maximum of five inches in one dimension with a perimeter larger than 36 inches. In the Bering Sea District, a Tanner crab pot may not have tunnel eye openings on the vertical side of the pot that exceed three inches in height. (5 AAC 35.525 (k)).

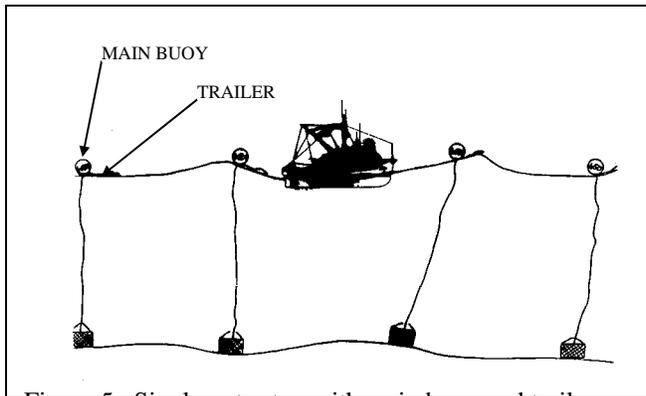


Figure 5. Single pot setup with main buoy and trailer buoy designated.

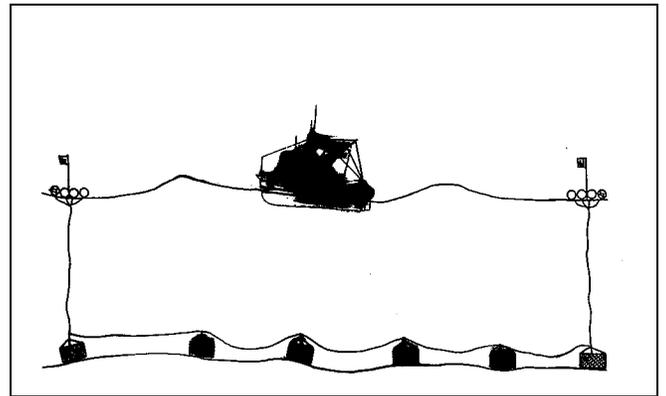


Figure 6. Longline pot setup.

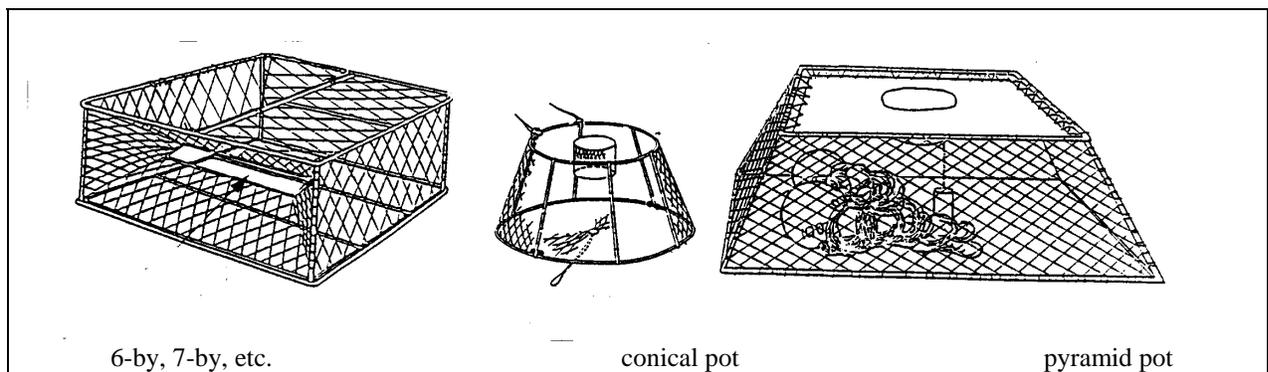


Figure 7. King and Tanner crab pots with tunnel eye illustrated. The term 6-by, for example, is commonly used to describe a pot 6 feet by 6 feet square (and a maximum of 42 inches in height).

deadloss: Crab processors will only purchase live crabs. Any crabs “dead on arrival” at the processor are called deadloss and must be recorded on the fish ticket separately from live crabs. Deadloss is typically deducted from the GHL.

debriefing: A meeting between ADF&G personnel and the onboard observer at the end of a fishing trip where the completed data forms are turned in and checked, and various aspects of the fishery and the just finished observer trip are discussed.

decertification: Under certain criteria, an observer may have his certification revoked and therefore no longer be eligible to be employed as an onboard observer (5 AAC 39.143).

deck load: With excellent fishing conditions, a boat may catch more product than will fit in the fish hold below deck, and will resort to loading the deck as well before delivering. Then the boat will come in with a deckload. Deckload may also refer to crab pots carried on the deck of a boat.

deep water Tanner crab: Relatively new fisheries in Alaska, the deep water tanners, *Chionoecetes tanneri* and *C. angulatus* resemble the better known “Tanner crab”, *C. bairdi*, but are somewhat smaller with thinner legs. Commercially, they occur at depths of 250 to 400 fathoms.

delivery time: The period of time from the closure of the fishery until a vessel is at its chosen delivery point.

directed fishery: This term means different things depending upon which fishery it is referring to. The federal government has a published definition of directed fishing as it applies to the groundfish fishery: Any fishing activity which results in the retention of more than the maximum allowable bycatch of a species (50 CFR 672.2). It is more informally used in state shellfish fisheries to describe fishing activities which target a certain shellfish species within the framework of established regulations.

district: In the shellfish regulations, the state is divided into areas, districts, and sections. For example, in the Tanner crab fishery, the Northeast Section is part of the Kodiak District which is part of Statistical Area J (Westward) (5 AAC 35.500-505).

donut hole: An area of international “high seas” in the Bering Sea completely surrounded by the waters claimed by the United States and Russia.

dredge: Scallop vessels use dredges, usually two at a time. The dredge is a rigid metal frame with a cutter blade that digs into the bottom and scoops the scallops into a bag made of metal rings.. For weathervane scallops the minimum ring size is 4 inches which allows the escape of the smaller scallops (5 AAC 38.076 (f 1)).

effective spawning biomass: The estimated biomass of mature females that can be mated by available mature males.

EEZ: Exclusive Economic Zone, Established by the Magnuson Act as the Zone outside the 3-mile state territorial sea to the 200-mile limit claimed by the United States.

Emergency Order: An emergency order or **E.O.** gives the Commissioner of ADF&G the force of law to open or close seasons or areas, or to change weekly closed periods on fish and game, under criteria established by the Board of Fisheries or Game (AS Sec. 16.05.060).

escape mechanism: Pot gear must incorporate an escape mechanism made of cotton twine which rots or a zinc device which dissolves in salt water. These are used as specified in 5 AAC 39.145 to create an opening in the mesh of lost pots that disables them. Other mechanisms include **escape rings** and **escape panels** of large mesh incorporated into the walls of the crab pots allowing undersize male crab and females to exit the pot.

exclusive registration area: A vessel registered for a fishery in an exclusive registration area may not register for that fishery in any superexclusive registration area or in any other exclusive area during that registration year.

exploitation rate: The proportion that is harvested from any defined segment of the stock. For example, “legal exploitation rate” is the proportion of legal-sized crabs that are harvested.

fathom: a nautical term for a depth of six feet.

floating processor: A ship which can process seafood at sea (usually in a protected anchorage), but does not catch the product itself.

FMP: **F**ishery **M**anagement **P**lan, the Board of Fisheries may implement by regulation fishery management plans to provide the ADF&G with guidelines in managing the various subsistence, commercial, sport and personal use fisheries around the state, for example the Alaska Scallop Fishery Management Plan (5 AAC 38.076). In addition the “Council” may pass a federal FMP for fisheries which occur jointly in federal and state waters, defining the role of the state and federal government in managing these fisheries. This has been done for Bering Sea/Aleutian Islands king and Tanner crab and the scallop fishery statewide.

F/P: **F**loating **P**rocessor

ghost fishing: The capture and retention of animals in lost gear.

golden king crab: A marketing name for brown king crab.

GHL (quota): **G**uideline **H**arvest **L**evel.

Guideline Harvest Level: Based on preseason surveys or historic harvest information, ADF&G may issue a GHL for a fishery. These are commonly referred to as quotas, however GHL’s are only as stated, “guidelines”, and are intended primarily for planning purposes. They may be adjusted based on in season fishery performance.

handling mortality: The death of crabs due to being caught and discarded back to the sea is known as handling mortality. The proportion of crabs caught and discarded back to the sea that die due to handling is the **handling mortality rate**.

harvest: The portion of a population taken by man, also known as **catch** or **yield**, measured as weight or numbers of individuals.

high impact emerging fishery: If a fishery increases above a low sporadic level, more than one user group is interested in harvesting the resource, or the harvest level is approaching an unsustainable level and the BOF has not already established comprehensive regulations for the fishery, the ADF&G commissioner may declare it a “high impact emerging fishery”. At this point the fishery would close until the Department establishes an interim management plan and regulations consistent with that plan. The Department would also petition the board to consider the interim plan and regulations at its next meeting (5 AAC 39.210).

incidental catch: Another term for **bycatch**.

inseason management: ADF&G fishery managers will often rely upon information gathered as a fishery progresses such as CPUE, weather and tide conditions, and actual numbers of vessels fishing to make inseason management decisions.

LBA: **L**ength-**b**ased **a**nalysis

legal size: The minimum size of an animal that may be retained as set by regulation.

length-based analysis: A computer model of a population in which abundance is estimated by analyzing size frequency or abundance data from annual assessment surveys, commercial catch sampling, and tagging information. The carapace **length** of king crab is used in the model. While it is actually the carapace **width** of Tanner crabs considered, the method is still referred to as LBA.

LLP: License Limitation Program, a “Council” program to reduce the number of vessels eligible to fish Bering Sea crab.

lost gear: For a variety of reasons, crab pots may end up as lost gear: Buoys may be severed by a passing boat or by being frozen into the ice pack. Trawl gear can “catch” the pots and sever their lines and/or drag them from their known locations. The term lost gear in a report could refer to the number of pots lost or the rate of loss.

main buoy: The buoy attached to the line running down from the surface of the sea to the pot on the sea floor (See Figure 5).

mature male harvest rate: The proportion of mature male crabs that are harvested, currently set at 20% of the mature male abundance for Bristol Bay red king crabs.

maximum legal harvest rate: The highest allowed harvest rate of legal male crabs, currently set at 60% for Bristol Bay red king crab.

merus: The largest segment of the crab leg, near the body, see Figure 1.

molt: Crabs and shrimp can increase in size only by shedding their hard shells (exoskeleton) and expanding during a soft period in a process known as molting. It takes about two weeks for the new shell to harden. Mature crabs will typically molt no more than once a year while younger animals may molt more frequently.

National Marine Fisheries Service: A federal agency in the Department of Commerce, with responsibility for managing fish resources in the EEZ, except where delegated to the state. Also known as **NMFS**, the agency conducts the annual Bering Sea crab survey and issues preliminary GHL numbers for the area.

new shell: A crab shell that is less than a year since its last molt, with few or no scratches, sharp dactyli (leg tips, see Figure 1) and no or little growth of epifauna (ie, barnacles) on the shell.

NMFS: (pronounced NYMPHS) See National Marine Fisheries Service.

non-exclusive registration area: A vessel may be registered for a fishery in one or more nonexclusive registration areas and one exclusive area, but then not for any superexclusive area during one registration year (except see 5 AAC 34.020 (a 2))

non-pelagic trawl: A non-pelagic trawl net fishes in contact with the sea bottom, and is therefore restricted from operating in the numerous protected areas set out in 5 AAC 39.164.

old shell: A crab which has skipped a molt as indicated by the scratches on the shell, worn spines, growth of epifauna such barnacles, and perhaps missing limbs, also known as “**skip molt**”.

optimum yield: A catch level that balances a maximum catch with a stable catch over the long term would be considered the optimum yield for a fishery.

overall length: A measurement of vessel length for crab vessels, the state uses the federal definition: the horizontal distance, rounded to the nearest foot, between the foremost part of the stem and the aftermost part of the stern, excluding bowsprits, rudders, outboard brackets and similar fittings or attachments. (Code of Federal Regulations, Shipping 46 CFR 69.9)

pelagic trawl: A trawl net or its doors which does not operate in contact with the bottom, and does not have any devices such as chafing gear, rollers, or bobbins which might protect it from contact with the bottom

PNCIAC: The Pacific Northwest Crab Industry Advisory Committee is the only advisory committee located outside the state of Alaska. This Seattle committee was mandated by the North Pacific Management Council as part of the Bering Sea/Aleutian Islands Fisheries Management Plan (BSAI FMP) with the purpose of providing non-residents access to the Board of Fisheries regulatory process. A substantial non-resident fleet based in the Pacific Northwest fishes for crabs in the Alaskan waters covered by the BSAI FMP.

population: A group of inter-breeding animals that inhabit a particular locality, also known as a **stock**. Population levels may be expressed in numbers or weight (biomass).

pot storage: By following certain legal requirements (see for example 5 AAC 34.050 (c)) a crab fisherman may store gear in the water, sometimes this is also called “**wet pot storage**”. Specific pot storage areas have been established (see 5 AAC 35.525 (c 2)).

pre-recruit crab: A male crab which has not yet reached legal size. A pre-recruit I would be one year away from obtaining legal size, assuming an annual molt. A pre-recruit II would be two years away from legal size.

prohib: Prohib is an abbreviation of prohibited species. For example, halibut are a prohib on a crab boat.

PSC: Prohibited Species Catch: A limitation on the allowable bycatch of salmon, steelhead, herring, halibut, and king and Tanner crab in the Bering Sea/Aleutian Islands groundfish fishery.

recruit crab (legal): A male crab that has reached legal size as a result of a molt this year.

recruitment: Addition of new individuals to the population by reproduction, often restricted to mean the addition of breeding individuals, but also may mean the addition of legal-sized crab or any defined size-class or stock component.

registration: Before operating in a registration area, a fishing vessel owner or authorized agent must complete a registration for that particular area and species. A registration is not valid until the vessel is inspected to insure no product is already onboard. This inspection is commonly known as a “tank check”.

registration area: The waters off Alaska are divided by regulation into statistical areas. (not the same as the statistical areas used for catch reporting on fish tickets). These statistical areas are divided into registration areas in the state territorial waters and the “adjacent seaward biological influence zone” which extends out 200 miles, but these statistical areas are commonly referred to simply as registration areas in both state and federal waters. Registration areas have been established in the Dungeness, Shrimp, scallop, king crab, and Tanner crab fisheries. The areas are not necessarily the same for the various fisheries.

reproductive potential: The most productive level of reproduction possible for a population is called its reproductive potential.

robust harvest strategy: A management strategy which works well inspite of uncertainties about potentially important factors such as handling mortalities, stock-recruitment relationships, natural mortality, etc.

shore based processor: An on shore factory for processing seafood that buys its product from catcher boats.

size limit: The minimum size at which an animal may be retained.

skip molt: A crab that did not molt in the last year, also known as “**old shell**”.

soak time: A baited pot is placed on the sea bottom for a period of time before being retrieved allow the target animals to find and enter the pot. This is called the “soak time”. A pot retrieval is commonly called a “pot lift” or “pot pull”.

snow crab: Formerly, snow crab referred to all Tanner crabs (*Chionoecetes* sp.) but in recent years it has generally become more restricted to mean only “opilio” crab, *Chionoecetes opilio*.

state waters: By state definition, waters of Alaska means the internal waters of the state including rivers, streams, lakes and ponds, the tidal zone of the state from mean higher high water to mean lower low water, and those waters extending three miles seaward of the baseline.

statistical area (for catch reporting): The state is divided into blocks 30’ of latitude by 1° of longitude in offshore waters, and smaller irregular areas inshore which are used as catch reporting areas for shellfish catches. A fisherman must report on his fish tickets which statistical area(s) his catch came from. (See also registration area).

stock: Also known as a **population**, a stock is a group of inter-breeding animals which inhabit a particular area. A **stock collapse** would be the decline of a stock abundance to a level that a rebound in abundance is uncertain

stock-recruitment relationship: The relationship between a spawning population and the corresponding number of offspring produced that survive to reach maturity.

super-exclusive registration area: A vessel registered for a super-exclusive registration area may not register for that fishery in any other registration area during that registration year.

tank check: Before a fishing registration is valid, a vessel must be inspected to insure there is no product on board. This is known as a “tank check” or “**tank inspection**”.

Tanner crab: Commonly refers to *Chionoecetes bairdi*, a valuable species which occurs in commercial quantities from the Bering Sea to Southeast Alaska. Sometimes all crab of the genus *Chionoecetes* are called Tanner crab including *C. bairdi*, snow crab *C. opilio*, and deep water Tanner crabs, *C. tanneri* and *C. angulatus*

terminal molt: The hypothesis that members of the *Chionoecetes* genus (See above) cease molting upon reaching maturity. Generally accepted for females, it is still the subject of debate in males.

threshold: Population abundance at or below which a fishery remains closed.

trailer buoy: Attached to the main buoy by about a ten foot line, the trailer buoy is grabbed by a crew member on deck and is used to retrieve the main buoy and the pot. Sometimes the trailer buoy is comprised of several buoys, one being a solid foam, puncture-resistant “sea lion buoy” (see Figure 5).

trawl: A conical-shaped net that is towed through the water for catching fish or shellfish. The net accumulates its catch in the closed, small end usually called the cod end.

Yield: Yield is the portion of a population taken by man, also known as **harvest** or **catch**, measured in weight or numbers of individuals.

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