

ARTICLES

THE DUNGENESS CRAB FISHERY Around Kodiak, Alaska

By Robert M. Meyer*

Alaska seiners and power barges form the bulk of the fleet that fishes for Dungeness crabs in Kodiak waters from May to October. Crews normally number three men who may set, pull, and reset over ten 30-pot strings a day in shallow, near-shore waters. The pots are baited with herring, clams, or squid. As each pot is pulled, the catch is placed in tanks filled with circulating sea water to insure live delivery to the processing plants. The crabs are usually butchered, cooked, and frozen at the plant and are shipped south for further processing. Some of the better crabs are processed whole.

Dungeness crabs are abundant in the waters surrounding Kodiak Island. The fishery usually is conducted in bays around the island and along the mainland side of Shelikof Strait. But in 1967, fishing was concentrated on the rich grounds off the Trinity Islands just south of Kodiak Island; more than 4 million pounds were harvested there.

In 1966, because of lack of effort, only 300,000 pounds of Dungeness crabs had been taken on the Trinity Islands grounds; in 1965, 2 million pounds were harvested.

Weather Controls Fishery

The fishery around Kodiak Island is controlled by weather, rather than by regulations, because it is carried out in shallow water--5 to 20 fathoms. Fishermen must wait for the passing of the winter storms before they set their crab pots; otherwise, the storms would sweep the pots away or bury them in the sand. A few fishermen begin prospecting for crabs about the first of May and, by month's end, fishing is generally in full swing. The peak is reached in July. In some areas, it may continue until September or October, when fall storms force the boats to leave the fishing grounds.

VESSELS AND GEAR USED

Two types of vessels are used in the Dungeness crab fishery around Kodiak Island--Alaska salmon seiners (fig. 1) and power barges.

*Biological Technician, BCF Gibson Cove Facility, Kodiak, Alaska.



Fig. 1 - Alaska salmon seiner converted to fish for Dungeness crabs around Kodiak Island.

The seiners carry 3-man crews. The holds are fitted with tanks through which sea water is circulated to keep crabs alive until they reach the processor (fig. 2).

The power barges also carry 3-man crews and are fitted with sea-water tanks. Currently, they are the most popular vessels for fishing crabs in western Alaska waters because they can hold more crabs, accommodate more gear, and fish in more adverse conditions than the smaller seiners. The barges are about 87 feet long; their barge size makes it profitable to run the 24 or even 36 hours to the distant crab grounds of Chirikof Island



Fig. 2 - Dungeness crabs in tank filled with circulating sea water.

and Chignik Bay. In 5 trips in June 1967, for example, one barge brought over 300,000 pounds of crabs into Kodiak. This was a greater catch than the combined catch of all other Dungeness crab boats fishing in the area during June.

The principal gear in the Dungeness crab fishery is a round pot. The pots are 42, 48, or 60 inches in diameter. They are constructed of $\frac{3}{4}$ -inch round steel stock with 2 pieces of $1\frac{1}{2}$ -inch stock welded to the bottom for ballast (fig. 3). The pot frame is wrapped with rubber strips cut from inner tubes. Then it is covered with stainless steel wire woven in a 4-inch stretch mesh. The rubber insulator between the stainless steel mesh and the iron of the pot frame prevents disintegration by electrolysis. Each pot contains a 4-inch escape ring, and two 8- by 4-inch oval tunnels with triggers that close the tunnels so the large crabs cannot escape. A small ring, generally welded to one pot frame member near the top of the pot, allows sublegal size crabs to escape. The crabs are removed and the bait cans changed through a door on the top of the pot. This door is made of a



Fig. 3 - Dungeness crab pots (40 inches in diameter) stacked on deck of power barge.

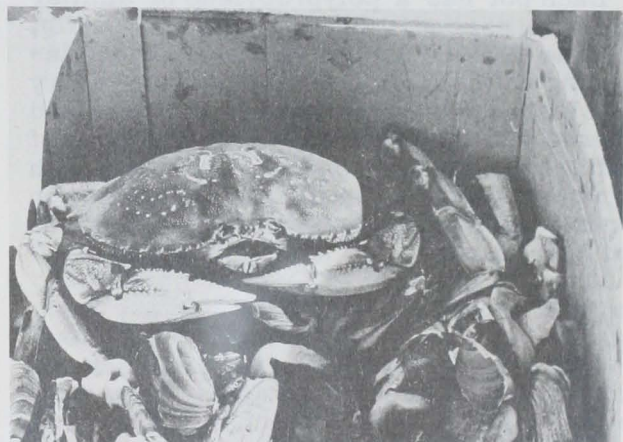


Fig. 4 - Dungeness crabs in box of razor clams. The clams are used as bait in the crab pots.

stainless steel rod one-fourth to three-eighths of an inch in diameter. The door is hinged at each end and locked in the closed position with rubber straps and hooks.

The pots are baited with razor clams (fig. 4), squid, or herring that are kept frozen on board the boat and thawed just before use. Razor clams are crushed before being put into the bait can; American squid are used whole; the larger Japanese squid are cut into five or 10 pieces; and herring are cut into pieces 1 or 2 inches long. The bait is held in stainless steel louvered bait cans (fig. 5) 7 inches in diameter and 4 inches deep. They have hinged tops and are attached inside each pot with stainless steel hooks and rubber straps.



Fig. 5 - Crewman attaching bait can in Dungeness crab pot (60 inches in diameter).

Each pot has a polypropylene or similar line with a plastic foam buoy attached (fig. 5). The line is 10 to 20 fathoms long, depending on the depth to be fished. The buoy is 18 inches long by 4 inches in diameter and tapered at the bottom end to reduce chances of fouling by kelp. The buoys and lines must both be dipped periodically in a chlorine solution to remove fouling organisms, primarily algae and hydrozoans.

METHOD OF FISHING

Just before the fishing gear is set, the skipper selects a course and sets the vessel's autopilot. It is important that the boat be maintained on a straight course to facilitate the recovery of pots in rough or foggy weather. As the setting of gear begins, the buoy line and buoy of the first pot and a colored float used to mark the end of the string of pots are trailed behind the boat. At word from the skipper, the first pot is pushed overboard. The next pot and its line and buoy are carried to the rail. The process is repeated until the last pot of the string, also marked with a colored float, is set. A string may contain 30 to 60 pots. Each boat fishes several strings. These usually are set parallel to each other, and approximately parallel to the beach in 5 to 20 fathoms.

An efficient crew can lift and reset over 300 pots in a 10-hour day. In good weather, 2 deck hands can pick and reset more than 60 pots in an hour. To attain this rate, an assembly-line approach must be used in handling the gear. The boat is brought along-



Fig. 6 - Crab pot buoy and line being hooked by crewman in preparation for hauling pot aboard. Plastic garbage can shown holds chlorine solution in which buoy and line are dipped to remove fouling organisms.

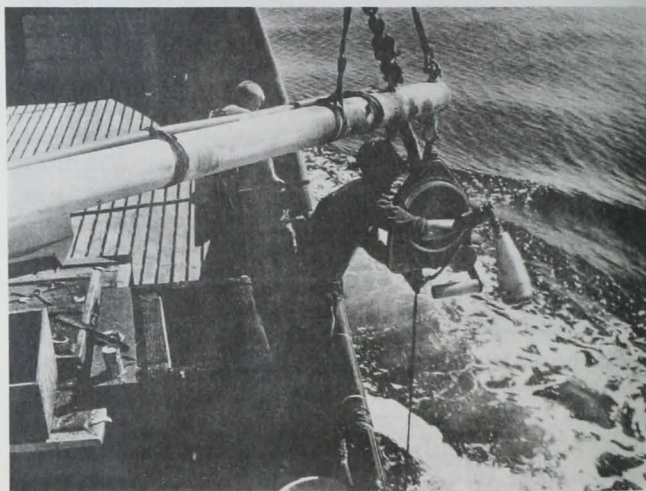


Fig. 7 - Crewman placing line attached to crab pot on the power block so pot can be hauled aboard.

side the buoy to be retrieved. The line is brought on board with a boat hook (fig. 6). It is put in a hydraulic power block mounted on the end of a boom (fig. 7). The boom is lowered so the line can be set in the block, and then is raised so the pot can be swung aboard the boat (fig. 8, facing p. 1) and emptied into the sorting box (fig. 9). One man hauls the pot by keeping a strain on the line, while the other man fills a bait can and sorts the previous catch. After the pot is aboard, the catch

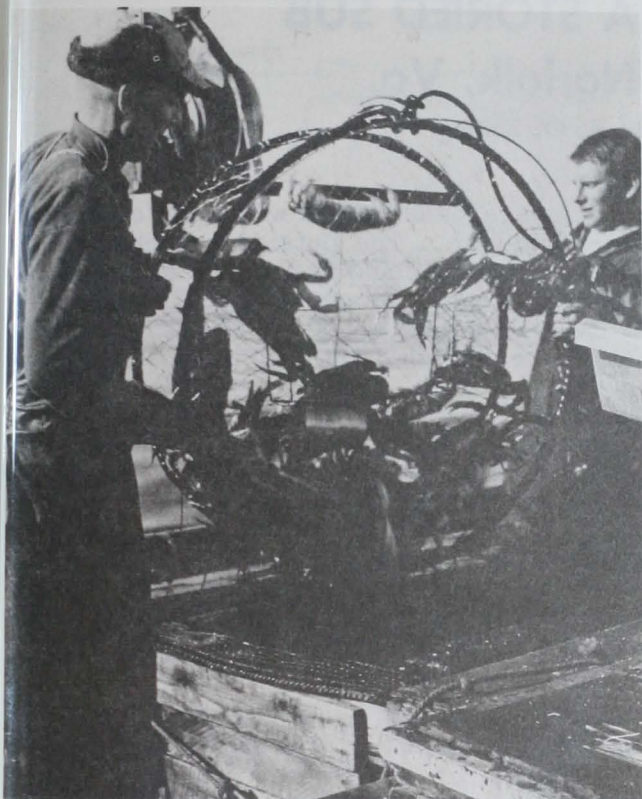


Fig. 9 - Crewman emptying crab pot (40 inches in diameter) into sorting box.

is removed and the bait can be exchanged. Dungeness crabs are put into the sea-water tank, and fish, octopus, and king crab are thrown overboard. The pot is pushed overboard about 75 feet before the next buoy is reached. The boat does not stop at each pot; the men must haul the pots while the boat is underway at a continuous speed of about 2 knots (fig. 10). Because the boats usually work into the wind, they must, upon reaching the end of a string, run to the opposite end of

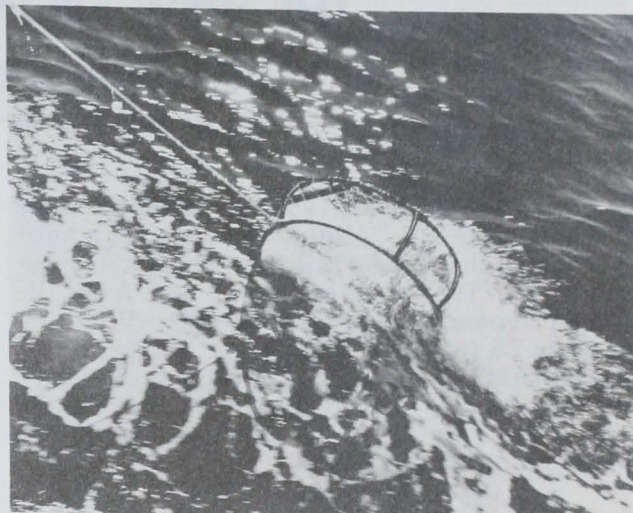


Fig. 10 - Crab pot (40 inches in diameter) surfacing to be hauled aboard power barge. Vessel is traveling at about 2 knots.

the next string. This break gives the crew a chance to clean up and rest before starting the next string of pots.

PROCESSING METHODS

Crabs are processed in one of two ways. The first and most common method is to butcher and clean the live crab and cook the remaining body and leg sections in boiling water for 12 to 15 minutes. The sections are then frozen, glazed, packed, and shipped south, where they are thawed and the meat removed for canning.

At some processing plants, the largest and best-appearing crabs are prepared for the whole-crab market. They are cooked whole for 25 to 28 minutes, cooled, the shells cleaned by hand, packaged one to a paper bag, and shipped south.

