

## COD AND HALIBUT FISHERIES NEAR THE SHUMAGIN ISLANDS.

By DR. KRAUSE.

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You may imagine how greatly we regretted the fact that we could not spend the whole of July in *Behring Strait*, as we thereby lost a great deal, especially with regard to botany and ornithology. All we could do during this part of our voyage hardly compensated us for this loss, although an opportunity was offered to make many interesting observations. Several times, when the vessel was becalmed near the coast, we employed our leisure in cod-fishing. The most favorable result we obtained in the neighborhood of the *Unimak Passage*, where on the 25th July, we caught 80 codfish—related to or identical with the European *Gadus morrhua* (*Kabljau*), *Gadus macrocephalus* Til.—and 3 halibut (*heilbutten*). The delicate flesh of these fish offered a welcome variety in the monotony of our daily fare of salt meat. The captain, however, did not appear to be altogether satisfied with the result of our fishing; as last year he had, while becalmed in the *Unimak Passage*, caught several hundred codfish, which not only supplied his entire crew with fresh meat for ten days, but which also enabled him to salt down several barrels full of fish for future use. The largest halibut caught by him weighed 30 pounds; but occasionally some are caught weighing 300 pounds and more. The codfish as a general rule exceed in size our "*Kabljau*." The weight of a medium sized cod (after the intestines have been removed) is about 9 pounds. The best fishing grounds are in the neighborhood of the *Shumagin Islands*, where many thousands of fish are annually caught on a sand-bank about 10 miles from the coast. Three firms in San Francisco send for this purpose small vessels, of about 120 tons, both to the *Shumagin Islands* and to the *Sea of Ochotsk*.† Last year a vessel was also sent to *Sitka*, principally to fish for halibut, and reported very good fishing grounds near that place.

The full cargo of a vessel of 120 tons is 75,000 fish, which are packed in boxes weighing 30 pounds each. This cargo is generally made up in three months. About 12 fishermen are exclusively occupied in fishing, whilst 5 boys tend to the cleaning and salting, for which they receive monthly wages. The fishermen do not receive fixed wages, but \$25 for every thousand fish. The captain of the vessel, who has to keep an account of the number of fish brought in by the fishermen, is paid by a

\* "*Kabljau und Heilbuttenfang bei den Schumagin Inseln*"—[translated from the German by HERMAN JACOBSON].

† Compare M. LINDEMAN: "*Die See fischereten*," supplement to No. 60 of "*Petermann's Mittheilungen*," pp. 59 & 60, and M. LINDEMAN: "*Ämtliche Berichte über die Berliner Fischerei-Ausstellung*" (Official Report on the Berlin Fishery Exposition), II, "*See fischereti*," p. 134.

certain share of the total yield, generally \$9 to \$10 per thousand fish. The boats of the fishermen, 14 feet long and 3½ feet broad, can, in favorable weather, carry about 320 fish each. By sudden storms the fisherman risks the loss of his whole cargo, as the only way to save himself is to allow the boat to upset and drop the entire cargo in the water. The light boat will of itself again stand upright.

A skilled fisherman can catch 1,000 fish a day. He stands erect in his little boat, on both sides of which he casts a line furnished with a lead and with two hooks. If fish are very plentiful, he is kept busy all the time, hauling in alternately the right and left line, taking the fish off the hooks, stunning them either by a blow on the head or by violently throwing them against a piece of wood, and baiting his hook afresh. The lines, which have the thickness of a quill, are invariably let down to the bottom, and thereupon hauled in 1 fathom. As, from our vessel, we fished at a depth of 50 to 70 fathoms, the hauling in of the lines was no easy work, especially if we take into consideration that we were not properly equipped for this kind of work. In order to protect their hands, the fishermen use so-called "nippers"—rings made of good wool, which are drawn over the hand, and secure the lines merely by friction.

For want of better bait, we used pieces of salt bacon; as soon, however, as a fish had been caught, portions of it were cut out and used as bait. The fishermen prefer to use as bait the fresh red flesh of the salmon, or the glaring white flesh of the cuttle-fish, which is said to attract the cod more than any other bait. Even pieces of fish taken from the stomach of a cuttle-fish did excellent service as bait.

The average value of a pound of salt cod in San Francisco (fresh cod is not brought into the market there) is 10 cents. We did not allow the opportunity to pass of enjoying some good fishing. It is true that our drag-net apparatus was not well suited to great depths, but we nevertheless succeeded in bringing up from the bottom considerable booty; the floating net moreover supplying us with a good many objects of interest from the surface-water, particularly in the line of Medusæ.

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**A PROPOSED POND FOR REARING STRIPED BASS (*MOXOSTOMA LINEATUM*) IN DELAWARE BAY.**

**By E. R. NORNY.**

[From a letter to Prof. S. F. Baird.]

I send you by mail an eel-skin, not on account of its size, but on account of its color. The lower part, or tail part, was a shiny black when alive, shading to a dull black towards the head, and a dark lead color on the belly. We caught two of these in December after other eels had buried; the other one was a fourth larger than this one. All eels that we have ever seen here have been either green or pale yellow on the back and white on the belly. Is this a distinct species or a sea variety?