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Title

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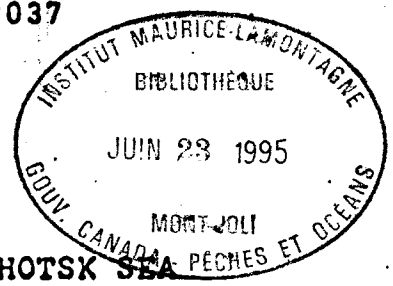
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Publication Date

1965

Author: O. Lindgolm
Date: 1 8 6 3 - February
Ref.: In a journal with news from the Far East of the USSR,
 pages 42 & 43.
Translator: Lydia A. Hutchison, UCSD, La Jolla, Ca., 92037



WHALES AND HOW TIDES AND CURRENTS IN THE OKHOTSK SEA
 AFFECT THEM

Whaling may be very important for Russia in the future, be it subsidized by the Government or private enterprise, and there is no doubt that it will exercise great influence on the trade in this part of the world, similar to the coastal fishing which may yet bring enormous profits. Having this in mind, within the scope of my knowledge of whaling, I shall explain why whales may be found in one place during one period of the year, but in another place during a different period.

Two types of whales are found in the Okhotsk Sea: the Right Whales (*balaena Mastesetas*) and the Polar Whales (the Bowhead). Right Whales*(p.42, column 1) are found close to the Kurile and Japanese Islands in the spring, but during the summer months they proceed northwards; during this period, they are encountered all over the sea south of an imaginary line from Cape Belogolovy on the

western coast of Kamchatka, across the sea to one hundred miles north of Iona Island. This line appears to be the limit for Right Whales, as they have never been seen north of it; on the other hand, the Polar Whales have never been seen south of this line. Another type of whale** (p.42, column 1) is found in the Aniva Gulf; these whales never swim north into the Okhotsk Sea, but are found in this bay during the summer months; whereas, in the winter they swim southward to the Landrones Islands* (p.42, column 2).

If we assume that *clio borealis*, which is the food of whales, spawn in either the summer or autumn along the shores and that the eggs mature towards the spring of the following year, say in May** (p.42, column 2), it will become clear why the whales, in their migration to the north, have certain boundaries which evidently they never cross. This will also explain why the Polar Whales are found near Iona Island early in the spring, later in the Shantarsky Gulf and only after this, northwest from Sivuch Island and in the Udsky Gulf; and why they are found in this gulf so late in the year.

Now whalers know well that *clio borealis* go through various stages in their development, after which they are found dead, covering the surface of the sea for miles. The stages are so well known that an experienced whaler, by just glancing at the surface of the water, can state if the food is suitable for Right or Humpback Whales and which type of whale may be expected at a particular site (Humpback - *balaena physalus*). I have witnessed several examples of this. From these facts, one can see that the whales arrive here because of the food which is carried by the current from the north to please their palates and that they follow the food in the current,

which brings the whales to the south. Whalers say that Right and Humpback Whales never eat the same food, which is completely justifiable. The same refers to Polar Whales. Considering this, the different types of whales never meet in the same area during the same period of the year. The water temperature has no bearing on the area in which whales remain, as I have seen all three types among floating ice where the water temperature registered only $+33^{\circ}$ - $+35^{\circ}$. The Polar Whales never inhabit waters with the temperature exceeding $+55^{\circ}$. I personally have never seen whales of this type in water at this temperature. Therefore, currents may be regarded as collectors of whale food, which they transfer to certain areas during certain periods of the year. This applies to all the areas, where whales are known to swim. The Gunt Kodiak joins Kuroshio*** (p.42, column 2), but this can nowhere be observed so clearly, as in the Okhotsk Sea; perhaps it also is due to the fact that this region is best known to me. Even if one can prove that *clio borealis* is being born continually, which I doubt, it will not contradict the above, as these organisms die in a certain water temperature. I have seen *clio borealis* in various latitudes, different temperatures and in different periods of their life, but I have never seen them in a better state and in such multitudes, as in our own native waters, where the water temperature ranges from $+32^{\circ}$ to $+40^{\circ}$ and where *clio borealis* can be seen on the water surface. At higher temperatures, *clio borealis*, observable on the surface, are in a state of transition into another type. By the end of the summer, they exist probably deeper in the water, as they can hardly be seen on the surface.

After wintering in southern regions, Humpback Whales migrate to the north, where they find the food they like and follow the cur-

rent that carries the food, which brings them back to the south. Right Whales do the same thing, but they find the food they like farther out. The Polar Whales ****(p.42, column 2) also find the food they like, but not so far out to sea, near Iona Island and near the Aleutian Islands in the ocean. However, there is no doubt that the Polar Whales would proceed farther, if the Kuroshio current did not obstruct *clio borealis* from spreading southwards into the ocean and a weaker current in the northwestern part of the sea did not collect the food around Iona Island. This takes place because *clio borealis*, grown in the northern part of the sea, cannot reach Iona Island before the winter and spring, where they remain for several months in marginal areas, formed by various currents. This is clearly confirmed by the manner in which the ice drifts, requiring from two to three months to cross from the north into the Udsky and Shantarsky Gulfs.

Whalers used to think that the northern and western parts of the sea completely freeze during the winter months and that this is the reason why whales are found so far to the east during the spring season. However, from what I have witnessed this winter, also considering the tales of the natives, I think this is only part of the real cause.

On January 19, I saw the Udsky Gulf with Cape Tylsky rising to several hundred feet; I did not see any ice on the seaward side; whereas, deeper into the gulf, where it is shallow - the sea was covered solidly by ice, Proceeding further along the shore, towards the Uda River, I saw many seals in water free of ice. The Shantarsky Gulf was also open at that time.

I think there were no whales, although the sea was free of ice; also, if *clio borealis* were present, then they must have been only in small quantities, as the current would carry them to Iona Island. I should be very grateful, if anyone would advise me to the contrary. However, should I be proved wrong, this would still not be sufficient for me to change my opinion concerning the influence of currents on the habitat and movements of whales, as my conviction is based on numerous observations and whalers, who know the currents in this sea* (p.42, column 3) will confirm my words.

As was mentioned, whales are found among the ice floes near Iona Island early in the spring; they are enclosed by ice and move with the current to the south. However, once they begin to be free of ice, they swim so fast that, where hundreds can be seen one day, not a single whale may be found the next day. Previously, it had not been known where they were headed, but recently it has been discovered that their favorite place is the Shantarsky Gulf. Several whales may be found in Udsy Bay and the Ilbansky and Usalginsky coves, also in Sakhalin Bay, but their numbers are usually very small; if there are many, they do not remain there for a long time. On the contrary, in the Shantarsky Gulf, they remain for a long time, as if flirting with the chase.

The first ship to enter the gulf, finds whales playing on the surface and the first dozen small boats produce no effect on them. Gradually, the bay becomes full of ships** (p.42, column 3) and one hundred or so whaleboats can be seen, going in different directions; some chasing whales, others already in the process of killing them, while still others are towing the killed whales. During this time,

42 the noise of the grinding ice together with gunshots from the small boats can be heard for several miles; while the echo of shots and the sound of the pipes spread across the gulf from shore to shore. Whales usually seek cover in the ice, but to no avail - they are chased everywhere. If the ice is so solid that a small boat cannot pass through, you are bound to see a harpooner with a gun, awaiting the whales in some clearing. This is disastrous to a whale which surfaces, not expecting any danger, as the animal cannot get away and, although it dives deep, as a rule it is already too late, as the explosion of a bomb aimed at the animal will soon end its life. A multitude of whales is killed in this manner, but rather a small number is found. Although whales are pursued day and night*** (p.42, column 3), they do not leave the gulf until the ice disappears, or at least until it becomes so scattered that the animals cannot hide in it any more. On the average, whales leave here in the latter part of July or the first part of August.

Clio borealis arrives at the Shantarsky Gulf by the same route and with same speed as the ice and, as the current flows East between Feklistov Island and the continent, through the eastern passages, a vortex is formed south of Cape Dugandzh. This could be more clearly seen were it not for the current of the Uda River which strongly affects this vortex. However, even under these circumstances, this can be easily observed by those who understand about currents.

43 This also explains why remnants of ice can always be observed E and S of Muktigandzh Island and why the killed whales are usually found near this island; this is why this island is called by whalers Stinker Island. One can clearly see from the above that whales are

found in this bay in considerably greater numbers than in other areas (during the same period of the year) because the *clio borealis*, carried by the current into the bay, turn S and get caught in the vortex formed by the currents. This is why *clio borealis* abound here in such great multitudes that the water seems to be alive; whereas, in other areas, they are not present in such abundance.

Whales gather in the Shantarsky Gulf in June and July. They are encountered here also during other seasons, but not t h e n in such great numbers as in the Udsky Gulf which seems to be their favorite spot for the remainder of the summer and autumn.

Now, assuming that *clio borealis* mature in May and the first part of June, one can understand that the bulk during this period of time should be in the Shantarsky Gulf, as the vortex keeps them and collects them, which the whales seem to sense.

There is no other vortex on these shores similar to the Shantarsky. There are many others, for instance: NW of Sivuch Island; W of Sugar Head Rock, E of the Bolshoi Shantar; but these are formed by tides which join the northern current; or rather, with the main current and river currents, similar to those in the Udsky Gulf, near Iona Island. On the contrary, in the Shantarsky Gulf, the flood-tide has no connection with the vortex, neither does it influence the vortex, apart from moving it to-and-fro from N to S. A vortex 15 or 20 miles W of Sugar Head Rock is formed by tides which proceed: one from the E between Feklistov and Medvezhi Islands, and another from ENE. along the NW shores of Feklistov and Sivuch

Islands; the third proceeds along the shore from the NE, flowing more to the south of the bay, in the direction of the Uda River current, which it joins, proceeding to E and N until it meets the tide from the E which gives a more northerly direction to this branch of the tide. However, these factors would not in themselves form a vortex, as the tide flows faster than the river current, were it not for the E and N currents meeting the current of the river with equal force, which subsequently produces the vortex. If there were no ebb or flood tides here, a vortex similar to that near Iona Island would be formed in the Udsky Gulf.

A vortex between Sivuch Island and the Eskan and Uka Capes is not really a vortex, but rather a branching of tides, formed by the ebb and flood tides; flood-tide, apparently arrives from the E two or three hours after high water, or three or four hours before low water in the Udsky Gulf. This is why the branching can be first observed along an imaginary line from Sivuch Island to Cape Uka, but later it moves S and disappears with the end of ebb-tide, W of this island* (p. 43, columns 1 & 2).

Whales leave the Shantarsky Gulf usually quite suddenly and most of them remain in one or both of the vortices mentioned. Sometimes, the number of whales present is very large. *Clio borealis* can be seen all over the sea during this time and they blacken the color of the water in the vortices for several miles. The large whales usually swim NW of Sivuch Island and the small whales W of Sugar Head Rock, or in the Udsky Gulf.

However, after several days, they are chased away by whalers who pursue them closely, but not before the whalers catch several animals each. After this, one can seldom see whales here in large numbers; for the remainder of the summer, they swim to-and-fro from one cape to another; however, the majority may still be found in the Udsky Gulf, especially during October. During this month, the bay itself is often covered with whales, so that several animals can be had there at any time, but the weather is unfavorable at this season, although ships remain until the 20th October, traversing the bay in very fresh winds. Few captains risk remaining here so late; however, these few never return home as losers.

Last year, I left Medvezhi Island on November 2 and sailed to the Uda River estuary; most probably, this was the latest date on which a ship ever sailed in this bay. A multitude of whales was observed from 1st to 3rd November, when I stopped my observations; and none too soon, as the next day winter commenced and my thermometer read 9°.

The reason for whales remaining so long in the Udsky Gulf is not only because of the currents, but rather the winds, which constantly blow from W and N in this month. As the current carries *clio borealis* to the Udsky Gulf, where it meets the counter-action of the river currents, *clio borealis* remain in the bay, especially as this region is leeward of the predominating winds which do not affect the water here as much as in other regions open to them.

It seems that in the northern part of the Okhotsk Sea many whales are also present, but I know nothing about the regions where they swim. All I know about whaling there, I have heard from other whalers, but information of this type is indefinite and so contradictory, that it seldom deserves attention.

FOOTNOTES

On page 42, Column 1:

* In 1854, I was engaged in whaling as follows: in the Yellow Sea in March, in the Japan Sea in April, and in the Okhotsk Sea in May, following whales as they proceeded northwards. In the first sea, I caught 5 whales; in the second - 3; and in the third one, about Latitude 52°30' N.

** In November of 1860, this bay was full of Humpback Whales.

On page 42, Column 2:

* These whales arrive in January and depart in April. Could not a lower counter-current carry food from the north and thus make whales migrate far to the south?

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** This is only a supposition; to this day, I do not know when and where these organisms produce their progeny.

*** Sperm Whales (*balaena macrocephalus*) are found even as far north as the Kodiak shore; however, the current, with its warm waters, apparently precludes the Polar Whales from migrating south of the Aleutian Islands.

**** There are other types of whale in the Okhotsk Sea: Finvals, Sulphur Bottoms, Grampus and California Grays, as they are called by whalers. The last type of whale is found in large numbers close to Cape Elizabeth and in the northern section of the sea during the summer, but close to the shore of Baja California during the winter.

On page 42, Column 3:

* It is strange that, with the multitude of whalers sailing this sea, only very few know about this important phenomenon.

** In August of 1854, I counted 82 ships in this bay; and once, in the morning when the horizon was not clearly visible, there were 363 whaleboats in the vicinity. However, the number of ships has been greatly reduced during recent years.

*** Whaling at night has become very popular recently; some whalers even prefer it. Whales are more easily discernible in the water after dark.

On page 43, Columns 1 & 2:

* I regret very much that during my last sail on board "Storfursten Constantin", I did not pay enough attention to this flood-tide, as then I had many opportunities to investigate its

direction, speed and changes, comparing it with the high and low waters on the shores. My observations of last year made me take notice of this subject and I quote here from my Log:

" On August 3, I stopped several miles south of Reinske Island and about 5 o'clock p.pch. (p.pch. is transliterated, LAH) the ebb-tide began in a northerly direction; just about the same time there was high water in Sakhalin Bay. Under a light wind, I proceeded to the island and, as expected, I found that the ebb-tide was moving from WSW between the island and the continent. Because of this, I kept to the eastern side of the Island, relying on finding there a protected place for the night.

I was wrong in my expectation, as the shore was studded with sharp granitic rocks, over which the waves broke foaming and rushing over a very large anticline, or arc, formed of columnar rocks about 100 feet in height; these rocks supported an overhanging mass of stone. This gloomy picture of the inhospitable shores of the island convinced me that I should proceed to its northern shore, where I was highly surprised to find at 6 o'clock 35 minutes p.pch. a strong current flowing northwards, and so I lay off the island, south of the current."

" On October 9, high water, about 1 o'clock 45 minutes p.pch., I left the river (its estuary is at 53°46' N. Lat. and 140° 35' 15" E. Long.) and proceeded to Shelter Rock. A few miles from the rock, at 8 o'clock 40 minutes p.pch., I suddenly found myself in a strait leading to a bay; however, keeping right next to the shore, I was again in an ebb-tide which moved northwards."
