WHALE ENTRAPMENTS IN INSHORE FISHING GEAR DURING 1982;

A PRELIMINARY REPORT TO FISHERIES AND OCEANS CANADA

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Jon Lien, Dong Jinhai, Lisa Baraff, Jim Harvey, and
Kevin Chu
Newfoundland Institute for Cold Ocean Science
Memorial University of Newfoundland
St. John's, Newfoundland

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Abstract

Aid in releasing entrapped whales and minimize damage to fishing gear was given to inshore fishermen and whale damage in Newfoundland & Labrador was monitored during 1982.

Reported entrapments of humpback whales were about the same as 1981, considerably lower than entrapment numbers in 1979-80. Minke whale entrapments were at the same level as in the period 1979-81. There was a substantial decrease in reported pothead entrapments from 1981. Incidental catch of basking shark also decreased considerably in 1982. In summary, damage to fishing gear by whales and sharks in 1982 decreased somewhat from 1981 levels and was down substantially from 1979-80 levels.

Checks for underreporting and continuing receipts of reports from fishermen make the conclusions in this report tentative.

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Whale collisions with inshore fishing gear are not a new problem for Newfoundland's inshore fishermen. There is much anecdotal and historical evidence indicating that inshore gear damage due to whales and sharks has always occurred at a low, irregular level.

During the period from the mid-seventies, there has been a substantial increase in the amount of damage reported. In 1979, a widely publicized reporting system was established by which fishermen could record damages (Lien, 1980). In 1979, 327 reports of gear damage were received estimating about one-half million dollars in gear damage and two and one-half million dollars in lost fish. In 1980, 562 damage reports were received which totalled $380,000. in gear damage and about one and one-half million dollars in lost fish (Lien, 1981) In 1981 reported damages decreased to 238 instances totalling $80,000 in gear damage and about $4000,000. in lost fish (Lien and Aldrich, 1982).

When a collision occurs, the animal is frequently caught in the fishing gear. Entrapments occur in about 25 - 30% of collisions (Lien, 1980). A substantial amount of the damage reported occurs while the whale or shark is entrapped. The trapped animal, alive or dead, because of its size presents a difficult task in retreiving the gear with a minimum of damage so fishing can be resumed. The longer the animal remains entrapped in gear, the greater the damage to the gear and fish losses due to down time.

Fishermen have had little ability to cope with entrapped animals. Large dead whales sink and bringing such weight to the surface

is beyond the capability of inshore crews and boats. Fishermen have simply had to wait until the animal decomposes sufficently to refloat. Live entrapped whales are frightening and releasing them without underwater information on how the animal is caught often produces great damage to the gear. Killing the animal is lengthy, difficult and inhumane by the methods available to inshore fishermen and typically produces considerably greater gear damage.

Methods have been developed by which large live and dead whales can be released from fishing gear while minimizing gear damage and down time (Lien, 1980). The purpose of the present project is to make these methods available to fishermen who have whale problems during 1982 and to continue monitoring of the collision problem in Newfoundland's inshore fishery.

METHODS

In 1979, a phone line was established which fishermen could call collect to report gear damage and entrapped whales. Fishermen were told that if they had a live or dead entrapped whale or large shark in their fishing gear they should call for advice, access to tools, or if requested, a team would be sent to release the whale and minimize damage to the fishing gear. This service has been widely advertised during the past three years and fishermen in most areas are now well familiar with it. The same phone line (753-5495) was used in 1982.

Advertising of the service and phone line was done as follows. Letters describing the service including a wallet sized card with the number were sent to (1) all fishermen that had reported whale damage from 1979-1981, (2) chairmen of all fishermens committees (3) Union representatives, Nfld. Dept. of Fisheries field representatives, Fisheries and Oceans officers and guardians. All fish plants in the province and Marine Service Centers were provided with information and a poster advertising the service. In addition, the service was advertised in Fisheries Update, the Union Forum and on C.B.C. Fishermen's Broadcast.

To further monitor whale collisions a card reporting system established in 1979 (Lien, 1980) was operated. As in previous years, about 20,000 of the cards were distributed to fishermen.

When a call reporting an entrapped animal was received information about the animal and the gear was elicited during the phone

call. Species, size, condition of the animal and gear were all noted. The caller was advised on options in minimizing damages and available resources in his area or the time duration before such help could arrive. He was also made aware of the Dept. of Fisheries codtrap depot program (Lien, J, and Aldrich, 1982b) if that was appropriate or the market for shark products if it seemed likely the animal reported was a shark (Lien & Aldrich, 1982a). Frequently calls were received from fisheries officers. Fishermen often reported first to their local officers who in turn repeated the problem and request for help to us.

As required, help was sent to the fishermen on the same day it was requested in every case. Tools and procedures used in releasing the animals are described in Lien (1980). In every case an effort was made to teach the fishermen and local people, including fishery officers, as much as possible about release procedures.

RESULTS

ENTRAPMENTS

Results of the summers work will be presented as follows. First data on the animals reported entrapped in gear, their location and type of gear will be summarized. Next, as stranded whales were also reported these data will be presented. Third, results of damage reports during 1982 (to Sept.) will be presented. Finally, information on the releases themselves will be given.

Lists of animals reported entrapped in fishing gear are presented in Tables 1-9 and these data are summarized in Table 10. Comparison with entrapments in previous years is presented in Table 11.

Humpbacks were the most common whale entrapped. A total of 35 entrapments were reported and locations are presented in Table 1. Of the 35 entrapments, 31 humpbacks were released alive (89%). Consistent with previous years, most humpbacks were relatively small (8-12 m). Humpback entrapments were well distributed around the island and in Labrador (Fig. 1). Three of the four dead animals were extensively autopsied; it was not possible to autopsie the fourth. Most (55%) of the entrapments occurred in codtraps. Entrapment in groundfish gillnets (29%) was also common. Salmon gillnets (9%) and assorted gear (9%) were involved in few humpback entrapments.

A total of 9 Minke whales were reported entrapped (Table 2). Most entrapments occured in codtraps (56%) although salmon nets were also commonly involved (33%). Only 45% of Minke whales were released alive. A single animal was autopsied. Locations of Minke whale entrapments (Fig. 2) were scattered although 56% of reports occured in the Southern Labrador/ Straits of Belle Isle area.

Entrapments of pothead whales were reported on 10 occasions to September (Table 3). It should be remembered that, in the past, pothead entrapments are common throughout the early fall. The entrapments reported thus far are scattered (Fig. 3). To date 70% of the potheads reported were released alive. Two of the animals killed in gear were autopsied.

Occasionally whales would collide with gear and either release themselves or tow the gear off before an identification was made. Also, on occasion, we were unable to determine from fishermen which

species was caught even though the fishermen had seen the animal. A total of six such entrapments occured (Table 4). In each case the animal was alive when last seen.

Fishermen occasionally also called to report the entrapment of smaller cetaceans, especially harbor porpoise which they caught. A total of 19 harbor porpoise were reported; all but two died in the gear. Six of these animals were autopsied.

Basking shark entrapments were reported on 35 occasions (Table 5). These entrapments centered on the South Coast from Burgeo to Port aux Basque. (Fig. 4). A total of seven porbeagle sharks (Table 6), three blue sharks (Table 7) and three greenland sharks (Table 8) were also reported. Entrapment locations for the smaller species of sharks are shown in Fig. 5.

Fishermen used the whale line to report other animals that were caught in fishing gear as well. These include tuna, leatherback turtles and seals (Table 9).

A summary of entraped whales and sharks reported is presented in Table 9. A total of 48 sharks and 82 whales were reported during the summer.

STRANDINGS

The whale line was also used to report stranded animals. These animals were entrapped in gear at the time of the call. Calls most commonly came from fishery officers, coast guard personel or the R.C.M.P. although fishermen and community officials also reported. Stranded animals reported are presented in Tables 12 and 13.

Three mass strandings of cetaceans were reported (Table 12). On 10 March, 40 white-beaked dolphins were stranded due to ice in the Gulf of St. Lawrence and grounded near Port aux Basque. On 25 July, 23 pothead whales stranded near Grand Bank. Twelve of these animals successfully unbeached themselves; 11 animals died in the stranding. On 18 August 3 potheads beached near Bonivista; two were successfully unstranded by interested local people and one animal died. In each mass stranding, the animals available were autopsied.

Table 13 presents single animals reported standed. The total of 20 dead animals was composed of 3 sperm, 2 pothead, 4 blue, 3 minke, 1 each of orca, beluga and fin, and 4 animals where species could not be determined. In addition, a live ice entrapment of 19 fin and minke whales was reported in April; all of these animals escaped. Locations of stranded animals is presented in Fig. 6

DAMAGE REPORTS

Inshore gear damage due to whales and sharks reported on the card report system is presented in Table 14 and locations of damage are presented in Fig. 7 to date, a total of 63 reports have been received in which animals were not entrapped. These total $28,242. Thus frequency of whale and shark collisions reported, including those which resulted in an entrapped animal causing damage, totals 174 to date totalling about $70,000.00 in gear damage. It should be remembered that these data are incomplete as damage reports are often sent in the fall and that estimates of underreporting for this years data are not complete.

When calls reporting large trapped whales were received we attempted to provide the fishermen with information on resources available and suggestions on how to release the animal with a minimum of gear damage. In 50% of entrapment calls, this information was provided by phone, in the remaining cases we drove to the scene of the entrapment. Once on the scene, we attempted to provide the same information as well as assist as necessary in the release of the animal and retrevial of the gear. In many cases, fishermen themselves (28%) released the entrapped whale without assistance. Self-release by the whale occured in 37% of the reported instances. Fishery officers performed releases in 5% of the cases. In 31% of reported cases we physically assisted fishermen with either alive or dead animals.

When sharks were reported entrapped we provided fishermen with information on sale of liver and fins or in some cases, the meat. Often it could be determined when a shark rather than a whale was caught. In 23% of reported entrapments with sharks a M.U.N. crew actually went to the scene.

DISCUSSION

Although the entrapment 'season' has passed at the time of writing this report, data collection will continue throughout the fall. Fishermen tend to leave paper work until the off-season. As active fishing ends and fishermen begin work on damaged gear, report cards will be received. Thus complete data on the outcome of entrapments and other collisions will not be ready for some time. Additionally, because fishermen must volunteer information, it is important to check for under-reporting (Lien, 1980, Lien & Aldrich 1982). Until these studies are completed data in this report are incomplete.

This winter we will conduct an interview survey of fishermen that reported entrapped animals to determine gear damage estimated after they have repaired damage and to examine their reaction to the present phone report and entrapment assistance system. Entrapped sharks now have commercial value. The Newfoundland Department of Fisheries has established an emergency codtrap depot. It appears collision damages have decreased from previous highs. Thus, with substantial assistance for fishermen in place, cost effectiveness of these various programs should be examined. Indications by user fishermen are very positive toward the phone report system and the assistance received with entrapments. Results of the survey will help evaluate this assistance program and will be included in our final report to Fisheries and Oceans.

Based on presently available data it seems apparent that damages due to large whales are about the same as 1981; damages due to pothead whales and basking sharks have decreased. Thus, total gear damages for 1982 should be less that for 1981 and substantially decreased from 1979-1980 levels. Comparison of number of whales reported entrapped from 1979-1982 is presented in Fig. 8. Fig. 9 compares the reported cost of damage to inshore fishing gear based on card reports. Trends in these data will be discussed in our final report.

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TABLES AND FIGURES

Date	Location	Gear Involved	Size (MM)	Sex	Release Status
1 June	Blue Point, Port au Port	Herring Gillnet		?	Alive
3 June	Hermitage	Salmon Gillnet	'large'	?	Alive
19 June	Burnt Point, C.B.	Codtrap	'large'	?	Alive
20 June	Bay deVerde	Codtrap	10.5	?	Alive
22 June	Bauline South	Codtrap	?	?	Alive
23 June	Lance Amour Lde	Codtrap	Medium	?	Alive
25 June	Fleur de Lys, W.B.	Codtrap	?	?	Alive
28 June	Durrells Arm, N.D.B.	Salmon gillnet	?	?	Alive
29 June	Little Bay, P.B.	Codtrap	10	?	Alive
30 June	Portugal Cove South	Codtrap	12	?	Alive
			8	?	Alive
1 July	Herring Neck, New World Is.	Salmon gillnet	?	?	Alive
5 July	Wild Cove, W.B.	Codtrap	?	?	Alive
5 July	Bonivista	Codtrap	10	?	Alive
6 July	St. Brides	Groundfish gillnets	?	?	Alive
6 July	Greenspond, BB	Groundfish gillnets	10	Male	Dead
7 July	Greenspond, B.B.	Groundfish gillnets	11-12	?	Alive
7 July	Cape Pine	Groundfish gillnets	?	?	Alive
9 July	Bay de Verde	Codtrap	10	?	Alive
9 July	St. Brides	Groundfish gillnets	?	?	Alive
9 July	St. Brides	Groundfish gillnets	?	?	Alive
10 July	Musgrave Harbour	Groundfish gillnets	?	?	Alive
16 July	Fleur de Lys, W.B.	Codtrap	?	?	Alive

Humpbacks - Cont'd...

Date	Location	Gear Involved	Size (MM)	Sex	Release Status
16 July	Petit Forte	Codtrap	9.2	Female	Dead
18 July	Bide Arm, W.B.	Codtrap	9.2	Female	Dead
19 July	Musgrave Harbor	Groundfish gillnets	?	?	Alive
19 July	Flatrock	Codtrap	10.5	Female	Dead
19 July	Bay de Verde	Groundfish gillnets	?	?	Alive
19 July	Fogo, Fogo Is.	Codtrap	10	?	Alive
25 July	Fleur de Lys, W.B.	Codtrap	?	?	Alive
2 August	Point May	Groundfish Gillnets	8	?	Alive
3 August	Torbay	Codtrap	8	?	Alive
13 August	Torbay	Squid trap	?	?	Alive
19 August	Fogo, Fogo Is.	Squid Trap	?	?	Alive

Table 1. Humpback whales reported entrapped in fishing gear during 1982

Date	Location	Gear Involved	Size (MM)	Sex	Release Status
15 May	Isle aux Morte	Mackeral gillnet	6.5	?	Alive
10 July	Venison Tickle, Lab.	Codtrap	?	?	Alive
15 July	Plate Cove West, B.B.	Codtrap	6m	?	Alive
20 July	Fermuse	Codtrap	4.8m	Male	Dead
22 July	Bonivista	Salmon gillnet	5.5m	?	Alive

Table 2: Minke Whales reported entrapped in fishing gear during 1982. Reports of four gear entrapped Minkes from Labrador are not included here; while reported to date reports have not been verified.

Date	Location	Gear Involved	Size (MM)	Sex	Release Status
28 July	Brent's Cove, W.B.	Salmon Gillnet	3m	Female	Dead
			5m	Male	Alive
1 August	Bauline, C.B.	Salmon Gillnet	?	?	Alive
			?	?	Alive
6 August	Holyrood, C.B.	Squid Trap	4.5	?	Alive
6 August	Isle Aux Mort	Mackeral gillnet	4.0	?	Alive
			4.5	Female	Dead
9 August	Torbay	Codtrap	5m	Male	Dead
14 August	Oldshop, T.B.	Squid trap	?	?	Dead
15 August	Dildo, T.B.	Squid Trap	?	?	Alive
2 September	Cape St. George	Monofil Trawl	5.5	?	Alive
2 September	Cape St. George	Mackeral Gillnet	5	?	Dead

Table 3: Pothead Whales reported entrapped in fishing gear during 1982

Date	Location	Animal Description	Gear Involved	Release Status
late May	Francois	Small Whale	Salmon net	?
1 June	Boat Harbour, W.B.	Est. 5m - perhaps Minke	Lumpfish gillnets	Alive
10 July	Torbay	med. size whale	Codtrap mooring	Self release-Alive
10 July	Branch, S.M.B.	lg. whale-possible fin	Gillnets	Whale towed nets off
13 July	Cooks Hbr.	Large whale	Codtrap	fisherman release-Alive
14 July	Twillingate	Large whale	?	Whale laying at surface with some gear on for several days - disappeared
16 July	Carmenville	Large Whale	Groundfish gillnets	Whale towed nets off

Table 4: Unknown species of whales reported entrapped in fishing gear during 1982.

Basking Sharks

Date		Location	Gear Involved	Liver Weight (in Kg.)
12	June	Isle a Mort	Salmon gillnet	731.2
14	June	Burnt Isle	Salmon gillnet	666.8
	June	Burnt Isle	Salmon gillnet	766.8
15	June	Grand Brit	Salmon gillnet	552.0
19	June	Rose Blanche	Salmon gillnet	760.7
26	June	Sandy Cove	Other trawl	not sold
28	June	Burgeo	Salmon gillnet	406.4
28	June	Petiets	Salmon gillnet	574.2
	June	Isle a Mort	Salmon gillnet	754.8
	June	Rose Blanche	Salmon gillnet	846.3
	June	Rose Blanche	Salmon gillnet	586.9
	June	Isle a Mort	Salmon gillnet	682.2
	June	Petiets	Salmon gillnet	816.5
	June	Petiets	Salmon gillnet	375.1
	June	Burnt Is.	Salmon gillnet	766.8
4	July	Parkers Cove, P.B.	Salmon gillnet	
13	July	Twillingate	Salmon gillnet	not sold
17	July	Amherst Cove	Codtrap gillnet	not sold
24	July	Fortune	groundfish gillnet	not sold
23	July	St. John's	Codtrap	562.5
26	July	Gaskiers	Codtrap	750.0
27	July	Musgrave Hbr.	Groundfish gillnet	744.8
3	Aug.	Paquet, W.B.	Groundfish gillnet	not sold
4	Aug.	Whiteway, T.B.	Cod trap	1001.5

Basking Sharks Cont'd....

Date		Location	Gear Involved	Liver Weight (in Kg.)
6	Aug.	Hermitage	?	526.2
9	Aug.	Heart's Desire, T.B.	Codtrap	723.5
9	Aug.	Bauline, C.B.	Codtrap	not sold
11	Aug.	Torbay	Codtrap	not sold
13	Aug.	Hampton, W.B.	Groundfish Gillnet	not sold
	Aug.	Durrells	Groundfish Gillnet	773.0
	Aug.	Norman's Cove, T.B.	Groundfish Gillnet	36.74
	Aug.	Beachside, N.D.B.		
14	Aug.	Sibleys Cove, T.B.	Groundfish gillnet	
26	Aug.	Valleyfield	Groundfish Gillnet	
2	Sept.	Portugal Cove, C.B.	Groundfish gillnet	not sold

Table 5: Basking Sharks reported entrapped in fishing gear during 1982.

Date		Location	Gear Involved	Length	Sex
15	June	Bauline, C.B.	Salmon Gilnet	2.5m	Male
22	June	Bauline, C.B.	Salmon Gillnet	2.1m	Male
5	July	Bay St. George	Gillnet	2.75	Male
10	July	Amhurst Cove	Salmon Trap	?	?
13	July	Eastport, B.b.	Groundfish gillnet	2.6	Male
17	August	St. Brides	Groundfish gillnet	1.9	Female
10	Sept.	Makovik, Lab.	Groundfish gillnet	3.1	Female

Table 6: Porbeagle Sharks reported entrapped in fishing gear during 1982.

Date		Location	Gear Involved	Length	Sex
30	August	St. Brides	Groundfish gillnet	1.9	Female
30	August	St. Brides	Groundfish gillnet	1.2.	Female
10	Sept.	Branch, S.M.B.	Groundfish gillnet	2.7	Male

Table 7: Blue Sharks reported entrapped in fishing gear during 1982.

Date		Location	Gear Involved	Length	Sex
11	March	Port au Basque	Trawl	3.6	Male
19	May	Fogo, Fogo Is.	Groundfish gillnet	7.0	?
2	June	Fogo, Fogo Is.	Groundfish gillnet	6.0	?

Table 8: Greenland Sharks reported entrapped in fishing gear during 1982.

Date	Location	Gear Involved	Animal	Disposition
18 June	Dildo, T.B.	None	Harpseal-Whitecoat	Dead
10 July	Quidi Vidi	Codtrap	Tuna	Dead
July	Rose Blanche	Gillnet	Leatherback Turtle	Dead
3 Aug.	Peters River, S.M.B	Codtrap	Tuna	Dead
11 Aug.	Flatrock	Codtrap	Tuna	Dead
20 Aug.	Bauline C.B.	Sharknet	Leatherback turtle	released alive

Table 9: Misc. animals reported entrapped in fishing gear during 1982.

Sharks					Whales					
Basking	Porbeagle	Blue	Greenland	Total	Humpback	Minke	Pothead	Fin	Unidentified Other	Total
35	7	3	3	48	35	9	12	0	26	82

Table 10: Total by species of whales and sharks reported entrapped in fishing gear during 1982 (to Sept.)

Year	Humpback			Fin			Minke			Pothead			Other			
	Alive	Dead	% Alive at release	Alive	Dead	% Alive at release	Alive	Dead	% Alive at release	Alive	Dead	% Alive at release	Alive	Dead	% Alive at release	Total
1979	34	13	72	4	3	57	1	9	10	0	4	0	6	1	85	75
1980	44	17	72	1	2	33	3	9	25	3	3	50	8	1	88	91
1981	23	8	74	0	1	0	3	8	27	6	37	14	5	12	30	103
1982	31	4	89	-	-	-	4	5	44	7	5	58	7	10	100	63

Table 11: Whales reported entrapped in fishing gear 1979-1982. (1982 data is to Sept.)

Date	Location	Species	No. of animals	Status and disposition
10 March	Port aux Basques	White-beaked dolphin	40	All animals dead when initially examined. Disection of all available animals by Doug Jinhai and Jon Lien of M.U.N.
27 July	Grand Bank	Pothead	23	12 animals successfully unstranded. 11 animals on beach when initially examined. 5 alive, 6 dead. Animals were finally killed. Examined by David St. Auban, Uof Guelph, Kevin Chu, Boston U., Ron Campbell Southeastern Mass U. and Doug Jinhai and Jon Lien of M.U.N.
18 August	Bonivista	Pothead	3	All alive when found and towed off. Two remained off but third rebeached and died. Some measurement by Dong Jinhai and Jon Lien of M.U.N.

Table 12. Mass strandings reported during 1982 (to 1 September)

Table 13: Strandings reported during 1982 (to Sept.)

Date	Location	Species	Remarks
10 April	Lord's Cove	Sperm	Dead Male, about 10 m
28 April	Point May	Sperm	Dead Male, 14.4M Examined by Dong JinHai of M.U.N.
29 June	Cartwright	Sperm	Dead male, about 13m. Some samples taken by Dong Jinhai of M.U.N.
12 August	Aspen Cove, N.D.B.	Pothead	Dead. Examined by Fishery Officer.
19 August	Logy Bay	Pothead	Not examined
16 March	Port aux Basque	Minke	Female. Dead in ice flow.
10 June	St. Brides	Minke	Dead. Not examined except to verify species.
19 July	West St. Modest	Minke	Dead. Examined by Quebec-Labrador Foundation field workers.
7 Sept.	Ause au Loup	Fin	18m Male. Examined by Fishery Officer.
31 August	Port au Port	Beleuga	3.5m examined by Fishery Officer.
2 Sept.	Admirals Cove, So. Short	Orca	6.5m Male initially stranded alive. Rebeached day later dead. Examined by Dong JinHai and Jon Lien.
2 April	Bay St. George	Mixed group Fin and Minke	19 Fin and Minke whales stranded in ice. After 24 Hr. ice cleared and whales freed.

....2

strandings cont'd....

Date	Location	Species	Remarks
20 April	Bellburns	?	Large dead whale afloat in ice.
14 June	Cottrels Cove	?	5m whale dead and very decomposed.
21 July	Harbor Main, C.B.	?	Small dead whale reported by R.C.M.P Not examined.
5 August	Little Bay Is.	?	5 m whale dead and badly decomposed.
12 March	Port aux Basque	Blue	22.5m male died at Red Rocks, Port aux Basque. Also reported at Highlands on 17 March and at Three Rock Cove, Port aux Port Pen. on 25 May. Examined by Dong Jinhai and Jon Lien at M.U.N.
12 March	Stevenville	Blue	22m Male dead. Earlier reported alive at Codroy. Later reported at Sandy Cove and Barachois Brook between 26 and 28 May. Examined by Dong Jinhai and Jon Lien of M.U.N.
20 April	Burgeo	Blue	21-22m male reported at Sand Banks by Fishery Patrol Vessel. Before examination, floated off. Dead blue reported in Cabot Straits between 24-25 May and may have been same animal.
27 July	St. Anthony	Blue	Dead blue whale at sea reported by Coast Guard.

Month	Salmon Nets			Gillnets			Codtraps			Other			Total	
	N	$ ξ	$\bar{X}$ *	N	$ ξ *	$\bar{X}$	N	$ ξ *	$\bar{X}$	N	$ξ *	$\bar{X}$	N	$ξ *
June	9	1,245	138.	1	180.	180	16	7,120.	548	3	2,408.	800	29	10,953.
July	6	980.	245.	9	9,451.	1,050.	12	5,468.	497	3	1,000.	500.	30	16,899.
August	2	-	-	2	390.	195.	-	-	-	-	-	-	4	390.
ξ	17	1,225.	171.	12	10,021.	835.	28	12,588.	466.	6	3,408.	681.	63	28,242.

Table 14: Inshore gear damage due to whales and sharks reported on the card report system to September 1, 1982. Report cards tend to be received later in the fall and thus totals for all 1982 damage will be higher than reported here. *Dollar estimate of damage was provided by fishermen; cases where damage was reported but no dollar estimate was given were excluded when calculating means.

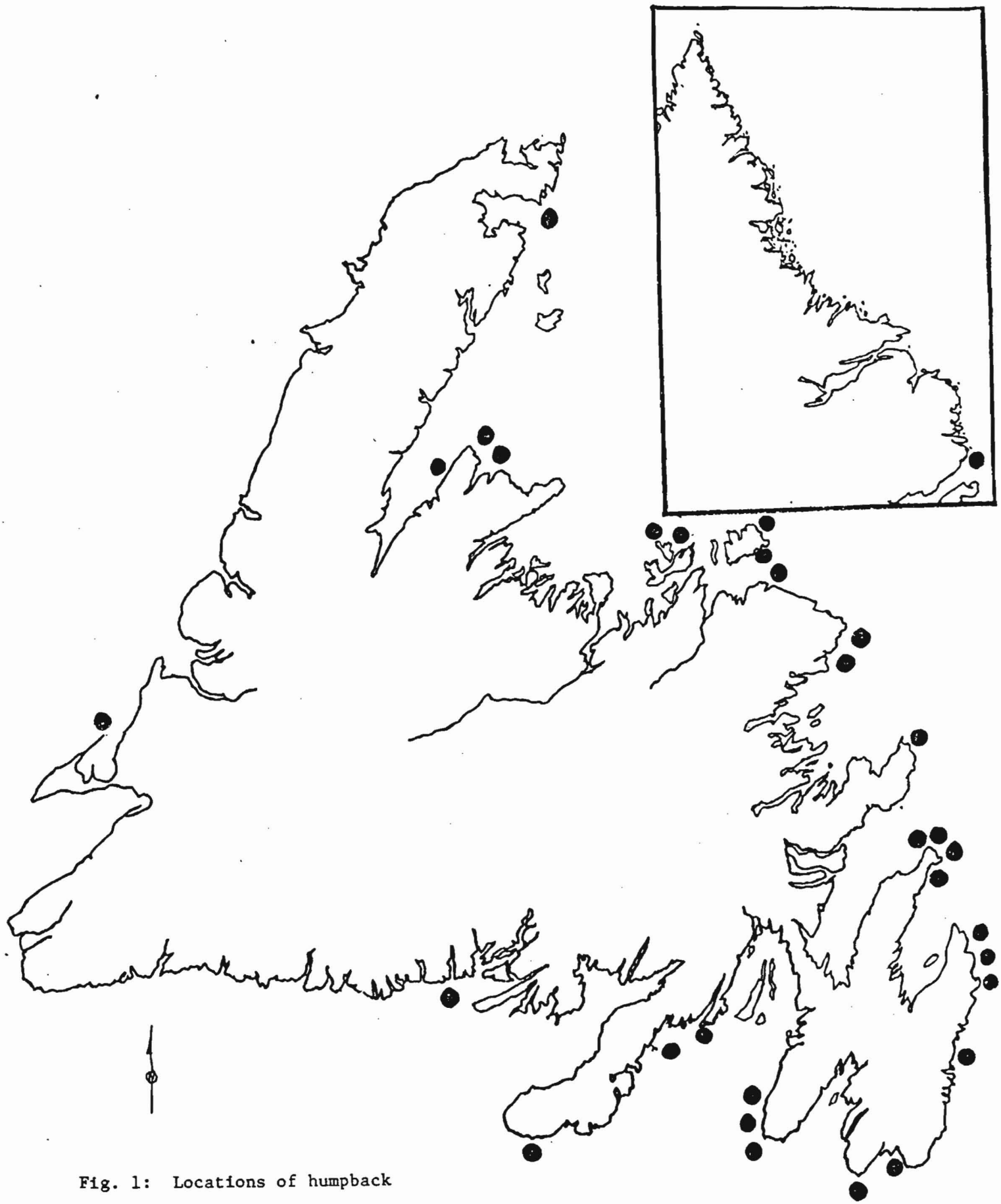

Fig. 1: Locations of humpback entrapment during 1982.

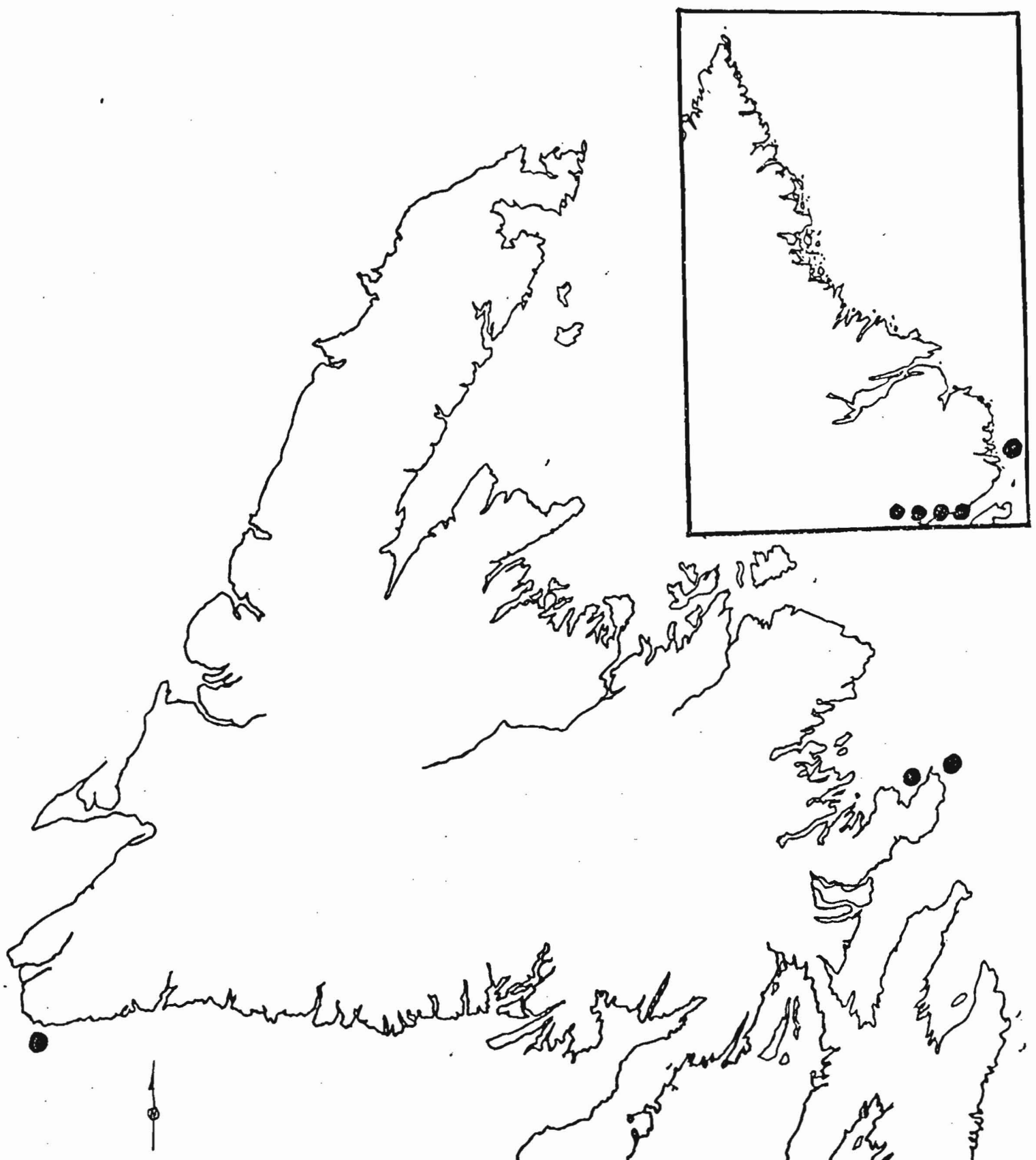

Fig. 2 : Locations of Minke whales reported entrapped in fishing gear during 1982.

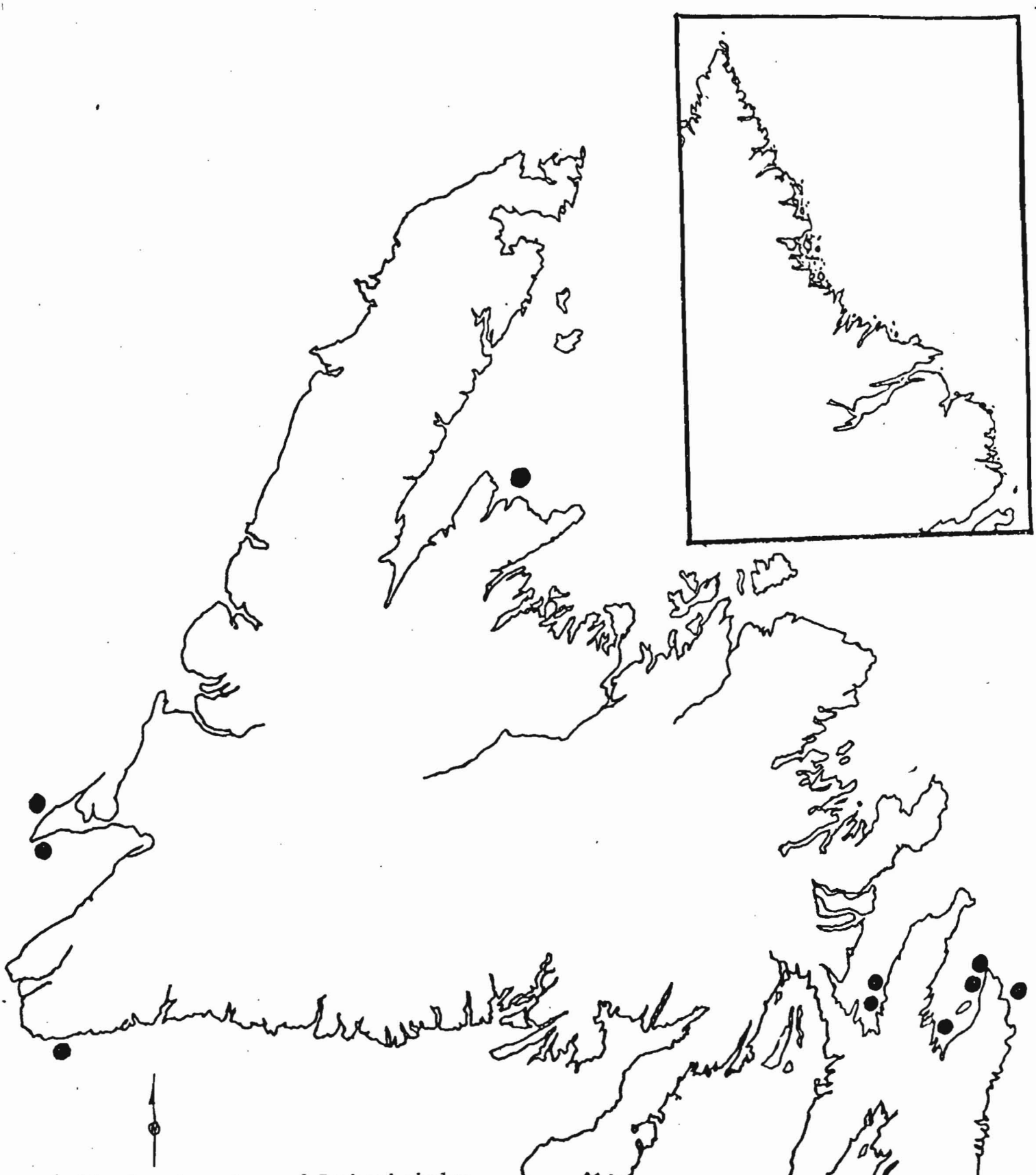

Fig. 3 : Locations of Pothead whales reported entrapped in fishing gear in 1982.

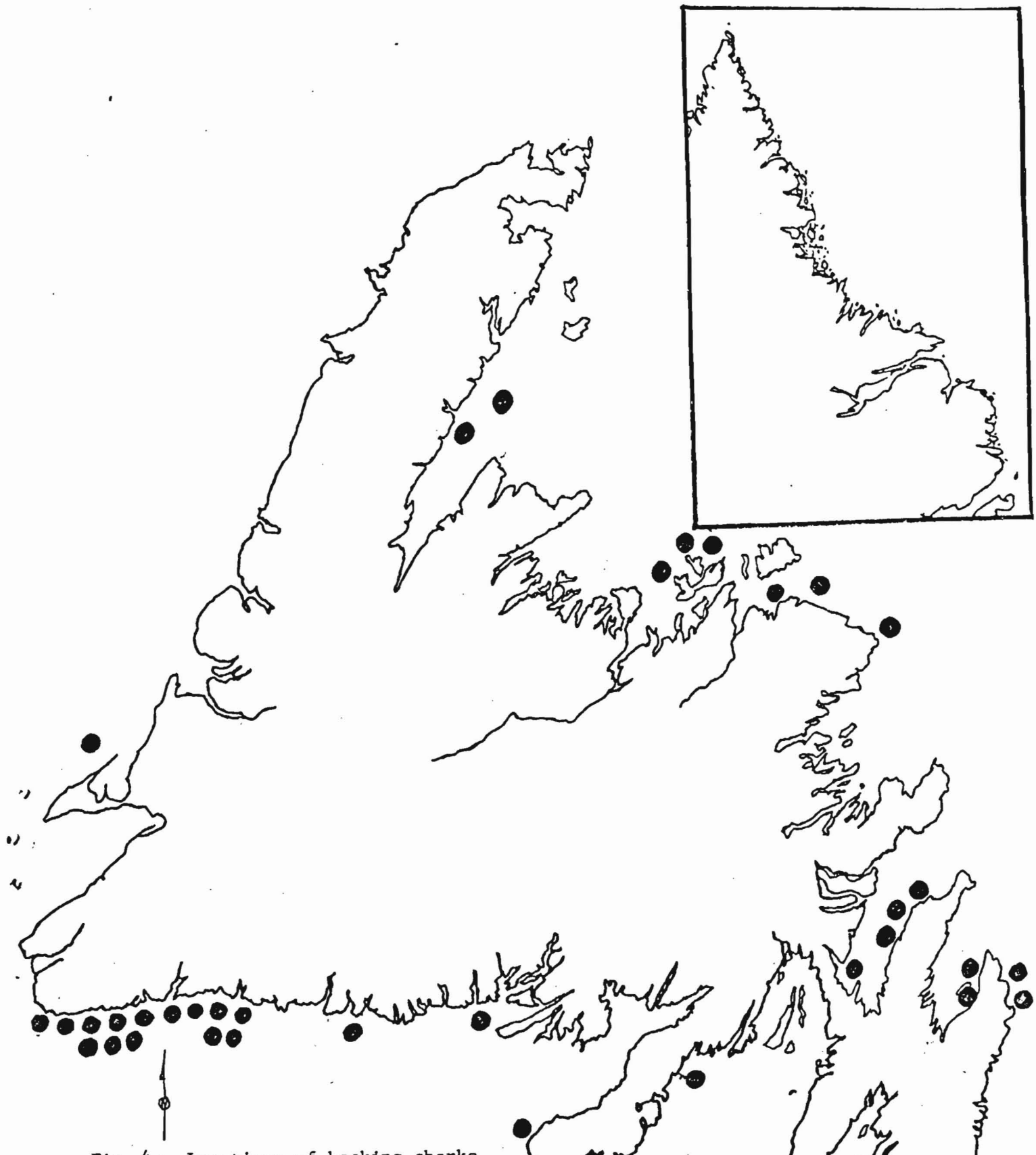

Fig. 4: Locations of basking sharks reported entrapped in fishing gear during 1982.

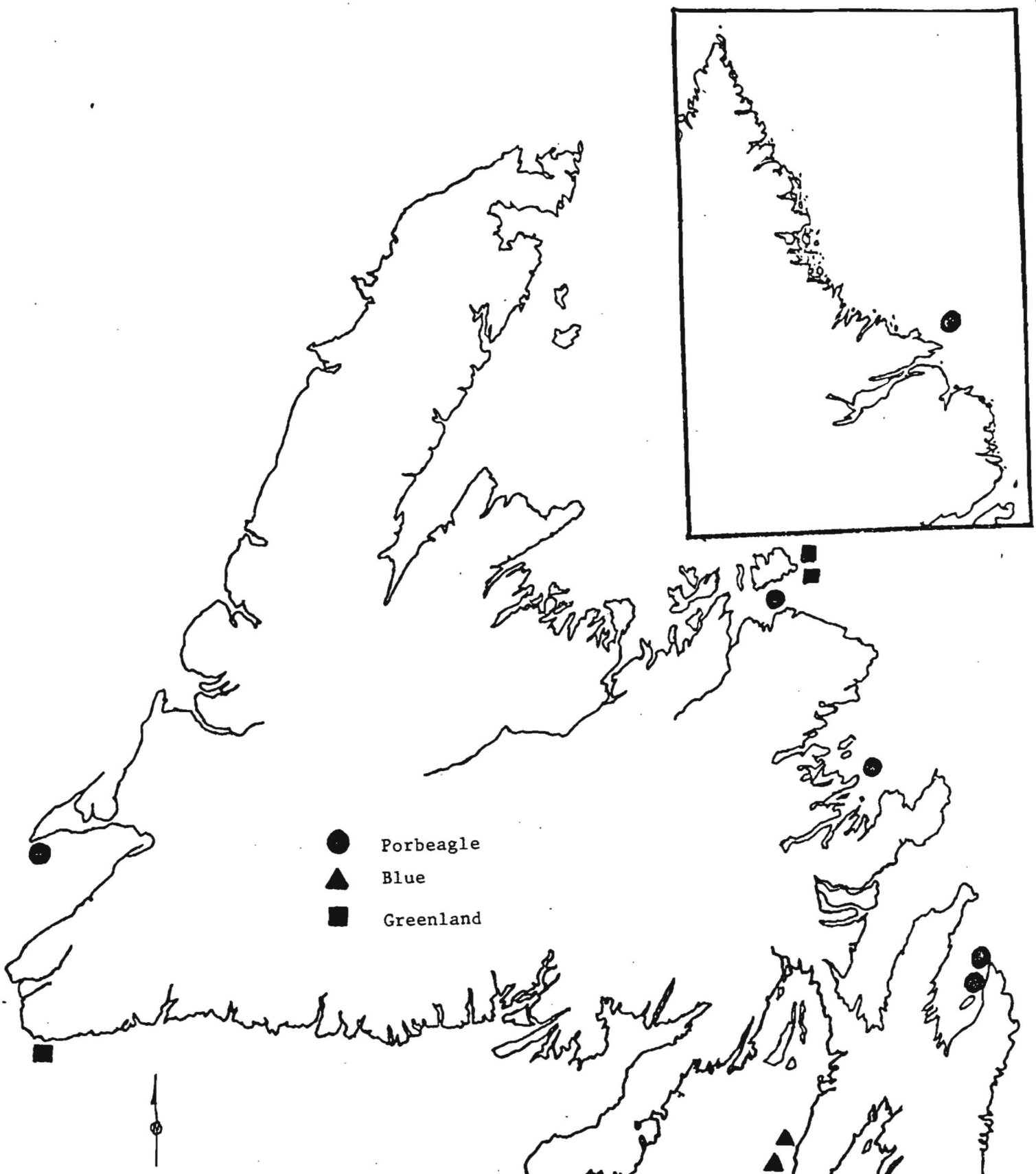

Fig. 5 : Locations of reported Porbeagle, Blue and Greenland Shark entrapments in fishing gear during 1982.

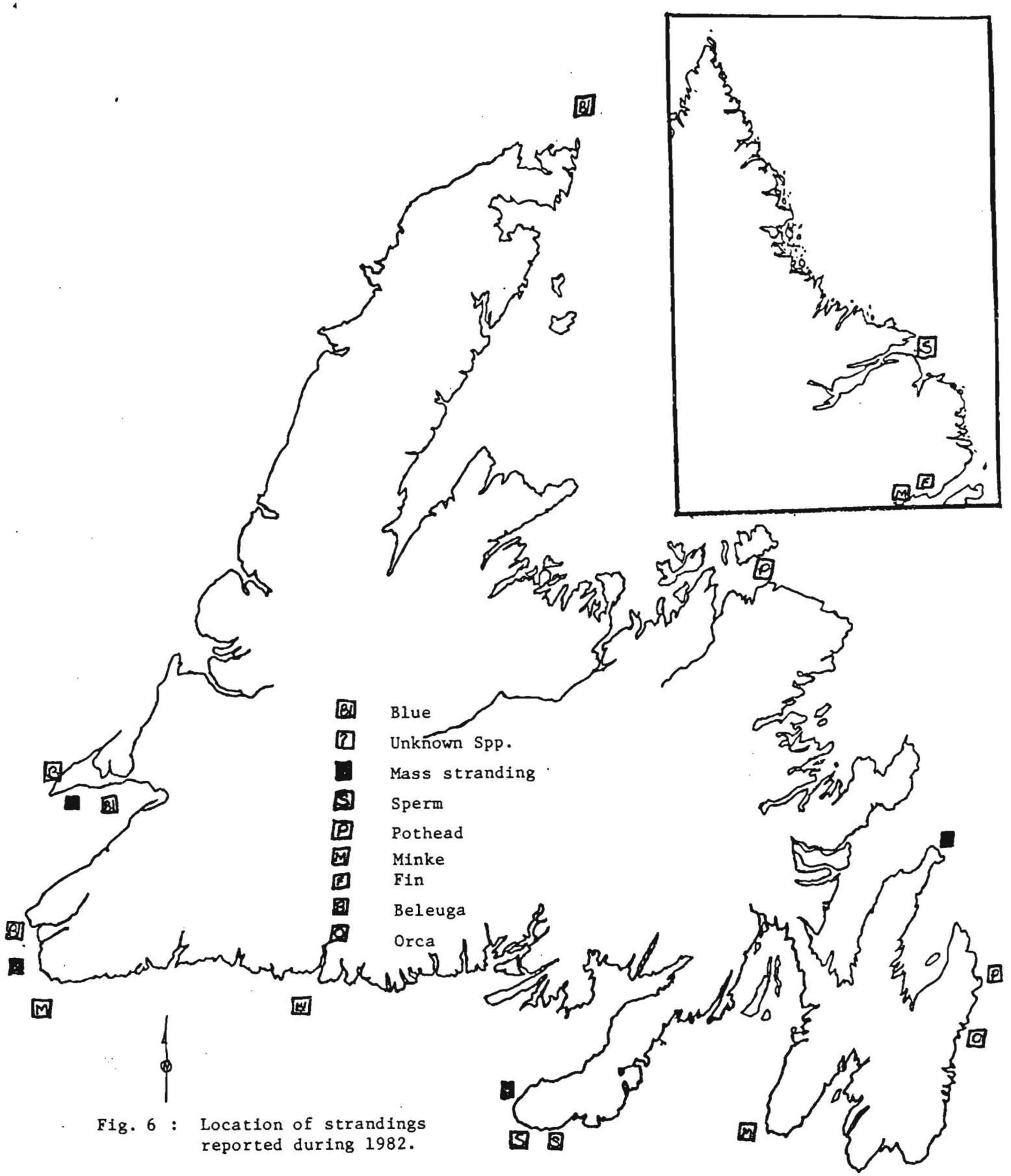

Fig. 6 : Location of strandings reported during 1982.

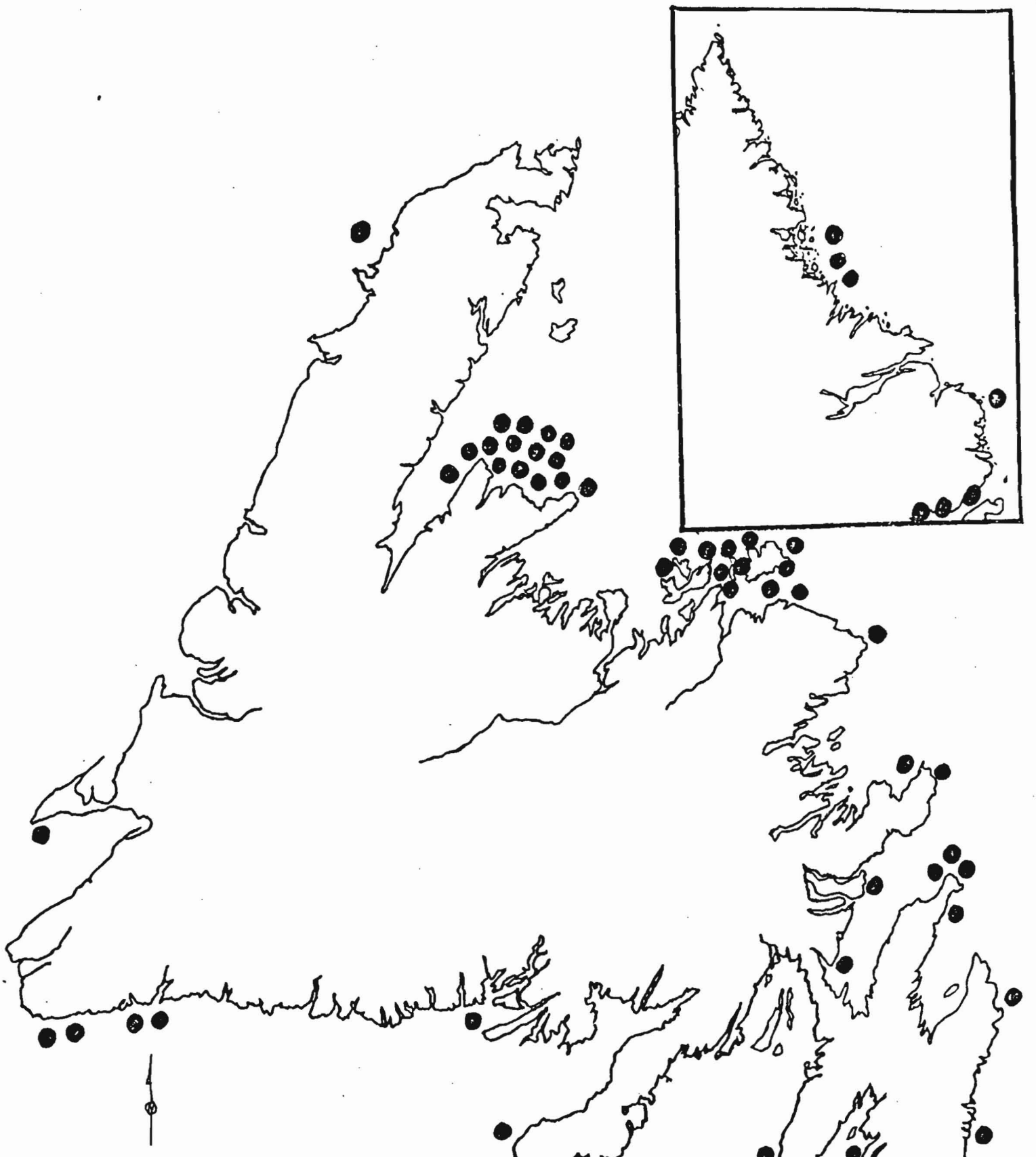

Fig. 7: Locations of damage to fishing gear due to whales and sharkes reported during 1982 to September 1st.

Fig. 8: Number of whales reported entrapped in fishing gear from 1979-1982. Under reporting of trapped whales was high in 1979 but relatively consistent and low in 1980-81. Under reporting estimates for 1982 are not complete. Under reporting varies somewhat by species; under reporting is more common with smaller animals.

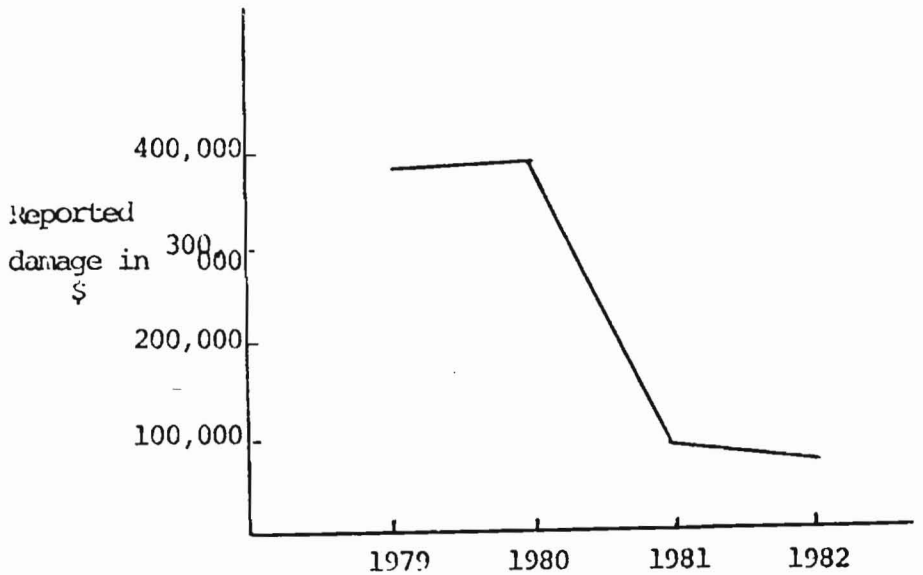

Fig. 9: Cost of damage in inshore fishing gear (in $) reported from 1979-1982. 1982 is incomplete. Under reporting estimates vary somewhat from year to year and have not been completed for 1982 data.