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さけ・ます流し網漁業に関連した海産哺乳動物、  
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1989年調査の概要

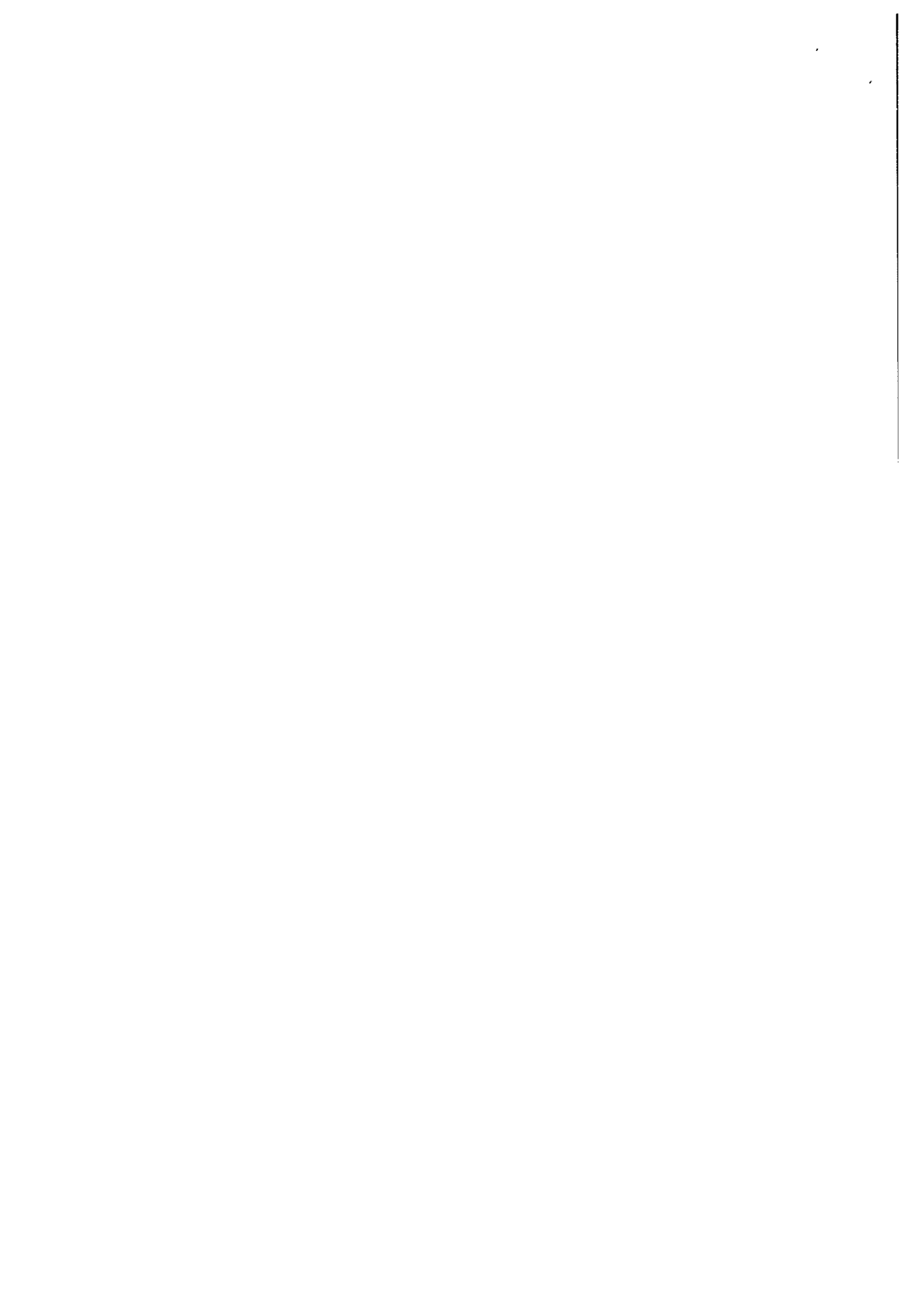
**Outline of 1989 Research on Marine Mammals,  
particularly on Dall's Porpoise relating  
to Salmon Gillnet Fisheries.**

加藤 守  
遠洋水産研究所  
Mamoru Kato  
Far Seas Fisheries Research Laboratory

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Fisheries Agency of Japan

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# さけ・ます流し網漁業に関連した海産哺乳動物 特にイシイルカに関する 1989 年調査の概要

加藤 守  
(遠洋水産研究所)

## 要 約

1989 年に母船式さけ・ます流し網漁業は 960 回の独航船操業を行い、イシイルカ 36 頭を混獲した。基地式さけ・ます流し網漁業は 702 千反の流し網を使用し、282 頭のイシイルカを混獲した。さけ・ます調査船は 174 回の流し網を行い、イシイルカ 3 頭及びオットセイ 3 頭を混獲した。さけ・ます調査船及び海産哺乳動物専門調査船は延べ 390 日、28,000 海里の海産哺乳動物目視調査を行った。基地式さけ・ます流し網漁業及びさけ・ます調査船に混獲し、港に持ち帰った海産哺乳動物は、イシイルカ 14 頭であった。

## は じ め に

1989 年のさけ・ます流し網漁業に関連した海産哺乳動物の調査研究は、1978 年に改定された「北太平洋の公海漁業に関する国際条約」の 10 条及び 1987 年に改定の上署名された日本と合衆国の了解覚書に従って実施された。具体的な調査計画は 1988 年 10 月 28 日～29 日に東京で開かれた海産哺乳動物分科会で検討された。1989 年 6 月から 9 月までに行われた調査研究項目は以下のとおりである。なお、これらの調査研究の一部及び結果の分析は現在行われている途中であり、ここでは調査の経過と概要を報告する。

## 調 査 項 目

1. 混獲された海産哺乳動物の統計資料
  - 1) 母船式さけ・ます流し網漁業
  - 2) 基地式さけ・ます流し網漁業
  - 3) さけ・ます調査船
2. イシイルカの豊度推定のための目視調査
3. イシイルカの生物学研究のための標本採集
  - 1) 母船式さけ・ます流し網漁業
  - 2) 基地式さけ・ます流し網漁業
  - 3) さけ・ます調査船

#### 4) 海産哺乳動物専門調査船

### 調査結果

#### 1. 混獲された海産哺乳動物の統計資料

##### 1) 母船式さけ・ます流し網漁業

1989年には母船式漁業による米国200海里内での操業は行われなかった。1母船とその付属独航船56隻(1988年には1母船、43付属独航船)が南公海(32隻)及び北公海(24隻)において960回の流し網操業を行い、南公海で27頭及び北公海で9頭合計36頭(1988年は222頭)を混獲した。

##### 2) 基地式さけ・ます流し網漁業

1989年の基地式さけ・ます流し網は5月下旬～6月下旬の漁期間中に702千反(1988年に793千反)を使用し、282頭(同じく319頭)のイシイルカを混獲した(表3)。

##### 3) さけ・ます調査船

1989年には流し網を使用した9隻のさけ・ます調査船が6月～8月に北太平洋水域において活動した。調査海域は177°W以西の北太平洋、49°N～56°N、160°W～136°Wのアラスカ湾及び175°E～178°Wのベーリング海であった。これらのさけ・ます調査船は6月4日～8月6日までの間に、174回(1988年に178回)、総使用反数13,847反(同じく17,785反)の試験操業を行い、海産哺乳動物6頭(21頭)を混獲した(表4)。内訳は、イシイルカが3回操業で3頭(すべてイシイルカ型)、及びオットセイ3回、3頭であった。

#### 2. イシイルカの豊度推定のための目視調査

イシイルカの豊度推定のためのさけ・ます調査船及びイシイルカ専門調査船は航行中に乗組員及び専門調査員による海産哺乳動物の目視調査を行った。この目視調査結果は遠洋水研で分析される。

1989年に11隻のさけ・ます調査船が6月1日～8月9日、1隻の海産哺乳動物専門調査船が8月3日～9月28日に、両者合計して延べ390日、28,000海里にわたり目視調査を行った(表5)。

#### 3. イシイルカの生物学研究のための標本採集

##### 1) 母船式さけ・ます漁業

1989年においては母船式さけ・ます漁業ではイシイルカの標本採集は行わなかった。

##### 2) 基地式さけ・ます流し網漁業

基地式流し網水域に生息するイシイルカの生物学情報を得るため、基地式漁船に混獲されたイシイルカの収集が行われた。1988年6月1日～15日に混獲されたイシイルカ12頭(1988年に15頭)が漁船により凍結標本として釧路港に持ち帰られた。イシイルカの内訳はイシイル

カ型 11 頭及びリクゼンイルカ型 1 頭であった。これらの標本は、7 月 28 日～8 月 6 日に函館で解凍され、生物学的計測、頭骨、歯、生殖腺、その他の臓器等の採集が行われた。採集された資料、標本の整理と分析は北海道大学及び国立科学博物館が行っている。

### 3) さけ・ます調査船

さけ・ます調査船の流網操業で混獲された海産哺乳動物は、通常船上において生物学的計測、解剖等を行ったり、あるいは冷凍標本として基地に持ち帰った後、同様の処理がなされる。1989 年の 6 月～7 月の操業期間中、1 隻の調査船がイシイルカ 2 頭(全てイシイルカ型)の冷凍標本を函館に持ち帰った。これらの標本は 7 月 28 日～8 月 6 日に函館において解凍され、生物学的計測、頭骨、生殖腺、その他の臓器等の採集が行われた。収集された資料、標本の分析は北海道大学及び国立科学博物館が行っている。

### 4) 海産哺乳動物専門調査船

海産哺乳動物専門調査船は 1989 年 8 月～9 月に北東太平洋において海産哺乳動物の目視と突きん棒によるイルカ類の捕獲を目的として航海した。

調査期間 1989 年 8 月 3 日 (ホノルル) ～ 9 月 28 日 (気仙沼)

調査海域 20° ～ 45° N、148° W～130° W の北東太平洋

調査船 海祥丸 (水産庁用船) 全長 42 m、299 トン

この調査で得られた資料と標本は、遠洋水研により分析される予定である。

Table 1. Number of incidental take of marine mammals, catcher boat operations and gillnets used by mothership salmon driftnet fishery during 1978 to 1989.

Year	Total number of catcher boat operation	Total number of gillnets used (in tans)	Total number of incidental take	Break down by species				
				PD	PP	OO	CU	EJ
1978	8,284	2,721,113	505	497	1	1	6	0
1979	8,611	2,798,002	688	682	3	0	3	0
1980	9,551	3,145,913	1,004	1,000	4	0	0	0
1981	8,811	2,902,231	1,370	1,361	0	0	9	0
1982	8,957	2,942,443	3,199	3,190	0	0	8	1
1983	8,967	2,953,699	2,990	2,986	0	0	4	0
1984	8,333	2,739,857	2,675	2,670	0	0	5	0
1985	7,051	2,322,160	2,751	2,747	0	0	4	0
1986	5,854	1,929,626	1,857	1,856	0	0	1	0
1987	3,888	1,282,327	808	801	0	1	6	0
1988	1,462	482,736	222	222	0	0	0	0
1989 <sup>a</sup>	960	316,454	36	36	0	0	0	0

a: Preliminary

PD: Dall's porpoise  
 CU: Northern fur seal  
 EJ: Steller sea lion

PP: Harbour porpoise  
 OO: Killer whale

Table 2. Number of incidental take of Dall's porpoise, number of sets of gillnets in US 200 mile zone, southern and northern parts of high seas, 1981-1989.

Year	US 200 mile zone		Southern part of high seas		Northern part of high seas		Total	
	No. of sets	No. of take	No. of sets	No. of take	No. of sets	No. of take	No. of sets	No. of take
1981	6,150	1,137	-	-	2,661*	224*	8,811	1,361
1982	6,271	2,389	1,207	208	1,479	593	8,957	3,190
1983	6,217	2,399	1,329	136	1,421	451	8,967	2,986
1984	5,694	2,129	1,329	176	1,310	365	8,333	2,670
1985	5,672	2,423	407	28	972	296	7,051	2,747
1986	4,660	1,607	332	35	862	214	5,854	1,856
1987	2,808	676	383	43	697	82	3,888	801
1988	0	0	688	68	774	154	1,462	222
1989 <sup>a</sup>	0	0	672	27	288	9	960	36

\*: Including southern part of high seas

a: Preliminary

Table 3. Number of incidental take of marine mammals and gillnets used by land based salmon driftnet fishery, 1978-1989.

Year	Total number of gillnets used (in tans)	Dall's porpoise	Northern right whale dorphin
1978	3,371,736	303	0
1979	3,218,490	127	0
1980	3,144,187	139	0
1981	3,233,925	696	0
1982	2,961,730	1,641	0
1983	3,133,681	1,291	0
1984	2,823,704	812	1
1985	2,442,430	781	0
1986	1,436,175	404	0
1987	1,156,224	458	0
1988	792,736	319	0
1989 <sup>a</sup>	701,938	282	0

a: Preliminary



Table 4. Number of incidental take of marine mammals, gillnet operation and number of gillnets used by Japanese salmon research vessels, 1978-1989.

Year	Number of total gillnet operation	Number of gillnets used (in tans)	Species									
			Dall's porpoise			PP	LO	LB	UD	CU	US	RS
			(PT)									
1978	355	44,622	27(22) <sup>b</sup>	0	0	0	0	0	1(1)	1(1)	0	0
1979	268	34,615	20(16)	0	0	1(1)	0	0	17(12)	0	0	0
1980	276	38,080	57(26)	1(1)	1(1)	0	3(1)	3(2)	19(10)	0	0	0
1981	287	40,739	21(15)	1(1)	0	0	3(2)	0	15(13)	0	0	0
1982	317	40,262	48(37)	2(2)	0	0	0	0	15(11)	0	0	0
1983	321	39,730	31(26)	0	0	0	0	0	2(2)	0	0	0
1984	351	44,579	39(31)	0	1(1)	1(1)	3(1)	0	6(6)	0	1(1)	0
1985 <sup>*</sup>	258	33,352	39(26)	14(12)	1(1)	0	1(1)	0	0	0	0	0
1986 <sup>*</sup>	262	26,019	24(21)	3(3)	2(2)	0	0	1(1)	7(5)	0	0	1(1)
1987	180	17,094	16(13)	0	0	2(1)	0	0	3(3)	0	0	0
1988	178	17,785	14(10)	0	1(1)	0	2(1)	0	4(4)	0	0	0
1989 <sup>a</sup>	174	13,847	3(3)	0	0	0	0	0	3(3)	0	0	0

\*: Including Japanese FCZ

a: Preliminary

b: The figures in parentheses indicate the number of operations when marine mammals were taken.

PT: Truei type

CU: Northern fur seal

PP: Harbour porpoise

RS: Ringed seal

LO: Pacific whiteside dolphin

ZX: Unidentified porpoise

LB: Northern right whale dolphin

US: Unidentified seal

Table 5. Sighting survey of marine mammals conducted by salmon research vessels, 1978-1989.

Year	Number of research vessels	Period of survey	Accumulated days sighted	Accumulated distance sighted (N.M.)
1978	9	May 10 - Sept. 14	563	36,505
1979	9	May 10 - August 11	533	42,969
1980	9	April 21 - August 13	548	44,744
1981	9	April 23 - August 16	639	46,232
1982	10 <sup>b</sup>	April 24 - Sept. 19	653	49,830
1983	10 <sup>b</sup>	April 20 - Sept. 10	608	43,116
1984	11 <sup>c</sup>	April 20 - August 21	588	50,614
1985	9 <sup>b</sup>	May 2 - Sept. 12	462	37,614
1986	11 <sup>b</sup>	April 19 - Oct. 5	544	48,534
1987	11 <sup>b</sup>	June 1 - Sept. 28	461	40,328
1988	11 <sup>b</sup>	June 1 - Sept. 28	450	35,000
1989 <sup>a</sup>	12 <sup>d</sup>	June 1 - Sept. 28	390	28,000

a: Preliminary

b: Including dedicated vessel for Dall's porpoise research

c: b + Wakashio maru

d: Including dedicated vessel for marine mammals research

TRANSLATION

**OUTLINE OF 1989 RESEARCH ON MARINE MAMMALS,  
PARTICULARLY ON DALL'S PORPOISE RELATING TO  
SALMON GILLNET FISHERIES**

**Mamoru Kato  
Far Seas Fisheries Research Laboratory**

**1989 September  
Fisheries Agency of Japan**

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OUTLINE OF 1989 RESEARCH ON MARINE MAMMALS,  
PARTICULARLY ON DALL'S PORPOISE RELATING TO  
SALMON GILLNET FISHERIES

Mamoru Kato  
Far Seas Fisheries Research Laboratory

ABSTRACT

Although 960 catcher boat operations were conducted in the 1989 mothership salmon gillnet fishery, and 36 Dall's porpoises were taken incidentally. For the landbased salmon gillnet fishery, gillnets of 702,000 tan were used, and 282 Dall's porpoises were taken incidentally. The salmon research vessels conducted 174 gillnet operations, and caught 3 Dall's porpoises and 3 northern fur seals incidentally. The salmon research vessels and a dedicated vessel for marine mammals research conducted a total of 390 day sighting surveys (28,000 miles). Marine mammals which were caught incidentally by the landbased salmon gillnet fishery and salmon research vessels and returned to the harbour were 14 Dall's porpoises.

## Introduction

Research on marine mammals was conducted in 1989 in accordance with Article X of the International Convention for the High Seas Fisheries of the North Pacific Ocean, as amended in 1978, and the Memorandum of Understanding Between the Governments of Japan and the United States, as amended and signed in 1987. A specific research plan was presented and reviewed at the scientific meeting on Marine Mammals, INPFC, held in Tokyo during 1988 October 28 to 29. The details of research conducted during 1989 June to September are as follows. Since some parts of the research and some analyses are still underway, only an outline and progress is reported.

## Research items

1. Collection of statistical data on incidentally taken marine mammals in the following operations:
  - (1) Mothership salmon driftnet fishery
  - (2) Landbased salmon driftnet fishery
  - (3) Salmon research vessels
2. Sighting survey for estimating abundance of Dall's porpoise
3. Sampling for biological studies of Dall's porpoise in the following operations:
  - (1) Mothership salmon driftnet fishery
  - (2) Landbased salmon driftnet fishery
  - (3) Salmon research vessels
  - (4) Dedicated vessel for Dall's porpoise research

## Results of research

1. Statistical data on incidentally taken marine mammals
  - (1) Mothership salmon driftnet fishery

In 1989, although there were no mothership salmon fisheries within the U.S. 200-mile zone, one mothership and 56 catcher boats (one mothership and 43 catcher boats in 1988), conducted 960 gillnet operations in the southern international waters (32 vessels) and northern international waters (24), and caught a total of 36 Dall's porpoises (222 in 1988) incidentally; 27 were taken in the eastern international waters and 9 were taken in the northern international waters.

(2) Landbased salmon driftnet fishery

In 1989, the landbased salmon driftnet fishery operated with a total of 702,000 (793,000 in 1988) tans of gillnet and incidentally caught a total of 282 (319 in 1988) Dall's porpoise during the fishing season from late May to late June (Table 3).

(3) Salmon research vessels

In 1989, nine salmon research vessels were engaged in the survey with gillnets from June to August in the North Pacific. Areas surveyed were waters west of 177°W in the North Pacific, and 49°N to 56°N, 160°W to 136°W in the Gulf of Alaska, and 175°E to 178°W in the Bering Sea. These salmon research vessels conducted a total of 180 (178 in 1988) operations with 13,847 (17,785 in 1988) tans of gillnet used in total from June 4 to August 6, and a total of 6 (21 in 1988) marine mammals were taken incidentally (Table 4). The breakdown was 3 Dall's porpoises (all dalli-type) in 3 operations, and 3 northern fur seals in 3 operations.

2. Sighting survey for estimating abundance of Dall's porpoise

For estimating the abundance of Dall's porpoises, sighting surveys were conducted during the cruises by crew members and investigators on board the salmon research vessels and one dedicated research vessel. The results will be analyzed at the Far Seas Fisheries Research Laboratory.

In 1989, eleven salmon research vessels from June 1 to August 9 and one dedicated research vessel from August 3 to September 28 conducted sighting surveys for a total of 390 days (28,000 miles) in 1989 (Table 5).

3. Sampling for biological studies of Dall's porpoise

(1) Mothership salmon driftnet fishery

In 1989, there was no sampling for Dall's porpoise in the mothership salmon driftnet fishery.

(2) Landbased salmon driftnet fishery

The effort to collect Dall's porpoise taken incidentally in the landbased salmon driftnet fishery was expanded to obtain biological information on Dall's porpoise found in the area of operations of this fishery. During 1989 June 1 to 15, 12 frozen Dall's porpoises (15 in 1988) (11 dalli type and 1 truei type) were brought back to Kushiro by fishing vessels. These samples were thawed at Hakodate, biological measurements were made, and skulls, teeth, reproductive organs and other internal organs were collected from July 28 to August 6. Collected samples are being sorted and analyzed at the Hokkaido University and National Science Museum, Japan.

(3) Salmon research vessels

For marine mammals taken incidentally by driftnet operations of the salmon research vessels, biological measurements, dissection, etc. were generally conducted on board the vessels or at the respective base ports after unloading and thawing. During the survey period, 1989 June to July, one research vessel brought back 2 frozen samples of Dall's porpoises (all dalli type) to Hakodate. These samples were thawed at Hakodate from July 28 to August 6, and biological measurements were made, and skulls, teeth, reproductive organs and other internal organs were collected. Collected samples are being analyzed at the Hokkaido University and National Science Museum, Japan.

(4) Dedicated vessel for marine mammal research

In 1989, the vessel dedicated to marine mammal research conducted a sighting survey of marine mammals and captured Dall's porpoise with harpoons in the northeastern Pacific during August to September.

Period: 1989 August 3 (Departed from Honolulu) to  
September 28 (returned to Kesen-numa)

Area: the northeastern Pacific between 20° and 45°N, and 148° and  
130°W

Vessel: Kaisho maru, 42 m length and 299 GT (chartered by the  
Fisheries Agency of Japan)

Data and samples obtained from this research will be analyzed at the  
Far Seas Fisheries Research Laboratory.

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