INPFC
Doc. 2323

INTERNATIONAL NORTH PACIFIC FISHERIES COMMISSION

Tokyo, Japan, 1980 February 29

REPORT OF THE SCIENTIFIC SUB-COMMITTEE OF THE AD HOC COMMITTEE ON MARINE MAMMALS

The Scientific Sub-Committee of the Ad Hoc Committee on Marine Mammals met February 25 to 29, 1980 in Tokyo, Japan. C.R. Forrester convened the meeting. Commissioner Hiroya Sano of Japan welcomed participants and made brief opening remarks.

The sub-committee submits the following report to the Ad Hoc Committee on Marine Mammals.

1. PARTICIPANTS. Individuals participating in the meeting are listed in Appendix 1.

2. SELECTION OF CHAIRMAN. Mr. K. Takagi of Japan was selected as chairman.

3. SELECTION OF RAPPORTEUR. The Secretariat kept the record and prepared a draft report for consideration by the sub-committee.

4. AGENDA. The scientific sub-committee adopted the following agenda for its sessions:

(a) Opening remarks
(b) Introduction of members and advisers
(c) Election of chairman
(d) Appointment of rapporteur
(e) Adoption of agenda
(f) Review of terms of reference
(g) Review of documents
(h) Review of research activities in 1979 season
  i. On Japanese research vessels
  ii. On Japanese motherships
  iii. On U.S. platforms of opportunity
  iv. Acoustic studies
  v. Others

(i) Review of research program
  i. Abundance studies
    (1) Incidental catch data
    (2) Sighting survey
  ii. Biological studies
  iii. Acoustic studies
  iv. Behavioral studies
  v. Field trials of proposed gear modification or technique
  vi. Others
(j) Research plan in 1980 season
(k) Future meetings or consultations
(l) Consideration of a report to the ad hoc committee

5. REVIEW OF TERMS OF REFERENCE. The terms of reference assigned in 1979 and used by the sub-committee are as follows:

a. Coordinate and review studies with respect to marine mammals incidentally caught in the Convention area when fishing for anadromous species, as per Article X of the Convention, paragraph 1(c) of the Annex to the Convention, and the Memorandum of Understanding regarding Dall's porpoises signed by representatives of the Governments of Japan and the United States in Tokyo on April 25, 1978

b. Prepare a report annually for consideration by the Ad Hoc Committee on Marine Mammals on the above matters

6. REVIEW OF DOCUMENTS. The following documents were studied by the sub-committee: Docs. 2229, 2260, 2262, 2263, 2264, 2265, 2266, 2267, 2268, and 2269. Titles of these documents appear in Appendix 2.

7. REVIEW OF RESEARCH ACTIVITIES IN 1979 SEASON.

(a) On Japanese research vessels. Research on marine mammals aboard Japanese salmon research vessels in 1979 was reported at the 1979 meeting of the Ad Hoc Committee on Marine Mammals. The United States report was based on Doc. 2229. An oral summary of research was also presented by Japan at that time and both summaries were incorporated into Doc. 2154. The research was primarily concerned with Dall's porpoise abundance, distribution, behavior, and incidental catch by gillnets. Research was conducted by United States scientists aboard the salmon research vessels Hokusei maru, the Oshoro maru, and the vessel dedicated specifically to marine mammal research, the Hoyo maru No. 67. The United States report on the research aboard the Hoyo maru No. 67 was contained in Doc. 2268. Information on incidental catch of marine mammals in gillnets of the

Japanese salmon research vessels was reported in Doc. 2262. The sighting surveys were conducted by nine Japanese salmon research vessels independently from U.S. scientists aboard. The original data of sightings in 1978 and 1979 were reported in Doc. 2265. Computer tapes of the data contained in Docs. 2262 and 2265 were provided to the United States by Japan.

Records of incidental capture of marine mammals in the Japanese landbased fishery were reported in Doc. 2263. Some question arose as to the reasons for the decline in incidental catch in the landbased fishery in 1979 (127 Dall's porpoise caught) compared to that in 1978 (303 porpoise caught). No reasons were determined, but there were suggestions it may have been the result of reduced effort in some fishing areas.

During discussion it was noted that at the 1979 sub-committee meeting it was agreed to report incidental catch of porpoises by two categories: (1) captured and released alive, and (2) captured dead. No such breakdown was recorded in the landbased fishery data in 1979. However, Japan stated that the number reported included both categories. Japan said that inadequate instructions had been transmitted to the fleet and the matter would be corrected in 1980.

(b) On Japanese motherships. Information on United States marine mammal research aboard Japanese salmon motherships in 1979 was given in Doc. 2229 and summarized at the ad hoc committee meeting. The incidental catch of marine mammals by the Japanese salmon mothership fishery was summarized by Japanese statistical areas in Doc. 2264 according to requirements in the Memorandum of Understanding. The United States noted a discrepancy in the reporting of Dall's porpoises in Doc. 2264. Of the total of 682 Dall's porpoise taken, 611 had been returned to the motherships, 17 others were reported not returned and no data was available for 54. It was to be determined whether these had been released alive or taken after the United States observers had left the motherships. Biological samples were collected from the 611 Dall's porpoise and 4 harbour porpoise. The United States agreed to provide Japan with a complete compilation on computer tape of the biological data obtained from each animal sampled in 1978 and 1979.

(c) On U.S. platforms of opportunity. United States continued the collection of marine mammal sightings particularly from United States NOAA vessels and from Alaskan trawlers. Concentration was on collection of data in areas and at times where no previous data existed, particularly in winter in the Gulf of Alaska. The collection of data is continuing. A computer tape containing sightings data collected by U.S. scientists during 1978 and 1979 on board platform of opportunity vessels and Japanese salmon research vessels was provided to Japan by the United States.

(d) Acoustic studies. The United States in 1978 had initiated a contract for studies of Dall's porpoise acoustical capabilities with the Hubbs-Sea World Research Institute. The objectives of the study were to obtain and analyze recordings of Dall's porpoise, analyze hearing potential based on morphological studies and determine whether the animals were capable of detecting Japanese salmon gillnets.

At the 1979 sub-committee meeting it was noted that past U.S. high seas research on salmon had used various mesh sizes and that data from that research might provide evidence of variation in incidental catch with variation in mesh size. However, the United States reported that the United States scientists had not recorded mesh sizes for capture of porpoise in past years.

A Japanese scientist described research activities conducted in 1979 on board the Hoyo maru No. 67 concerning acoustic studies on the relationship between noise caused by salmon gillnets and sea conditions, and the voice of Dall's porpoises.

(e) Others. No discussion took place under this agenda item.

8. REVIEW OF RESEARCH PROGRAM

(a) Abundance studies. Japan stated that abundance estimates made for 1978 had been reported in Doc. 2150. Estimates derived from the 1979 survey were reported in Doc. 2266.

In 1979 the Japanese survey was conducted over a total of 42,969 miles, or 6,494 more than in 1978. Crew members participating in sighting operations averaged 3.1 per vessel on the nine vessels involved in the 1979 survey. All marine mammals sighted (15 species) were recorded and most were Dall's porpoise. Dalli-type were found in all areas surveyed and truei-type only in the southwestern part of the research area, generally in warmer water than dalli. It was noted that when water temperature was higher than 18.7°C no Dall's porpoise were found. The northernmost sighting of Dall's porpoise in 1979 was 59°N. However, a Dall's porpoise school had been noted as sighted at 66°N in a U.S. platform of opportunity program report.

Japanese methods of calculating abundance of Dall's porpoise using Doi's procedure are described in detail in Doc. 2150. The total number estimated for the research area in 1979 was 1.85 million animals. A sighting correction factor was applied to this estimate and subsequent extrapolation to the entire range of the animal yielded a total population estimate of 5 to 10 million Dall's porpoise in the entire North Pacific. It was emphasized that this estimate, as was the 1978 estimate of 5 million, was a provisional one. It was also noted that even when incidental Dall's porpoise capture was estimated to be as high as 20,000 animals during the peak period of the Japanese

salmon fishery, this catch amounted to only 0.2 to 0.4% of this population estimate. It was emphasized in Doc. 2266 that incidental catch rate of smaller cetaceans, mainly Dall's porpoise, by Japanese salmon research vessels since 1962 has shown no trend to change. This means that the salmon gillnet fishery has not affected the Dall's porpoise population if the incidental catch rate represents the density of Dall's porpoise.

A United States preliminary estimate of Dall's porpoise abundance was contained in Doc. 2267. The United States method for measuring abundance used the strip transect method of Estes and Gilbert (1978)[1], and details of the procedure are contained in the document. Estimates of abundance were made using 200 m and 400 m transect widths in the survey area and an estimated abundance in an adjoining unsurveyed area which is known to contain Dall's porpoise. For the 200 m width base total abundance was estimated as 1.3 million individuals in 1978 and 1.8 million in 1979. For the 400 m transect base the estimates were 0.8 million and 1.2 million respectively for 1978 and 1979.

United States and Japanese workers recognize need for considerably more study on the sighting procedures and their effect on population estimates. Methods of abundance estimation are to be discussed by selected members in a meeting to follow this scientific sub-committee meeting.

(b) Biological studies. Results of United States research on life history studies on Dall's porpoise were presented in Doc. 2269. Length frequency distributions for various categories of porpoises taken in 1978 and 1979 were included. Stages of maturity were recorded for both males and females sampled and it was noted that 60% of the porpoises taken were females in both years. No reliable means of determining age of porpoise has yet been found. Food studies have begun on 226 stomachs for specimens taken in 1978, and these contained a total of 32 fish species, principally mesopelagic. A subsample of the 1979 collections shows a similar diet. The remaining 1979 samples are still to be examined.

A Japanese scientist described preliminary research on genetic polymorphisms of enzymes of Dall's porpoise being conducted in cooperation with a United States scientist, which ultimately may be of value in population studies. It was also noted that future adrenal glands analysis might contribute to knowledge of individual stress.

---

[1]Estes, J.A. and J.R. Gilbert. 1978. Evaluation of an Aerial Survey of Pacific Walruses (Odobenus rosmarus divergens). J. Fish. Res. Board Can. 35:1130-1140.

(c) Acoustic studies. The United States reported on studies of acoustic capabilities of Dall's porpoise (Doc. 2268). High frequency pulses (120-160 KHz) were recorded from one school of porpoise and upper level auditory responses of the porpoise were estimated to be about 170-200 KHz. Hubbs-Sea World Research Institute investigators believed that monofilament nets would be difficult for the porpoise to detect and suggested that increasing the net's capability for reflecting pulse energy may increase the probability of porpoise detecting the net. Methods suggested were to weave commercially available air-filled braided nylon line or place metal tags at intervals through the net. No field work of such research has been planned by the United States.

Japanese scientists reported on acoustic studies. They noted the ability of porpoise to detect a wide frequency of pulses. Field trials to examine responses to both high and low frequency pulses would be desirable, as would further study on the pulse-emitting capability of the porpoise.

(d) Behavioral studies. Results of United States observation on porpoise behavior as contained in Doc. 2268 were summarized for the sub-committee. It was noted that there appeared to be a great attraction of animals to the vessels. This factor may have an important influence on estimates of abundance of porpoise, i.e. overestimate their abundance. Observations were also made of porpoise behavior during daylight deployment and retrieval of nets. Animals were observed to approach the nets at high speed and then turn away or go under the net. Such behavior was repeated and described as "play". It is not known whether net avoidance was the result of visual or acoustic cues. The United States is cataloging animal behavior. There were divergent views on the manner of entanglement and portion of body first entangled. Further observations are planned by both United States and Japan.

(e) Field trials of proposed gear modification or technique. The United States reported that in the first cruise of the dedicated vessel in 1979 observations had been conducted of gear configuration and marine mammals near the gear. Sea lions and fur seals were observed near and taking salmon from the nets. No such feeding instances occurred for porpoises. In 4 of the 17 net sets large pockets were observed to have formed in the gear at time of retrieval. Such pockets may or may not contribute to entanglement. The United States also expressed the opinion that net construction may be conducive to capture in that knots are designed to slip, preventing breakage. No field trials of any gear modifications are planned for 1980. However, net patrols prior to retrieval will be continued to study configurations of gear and effects on capture.

(f) Others. No discussion took place under this agenda item.

9. RESEARCH PLAN IN 1980 SEASON

(a) Aboard Japanese research vessels. The United States noted that 1980 was the third and final season of research being conducted under the Memorandum of Understanding between United States and Japan. The United States wished to emphasize in 1980, (1) the sighting surveys, (2) observations of porpoise behavior near nets and vessels, (3) re-sighting of tagged porpoise and (4) collection of biological data. The general proposals are contained in Doc. 2260. The United States was desirous of placing two scientists aboard research vessels in fishing areas or in areas not previously covered. For these purposes the United States requested placement of U.S. scientists aboard the cruises of the Oshoro maru and the Hokushin maru.

Japan stated her willingness to cooperate in the research operations through a continuation of collection of captured mammals, of the sighting surveys conducted aboard Japanese research vessels, and behavioral studies. After discussion it was agreed that Japan would accept two United States scientists aboard the Oshoro maru during the cruise commencing in Hakodate on June 5 and terminating August 14. Details of the arrangements were to be finalized through correspondence between Dr. Fujii and Dr. Jones.

It was also agreed that one United States scientist would board the Hokushin maru during its second cruise of June 23 to August 2 from Kushiro. Details of this arrangement were to be finalized through correspondence between Mr. Sano and Dr. Jones.

The United States noted its desire for their scientists to collect biological data from all marine mammals taken aboard. Such collections would include teeth, reproductive tracts, etc. from fur seals and other mammals taken aboard. Japan agreed to cooperate in these studies as much as possible.

(b) Aboard the dedicated research vessel. The United States proposals for research aboard the dedicated research vessel (Hoyo maru No. 67) in 1980 are contained in Doc. 2260. The United States proposed and discussion took place on two new major studies aboard the dedicated vessel planned as a result of experience gained in 1979. For the first cruise of the vessel these were: (1) tagging of Dall's porpoise and (2) studying entanglements by working as a "catcher boat" with a mothership. The proposed plan was to tag up to a maximum of 300 porpoises, while enroute to and throughout the fishing grounds, with modified spaghetti tags as used on other cetaceans. They would be applied at normal vessel speed by U.S. scientists with a crossbow or long pole from the bow of the vessels. The tag was described as a brightly color coded and numbered streamer 30 to 45 cm (12 to 18 inches) in length. In the tagging and entanglement studies the United States wished to work in approximate two week periods on both sides of the June 10 start of fishing inside

the United States Fishery Conservation Zone (USFCZ). In the portion of the cruise during which the dedicated research vessel acts as a catcher boat it was determined through discussion that the vessel would be under the control of a fishing fleet commander and use commercial fishing gear of 120-130 mm mesh size in a net of 330 tans. Embarkation and disembarkation of U.S. scientists was to be at ports in Japan.

In discussion of these proposals Japan agreed to cooperate as much as possible in the research. It was pointed out that there were dangers in the United States proposal to patrol the net prior to lifting in the commercial operation but agreed to conduct net patrol as conditions permitted. Japan again emphasized that the vessel, as part of a commercial fleet, would be under the complete control of the fleet commander in fishing operations. Four U.S. scientists would be accepted aboard for this trip which would commence May 15 and terminate June 27.

In discussion of the second cruise of the Hoyo maru No. 67 which would take place July 2 to August 15 it was pointed out that emphasis would be on continent of origin of salmon studies in the Bering Sea as agreed were necessary by Canada, Japan and the United States in the revised Convention. Research nets would be used as would longlines to catch chinook and chum salmon for tagging. Japan agreed to the United States proposal to place two marine mammal scientists aboard for this cruise.

The United States agreed that it was a U.S. responsibility for arranging handling and subsequent shipment of the biological specimens collected aboard the research vessels once the vessel returns to port.

The question of re-sighting of tagged porpoises was also discussed. The United States agreed to send samples of tags and photographs of a porpoise to which a tag was attached to Japan for information of fishermen on re-sighting and recovery of tags. It was the United States hope to have Japanese crew members on catcher boats and scout vessels assist in the re-sighting program. Japan agreed to distribute forms provided by the United States printed in Japanese for this purpose but suggested returns may be sparse because of the already heavy work required of the catcher boat crews. Japan also agreed that tag re-sighting data would be collected aboard Japanese salmon research vessels.

(c) Research in the landbased fishery. The difficulties of conducting research aboard landbased driftnet vessels as proposed by the United States was discussed. Japan agreed to collect biological information from Dall's porpoise incidentally caught during the salmon research vessel operations in and in the vicinity of south of 44°N west of 175°E and between 170°E and 175°E south of 46°N. Japan noted that whole animals could not be collected. The United States would like Japan to obtain from animals collected: the

reproductive tract, a piece of liver (frozen), date and location of capture, and weight. Japan noted that weights were difficult to determine and agreed to attempt to take length measurements in a format provided by the United States. The recovery of tags from incidentally caught Dall's porpoises by the landbased fishery will be reported by Japan to the United States.

(d) Studies on northern fur seals. United States studies on northern fur seals initiated in 1979 will be continued. Information and biological data will be collected by marine mammal scientists from northern fur seals incidentally taken by salmon research vessels. The information to be collected is as follows:

From live fur seals (to be released unharmed): date and location of capture, number of fur seals, whisker color, and sex.

From dead fur seals: date and location of capture, length, weight, all canine teeth, stomach, and female reproductive tract.

(e) Studies on Japanese motherships and catcher boats. United States proposals for studies aboard Japanese motherships were in general similar to studies conducted in 1979 with some exceptions. The U.S. scientists desire additional information on animals taken in the gillnets and propose modification of the form used to report marine mammal take. The modified form includes additional data on reasons the animals are not returned, direction of the gillnet set, sea water temperature, sea condition, approximate size of animal not returned, location of the animal in the net, and swell and wind direction. A modified form for reporting such observations will be provided by the United States.

For biological studies, all porpoise captured in the salmon gillnets would be returned to the motherships for examination. The samples and information to be collected are length (to nearest cm), weight (to nearest kg), reproductive tract, stomach (from a limited number of animals), teeth, parasites, sex, standard morphological measurements, date and location of capture. Photographs of each animal would be taken.

Japan will provide work space and freezer space aboard each mothership and personnel to assist in handling the animals and collection of the biological samples, as in previous years.

In 1979, porpoise taken prior to the embarkation of U.S. scientists were frozen for subsequent examination by the scientists. A maximum of ten porpoise were frozen and the United States requested this procedure be followed again in the 1980 season. In addition, the United States requested that if more than ten marine mammals are taken prior to the arrival of the U.S. scientists, each of the excess animals be weighed and this information be included on the marine mammal incidental take form.

During periods when not in the U.S. zone during the season and U.S. scientists are not aboard, the following information and samples should be collected from each animal: date and location of capture, length, weight, reproductive organs, stomach, teeth, fetus (if present), blubber, and liver samples. U.S. scientists will use a standard manual for instructing a Japanese national aboard each mothership in the collection procedures to ensure that samples are collected uniformly. All samples are to be consolidated for shipment to the U.S. at the end of the fishing season.

Japan gave assurance that tagged porpoise with the tag would be returned to the motherships. After departure of U.S. scientists Japan would ensure transmittal of any recovered tags together with information on date and location of capture.

United States scientists will continue analysis of morphological data, tissue samples, catch distribution and osteological material for determination of stock identities and discreetness.

With respect to more frequent visits requested for United States scientists to catcher boats of the mothership fleets for study of gear deployment, porpoise behavior, entanglement studies, etc., it was agreed that United States scientists could make 5 visits to catcher boats per fleet, with a possible increase if weather permits. The United States understood that the catcher boats would conduct normal fishing operations only and Japan agreed to cooperate as much as possible in studies aboard the catcher boats.

The United States noted that the United States marine mammal scientists on motherships are not permitted to negotiate sampling policy and procedures in the field. Instructions for the scientists' procedures will be precise.

The question of sampling aboard the mothership while catcher boats were being visited was discussed. It was agreed to store animals taken during those periods for subsequent study by the scientists.

10. LOGISTICAL ARRANGEMENTS. The United States pointed out several logistical problems encountered in the otherwise satisfactory 1979 season and made the following points:

(1) Marine Mammal scientists and salmon observers will not negotiate departure dates, (2) U.S. scientists must be aboard at all times motherships are inside the USFCZ, (3) scientists on motherships must be able to communicate daily with each other and with Juneau, Alaska, and (4) there should be a contact person on both sides responsible for clearing disembarkation. The contact named for Japan was Mr. Asakawa who will communicate with the United States contact through Juneau, Alaska for disembarkation clearance. Dr. Tillman will

communicate with Mr. Sano regarding the name of the United States contact for disembarkation. It was noted that the Adak base required two days notice of a vessel arrival.

It was agreed that the scientists would board a Japanese patrol vessel when a mothership left the USFCZ, as was the case in 1979. At the conclusion of the fishing season samples obtained on motherships after U.S. scientists left the vessel would be collected by the Hoyo maru No. 77 for delivery to Adak. Bridge access generally was assured for scientists on motherships for sighting surveys and collection of certain environmental data but access may be limited on certain occasions.

Japan agreed to appoint one individual aboard each mothership for training on marine mammal sampling.

Certain other details related to the marine mammal program would be communicated through correspondence.

11. FUTURE MEETINGS AND CONSULTATIONS. The scientific sub-committee RECOMMENDS that the Ad Hoc Committee on Marine Mammals consider and RECOMMEND procedures for producing a final report on the marine mammal studies.

The sub-committee tentatively RECOMMENDS further that a meeting of the sub-committee be held in Tokyo, Japan, during February or March in 1981.

APPENDIX 1 AND 2 FOLLOW

APPENDIX 1
(Doc. 2323)

INTERNATIONAL NORTH PACIFIC FISHERIES COMMISSION

Tokyo, Japan, 1980 February 29

PARTICIPANTS. The following persons took part in the sub-committee's sessions:

CANADA	Member	J. McDonald	Pacific Biological Station
	Adviser	B. Riddell	Pacific Biological Station
UNITED STATES	Member	M. Tillman	National Marine Mammal Laboratory, NMFS
	Advisers	L.L. Jones	National Marine Mammal Lab.
		C. Boucher	National Marine Mammal Lab.
		R.L. Brownell	Fish & Wildlife Service U.S. Dept. of the Interior
		R.L. Burgner	Fisheries Research Institute
		M.L. Dahlberg	Auke Bay Laboratory, NMFS
JAPAN	Member	Osamu Sano	Far Seas Fisheries Research Laboratory
	Advisers	Seiji Ohsumi	Far Seas Fish. Res. Lab.
		Kenji Takagi	Far Seas Fish. Res. Lab.
		Toshio Okazaki	Far Seas Fish. Res. Lab.
		Jun Ito	Far Seas Fish. Res. Lab.
		Seiji Machidori	Far Seas Fish. Res. Lab.
		Mamoru Kato	Far Seas Fish. Res. Lab.
		Ryuichi Tanabe	Counsellor, Fishery Agency of Japan
		Tokuya Kikuchi	International Affairs Division Fishery Agency of Japan
		Manzo Tachibana	Int'l. Affairs Div., Fishery Agency of Japan
		Goro Asakawa	Int'l Affairs Div., Fishery Agency of Japan
		Teruaki Kosaka	Resources Division, Fishery Agency of Japan
		Masaharu Nishiwaki	Professor, Department of Marine Sciences, University of Ryukyu
		Akira Takemura	Associate Professor University of Nagasaki

		Toshio Kasuya	Ocean Research Institute University of Tokyo
		Kenichi Numachi	Ocean Research Institute University of Tokyo
		Nobuyuki Miyazaki	National Science Museum, Tokyo
		Takeji Fujii	Professor, Hokkaido University
		Yoshiaki Ito	Fishery Division, Economic Affairs Bureau, Ministry of Foreign Affairs
	Observers	Shinpei Tajima	Fleet commander, Kizan maru
		Yuji Hoshino	Fleet commander, Meiyo maru
		Yoshishige Shibuya	Fleet commander, Nojima maru
		Tiichi Tomura	Fleet commander, Jinyo maru
		Takahiro Ohtsuki	Fishing master, Nojima maru
		Jun Kumagaya	Assistant fleet commander, Nojima maru
		Retsuzo Nagayama	Associate fleet commander, Meiyo maru
		Kohichi Funano	Associate fleet commander, Meiyo maru
		Taiichiro Shichi	Northern Sea Salmon Mothership Council
		Masayoshi Narita	Japan Salmon Gillnet Fishermen's Cooperative Association
		Junroku Ogasawara	Fisheries Experimental Station Hokkaido Prefecture
		Akitoshi Fukuhara	Administrative Bureau for High School Training Vessels Hokkaido
SECRETARIAT		C.R. Forrester	
		J. Okamoto (Temporary)	
		T. Suzuki "	
		Y. Miyachi "	
INTERPRETERS		Chuta Funayama	
		Yukiko Sugimoto	

APPENDIX 2
(Doc. 2323)

INTERNATIONAL NORTH PACIFIC FISHERIES COMMISSION

Tokyo, Japan, 1980 February 29

DOCUMENTS. The following documents were reviewed by the Scientific Sub-Committee of the Ad Hoc Committee on Marine Mammals, Tokyo, February 25 to 29, 1980.

Doc. no. & origin	Title, author, date, etc.	Date received by Secretariat
2229 (U.S.)	Report of marine mammal research by U.S. scientists aboard Japanese salmon motherships and research vessels during 1979. National Marine Mammal Laboratory, Northwest and Alaska Fisheries Center, Seattle, 1979 September.	1979 October
2260 (U.S.)	U.S. proposed plan for 1980 cooperative Japan-U.S. research on Dall's porpoise in the North Pacific. National Marine Mammal Laboratory, Northwest and Alaska Fisheries Center, Seattle, 1980 February.	1980 February
2262 (Japan)	Two by five (2^{o}x5^{o}) area and ten-day catch statistics of salmon and marine mammals caught in gillnets of Japanese salmon research vessels, 1979 (revision). Fishery Agency of Japan.	1980 Feb. 19
2263 (Japan)	Incidental catch of marine mammals by the landbased salmon gillnet fishery. Fishery Agency of Japan, 1980 January.	1980 Feb. 19
2264 (Japan)	Incidental catch of marine mammals by the mothership salmon gillnet fishery. Fishery Agency of Japan, 1980 January.	1980 Feb. 19
2265* (Japan)	Data record of marine mammals sighting survey conducted by Japanese salmon research vessels, 1978 and 1979. Fishery Agency of Japan, 1980 February.	1980 Feb. 21

---

*single copy

2266 (Japan)	Progress report on abundance survey of marine mammals, mainly Dall's porpoise, by Japanese salmon research vessels in the North Pacific in 1979. By Seiji Ohsumi and Kenji Takagi, Far Seas Fisheries Research Laboratory, Fishery Agency of Japan.	1980 Feb. 25
2267 (U.S.)	Report on the distribution and preliminary analyses of abundance of Dall's porpoise. G.C. Boucher, L.C. Consiglieri and L.L. Jones, National Marine Mammal Laboratory, Northwest and Alaska Fisheries Center, 1980 February.	1980 Feb. 25
2268 (U.S.)	Report on studies conducted aboard the dedicated vessel, Hoyo maru No. 67, May-August 1979. L.L. Jones, R. Beach, J. Coe and W.A. Walker, National Marine Mammal Laboratory, Northwest and Alaska Fisheries Center, 1980 February.	1980 Feb. 25
2269 (U.S.)	Progress report on life history studies of Dall's porpoise in the northwestern Pacific, 1978-79. L.L. Jones, T.C. Newby, T.W. Crawford and S. Treacy, National Marine Mammal Laboratory, Northwest and Alaska Fisheries Center, 1980 February.	1980 Feb. 25
