(NWPBT/02/Inf4)

Second Inter-governmental Meeting on Establishment of New Mechanism for Management of High Seas Bottom Trawl Fisheries in the North Western Pacific Ocean

Busan, Republic of Korea
29-30 January 2007

Report of the First Meeting of the Scientific Working Group

1 Welcome and opening

Dr. Dae-Yeon Moon from Korea opened the first meeting of the Scientific Working Group at 10:30 am on Monday 29 January 2007 and welcomed all participants. Participants from Japan, the Republic of Korea, and the United States of America attended the meeting (Attachment 1).

2 & 3 Appointment of Facilitator and Rapporteurs

William Gibbons-Fly from the United States was elected to facilitate the First Meeting of the Scientific Working Group, and Shannon Dionne and Charles Karnella from the United States agreed to serve as rapporteurs.

4 Adoption of the Agenda

The agenda was reviewed, revised and adopted (Attachment 2).

5 Discussion of draft Terms of Reference

At the First Intergovernmental Meeting on the Establishment of a New Mechanism for Management of High Seas Bottom Trawl Fisheries in the North Western Pacific Ocean participants agreed to establish a scientific working group and for the U.S. to develop draft terms of reference. In addition the working group was tasked to determine what additional information is required in order to assess the impacts of the fisheries covered by the interim measures on: 1) target fish stocks; 2) associated and dependent species caught by these fisheries; and 3) the impact of these fisheries on deep sea floor habitats and marine ecosystems, in particular ecosystems in and around seamounts. The draft Terms of Reference (TOR) prepared for the Working Group drew from this mandate as well as from further guidance from paragraphs 83 (a) and (b) the 2006 United Nations General Assembly Resolution 61/L38 on Sustainable Fisheries.

The Scientific Working Group reviewed and discussed the draft TOR and there was general agreement that the role of the SWG should include providing scientific expertise and recommendations to the intergovernmental group. Participants agreed to put forward a revised draft TOR for consideration and adoption by the intergovernmental group (Attachment 3).

6 Exchange of Information related to the status of fishing activities in the North Western Pacific Ocean

a) Korea

Dr. Hyun-Su Jo presented information from recent Korean research surveys of fisheries resources in the high seas of the North Pacific Ocean in 2004 (NWPBT/02/SWG-01). Surveys were conducted by the R/V Tamgu 1 and two commercial vessels on seamounts in the high seas of the central North Pacific Ocean from June 10 to September 22, 2004. 235,085 kg was caught by three vessels and 46 species were identified including fish, squid, crustacean and shellfish. Armorhead, alfonsino and scorpionfish were dominant species among catches.

b) Japan

Dr. Takashi Yanagimoto provided 3 presentations including: 1) Review of Japanese Fisheries in the Emperor Seamount Area, 2) Review of the biological information of pelagic armorhead (*Pseudopentaceros wheeleri)* and alfonsin (*Beryx splendens)*, and 3) Available information about Emperor Seamount Ecosystems. Summaries for each presentation follow.

Review of the Japanese fisheries in the Emperor Seamounts Area

The Emperor Seamounts chain, runs from the south of the Aleutian chains to the west of the Hawaiian ridge. Some of the seamounts located between the southern end of the Emperor Seamount chain and the Hawaiian Islands have relatively flat tops (guyout), and are known to be good habitats of the pelagic armorhead (*Pseudopentaceros wheeleri)*, alfonsin (*Beryx splendens)*, etc. Armorhead has been the most important species of the Japanese trawl vessels since 1969. The total landings were usually large during the first 8 years of the fishery ranging from 22,000 to 35,000 MT. With the decline in catch of pelagic armorhead, alfonsin catches increased remarkably, and total landings recovered to 13,000 MT in 1980. After the mid-1980s, the major catches are composed by alfonsin and *Allocyttus verrucosus*, with a few exceptions. The catches of pelagic armorhead abruptly increased in 1992 and 2004. Thus, the seamount trawl fishery has been characterized by pulse recruitments of armorhead and there has been a shift in dominant catch from pelagic armorhead to alfonsin and vice versa. The annual catch of bottom gillnet fishery since 2002 fluctuated between less than 100 MT and about 1,100 MT. (NWPBT/02/SWG-02)

Review of the biological information of pelagic armorhead (*Pseudopentaceros wheeleri)* and alfonsin (*Beryx splendens)*

Pelagic armorhead is widely distributed in the Mid-North Pacific Seamounts area, and it was considered that armorhead is formed the metapopulation in the entire seamounts area. Armorhead has two distinct life history phases. The initial pelagic phase includes the neustonic life of larvae and juveniles in the vicinity of the seamounts with the subsequent dispersal life into the surface waters of the central and eastern portions of the subarctic North Pacific. After a 2+ year pelagic existence, armorhead return to the SE-NHR seamounts during spring and shift to demersal habits and begin to mature. Armorhead that just arrived at the seamounts contain an extraordinarily large amount of fat, which is subsequently metabolized over the remaining period of their lives. It was considered that the seamount stage represents the terminal reproductive phase of the life cycle, where individuals cease

their somatic growth, eventually spawn, and survive at the seamounts. It was considered that spawning period is winter season from the histological observation and the changes in GSI. It was considered that main food of amorhead in the seamounts is pelagic tunicates and the other micronektonic animals. Because other fishes feed on *Maurolicus muelleri* and shrimps, armorhead may avoid competition for food.

Alfonsin were caught by bottom trawl and bottom gill net from Koko Seamount to C-H Seamount. Alfonsin caught in 300-1010m depth. And catch was high in 300-500m depth in particular. Average annual catch was about 2000 tons, but there were about 12000 tons in 1980. Alfonsin distribute in deeper depth with the growth. The growth rates between the Japan and Emperor seamounts were similar. Larvae collected at the Kammu Seamount on November 1993, it was thought that reproduction was performed in the Seamounts area. (NWPBT/02/SWG-03)

Available information about Emperor Seamount Ecosystems

Several bottom trawl surveys are conducted from 1972 by Japan. There are some data (species compositions in weight and/or number and size compositions etc) obtained by these surveys. It was considered that these data are effective to evaluate marine ecosystem. ROV, dredge, crab basket survey were conducted in 2006. It was suggested these data are effective to directly evaluate marine ecosystem assessment at the seamounts. (NWPBT/02/SWG-04)

Dr. Akihiko Yatsu provided 3 presentations including: 1) Criteria for identifying vulnerable ecosystems in the Emperor Seamount Chain, 2) Possible criteria for assessing effects of bottom trawl and gillnet fisheries on the Emperor Seamount demersal ecosystems, and 3) Basic ideas on management of bottom fisheries in the Emperor Seamount Chain. Summaries of the presentations follow.

Criteria for identifying vulnerable ecosystems in the Emperor Seamount Chain

Mobility and longevity of animals, degree of natural turbulences, and vulnerability of habitat to specific fisheries are promising candidates for such criteria. Evaluation of these criteria in our group, together with the coming discussion at FAO, is needed to judge whether the Emperor Seamount Chain demersal ecosystems are vulnerable or not. It is more appropriate, however, to classify levels of vulnerability of ecosystems, on the basis of "traffic light approach" which uses both quantitative and qualitative criteria. (NWPBT/02/SWG-05)

Possible criteria for assessing effects of bottom trawl and gillnet fisheries on the Emperor Seamount demersal ecosystems

Ecosystem effects are both direct and indirect, the latter of which could be long-term and accompany changes in trophic structure against the background of natural environmental variability. Given the data poor situation in the Emperor Seamount Chain and difficulties of evaluation of indirect effects in general, assessment methods and their criteria for Emperor Seamount Chain are considered limited to simple and possibly qualitative ones. Abundance Biomass Comparison curves, size-based indicators, area swept by trawl, fishing effort, are considered practical and promising for this area, since they can be monitored at a reasonable cost. (NWPBT/02/SWG-06)

Basic ideas on management of bottom fisheries in the Emperor Seamount Chain

Ecosystem management tools for bottom fisheries include 1) fishing effort reduction, 2) modification of fishing gear, and 3) establishment of closed areas, and these management tools must be combined in an appropriate balance. For balanced management, which considers both protection of the ecosystem concerned and sustainable fisheries, adaptive management using simple and practical indicators was proposed. From the concept of ecosystem approach to fisheries, it was considered that "reference directions" may be more appropriate than "reference points" and that the goal of management shall be agreed by the society involved in this issue on the basis of scientific advices. (NWPBT/02/SWG-07)

7 Identification of information requested by the Intergovernmental Meeting, as specified in the Terms of Reference

The facilitator suggested that this agenda item might be better addressed by a small group. The group was chaired by Dr. Gerard DiNardo. The group met on two separate occasions and their work is summarized in Attachment 4, which was endorsed by the Scientific Working Group. This document should be viewed as a working document subject to change. The group recognized more information is needed to define "vulnerable marine ecosystem" and "significant adverse impact." Further, it was noted that discussion at the global level, such as in the FAO, may provide useful insight in this regard.

8 Development of Future Work Plan

The small group discussed the feasibility of developing a Future Work Plan and decided that more information was needed in order to adequately address the work at hand. The Scientific Working Group agreed that they could consider developing a framework for compiling consistent and compatible data on resources, habitats and ecosystems. The facilitator drew attention to similar work ongoing in the South Pacific and agreed to make available to the meeting participants the data templates created by that group.

9 Other Matters

The Scientific Working Group strongly encouraged participation of Russian scientists because of their knowledge of the fisheries and ecosystems in the North West Pacific Ocean.

10 Adoption of Scientific Working Group Report and Recommendations to the Intergovernmental Meeting

The Scientific Working Group adopted its report and recommended that the intergovernmental meeting consider for adoption the Terms of Reference and the identification of information requested by the First Intergovernmental Meeting.

11 Adjournment

The meeting was closed at 6:00 pm on Tuesday, 30 January 2007.