Session 2. Review of Seamount Fisheries

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This session was devoted to a review and discussion of the present status of seamount fisheries.

Sasaki traced the historical development and described the present status of the Japanese trawl fishery for pelagic armorhead and alfonsin over the seamounts of the southern Emperor-northern Hawaiian Ridge. Of particular significance was the drastic decline in catches of pelagic armorhead beginning in 1976. Whereas pelagic armorhead represented more than 90% of the total trawl catch in 1969-75, they constituted only 80% in 1976, 59% in 1977, 26% in 1978, and between 5 and 13% since then. The alfonsin catch, however, has risen, reaching 87% of the trawl catch in 1982.

Sasaki concluded that the rapid decline in relative abundance of pelagic armorhead in 1973 and subsequent years was a reflection of reduced stock size and recruitment resulting from overexploitation in 1967-75. He reported that for alfonsin, relative abundance remained high at Kimmei and Milwaukee Seamounts, declined at Colahan Seamount, and was generally low at Hancock Seamounts.

Sasaki emphasized that open-ocean seamounts are not highly productive and resources associated with them cannot support large trawl fisheries. The exceptions were the seamounts in the southern Emperor-northern Hawaiian Ridge; however, highly efficient trawling operations can easily deplete the resources because of the limited habitat.

Seki and Tagami traced the historical development of the handline and bottom longline fisheries for alfonsin. Since the fishery began in 1875, it has expanded and now includes the grounds off Chiba Prefecture and Shimoda to those in distant waters near Nansei Islands and Zunan. Fishing grounds developed as far away as Midway, however, have been abandoned in recent years.

Current NMFS research on alfonsin has been concentrated in the southern Emperor-northern Hawaiian Ridge seamounts and has emphasized the Hancock Seamounts. Handline and vertical longline catches from untrawlable and sloping areas of the seamounts, indicated that although the size of pelagic armorhead taken by handline and by trawls were nearly identical, alfonsin taken by handline were significantly larger than trawl-caught ones.

Yasui's presentation brought out that the albacore, although highly migratory, apparently were associated with seamounts in the Emperor Seamount chain during one phase of their transpacific migration. Catches in the region of the seamounts ranged from 4,000 to 15,000 MT, comprising 5 to 25% of the total albacore landings by Japanese vessels. By following fleet movement, Yasui determined that albacore first appeared near the seamount chain at Kimmei, then moved northward along the chain and finally westward. The albacore taken here were usually 2- to 5-year olds, although certain age groups were absent in some years. The albacore apparently remained relatively long in the seamount region, feeding mainly on sardines and squids.

In the discussion that followed, it was brought out that because catches of pelagic armorhead over the central North Pacific seamounts fluctuate considerably, it may be appropriate to consider the species pelagic rather than demersal. Studies of other species indicated that, in general, pelagic stocks undergo wider fluctuations in abundance than demersal ones. It was noted that at times, it is difficult to differentiate pelagic from demersal stocks and that pelagic armorhead should really be considered a demersal species because over the past 3-4 years, there has been no improvement in the catch.

An example of reduction in CPUE in two contrasting fisheries involved a local groundfish stock in which reduction in CPUE was fishery-dependent and in a highly migratory pelagic stock in which the reduction was fishery-independent and brought about by changes in oceanic conditions. It was noted that even groundfish can sometimes exhibit large natural fluctuations during their early pelagic stages.

The following explanations appear to be reasonable for two of the papers presented in this session. For albacore, it does not appear that the CPUE around the seamounts is representative of the entire stock, because the species is widely distributed and migrates extensively over a wide range and only some portion of the stock visits the Emperor Seamounts. For pelagic armorhead, however, the continuous reduction of CPUE can be considered a decrease in stock size, because the species only inhabits waters around certain seamounts.

For alfonsin, it was pointed out that the reduction of CPUE could be only a temporary phenomenon because of its migratory habits. The possibility that the reduction in alfonsin CPUE could reflect the practice of discarding small fish was also raised, but it was brought out that there is no evidence that this was occurring.

A question of whether the increase in total catch of alfonsin was directly related to a decrease in the stock of pelagic armorhead brought out that the trawlers began targeting alfonsin when pelagic armorhead fishing was no longer profitable. On this same line of questioning, Sasaki was asked if any significant adjustments were made to trawling operations in targeting the alfonsin. He replied that none was required except in fishing depth. He added, however, that in trawling for pelagic armorhead, the net was towed directly off the bottom except where large populations of pelagic armorhead were detected. When this occurred, the trawl was fished higher in the water column. Similarly, trawling for alfonsin required only a depth adjustment to fish higher off the bottom.

Pelagic armorhead and alfonsin occurred in good quantities over the seamounts but early commercial trawling operations only targeted the former because of economic reasons. Their abundance over the seamounts was so high that large trawlers could easily make profitable catches. In addition, because alfonsin was sold fresh in Japanese fish markets, frozen ones were not considered highly desirable. It was brought out that freezing clouded the eye lenses of alfonsin making them lower in value. It was noted that alfonsin occurred in good numbers only on two seamounts in the southern Emperor-northern Hawaiian Ridge whereas pelagic armorhead were abundant at four of the seamounts.

Before the session concluded, participants expressed concern on whether increased catches of alfonsin truly reflected an increase in abundance of the species, in view of the decrease in the stock of pelagic armorhead. It was brought out that more studies were needed on ecological factors that influence the stock, on depth distribution of the two major seamount-associated species, and on composition of the seamount community.