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MIGRATION OF A JUVENILE WOLF EEL, *ANARRHICHTHYS OCELLATUS*, FROM PORT HARDY, BRITISH COLUMBIA, TO WILLAPA BAY, WASHINGTON

Juvenile wolf eels, *Anarrhichthys ocellatus*, were rarely reported off the Washington-Oregon coast prior to 1979. One 87 mm juvenile was collected by midwater trawl in 1962, 80 km off Newport, Oreg. (Wakefield 1980¹). Another juvenile of 468 mm standard length (SL) was caught in 1969 (51 sets) by personnel of the Northwest and Alaska Fisheries Center, National Marine Fisheries Service (NMFS), while purse seining for juvenile salmonids in shallow marine waters (<30 m in depth) adjacent to the mouth of the Columbia River.

While purse seining for juvenile salmonids in these same waters, no wolf eels were caught in either 1978 (49 sets) or 1980 (67 sets) by NMFS, but in 1979 (109 sets), 19 specimens between 467 and 531 mm SL were collected. Oregon State University (OSU) personnel caught 113 juveniles during a 10-d purse seine cruise for juvenile salmonids in 1979 (56 sets) between the Columbia River and Coos Bay, Oreg., in waters >30 m. These fish ranged in size from 281 to 610 mm SL (Wakefield 1980). The purse seine used in waters <30 m deep fished to a depth of about 6 m (veri-

fied by the author using scuba). Based on its construction, the purse seine used in waters >30 m by both NMFS and OSU was assumed to fish to about 24 m deep.²

Personnel of NMFS, fishing in waters >30 m, collected seven juvenile wolf eels in 1980 (232 sets) between Copalis Head, Wash., and Tillamook Bay, Oreg. These fish ranged in length from 430 to 506 mm SL.

One of these juvenile wolf eels had been tagged on 24 October 1978 off Doyle Island near Port Hardy, British Columbia (Fig. 1), by personnel of the Canadian Department of Fisheries and Oceans (Bailey³). The tag was applied incidentally to a purse seine tagging operation for chum

²J. Jurkovitch, Fishery Biologist, Northwest and Alaska Fisheries Center, National Marine Fisheries Service, NOAA, 2725 Montlake Blvd. E., Seattle, WA 98112, pers. commun. February 1981.

³D. D. Bailey, Chief, Salmon Services, Department of Fisheries and Oceans-Pacific Region, 1090 West Pender St., Vancouver, British Columbia V6E 2P1, pers. commun. August 1980.

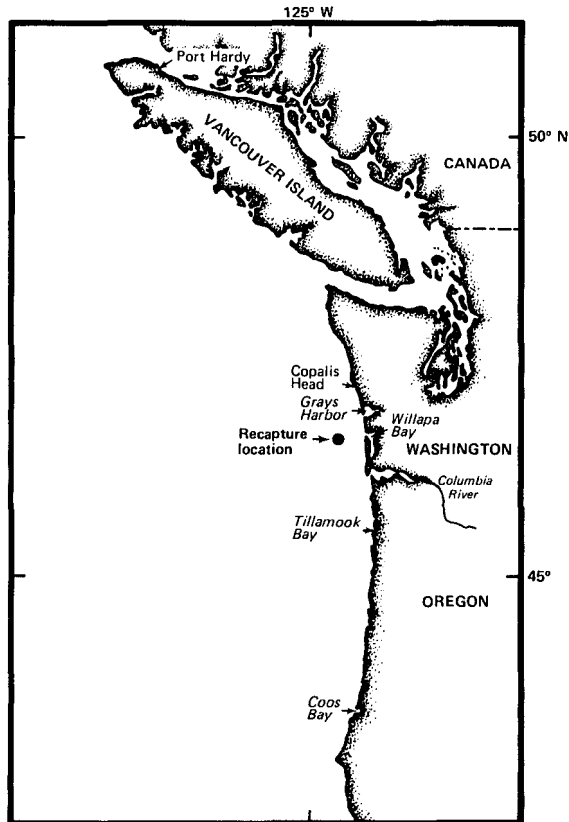


FIGURE 1.—Location of tagging (Port Hardy, B.C.) and recapture (Willapa Bay, Wash.) sites of a juvenile wolf eel.

¹Wakefield, W. W. 1980. Occurrence and food habits of pelagic *Anarrhichthys ocellatus* juveniles collected off the Oregon coast during June, 1979. Paper presented at Sixtieth Annual Meeting of the American Society of Ichthyologists and Herpetologists at Texas Christian University, Fort Worth, Texas, June 15-20, 1980.

salmon, *Oncorhynchus keta*. Only one wolf eel was tagged and its length was not recorded (Gould*). The juvenile was recaptured on 12 July 1980, 23 km off Willapa Bay, Wash., and was 502 mm long (Fig. 1). Distance traveled from tagging location to recapture site was about 593 km in 628 d. Approximate average movement was 0.94 km/d.

Information about the early life history of wolf eels has been sparse. Kanazawa (1952) and Marliave (1978) both observed a change to adult characteristics of pigmentation and dentition at lengths between 500 and 600 mm SL. Marliave, who has reared wolf eels at the Vancouver Public Aquarium in British Columbia, placed the juvenile-adult changeover at the end of the first year of life. He also noted that the fish, by the age of 3 mo, had begun to prefer the bottom except when feeding. Shelter seeking and territoriality became evident between 4 and 5 mo of age and about 200-400 mm long. At the end of 15 mo the fish ranged from 600 to 950 mm in length with a mean of just under 700 mm.

The tagged juvenile specimen has provided the first evidence of a difference in early life history of wild wolf eels compared with aquarium-reared fish with regard to juvenile behavior, growth rate, and length of time in the juvenile phase. This wolf eel possessed juvenile characteristics of coloration and dentition and was a minimum of 2+ yr in age. It was pelagic and below the lower end of the growth range attained by aquarium fish in 15 mo.

There have been no reports in the literature documenting migratory behavior of this species. Adult wolf eels are known to exhibit strong territoriality and attraction to some type of structure as shelter. Also a strong homing instinct exists even though a considerable amount of territory is covered while feeding away from shelter (Hulberg and Graber 1980).

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