

port of larger-sized eels to Japan. The Japanese charge an import duty on eels, as follows:

Description	Duty
Young eels for culture (Up to 13 grams/eel)	Free
Live or frozen eels (13 grams/eel or more)	5% ad valorem
Sliced & precooked eels	12% ad valorem

U.S. EXPORT OPPORTUNITIES

Although American eels (*Anguilla rostrata*) have already been sold on the Japanese market (the initial reaction was good), the process is not a simple one. The Japanese—with centuries of eating eels behind them—are reluctant to try something new, even a similar product from a new source. Japanese importers will invariably ask for a

number of samples, analyze them from every angle, conduct taste tests, and then offer a price that allows for all kinds of possible contingencies. In view of this, the Regional Fisheries Attaché suggests that U.S. exporters try to keep their first orders near the break-even point, until a market has been firmly developed. Then, as the demand grows, competition between buyers will gradually force the price up.

Inquiries of those who wish to export eels to Japan can be addressed to:

Japan Marine Products Importers Association
Sanshi Kaihan Bldg.
1-7, Yuraku-cho, Chiyoda-ku
Tokyo, Japan.

For a list of Japanese fishing and trad-

ing firms located in the United States, write to:

International Activities Staff, (Fx-41)
National Marine Fisheries Service,
NOAA
U.S. Department of Commerce,
Washington, D.C. 20235

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Elver Investigations in the Southeast

ROBERT TOPP and RICHARD RAULERSON

The true American eel, *Anguilla rostrata*, is widely distributed throughout states bordering the Gulf of Mexico and Atlantic Ocean. Several Atlantic states have historically utilized a small percentage of the adult eel for commercial purposes. However, only recently has the possibility for utilizing the juvenile eel (elver) emerged.

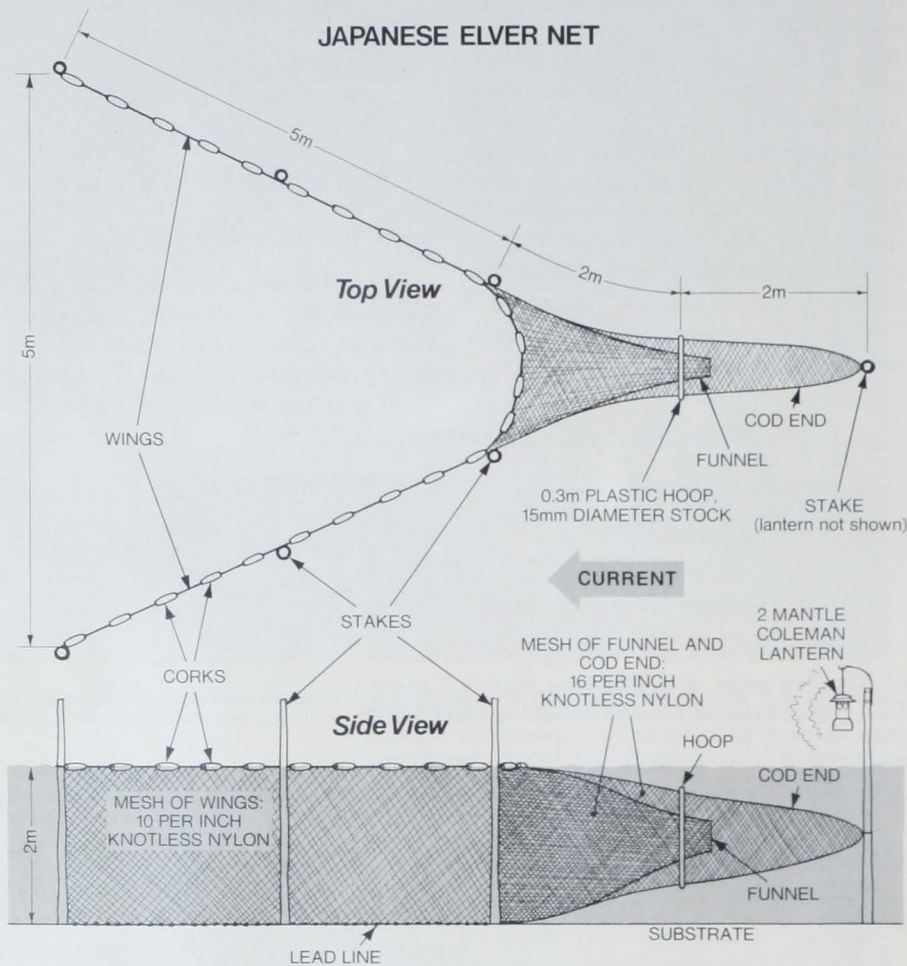
The present interest in commercial harvest of elvers stems from a combination of factors affecting the Japanese

adult eel market. Rising per capita incomes in Japan have strengthened the demand for adult eels, while the supply of Asian eels, *Anguilla japonica*, has declined owing to environmental factors and increased fishing pressure. During the 1960's the Japanese turned to mass culture of eels to supplement the wild and imported eels (see accompanying article, *Japan's Eel Fishery*, by William B. Folsom). Mass culture of eels in turn has been limited by

availability of fingerlings or elvers. Furthermore, eel breeding techniques have not been developed and probably will not be for the foreseeable future. Hence, the Japanese have begun rather serious investigations into the possibility of securing supplies of American elvers.

This Japanese interest resulted in a trip to the United States by an investigative team of Japanese eel experts. The team, composed of Dr. S. Nishimura, economist, Fisheries Agency, Hino-Shi, Tokyo, Japan and Mr. K. Nishio, head of eel culture, Maruhaiyoshida Fisheries Cooperative, Shizuoka, Japan, was hosted by Dr. Evan Brown, economist, University of Georgia. Actual elver investiga-

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Japanese elver net. (Above) Top view. (Below) Side view.

tions were conducted by the Florida Department of Natural Resources and industry in North Carolina with coordination provided by NMFS.

ELVER FISHING TECHNIQUES AND RESULTS

Exploratory fishing was conducted approximately 75 miles from the mouth of the St. Johns River (Florida) on March 5-7, 1973. Three fishing techniques were attempted—the modified fyke net, dip net, and a crude trotline arrangement.

Two modified fyke nets of a standard commercial size employed in Japan (see accompanying drawings) were supplied by the Japanese visitors. These were set at varying distances from shore, in depths of less than 2 meters. The nets

are fished at night with a Coleman-type lantern. It is significant that they fish downstream and are therefore only available to elvers moving actively upstream and/or towards the light source. This method of fishing yielded about 300-500 glass-stage elvers in the size range of approximately 3,700 per pound. This is not a commercial quantity by any means, but the fact that desirable glass-stage elvers were present greatly encouraged the Japanese visitors. They believed that taking commercial quantities of elvers would simply involve being in the right place at the right time in the future.

The dip net was employed at a dam on a St. Johns River tributary. The possibility of locating elvers immediately downstream from a dam had been re-

ported to several members of the exploratory fishing party and this was verified by a local fisherman who helped the party capture seven pounds of elvers in about one hour on the night of March 7. These elvers were at a more mature black-stage and averaged about 50 per pound. It appears that fishing some type of gear below a dam under the right conditions may yield commercial quantities of elvers. Several additional pounds of elvers were taken from this site and shipped to Japan during the following week.

The third technique employed was an unusual trotline arrangement, (termed the "primitive method" by the Japanese) consisting of a trotline with 3-foot droppers attached about every 10 feet. Finely branched weighted brushes are tied to the droppers and the gear is set next to the bank overnight. The gear is pulled after daylight by carefully lifting the individual droppers and shaking the catch into a small net. No elvers were taken by this method.

Subsequent to the exploratory fishing efforts on the St. Johns River, the Japanese attempted to capture elvers from the Suwanee River in Florida and the Neuse River in North Carolina. However, these efforts were not successful.

ELVER HOLDING AND SHIPMENT

As elvers are captured, they are temporarily placed in a small holding net for transport to a shore facility. On shore they are placed either in a holding pen in the natural waters or in a suitable aerated tank. The most promising method of shipment involves transportation on ice. Specially designed styrofoam containers which hold about 10 pounds of elvers, mixed with crushed ice, are packed in 50-pound master cartons and shipped by air. At present, the Japanese desire to have elvers shipped to Los Angeles, where they are again placed in holding tanks and observed for a several-day period prior to being air-shipped to Japan.



Florida Department of Natural Resources Biologist Roy Williams and University of Georgia professor Evan Brown observe as Japanese experts K. Nishio and S. Nishimura adjust an elver net on an exploratory fishing trip in the St. Johns River at Palatka.

WHAT HAPPENS NEXT?

The elvers obtained in Florida are currently being tested in Japan for possible disease problems, adaptability to a culture pond environment, and growth potential. Indications are that the out-

look is favorable that the Japanese will actively seek elver supplies from the United States during the next elver "run" season which is generally through to occur between November and May, depending on geographical location. Even if commercial quantities are not purchased next year, it is proba-

ble that the Japanese will send additional teams to the United States to determine the time and extent of elver runs in our rivers. If they are not able to send technicians over, they will attempt to interest state agencies and private industry in determining the extent and timing of the elver fishery.

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