

## A fisheries "first" for Canadian expertise in the Philippines

Canadian expertise and sex hormones from Pacific salmon have helped scientists of the aquaculture department of the Southeast Asian Fisheries Development Centre (SEAFDEC) make a significant breakthrough in their milkfish research program set up less than three years ago.

It is now demonstrated as feasible to breed milkfish, *Chanos chanos*, in captivity. When the breeding system is standardized it should be possible to use it on a vast scale, particularly as the infrastructure for rearing literally billions of fish already exists.

...Today the milkfish provides up to half the protein intake of some 200 million people, and is an important food for about twice that number; but the sea fishery for milkfish is very small and almost all fish are cultured. The life-cycle of the milkfish is still as much a mystery as was the salmon's a century ago.

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### Nervous creatures

...No milkfish has ever spawned in captivity. No wild adult has been kept alive for long enough to provide eggs or sperm. These large nervous creatures are so jumpy when caught or handled that they fatally injure themselves or die of heart failure. The entire milkfish farming business, consequently, has always depended exclusively on fry caught from the sea.

They are caught seasonally as they float in close to land from spawning grounds at sea. They are swept up in garlands of leaves, captured with drag-seines made of nets, or trapped in a variety of other ways. Then they are transported to nurseries (where they grow to the fingerling stage), and after to the specially prepared ponds. The process is tedious and the single most expensive part of the farming. Mortality is high. Up to 70 per cent of the fry die before they are ready for market — mostly before they get to the pond-stage. The catch itself is uncertain and variable.

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### Canada's role

...When the aquaculture department launched the milkfish research program in 1975, Canadian participation was soon offered and accepted.

The International Development Research Centre (IDRC), which is financed

by the Canadian Government, added \$826,000 to the \$2.2 million set aside for the program by SEAFDEC. The IDRC grant was to cover equipment and supplies for the new facilities then being set up on Panay Island in the Philippines, as well as sea-going equipment, floating enclosures, short-term training of Filipino scientists, the salaries of two foreign experts and four consultants.

Independent of this and, arguably, no less important are two fruits, so to speak, of Canadian research into salmon — a chemical called 2-phenoxyethanol and gonadotropin, the hormonal extract of the pituitary. The former was developed to treat fungus diseases in salmon. The latter, an extract from the pituitary glands of spawning salmon, has proved capable of accelerating the sexual maturity of



Milkfish researchers induce breeding in a captive fish.

young salmon (and other species of fish) as well as facilitating the spawning of captive adults.

In Asia, the milkfish researchers have used 2-phenoxyethanol in very diluted concentrations as an effective tranquilizer. They have succeeded in keeping wild adults alive by tranquilizing them for transport and, subsequently, induced spawning with the help of gonadotropin injections. They have been able to strip wild males of milt (sperm) and fertilize the buoyant eggs externally, just as happens in nature. In the first successful experiment the eggs are reported to have de-

veloped into fry after 36 hours in a hatching system.

More than 25 fish weighing over a pound each are now held in the ponds of SEAFDEC and are the living result of this first artificial spawning which has since been repeated four times.

Clearly a number of details — the most effective dosages, for example — have yet to be worked out. But it is now sure that milkfish can be bred in captivity. The life-cycle of *Chanos chanos* remains much of a mystery and part of the research effort is to unravel it through telemetry and tagging....

The work of successful induced breeding of milkfish was accomplished by Dr. William E. Vanstone of the Vancouver laboratory of the Fisheries and Marine Service of Environment Canada. His achievement was recognized by the industry in the Philippines as well as their Fisheries Society, which honoured his efforts by awarding him two commemorative plaques.

(The foregoing article was written by Gaminí Seneviratne for Development Directions, August/September 1978.)

## Fishing industry goes metric

Canada's commercial fishing industry recently completed plans for converting to the metric (SI) system in line with the general move to metric measurement in Canada, with January 1981 as the target date for the conversion. A list of preferred metric sizes will be developed for each category of fishery product, based on an industry-wide consensus.

"The conversion plan is intended to be voluntary and has been devised for use by industry and government as a guide in preparing their own detailed plans," said Mr. Langlands, who chaired the Fishing and Fish Products Sector Committee of Metric Commission Canada. "It is not meant to be an exacting pattern for all, but rather as recommendations to allow the transition to take effect in as short a period as possible. The plan will be updated as necessary to reflect changing situations."

Canada's fishing industry involves approximately 62,000 commercial fishermen who operate some 28,000 vessels, ranging from ten-metre one-man boats to sophisticated deep-sea trawlers. There are close to 800 fish processing plants, employing some 25,000 persons.