

# Fifty Years of Change

World fisheries in 1936 were pretty much as they had been for some long time: the gears and practices were unchanged from what they had been for centuries. This of course was especially true of the countries that are now labelled "Third World". But even much of the "developed" world was then still using gears which had been introduced in the 19th century or earlier; and the advanced fisheries of western Europe and North America were much the same as they had been at the beginning of this century.

But in 1936 the fisheries were on the threshold of revolutions which have not yet run their full term. At least one component of the revolution began to operate at about that time: the Japanese in 1936/37 made explorations in Argentinian, Mexican and Australian waters, and Argentina and Mexico set up the first of their joint fishing ventures. A halt was put to that trend by World War II and was not resumed by the Japanese until 1952. Nevertheless a major phase of change in world fisheries began immediately after the end of hostilities.

## Changing Views on Education

Perhaps the most dramatic change since 1936 is that which has taken place in fishermen, and with it the change in education programs.

The year 1936 happens to be the year in which I finished my university training in Australia and set about looking for a job. The job I got was in fisheries research for which my university training had given me no specialized preparation. At that time there was in Australia no training or education of any kind specifically for fisheries. Perhaps it was only in Japan, apart from the College of Fisheries in the University of Washington (USA), that such training was available. Universities offered courses in biology and in its specializations such as ichthyology, malacology, and even (but not often) marine biology. The professional view at that time was that fishery problems were problems of biology and that a formal education in biology would fully equip a person to undertake research in fisheries.

In 1945/46/47 (the postwar years) the Fisheries Office of the Australian

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Federal Government ran a fisheries training center as part of its reconstruction training scheme. The center trained returned servicemen who wished to take up fishing as an occupation. The courses covered fisheries biology, fishing gears, navigation, safety at sea, fishery regulations, and care of the catch. It was essentially a prewar curriculum. More "modern" courses were given nearly twenty years later, in the same buildings in which the postwar courses had been given, but this time for field officers of the state fishery departments. These new courses were much oriented to the concepts of population dynamics and rational fishing, and to what was happening in fisheries technology.

## International Developments

Hiatt's *Directory of hydrobiological laboratories and personnel in North America* (Canada, USA and Mexico), published in 1954, listed 157 institutions of which 33 (21%) had been established before 1930; 28 (18%), between 1930 and 1939; 77 (49%), in the years 1940 to 1950 (that is, 7 per year); and 19 (12%, and 6 per year), in the years 1951-1953. Where Hiatt's directory shows that an institution offered instruction, the specifically fishery subjects named were "fisheries biology" and "fisheries management". The explosion of interest in hydrobiology which took place in North America, as shown by Hiatt's Directory, was also occurring across the world, and it continued well into the 1960s, as shown by a second directory compiled by Hiatt and published in 1963. From 1940 to 1962, on the average, 15 new research stations, colleges and institutes were established each year.

FAO was established early in the 1940s and one of the first projects of its then Fisheries Division was the conduct in Chile of an international training center in fisheries. The courses offered ranged from fish taxonomy and fisheries biology, through fisheries gear

technology and fisheries food technology, to fisheries economics. Since then FAO, alone and in collaboration with other agencies, has conducted many training courses covering all aspects of fisheries research, development, management and administration.

In 1952 I directed an international course in fisheries statistics in Bangkok; in 1972 I directed an international course in shrimp research in Mazatlan, Mexico. Since then I have directed courses in Goa, India, and Suva, Fiji, covering the whole spectrum of marine activities, and lectured on fisheries at other courses in Halifax, Canada and Malta. Such was my own involvement in FAO training activities.

While these activities of international organizations were going on, still greater developments in fisheries education were taking place in national institutions, and, above all, in the industry itself. Fishery training schemes are now maintained in a great many countries. Some are even addressed to primary school children, and others, to students at the secondary, tertiary, and postgraduate levels. Many courses are for fishermen who left school at an early age. Most are on general "fishing", dealing with all tasks on a fishing boat; others are specialized, for example, on navigation, and on echosounders and other electronic equipment.

## On-the-Job Training

It is my impression, however, that these organized courses are complementary to the principal training force. On-the-job training has always been a characteristic of fisheries; that is what we mean when we refer to the handing down of knowhow from father to son. It is doubtful whether the father-to-son relation is any longer the key element, but on-the-job training continues to hold its place, strengthened by developments in communication and by the exercise of managerial skills. College diplomas and university degrees are not hard to find among fishing skippers today. Local meetings attended by fishermen (skippers, mates and hands), processors, scientists, and administrators, now engage in technical discussion of high order. ●

### Reorganization of Fisheries Education Programs

It is high time that the country thinks of evolving a regular national policy on fisheries education. As mentioned earlier, education in the agricultural sciences, including fisheries, is the responsibility of agricultural universities. Therefore, fishery education at all levels may be entrusted to the agricultural universities including higher level training of research scientists, teachers, managerial and senior technical personnel.

The present training arrangements for middle and lower level technicians are mostly of an *ad hoc* nature. It may be worthwhile to establish separate fishery polytechnics under the agricultural uni-

versities to answer such short-term and long-term requirements. The fishermen training centers, which are now being run by state governments, could then be merged with the polytechnics. Likewise, there will be no need for the central or state governments to maintain any staff training establishments dealing with development, extension, etc. What is now being carried out by such training centers, including orientation and refresher courses and training of specialist personnel may be wholly entrusted to the agricultural universities.

#### National Fisheries University

The establishment of a National Fisheries University has been accepted in

principle by the Indian Council of Agricultural Research. The details are yet to be worked out and the concept has been studied by different people with different perspectives. Such a National University should have a loose linkage with all fisheries institutes, both under the central and state governments. This would certainly serve to standardize fisheries education in the country. ●

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For more information on some of the fisheries programs and courses available in India at present, refer to the listing on p. 18-29.

**O**ctober 1987 sees the launch of a new postgraduate course in fisheries economics at Portsmouth Polytechnic. The course, described in more detail below, reflects the development of research and teaching in this specialist area which has taken place at Portsmouth over several years.

Research in fisheries economics is carried out by the Marine Resources Research Unit, an interdisciplinary research group within the School of Economics. Since the Unit was established in the 1960s the nature of its work has evolved considerably. At present it has research interests which encompass the economics of fish supply, management, marketing and trade. Both individual and team research projects are undertaken, and the Unit also carries out contract research for external bodies. Research output has typically taken the form of publications, consultancy reports, and internal discussion papers.

Teaching in fisheries economics, which is also undertaken by Unit staff, has been a natural corollary of research. In the 1970s an undergraduate option in fisheries economics was introduced into two degree courses, the B.A. Economics and the B.A. Economics and Geography. This, as well as other options in natural resources such as agricultural economics, will continue to be offered to students on these degree courses for the foreseeable future.

### Fisheries Economics at Portsmouth Polytechnic, UK

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The experience gained from teaching fisheries economics has proved a valuable stimulus to research and curriculum development. After extensive planning, a new postgraduate conversion course in fisheries economics has recently been approved by the Polytechnic. The duration will be 22 weeks full-time, starting in October 1987, and successful completion will lead to the award of a Polytechnic Certificate. The course is orientated towards fisheries in developing countries, and is made up of four major components:

- Fundamentals of Economics
- Fisheries Economics
- Information Analysis and Data Processing
- Fishing Enterprise Management

The normal entry requirement will be a first degree or graduate-equivalent professional qualification. In exceptional cases, admission to the course may be permitted to mature students who do not possess a degree but who have relevant employment experience.

As well as offering taught courses, the School of Economics can also organize

research programs for suitable graduates who wish to obtain higher degrees by submission of a thesis. The School arranges for a candidate's research proposal to be registered with the Council for National Academic Awards, which is the degree-awarding body. The period of registration varies according to whether the program is full-time or part-time, and for an M.Phil or Ph.D. With some 30 members of academic staff, the range of expertise available to supervise postgraduate students is considerable, and covers the major areas of economics. Students specifically interested in fisheries economics, however, have the benefit not only of contact with specialists working in the same field but also of having access to the facilities of the Marine Resources Research Unit. These include, among other things, a reading room with a unique collection of books, journals and reprints, and also computing facilities. Research projects on fisheries economics would be supervised by a senior member of the Unit, who would maintain regular contact with the student and monitor the progress of the work.

Further details on the training and research opportunities in fisheries economics offered by Portsmouth Polytechnic can be obtained from David Whitmarsh, School of Economics, Portsmouth Polytechnic, Locksway Road, Portsmouth, UK PO4 8JF. ●