

1. Introduction

The ability of the world fishery to meet the growing global demand for fish is seriously threatened. World fish production from all sources is nearly 100 million tons annually, a level that approximates—and for some fishery resources exceeds—maximum sustainable yield (Brown et al., 1994; The World Bank, 1992). Aquaculture is a primary means through which significant future increases in the world fish supply, an important protein source in many less developed countries, can be achieved.

The Pond Dynamics/Aquaculture Collaborative Research Support Program (PD/A CRSP) conducts research that contributes significantly to the removal of major constraints to aquacultural development, thereby promoting economic growth and increasing food security. This report describes the activities and accomplishments of the PD/A CRSP during the period 1 August 1996 to 31 July 1997.

The PD/A CRSP is funded by the United States Agency for International Development (USAID), under authority of the International Development and Food Assistance Act of 1975 (PL 94-161) and by the universities and institutions that participate in the CRSP. This cohesive program of research is carried out in selected developing countries and the United States by teams of US and host country scientists. Now operating under its fourth USAID grant since 1982, the CRSP is guided by the concepts and direction set down in the *Continuation Plan 1996-2001*, which was awarded funding under USAID Grant No. LAG-G-00-96-90015-00. This grant authorizes program activities from 1 August 1996 to 31 July 2001. An overview of CRSP history and how the program has evolved since its inception is provided in Appendix C.

The activities of this multi-national, multi institutional program are administered by Oregon State University (OSU), which functions as Management Entity (ME) and has technical, programmatic, and fiscal responsibility for the performance of grant provisions. ME activities at OSU are carried out through a Program Management Office, which is supported in the task of program administration by three advisory bodies: the Board of Directors, the Technical Committee, and the External Evaluation Panel. The relationships among these bodies and their respective roles are described in more detail in Chapter 5.

Research conducted by the PD/A CRSP since 1982 has helped to remove some of the constraints facing aquaculture development. Still, aquaculture continues to be hampered in several important areas. In developing the *Continuation Plan 1996-2001*, the CRSP undertook an in-depth constraints analysis. That analysis led to the identification of a number of major constraints that limit the development of extensive to semi-intensive sustainable aquaculture systems. Chief among these were:

- Inefficient and inconsistent aquacultural productivity.
- Negative environmental effects resulting from aquaculture operations.
- A poor understanding of social and economic factors.
- Insufficient human capacity development.
- Poor or outdated information management.
- Limited networking capacities.

The *Continuation Plan 1996-2001* responds to the first three of these factors by setting a **research agenda** that addresses constraints to aquacultural productivity, environmental effects, and social and economic aspects of aquaculture. Descriptions of the CRSP research program background and framework as well as a summary of the research carried out in the reporting period under the program's Eighth Work Plan can be found in Chapters 3 and 3.1, respectively. Chapter 3.2 contains the abstracts of technical reports completed by CRSP researchers during the reporting period.

The second three constraints are addressed by a **research support agenda** committed to improving human capacity development, information management, and networking. To carry out that agenda, the program now has a new Research Support component which is comprised of three projects:

- A new Education Development project dedicated to strengthening human capacity in participating countries and regions;
- A project that manages the CRSP Central Database, the largest repository of standardized data related to aquaculture; and
- An Information Management project for reporting and dissemination of project and program outputs via publications and a central website.

Chapters 4.1 through 4.3 describe the activities of these three research support projects during the reporting period.

The PD/A CRSPs multidisciplinary team of researchers represents a wide range of US and international aquacultural experience. During the reporting period, participating US institutions included:

- Auburn University;
- Oregon State University;
- Southern Illinois University at Carbondale;
- The University of Michigan;
- University of Arizona;
- University of Arkansas at Pine Bluff;
- University of California at Davis;
- University of Hawaii (through participation on the Technical Committee);
- University of Oklahoma;
- University of Texas.

Research activities were conducted at host country sites in Honduras, Peru, Kenya, Thailand, and the Philippines, and also at the participating US institutions. Memoranda of Understanding, representing a formal tie between a US and host country institution, which were in place during the reporting period include those between:

- International Center for Aquaculture and Aquatic Environments, Auburn University, and the Ministry of Natural Resources, Republic of Honduras;

- Southern Illinois University, Carbondale, and the Institute for the Investigation of the Peruvian Amazon and the National University of the Peruvian Amazon;
- Oregon State University Fisheries and Wildlife Department and the Department of Fisheries, Ministry of Wildlife and Tourism, Kenya; and
- The University of Michigan and the Asian Institute of Technology, Thailand.



Colossoma harvest at Iquitos, Peru.

Developing and maintaining links between the collaborating universities and government ministries, departments of agriculture, and the private sector around the world strengthens the PD/A CRSPs network of organizations and individuals engaged in sustainable aquaculture and development. The objective of networking efforts is to facilitate the development of linkages among CRSP researchers and among governmental and non-governmental organizations. Chapter 4.4 describes linkages and connections made not only by CRSP researchers in the field and reported to the Program Management Office during this reporting period, but also those maintained by the Program Management Office. CRSP participation in scientific meetings and contributions to scholarly publishing is also described. These are all significant indices of CRSP outputs.

Literature Cited

Brown, L.R., H. Kane, and D.M. Roodman, 1994. *Vital Signs 1994: The Trends that are Shaping Our Future*. W.W. Norton and Company, New York, 160 pp.

The World Bank, United Nations Development Programme, Commission of the European Communities, and Food and Agriculture Organization of the United Nations, 1992. *A Study of International Fisheries Research, Policy and Research Series 19*. The World Bank, Washington, D.C., 103 pp.