
PERCIS III—THE 3RD INTERNATIONAL PERCID FISH SYMPOSIUM¹

Project Termination Report for the Period
November 1, 2002 to October 31, 2003

NCRAC FUNDING LEVEL: \$4,000 (November 1, 2002 to October 31, 2003)

PARTICIPANT:

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Victor Mikheev	Severtsov Institute of Ecology and Evolution	Russia
Don Pereira	Minnesota Department of Natural Resources	Minnesota
Ed Roseman	Dominion Nuclear Connecticut	Connecticut

REASON FOR TERMINATION

The project objective was completed.

PROJECT OBJECTIVE

Co-sponsor the Percis III International Percid Fish Symposium, held in Madison, Wisconsin, July 20-24, 2003.

PRINCIPAL ACCOMPLISHMENTS

Percis III was held July 20-24, 2003, at the Monona Terrace Convention Center in Madison, Wisconsin. Percis III The primary impact of Percis III was to continue to insure communication and information exchange between scientists working around the world on percid aquaculture. Meetings such as Percis III foster collaborative research and extension efforts, which will

was the successor to two previous symposia, Percis I in Ontario, Canada in 1976, and Percis II in Vaasa, Finland, in 1995. Percis III was an unqualified success; the symposium included more than 180 presentations, given by over 150 registered participants from 30 countries around the world. Percis III had almost two full days of presentations that were focused on aquaculture. In addition, the poster session contained numerous aquaculture presentations.

IMPACTS

clearly enhance the development of percid aquaculture technology, and promote the development of commercial fish production. After Percis III, a summary of the current status of percid fish aquaculture was prepared by Jeffrey Malison and Robert Summerfelt, both long-time

¹NCRAC has funded one Percis project. This termination report is for the first Percis project which was chaired by Jeffrey A. Malison. It was a 1-year project that began November 1, 2002.

NORTH CENTRAL REGIONAL AQUACULTURE CENTER

NCRAC participants, and Patrick Kestemont of the University of Namur, Belgium. This summary is as follows:

For many years, the exclusive focus of percid aquaculture had been on the production of walleye (in North America) and pikeperch (in Europe) fingerlings for stocking into natural and impounded waterways. This production continues today. These fingerlings are produced largely by public fish hatcheries, although some commercial culture has begun. The original culture method used was extensive pond culture, and although this method is still widely practiced today, the development of formulated feeds that were nutritionally adequate for walleye fingerlings permitted the use of a tandem method of extensive pond culture followed by intensive tank culture for producing fingerlings to an advanced size (e.g., 100–200 mm; 3.9–7.9 in). More recently, advances in larval diets and system engineering (e.g., methods to facilitate gas bladder inflation)

Presently, pond culture or tandem pond/tank culture are the most cost-effective methods for producing yellow perch and walleye fingerlings.

Pond culture and recirculation systems appear to be the two most feasible grow-out methods for both species. Recirculation systems offer the benefit of year-round growth, in which yellow perch can be raised from hatch to market size (0.25–0.33 kg; 0.55–0.73 lb) in 12 months, walleye (0.5–0.75 kg; 1.10–1.65 lb) in 18 months, and pikeperch (2.0 kg; 4.4 lb) in 24 months. Ponds or other systems at ambient temperature may prove more cost effective than recirculation systems, however, despite comparatively slower fish growth rates. In the U.S., a primary need (which is currently being addressed for yellow perch, but not for walleye) is the documentation of production costs for

have led to the development of methods for raising walleye fingerlings entirely in tanks.

Since the early 1980s in the U.S., and the early 1990s in Europe, a great interest has developed in the commercial culture of yellow perch, and walleye, and Eurasian perch and pikeperch, respectively, as food fish, driven by ever-increasing demand and declining supplies from the wild. In the U.S., since 1990 a significant number of farms have attempted the commercial culture of yellow perch as food fish, and a smaller number have attempted raising walleye to food size. Some of these businesses failed, others remain in production, and new start-up efforts continue. In Europe, at least one commercial pond-based operation for Eurasian perch exists in Ireland, and several initiatives have emerged in recirculation systems and lake-based cages. At Percis III it became clear that interest is growing in the commercial culture of these species in France, Switzerland, Norway, Sweden, and Denmark.

specific system types. Bio-economic data is also needed for the grow out of Eurasian perch and pikeperch. One significant problem that has developed in the U.S. and is currently restricting the development of yellow perch and walleye aquaculture is an illegal practice of mis-labeling wild-harvest juvenile pikeperch, walleye, or sauger fillets as yellow or “lake” perch. These fish are being sold at extremely low prices, and clearly this practice must be halted if the development of commercial percid aquaculture is to continue.

For all of these percid species, the commercial culture of food fish is constrained by economics.

Production systems must be developed that can compete with the cost of fish harvested from the wild. Over time, one can reasonably

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assume that increasing demand and declining supplies will lead to higher costs, making commercial aquaculture more feasible (as is the case with most other wild-harvest seafood products). At the same time, research is needed to develop more efficient production methods and systems.

Both yellow perch and Eurasian perch are marketed at a relatively small size, compared to most other cultured fish species. Accordingly, more fingerlings are needed per unit weight of marketable food, and fingerling costs represent a very high percentage of total production costs for these species. Both of these species also grow slower than most other commercially cultured food fish. Because of these facts, methods to reduce fingerling production costs and improve growth rates are two of the highest priority research areas. For pikeperch, additional major constraints are the high variability in egg and larval quality and the sudden (stress related?) mortalities that occur during grow out.

Because of the similar biology of yellow perch, Eurasian perch, walleye, and pikeperch, advances in aquaculture technology may be applicable across all four species. In this

There were 34 aquaculture-related presentations at Percis III, many of which included results of NCRAC-funded

SUPPORT

YEAR	NCRAC-USDA FUNDING	OTHER SUPPORT					TOTAL SUPPORT
		UNIVER-SITY	INDUSTRY	OTHER FEDERAL	OTHER	TOTAL	
2002-03	\$4,000	\$1,500		\$9,000	\$17,400	\$27,900	\$31,900
TOTAL	\$4,000	\$1,500		\$9,000	\$17,400	\$27,900	\$31,900

regard, one of the primary values of Percis III was to bring scientists from around the world together to discuss their related research on these different species. Advances in various disciplines, including genetics, nutrition, physiology, endocrinology, and engineering, were described. Specific important advances included: optimization of environmental conditions, better and more cost-effective diets, the use of hybridization to improve growth, methods of controlling reproduction and spawning (including the production of fast-growing monosex female and sterile strains), and beginning efforts at producing domesticated strains for aquaculture. Efforts along all of these lines should continue, but in particular efforts aimed at improving the domestication of these species may be the most important.

RECOMMENDED FOLLOW-UP ACTIVITIES

Because of the clear importance of these fishes, and the strong interest expressed, preliminary talks have already begun regarding a Percis IV symposium, to be held perhaps in 2009 or 2010. If possible, NCRAC should support efforts at the development of such a conference.

PUBLICATIONS, MANUSCRIPTS, OR PAPERS PRESENTED

projects, as well as a published proceedings. See the Appendix for the complete citation for the proceedings.