

GLFC Science Program:
Coordinating Great Lakes Research

By Charles C. Krueger – Great Lakes Fishery Commission
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Topics to be Discussed

- **Overview of Science Program and Funding Process**
- **Research Programs**
 - **Fishery Research Program**
 - **Sea Lamprey Research Program**
- **Communication of Research**
- **Examples of research coordination funded as projects**

Coordination Issues

Internal coordination within the Commission.

Coordination among research projects focused within a topic area.

Coordination between the research program and information needed by managers for decision making.

External coordination with other funding programs

- **USFWS – Restoration Act**
- **Thematic research with Sea Grant and GLFT.**

Overview of Science Program

What prompted the formation of the Commission and the research programs?

- **Established in 1954 by the Convention on Great Lakes Fisheries (Canada and US).**
 - **In response to the invasion of sea lamprey and resulting collapse of lake trout populations.**
 - **Recognized that coordinated efforts from Canada and U.S. were necessary to sustain fishery productivity.**

Overview of Science Program

Why a science program?

The Commission shall have the following duties:

- (a) to formulate a research program or programs designed to determine the need for measures to make possible the maximum sustained productivity of any stock of fish in the Convention Area...;
- (b) to coordinate research made pursuant to such programs and, if necessary, to undertake such research itself ... ;
- (e) to publish or authorize the publication of scientific and other information obtained by the Commission in the performance of its duties.

Coordination Context

- **Commission decided that three aspects of convention duties associated with research needed more attention.**
- **Hired in late 2000 and directed improve coordination.**
- **Program inertia – speed of changes – revolution guerilla warfare vs. evolution.**
- **Some coordination activities were already underway.**

Overview of Science Program

Goal: To provide information to help the Commission achieve the milestones associated with the its Strategic Vision

Two research programs:

- **Fishery Research Program**
 - **research to promote healthy ecosystems**
- **Sea Lamprey Research Program**
 - **research to support sea lamprey control**
- **20-30 new research projects funded each year**

Overview of Science Program

First a Need for Internal Coordination

- FRP and SLRP were previously uncoordinated**
- Different processes were used for each program**
- Programs were unknown to many researchers**
- Information about programs was difficult to access**

Programs now web-facilitated = resolved communication and access issues

Overview of Funding Process

Funding process is the same for both programs (as of 2002)

Request for proposals issued

November

One page pre-proposal due

Dec. 15

Research boards evaluate pre-proposals

Authors notified

Feb. - March

Full proposals due

May - June

External peer-review of full proposals

Research boards evaluate full-proposals

Investigators notified

Dec.

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Fishery Research Program

- **Purpose:** to conduct research and develop recommendations for a healthy Great Lakes ecosystem
- **Type of research:** Great Lakes fishery research, including ecological and social sciences
- **Funds:** Approximately \$700K available annually
 - \$200K from the Federal Fish and Wildlife Improvement Act
- **Supports ~10-15 new projects each year**

Fishery Research Program

Research program statistics

- **Number of on-going projects: 31**
- **Number of completed projects over program lifetime: 73**
- **Completion reports for all projects available at www.glfc.org**

Fishery Research Program

Coordination challenges:

- 1. Coordination among research scientists within specific topic areas.**
- 2. Coordination among fishery research programs across the basin (USFWS Restoration Act).**
- 3. Integrating research and information needs of management agencies.**

Fishery Research Program

FRP is organized into themes to provide coordination among research scientists in specific research areas:

- Exotic Invertebrates and Food-Web Disruption**
- Restoration of Native Great Lakes Fishes**
- SCOL Revisited Task**
- Human Dimensions**
- Large Lakes of the World**

Fishery Research Program

Thematic structure = better research coordination

- Coordination enhanced by papers that describe rationale and research questions for each theme
- Reduces need for relevancy section in full proposals
- **Exotic invertebrates and food-web disruption**
 - Collaborative partnership : thematic research funded by GLFC, GLFT, 7 SG institutions
 - Annual research coordination meetings
 - Web site (www.glfc.org) lists funded proposals and publications
- **Restoration of Native Great Lakes Fishes**
 - Bi-annual research coordination meetings

Fishery Research Program

Thematic structure = better research coordination

- **SCOL Revisited Task**
 - 3 symposia held
 - 18 publications expected
- **Human Dimensions**
 - Human Dimensions of Great Lakes Fisheries listserv
 - Research symposium planned
- **Large Lakes of the World**
 - Objective: intercontinental exchange of information
 - Collaborative session with GLOW at IAGLR comparing lakes Erie, Winnipeg, and Victoria

Fishery Research Program

Coordination among fishery research programs across the basin (FRP + USFWS Restoration Act)

Restoration Act Program (USFWS):

- Purpose: To develop and implement proposals for the restoration of fish and wildlife resources in the Great Lakes Basin
- Type of research: Biological, ecological, and management-related research including cooperative conservation, restoration and management of fish and wildlife resources and their habitats
- Funds: Approximately \$575K available annually
- Supports: ~13-15 new projects each year

Fishery Research Program

Coordination among fishery research programs across the basin (USFWS Restoration Act)

Prior to integration with the FRP:

- **One-stage proposal process**
- **No peer review of proposals**
- **Not integrated with other GL research programs**

After integration with the FRP (focused on LC research priorities):

- **2-stage process (pre-proposals and full proposals)**
- **3 peer reviews per proposal**
- **Same forms and submission dates as FRP and SLRP**
- **FRP and RA pre-proposals considered jointly by GL managers**

Research proposals standards = comparable and consistent

Fishery Research Program

Integrating research and management objectives

- **A portion of the FRP is designed to support the immediate information needs of Great Lakes fishery management**
 - **One or more members of the Council of Lake Committees serves on the research board.**
 - **Researchers are encouraged to address research priorities generated by the Lake Committees (uses ~ 25% of the research budget)**
 - **The Council of Lake Committees reviews pre-proposals and endorses proposals which are most relevant to management concerns.**

FRP responds to management agencies' immediate information needs

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Sea Lamprey Research Program

- Purpose: To conduct research that will provide the information needed to fully implement integrated management of sea lampreys, including the development of novel, effective strategies for their control
- Type of research: Biological, ecological, and management-related research on sea lampreys and their effects on Great Lakes fish communities and fisheries
- Funds: Approximately \$1100K available annually
- Supports: ~10-15 new projects each year

Sea Lamprey Research Program

Research program statistics

- **Number of on-going projects: 25**
- **Number of completed projects over program lifetime: 131**
- **Completion reports for all projects available at www.glfc.org**

Sea Lamprey Research Program

Major coordination challenge:
**Integrating scientific research with
delivery of a sea lamprey control
program**

Sea Lamprey Research Program

Integrating scientific research and management

- **Mimic the structure of the sea lamprey program in the research program**
 - **5 task forces: each task force topic area is also a research theme within the SLRP**
 - **One member of each task force sits on the sea lamprey research board**
 - **Theme papers being drafted to help focus research program**

Sea Lamprey Research Program

Research Themes:

- 1. Assessment: Population Dynamics**
- 2. Sterile Males: Physiology and Control**
- 3. Lampricides: Mode of Toxic Action**
- 4. Barriers: Behavioral and Physiological Responses of Fish in Response to Low-Head Barriers on Streams**
- 5. Pheromones and Trapping: Role of Pheromones in Sea Lamprey Movement, Distribution, and Spawning**

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Communication of Research

The Commission shall have the following duties:

- (e) to publish or authorize the publication of scientific and other information obtained by the Commission in the performance of its duties.

It is important to communicate research findings quickly to facilitate use of findings in management

Communication of Research

- **Internal publications – Technical Report Series, Special Publication Series**
- **Journal publication – e.g., SCOL, SLIS2, RESTORE**
- **Web site – Completion Reports plus internal publications**
- **Bibliography - >700 scientific peer-reviewed papers – on-line, searchable database.**

Publications and Links

GLFC Reports and Publications

Home

Sea Lamprey Control

Fisheries Management

Lake Committees

Research

Publications and Links ▶

Image Galleries

About the GLFC

GLFC Reports and Publications

Fact Sheets

Annual Reports

Newsletter FORUM

News Releases

Historical Data

Related Links

Journal of Great Lakes Research

Research Bibliography

Key GLFC Documents

Convention on Great Lakes Fisheries

Strategic Vision of the Great Lakes Fishery Commission for the First Decade of the New Millennium

A Joint Strategic Plan for Management of the Great Lakes Fisheries (1997 Revision)

A Joint Strategic Plan for Management of the Great Lakes Fisheries (Original Version)

GLFC Publications

Fact Sheets

Technical Report Series

Special Publications

Miscellaneous Documents

Research Completion Reports

Fishery Research Program

Sea Lamprey Research Program

Coordination Activities Program

Research Bibliography

Bibliography of GLFC sponsored and peer reviewed publications

http://www.glfc.org/pubs_out/communi.asp

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Funded Coordination Research

In addition to the coordination elements built into the FRP and SLRP, GLFC funds activities that coordinate research

- **Study group on fisheries acoustics in the Great Lakes**
 - **Objective: Develop standardized protocols for collection of hydroacoustic data across the Great Lakes**
- **EMS research and information coordination meetings**
 - **Objectives: 1) Coordinate integrated multidisciplinary field and laboratory studies; 2) facilitate information exchange and cooperation among scientists; and 3) facilitate discussion of basin-wide EMS management options**

Summary of Coordination Efforts

- **The GLFC Science Program facilitates coordination:**
 - **Among research scientists through development of theme areas:** Native Fish Restoration theme
 - **Collaboratively with other funding agencies, through basin-wide themes :** Food-web theme
 - **Integration of research programs:** FRP with USFWS Restoration Act Program
 - **By linking scientific research with management needs:** agency membership on boards
 - **By funding coordination-type research activities:** hydroacoustics study group
 - **By communication of research findings:** paper and web based.

Coordination has paid off.

- **FRP – Commissioners moved budget from under \$200K for the FRP to \$700K plus.**
- **SLRP -- \$850K to \$1.1 million**
- **Restoration Act focused on Lake Committee research priorities – \$575K**
- **Total \$1050K to \$2375K – 2.26X increase**

Summary of Coordination Efforts

- **What stands in the way of coordination?**
 - **Research topic breadth:** Food web theme vs. Sea Lamprey themes
 - **Staff or theme leader time and commitment to facilitate communication (finding leaders):** Food-web theme web site, HD listserv, Native Fish coordination meeting
 - **Cross purposes or schedules of research programs:** FRP with USFWS Restoration Act Program – management projects, Canadian projects
 - **Reluctance of managers to serve on review panels:** FRP
 - **Non-collaborative organizational behavior**
 - **Proprietary research personnel behavior**