

**COLORADO RIVER RECOVERY PROGRAM
FY99 ANNUAL PROJECT REPORT**

**RECOVERY PROGRAM
PROJECT NUMBER: 99**

I. Project Title: Develop and Supply Feed for Colorado Pikeminnow

II. Principle Investigator:

Rick Barrows

Fish Technology Center

4050 Bridger Canyon Road

Bozeman, MT 59715

voice: 406-587-9265 x130

FAX: 406-586-5942

e-mail: rbarrows@montana.campuscwix.net

III. Project Summary: Day old pikeminnow larvae were shipped from Grand Junction Colorado, to the Valley City National Fish Hatchery. Fry were randomly assigned to each of 30 specialized larval-rearing tanks. Standard culture techniques for hard-to-rear species were employed. Nine experimental feeds were formulated, manufactured, and provided to three tanks of fish per diet. An additional three tanks of fish received a commercial larval feed, BioKyowa. Survival rates varied considerably for the experimental feeds. Fish fed BioKyowa had higher survival and growth rates. This data indicates that the experimental feeds were clearly not adequate for the pikeminnows.

IV. Study Schedule: All phases of the project have been completed except for final data analysis and final report.

V. Relationship to RIPRAP:

VI. Accomplishment of FY 99 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings: The primary task of this project was to evaluate the effect of feeding experimental and commercial feeds on survival of larval pikeminnow. A large study was initiated and completed. Results demonstrated a poor response of pikeminnow to the experimental feeds. Higher survival rates were observed when feeding the commercial feed, BioKyowa. This feed has consistently proven to be the best **commercial** larval feed available. In some instances better survival and/or growth has been observed when experimental feeds were fed (i.e. Atlantic sturgeon, razorback sucker, and walleye). However, in the present study pikeminnow fed the experimental feeds performed poorly. A long series of trials would be required to determine the factor, or factors, that contributed to the poor performance of fish fed the experimental feeds. Possible deficiencies in the experimental feeds include poor palatability, imbalanced nutrient profile, and loss of water soluble nutrients. The experimental feeds were consumed well indicating good palatability, thus decreasing the probability that palatability was an important factor. The nutrient profile of the feeds were similar to those found to be effective for other species, and there is no reason to believe extreme deviations from these profiles are

necessary for pikeminnow. These two observations and the manufacturing method used for BioKyowa,

(zein bound, crumbled cake) suggests that the most probable shortcoming of the experimental feeds is a leaching of water soluble nutrients from the feeds.

VII. Recommendations: Based on the results of this project, without additional research, it is recommended that BioKyowa be used as the first feed for larval Colorado pikeminnow.

VIII. Project Status: This was a one year project, and final report is in progress and will be completed by April 30th.

IX. FY 99 Budget Status:

- A Funds provided: \$15,000
- B Funds expended: \$15,000, all project funds have been expended.
- C Difference: \$ 0
- D Percent of the FY99 work completed and project costs to complete: Ninety five percent of the work has been completed and no additional funds are required for completion.
- E Recovery Program funds spent for publication charges: None

X. Status of Data Submission: Not applicable.

XI. Signed: Rick Barrows January 9, 2000
Principle Investigator Date