

I. Project Title: Humpback chub monitoring in Yampa Canyon

II. Principal Investigator(s):

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III. Project Summary:

The Yampa River humpback chub population is one of only five existing populations. Very little is known about this population, the result of inhabiting an inaccessible canyon reach and being relatively rare over the period of recent collection (Karp and Tyus 1990; Tyus 1998). The Yampa River within Yampa Canyon has been designated critical habitat and the population is important for recovery of the species. Long-term monitoring will provide baseline data on species status and serve as a response measure for management activities, e.g. non-native fish removal or flow alterations. Furthermore, such monitoring would provide estimates of several population parameters, e.g. population size, survival rates, and recruitment rates, needed for refining life-stage models and setting management objectives (Crowl and Bouwes, 1997; Lentsch et al. 1997).

2000 was the third year of a three year study to determine procedures for monitoring population trends. In 1998 we captured and PIT tagged 18 adult humpback chubs. In 1999 we captured and PIT tagged 20 humpback chubs and recaptured one tagged fish released in 1998. In 2000 we captured 43 humpback chubs; none were recaptures from previous years. Preliminary population estimates suggest the number may consist of just a few hundred fish. Final report is due January 2001. This report will address alternative sampling designs (e.g., sample sizes, procedures, and requisite assumptions needed for measuring trends in adult and juvenile populations) appropriate for estimating precision and testing important assumptions needed for measuring trends in adult and juvenile populations.

IV. Study Schedule: 1998-2001

V. Relationship to RIPRAP: General Recovery Program Support. V. Monitor Populations.
A.1. Conduct standardized monitoring program.

VI. Accomplishment of FY 00 Tasks and Deliverables, Discussion of Initial Findings and

Shortcomings:

1. Using electrofishing rafts, sample the Yampa River through Yampa Canyon in late June to capture adult humpback chub; PIT tag all humpback chubs >150 mmTL.

Three sampling trips were made down the Yampa River in 2000. The first was 6-9 June 2000, and was accomplished as part of the Recovery Program's annual field trip. One electrofishing raft captured 9 humpback chubs that were PIT tagged and released; none of these fish were recaptures. The second trip was 19-21 June. Two electrofishing rafts captured 18 humpback chubs; two of these fish were recaptures from the 6-9 June trip. The third trip was 26-28 June. Two electrofishing rafts captured 17 humpbacks; none were recaptures.

Population estimates based on this year's sampling ranged from 150 to 750, depending on assumptions. Last year's estimate ranged from 200 to about 400 fish. It seems to us that continuation of a similar effort for a few more years may produce a worthwhile population estimate of the Yampa River humpback chub population.

2. Using seines and light traps, sample the Yampa Canyon in early July for larval and juvenile humpback chubs.

In 2000 we concentrated our efforts on electrofishing adult humpbacks and did not seine for juveniles. In 1998 we sampled many juvenile by seining chubs but had difficulty identifying them in the field.

3. Each year, analyze data and consult a statistician to modify sampling design to achieve efficient procedures for long-term monitoring of population trends and recruitment rates.

This winter we will consult a statistician and analyze our data for long-term monitoring

VII. Recommendations:

1. During development of long-range monitoring program, consider monitoring that involves estimating population size, survival rates, and recruitment rates as well as trend information.

VIII. Project Status:

The project is ongoing and on track. The budget was reduced from \$40.0K to 21.0K in FY-99 and is scheduled to go through FY-01.

IX. FY 00 Budget Status

- A. Funds Provided: \$21.0K
- B. Funds Expended: 21.0K
- C. Difference: 0
- D. Recovery Program funds spent for publication charges: 0

X. Status of Data Submission (Where applicable): submitted annually by 15 February.

XI. Signed: Bruce Haines 7 Dec 2000
Principal Investigator Date