



UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

ECOLOGICAL SERVICES
3616 W. Thomas, Suite 6
Phoenix, Arizona 85019

2-21-89-F-91

April 26, 1989

MEMORANDUM

TO: Regional Director, National Park Service, San Francisco,
California

FROM: Field Supervisor

SUBJECT: Biological Opinion- Issuance of a Permit to Collect Humpback
Chub in Grand Canyon National Park by Arizona Game and Fish
Department, Coconino County, Arizona.

This responds to your April 24, 1989 request for Formal Section 7 Consultation, as provided by the Endangered Species Act of 1973, as amended, on the issuance to the Arizona Game and Fish Department (AGFD) of a National Park Service (NPS) permit to collect endangered humpback chubs (*Gila cypha*) in Grand Canyon National Park. The following biological opinion is based upon information furnished by the AGFD, data in our files, and discussions with biologists familiar with the species.

BIOLOGICAL OPINION

It is my biological opinion that the proposed issuance of a NPS permit, that authorizes the AGFD to conduct monitoring activities and take 50 young-of-year, juvenile and adult humpback chubs, and an undetermined number of eggs and larvae, is not likely to jeopardize the continued existence of the humpback chub.

BACKGROUND INFORMATION

The proposed 1989 monitoring activities for humpback chub will sample the backwaters of the Colorado mainstream and, during the entire month of May, the lower, perennial reach of the Little Colorado River. Biotic and abiotic parameters of the species and its habitat will be recorded and individuals of sufficient size will be tagged. A subsample of 50 individuals will be sacrificed for additional analyses. The AGFD has a current Fish and Wildlife Service (Service) Endangered Species permit to conduct these activities.

The request of the AGFD for a NPS collecting permit is a continuation of a research program that was initiated in 1984 as part of the Glen Canyon Environmental Studies and their Nongame Branch monitoring activities for the humpback chub in the Grand Canyon and tributaries. A biological opinion

(2-01-84-F-8) issued for the original collecting permit on June 11, 1984, with three subsequent amendments, found that the activity was not likely to jeopardize the continued existence of the humpback chub.

The humpback chub was included in the original list of endangered species in 1967. This species is one of the endemic "big river fishes" that is disappearing due to stream alterations, competition and predation by introduced fishes, and other factors. The Grand Canyon population of the humpback chub spawns in the Little Colorado River and, while it is the only population in the lower Colorado River basin, it may be the most significant over the species' entire range. A previous study conducted by the Service in 1982 estimated an adult (total length greater than 200mm) population in the Little Colorado River of 7,000 to 8,000 humpback chubs. Estimates from tagging data collected by the AGFD in May 1987 and 1988 indicate a population size of 5,000 to 7,000 in the Little Colorado River.

IMPACTS OF THE ACTION

Adult and juvenile humpback chubs will be captured primarily with hoop nets with some use of trammel nets. Visible injury to fish appears much reduced with the use of hoop nets over gill and trammel nets. Hoop nets also capture a greater size range of fish. Larvae, young-of-year, and juvenile fish will be collected by seining. Stress to fish being handled will occur as well as disruption of normal behavior patterns and local disturbance of habitat due to placement of nets and frequent checking of catch.

Stress will be minimized by anesthetizing the fish and using the utmost care in processing. Because of possible problems with external tags, including deposition of travertine prevalent in the Little Colorado River, Passive Integrate Transponders (PIT) tags will be employed if available this year in an effort to replace the traditional sew-on Carlin or Floy fingerling tags. Studies of these tags have found them to be biologically inert. Currently, the Service is studying the use of PIT tags on endangered Colorado River fishes. The circumstances of this situation (Little Colorado River) persuade us to use preliminary information that PIT tags will not be problematic to the species. Possible adverse impacts to the species may occur if the tags are implanted improperly. A training session will be held to reduce this problem. Fish tagged during the beginning week will be held in a live cage and observed to detect and correct any possible problems.

Fifty humpback chubs will be sacrificed to determine age/size relationships (analysis of otoliths and opercula), diet (examination of stomachs), and for skeletal material for permanent museum collections. Tissue samples for a basin wide taxonomic study of Gila will also be made available to researchers. Using the lower estimate of the humpback chub population from the 1987 monitoring effort, the taking of 50 individuals would represent 1.0 percent of

the population. The selection of this sample from all age classes (young-of-year through adult) will insure that the loss will not be incurred only by reproductively, mature individuals. Our understanding of the current recruitment ability of the humpback chub in the Little Colorado River is that the species would sustain the loss of 50 individuals without significant adverse impacts.

INCIDENTAL TAKE

The Service does not anticipate that the proposed action will result in any incidental take of humpback chubs. As the authorized take of 50 humpback chubs nears the limit, researchers are to use caution in their sampling activities and to allow for possible mortalities as part of the total take. Should any incidental take occur, the Federal agency must reinitiate formal consultation with the Service.

This concludes formal consultation on this action. Reinitiation of formal consultation is required if the amount or extent of incidental take is exceeded, if new information reveals effects of the action that may affect listed species or critical habitat in a manner or extent not considered in this opinion, if the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion, and/or if a new species is listed or critical habitat designated that may be affected by the action.

Thank you for your interest in conserving endangered species. If we may be of further assistance, please contact Frank Baucom or me (Telephone: 602/261-4720).



Sam F. Spiller

cc: Director, Arizona Game and Fish Department, Phoenix, Arizona
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