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2-21-83-F-4

February 1, 1983

Colonel Paul W. Taylor
District Engineer
U. S. Army Corps of Engineers
P. O. Box 2711
Los Angeles, California 90053

Dear Colonel Taylor:

This is a reply to your request of October 12, 1982 for formal Section 7 consultation as provided by the Endangered Species Act. The action under consultation is the implementation of flood control regulations for the operation of Hoover Dam. The proposed flood control regulations may effect the endangered Yuma clapper rail (Rallus longirostris yumanensis) and the bonytail chub (Gila elegans). On January 7, 1983 it was mutually agreed to extend the due date for the biological opinion until January 21. Again on January 21st a two weeks time extension until February 4 was mutually agreed to. The preferred plan of flood releases calls for 5.25 MAF of storage space to be available on January 1 and that space-building releases begin on August 2. Depending upon the amount of inflow into Lake Mead, water will be released at the rate of 19,000, 29,000, 39,000, 40,000, or 73,000 ft³/s during this period. Releases above 19,000 cfs will be predicated upon abnormally wet weather conditions and will be an unusual event. This schedule of water releases only applies in the event of the need to operate Hoover Dam for flood control and will not be used for normal operations.

Flood releases during the period of January 1 to August 1 are based upon filling all available Lake Mead storage on August 2 while maintaining the lowest level of outflow for normal operations. The area that potentially will be impacted by this project is all the Colorado River Floodplain below Hoover Dam.

Background Information - Bonytail Chub

A genetically pure population of bonytail chubs is known to occur only in Lake Mohave, Lower Colorado River Basin. Bonytail chubs are also reported from the upper basin but may have hybridized with other Gila species. The bonytail chub was listed as an endangered species on April 23, 1980. A critical factor affecting the success of the bonytail chub population in Lake Mohave is reproduction. Preliminary data indicate that the remaining bonytail chubs in Lake Mohave are old, approaching 40 years, and spawning probably has not been successful for at least the last 10-15 years, possibly not since Lake Mohave first filled in the mid 1950's. Bonytail chub spawning in the wild likely keyed upon optimal river conditions in order to reduce scouring or desiccation of the nests. Preliminary data indicate females may become mature as early as May and stay fecund as late as September in order to accommodate sub-optimal river conditions. Bonytail chub eggs also hatch quite rapidly at summer water

temperatures (4 days at 21°C), again indicating a species adapted to taking advantage of optimal environmental conditions in a highly variable habitat.

Thus it appears that in spite of a highly adaptable spawning technique developed by bonytail chubs for the Colorado River, Lake Mohave is a habitat so foreign to the species that spawning is not successful. Reasons for spawning failure are unknown, but likely include lack of flowing water, the existing temperature regime, fluctuating lake levels, and predation by a host of non-native species.

Biological Opinion - Bonytail Chub

The proposed operating criteria for flood releases from Hoover Dam are not expected to change the range of water level fluctuations in Lake Mohave from those currently existing. Lake Mohave is currently operated between elevations 630 and 647 annually and functions as a reregulating reservoir for flows from Hoover Dam.

Therefore, because Lake Mohave is already unsuitable for sustaining a viable bonytail chub population and because this project will not appreciably change the existing conditions, it is my biological opinion that implementation of your proposed flood control regulations for the operation of Hoover Dam is not likely to jeopardize the continued existence of the bonytail chub.

Background Information - Yuma Clapper Rail

The Yuma clapper rail was listed as endangered on March 11, 1967. By that time, this species had expanded its distribution along the Colorado River because dams had created suitable marsh habitat. Expansion of Yuma clapper rail populations currently is limited by available habitat.

Rail habitat on the Colorado River consists of shallow water marshes containing dense stands of cattail (*Typha latifolia*) and bulrush (*Scirpus acutus*). Shallow water with mud flats readily available for feeding are preferred by rails. Cattail and bulrush stands dissected by narrow water channels several feet wide appear to be favored areas, whereas salt cedar (*Tamarix spp.*) stands are rarely utilized except in Mexico or where other suitable habitat is lacking. Preferred freshwater breeding habitat is adjacent to dry land and contains low density cattail and bulrush stands with downed vegetation. Data indicate most Yuma clapper rails migrate annually, leaving their nesting habitat along the Colorado River in September and October and returning in March and April. Apparently, they are nocturnal migrants and follow the Colorado River to areas in Mexico where they spend the winter; however, a few remain in the United States.

Current estimates indicate that the Yuma clapper rail population exceeds 1,700 birds distributed from the Colorado River delta in Mexico, northward to Topock Marsh, which is part of the Havasu National Wildlife Refuge, Arizona. The U. S. populations have areas of high density including Topock Marsh, Parker Division, Imperial National Wildlife Refuge, and Mitty Lake.

The primary impacts that will result from this project will be on habitat utilized by the rails. The magnitude of impacts is difficult to determine because it is directly related to the amount of precipitation on the watershed as well as the seasonal distribution.

A number of general observations must be considered when making a determination of impacts: 1) The same flow will inundate different amounts of habitat on different sections of the river; 2) Spring releases will have a more severe impact because they will disrupt and displace nesting rails; 3) Impacts will vary according to the timing, amount, and duration of releases. The release criteria call for space-building to take place from August 1 through January 1. This timing will minimize impacts to rails because their breeding season does not coincide with this time period. If releases are less than 20,000 cfs they will generally result in an increase in the amount of rail habitat throughout the Lower Colorado River. However, as releases increase above 20,000 cfs the impacts will become negative because rail habitat will be eliminated by increased scouring.

Releases during the breeding season (April-July) will have the most direct and severe impacts. If habitat is inundated during this period, rails that have already established territories will probably abandon them and birds seeking to establish nesting sites will not be able to do so. This could result in the complete loss of the season's crop of rails.

High flows in the Colorado River would result in destruction of habitat in the United States. However, approximately one-half of the population of rails is found in the delta area of the Colorado River in Mexico and in the past, flood flows have resulted in increasing the amount and quality habitat in this area.

Biological Opinion - Yuma Clapper Rail

The exact magnitude of impacts is difficult to predict because the exact timing and duration of the releases cannot be determined. High flows would result in destruction of habitat in the United States. However a corresponding improvement of habitat in Mexico would occur and tend to offset this loss. Therefore, it is my biological opinion that implementation of your proposed flood control regulations for the operation of Hoover Dam is not likely to jeopardize the continued existence of the Yuma clapper rail.

In order to insure that the operation of Hoover Dam for flood control does not adversely impact the Yuma clapper rail any releases above 20,000 cfs should be avoided during the spring nesting season of April through July. A preferred course of operation would be to maintain normal flows during April through July, storing any abnormal run off during this period. Then after July, higher release rates could be utilized to obtain storage capacity.

Further consultation is not required unless new information reveals impacts not considered, the project is modified in a manner not considered in this

opinion, or a new species is listed or critical habitat determined which may be affected by this project. I appreciate your continuing interest and assistance in conservation of threatened and endangered species on the Colorado River.

Sincerely,

Field Supervisor

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