THE PARIA RIVER MOUTH AS AN EXPERIMENTAL HUMPBACK CHUB REARING SITE: A PRESENTATION TO THE GLEN CANYON DAM TECHNICAL WORK GROUP

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Prior to completion of Glen Canyon Dam, the mouth of the Paria River and adjacent Colorado River hosted a large population of humpback chub. Early observations by Mormon residents, and AGFD fisheries studies from 1964-1968, documented the abundant presence of HBC in and around the Paria River confluence. That reach of the Colorado River mainstream is remarkably similar to that near the Little Colorado River confluence, with abundant backwaters and eddies, and much opportunity for near-shore warming, particularly if the mainstream is warmed by low reservoir levels or by a TCD. The Paria River HBC population has been extirpated, the loss of which is the primary example of range reduction for this endangered species in Grand Canyon. Interviews with early Lees Ferry residents reveal that HBC ran up the Paria River at least as far as the Mormon dam (ca. 5 km upstream from the confluence), and HBC were particularly abundant in the Paria River mouth when the mainstream Colorado River flooded (May-July). Other native fish then or since reported in the lower Paria River included razorback sucker, Colorado pikeminnow, flannelmouth sucker, and speckled dacce. The Paria River sometimes is too warm in mid-summer to support native fish above the mouth area, except in springs in the narrows, so the large ponded mouth of the Paria River likely served as the spawning and rearing area for HBC in pre-dam time.

Glen Canyon Dam eliminated seasonal ponding and habitat availability at the Paria River mouth; however, a gravel mine was used for roadbed materials by the Mormon homesteaders and, since by the National Park Service. The gravel mine lies immediately upstream of the Paria River mouth on the Paria River delta.

In this presentation, I discuss development of an experimental rearing facility in these gravel mines. Such a facility would allow the Glen Canyon Dam AMP to learn about *in situ* HBC and other native fish propagation, and eventually to restore HBC to its former range in the vicinity of the Paria River. This plan calls for the construction of several, small gated ponds, to be used for experimental and rearing facilities. Water for the ponds would be derived from the Paria River, and mainstream water would be used to cool the ponds in mid-summer. Following successful pilot studies with flannelmouth suckers, larval HBC would be placed into the Paria ponds, and reared and released into the mainstream.. Unlike all other sites proposed for second HBC populations, the Paria River site is a practical site for such studies, as it has easy to access by road. The ponds would provide opportunities to test ideas about TCD and other issues facing native fish in Grand Canyon.

These ponds would be temporary, experimental facilities, and may be inundated under flows >45,000 cfs; therefore, they should be maintained and operated as such, without long-term expectations or insured production each year. Such ponds would be easy and inexpensive to construct, and will be easily replaced if inundated by high flows.

I present the pros and cons of the use of ponds, and a draft design and schedule for pond construction.