

I. Project Title: **Humpback chub population estimate in Desolation/Gray Canyon, Green River, Utah.**

II. Principal Investigators:

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III. Project Summary:

The RIP is currently involved in identifying recovery goals for the endangered humpback chub. Recovery goals are based in part on maintaining populations of humpback chub in several locations, among which is the Desolation/Gray canyon population on the Green River. Identifying, maintaining, and monitoring a population necessitates obtaining accurate population estimates.

Objectives:

1. To obtain a population estimate of late juvenile/adult humpback chub in Desolation/Gray Canyon.
2. To determine if a relationship exists between ISMP catch rates and population size.

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Three sampling trips through Desolation/Gray canyons were conducted on June 16–22, July 1–5, and July 15–20. Trips were scheduled to target flows below 8000 cfs to maximize catch rates. A total of 12 sites were sampled throughout the canyons including the four long-term trend sites at RM 185, 174.4, 160.4, and 145.7.

River discharge varied greatly between each pass as the hydrograph was on the descending limb. Due to low flows during the third trip, boat maneuverability within the channel was difficult and fewer nets were set compared with the previous two trips.

A total of 348 chub were collected in 1462 net sets collected during the three trips through Desolation/Gray canyons, yielding an overall catch rate of 0.1241 fish/net hour. Average total length of chubs caught was 262.5 mm with a range of 165-473 mm. Twelve chub were recaptured in the second and third trips that had been tagged during the first. Long term recaptures were observed on every trip. Catch rates for chub decreased significantly over the three sampling trips.

#### IV. Study Schedule:

- a. Initial year: 2001
- b. Final year: 2003

#### V. Relationship to RIPRAP:

General Recovery Program Support Action Plan  
V.A.1. Conduct standardized monitoring program.

#### VI. Accomplishments of FY 01 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

Three sampling trips through Desolation/Gray canyons were conducted on June 16–22, July 1–5, and July 15–20. A total of 12 sites were sampled throughout the canyons including the four long-term trend sites at RM 185, 174.4, 160.4, and 145.7. The other sites were located at RM 202, 182, 174.2, 166.8, 158.7, 155, 153.5, and 147.5. Some of these sites had been sampled in the past as “wild card” sites and others were added this year.

Trips were scheduled to target flows below 8000 cfs to maximize catch rates. River discharge varied greatly between each trip as the hydrograph was on the descending limb. Flows were 5699-3560 cfs during the first trip, 2620-2220 cfs during the second, and 1750-1620 cfs during the third. Due to low flows during the third trip, boat maneuverability within the channel was difficult and fewer nets were set compared with the previous two trips. Main channel water temperatures during the first and third trips were 19–21°C, and 25–28°C during the second trip.

Trammel nets were utilized to target the adult component of the Desolation/Gray chub populations. Past research indicates that trammel nets provide the greatest numbers of adult sized chubs and electrofishing is a better technique to collect juveniles. Electrofishing was employed on the second trip in attempt to increase our recapture numbers, however a significant increase was not observed and few juveniles were collected. Approximately seven trammel nets were fished at each site beginning in the

late afternoon until midnight and again during the pre-dawn and morning hours. Each net was checked at 2-hour intervals and all chubs were removed and placed in a holding pen to avoid recapturing the same fish twice within a sample site. One night was spent at each of the twelve sites.

The results presented in this report are a summary of the raw data and preliminary at this time. Following further verification of this data and subsequent sampling in the future, we will pursue generating a population estimate. Throughout the sampling trips it was observed that the identification of the *Gila* spp. as humpback, roundtail, or chub was inconsistent among trips and persons identifying fish. For this reason the results presented here will refer to all *Gila* spp. collected as chub and will not attempt to distinguish among them at this time.

A total of 348 chub were collected in 1462 net sets collected during the three trips through Desolation/Gray canyons, yielding an overall catch rate of 0.1241 fish/net hour (Table 1). Average total length of chubs caught was 262.5 mm with a range of 165-473 mm (Figure 1). Twelve chub were recaptured in the second and third trip that had been tagged during the first. Long term recaptures (fish PIT tagged in previous years) were also observed: seventeen during the first trip, 5 during the second trip, and 4 during the third trip. Catch rates for chub decreased significantly over the three sampling trips.

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Some PIT tag scars, either old or recent, were noticed on fish without tags during sampling. Loss of tags may have resulted in a lower number of long term and annual recaptures.

Table 1. *Gila* spp. results from each sampling site during each trip through Desolation/ Gray Canyon, Green River, 2001.

Location (RM)	Number of <i>Gila</i> spp. collected			
	Trip 1	Trip 2	Trip 3	All Trips
202	17	13	3	33
185	40	2	4	46
182	8	12	6	26
174.4	13	5	3	21
174.2	17	12	3	32
166.8	30	16	8	54
160.4	25	7	0	32
158.7	9	8	5	23
155	9	8	5	23
153.5	6	1	2	8
147.5	12	9	3	24
145.7	22	2	3	27
<b>Total Fish</b>	<b>208</b>	<b>95</b>	<b>45</b>	<b>348</b>
<b>Total Net Hours</b>	<b>961.94</b>	<b>962.83</b>	<b>877.77</b>	<b>1462</b>
<b>CPUE</b>	<b>0.2162</b>	<b>0.0986</b>	<b>0.0512</b>	<b>0.1247</b>

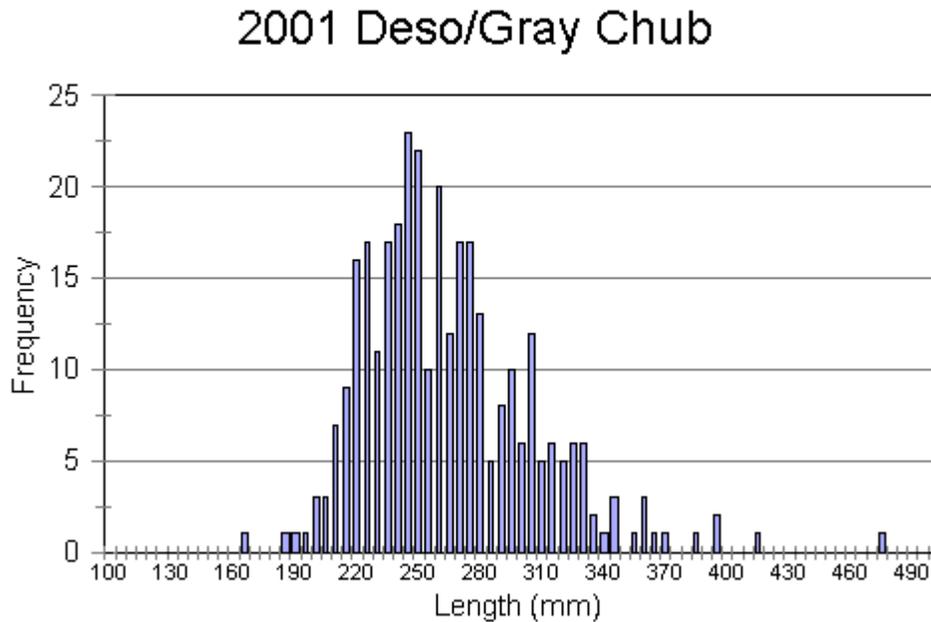


Figure 1. Length/ frequency distributions for all chub collected in Desolation/Gray Canyons on the Green River, 2001.

#### VII. Recommendations:

- Sampling will occur earlier in FY-2002 in an attempt to sample a greater portion of the descending hydrograph before base flows.
- Electrofishing will be discontinued in FY-2002. The benefits of electrofishing (added juvenile and adult captures; YOY/age-1 chub monitoring) do not outweigh the logistical complications and potentially detrimental biological impacts. USFWS-Vernal is conducting three electrofishing passes through Deso/Gray canyons for the Colorado pikeminnow population estimate just prior to humpback chub sampling in each of the three years of this project. Data collected through those efforts can be used, negating the need for additional electrofishing efforts through this project.
- Hoop net sampling will be conducted in FY-2002 in an effort to increase overall captures and target smaller sized chubs.

VIII. Project Status: Ongoing

First year of three for project completed.

IX. FY 01 Budget:

A. Funds budgeted:	\$ 67,600
B. Funds expended/obligated:	\$ 67,600
C. Difference:	\$ 0
D. Percent FY2001 work completed: 100%	
E. Recovery Program funds spent for publication charges:	\$ 0

X. Status of data submission:

Data will be entered on the computer and transferred to USFWS by January 15, 2002.

XI. Signed: J. Michael Hudson Date: 12/10/2001