Work Task C8: Razorback Sucker Survival Studies

FY06 Estimates	FY06 Actual	Cumulative Accomplishment Through FY06	FY07 Approved Estimate	FY08 Proposed Estimate	FY09 Proposed Estimate	FY10 Proposed Estimate
$190,000	$187,974	$425,953	$190,000	$205,000	$25,000	$0

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Start Date: FY05

Expected Duration: FY09

Long-term Goal: Assess overall effectiveness of stocking program and acquire data for adaptive management program.

Conservation Measures: RASU6

Location: Reaches 4-5, river miles 50-175, Imperial Dam to Parker Dam

Purpose: Assess survival and distribution of RASU released into the lower Colorado River.

Connections with Other Work Tasks (past and future): The work is connected to B5, as fish being studied are reared at Bubbling Ponds SFH and implanting of radio and sonic tags occurs at the hatchery prior to delivery to the river. Data collected during this work are utilized in Work Task D8.

Project Description: Reclamation has stocked more than 50,000 RASU into the Colorado River below Parker Dam since 1997. This project is an assessment of survival, growth, and distribution of these fish. The work is being performed by ASU in cooperation with Reclamation and AGFD. The work consists mainly of netting, electro-shocking, and radio/sonic tagging and tracking of stocked fish to determine survival and distribution. Field sampling is conducted monthly from September to May (nine trips). No sampling occurs during June, July, or August, because high water temperatures exceed safe handling protocols for these fishes. Trip reports are provided to Reclamation following each of the nine sampling trips, and these are summarized into an annual report covering the calendar year (January through December).

Previous Activities: Reclamation was required under the 1997 BO from USFWS to rear and stock 50,000 RASU into the Colorado River downstream of Parker Dam. During ESA consultations in 2002 aimed at extending the regulatory relief of the 1997 BO, Reclamation agreed to assess the survival of released fish. This study began in 2002, prior to implementation of the LCR MSCP. Results from work accomplished in 2002-2004 are summarized in a final report on file with Reclamation. Activities since then (FY05) are included as LCR MSCP accomplishments and reported upon in this document.

FY06 Accomplishments: Portions of the lower Colorado River from Parker Dam downstream to Imperial Dam were surveyed using a suite of standard fishery techniques including electro-fishing, trammel netting, gill netting, and hoop netting. The survey areas focused on RASU stocking locations and places to which the fish are known to disperse after stocking, and included the main channel and interconnected, watercraft-accessible backwaters and side channels. Also, sampling is suspended during hot summer months to avoid potential stress to native fishes.

Survey monitoring resulted in contact with a total of 14,782 fish representing at least 24 species and including 489 RASU capture events. All RASU were assumed to have originated as stocked fish. Although RASU larvae were captured in several backwaters there was no evidence of recruitment to the juvenile life stage. Among the 482 different RASU handled, 130 contained PIT tags, and tags were injected into all unmarked fish. Growth of marked fish was relatively rapid, and similar to that recorded for RASU of similar size at other locations including Lake Mohave.

A circular PIT-tag antenna installed into a 36-inch culvert connected to the river at A-10 Backwater was tended throughout the year, and results suggest that few fish moved from the backwater into the river. This contrasts with A-7 Backwater, which is open to the river via a broad channel, and from which tagged RASU were observed to disperse rapidly after stocking.

Radio-tags (12-month life) were affixed on 24 RASU to further examine post-stocking dispersal and confirm earlier findings with short-term tags. Fish were released in January 2006, 12 each into A-7 and A-10 backwaters, and will be monitored through February 2007. Fish departed rapidly from A-7 backwater. No fish departed from A-10 Backwater although they were free to do so. Apparently, RASU do not readily utilize the 36-inch culvert pipes that connect many backwaters to the main river channel. This result is consistent with studies that used a circular PIT-tag antenna placed within the culvert at A-10 backwater.

A study was initiated investigating RASU that imprint on surface feeding and remain near the surface (and are readily attacked by predatory birds) after stocking. A hatchery pond sample of RASU was parsed in two, and one sample was free to feed at the surface while a second sample was allowed access to feed only after the feed sank at least 6 feet through a special exclosure. Differences in behavior and observed mortality will be evaluated in the field.

FY07 Activities: Monthly monitoring of stocked RASU and BONY (stocked into the lower river during this fiscal year) will continue to target stocking areas, and also will examine adjacent sites that fish may occupy. Attempts will be made to locate potential main channel RASU spawning areas by affixing external radio transmitters to as many as 10 large (>500 mm TL) fish, and evaluate any sites that are located. Attempts will be made to evaluate the spatial extent of RASU spawning by making larval collections at selected backwater sites along the river channel. Post-stocking sample data plus additional radio telemetry information will be used to estimate rates of dispersal from stocking sites. Population abundance of RASU in lower river A-7 and A-10 backwaters and in the Parker Strip will be estimated using mark-recapture data as available. Abundance of nonnative fish predators in backwaters will be estimated. Predation risk studies (birds and nonnative fishes) and feed-training experiments will be concluded. Over-summer

water physico-chemistry in A-7 and A-10 backwaters will be evaluated as a potential source of stress or mortality to stocked RASU.

Proposed FY08 Activities: Some FY08 activities will depend on outcomes of field studies during the previous year. Routine site monitoring and associated evaluations (characterization of dispersal, abundance estimations, larval collections) will continue as before. If main channel spawning areas are identified, these will be evaluated. All sub-projects will be completed including assessment of long-term post-stocking RASU survival. A project final report will be processed, which will include an overall assessment of the success of the lower river RASU stocking program and specific recommendations to modify the program or to implement programmatic changes.

Pertinent Reports: An annual report is under development and will be posted to the LCR MSP Web site when finalized. Study plans are available upon request from the LCR MSCP .