Tracy Research Technical Report Abstract

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This report presents fish egg and larvae data collected with a continuous ichthyoplankton pump sampler (CIPS) at the Bureau of Reclamation’s Tracy Fish Collection Facility (TFCF), located in the Central Valley of California near the town of Tracy. The purpose of this study was to develop and evaluate a conrinuous egg and larvae sampler to monitor densities of striped bass eggs and larvae during the spring spawning seasons in the Old River intake of the TFCF during 1991 and 1992. The 1991 CIPS data for eggs were five times higher than California Department of Water Resources (DWR) townet survey data, but larvae were only one-eighth of DWR townet estimates. In 1992, DWR and CIPS data compare more closely. Concentrations of fish eggs and larvae sampled by the CIPS were highly variable over the diel cycle, probably due to complex local hydrodynamics and variety in spawning locations and times. During both years of sampling, the majority of striped bass eggs passed into the TFCF during dark pre-dawn hours, suggesting diel associations for some species. Observations suggested that striped bass spawn very near the TFCF trashracks during the eariy mornings and eggs are immediately entrained. Larvae of other species such as gobies, sculpins, logperch, and cyprinids, and life stages such as juvenile striped bass, were collected more frequently during daytime. The highest 1991 and 1992 peaks of striped bass egg concentrations occurred during the full or waxing phase of the moon, suggesting a lunar or tidal relationship with striped bass spawning. Results suggest that the CIPS can estimate spawning trends and results from the CIPS are probably more time and location representative than single daily townet egg and larvae data. Future investigations will examine sampler operations to optimize the ability to collect any eggs and larvae present in the water column by improving sample depth integration and an implementing a headless dewatering . We recommend night netting continue to investigate diel trends for different species and to determine any relationship between the CIPS and townet results.