Bluegill habitat use of an off-channel floodplain habitat containing Oregon chub

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Oregon chub are small minnows that are endemic to the Willamette River basin in western Oregon. Oregon chub prefer off-channel habitats such as sloughs and beaver ponds which are shallow with an abundance of aquatic vegetation, minimal flow, and silt/organic substrate. Studies conducted by ODFW over the past two decades have found that these habitats are also preferred by nonnative bluegill, which may compete with Oregon chub. Chub abundance is often lower in habitats containing bluegills. In habitats where these species co-occur, trapping data suggests that habitat partitioning may occur, whereas the two species may use different habitats depending on water temperatures and depth. The objective of our study was to describe summer habitat use by bluegills in an off-channel habitat and to assess the extent to which habitat partitioning occurs between Oregon chub and bluegills. We describe the combination of habitat characteristics (depth, temperature, and aquatic vegetation) that may be responsible for this partitioning. We conducted our study in the North Intake Channel on Geren Island in the North Santiam River drainage near Stayton, Oregon from early-July through late-September. We chose this site because it supports abundant populations of both Oregon chub and bluegills, it is screened to prevent movement of fishes into or out of the site, access to the site by the public is restricted by a locked gate, and it has a wide variety of water temperatures, depths and aquatic vegetation. The slough-like channel is approximately 375 m long by 5 m wide. To assess bluegill habitat use, we PIT tagged over 500 bluegills and installed 20 PIT-tag antennas throughout the gradient of available temperatures, at varying depths, at locations with or without aquatic vegetation, and at both edge and offshore areas. We installed thermographs on each antenna and associated water temperatures with tag detections. We produced high resolution maps of the site bathymetry and temperatures to estimate availability of different habitat types, based on depth, temperature, and vegetation. We compared the use of specific habitats (tag detections at each antenna) with the total habitat available at the site with similar characteristics, to infer bluegill habitat preferences. Because Oregon chub were too small to PIT tag, we marked >500 chub with visual implant elastomer (VIE) tags. We set minnow traps and captured chub in the vicinity of each antenna over a 6 week period. We separated the site into three equidistant reaches, and added additional VIE marks (different color) whenever a marked chub was recaptured in a new reach. From these data we can infer chub coarse-scale habitat preferences and movement among reaches. We will present preliminary results from analysis of these data.