Proc. Western Division of the Am. Fish. Soc (1987)

MICROHABITAT SELECTION AND DIEL MOVEMENTS OF JUVENILE RAINBOW TROUT (SALMO GAIRDNERI) INTRODUCED INTO MID-ELEVATION RESERVOIRS IN UTAH

Wayne Wurtsbaugh and Roger Tabor
Department of Fisheries & Wildlife
Utah State University, Logan, Utah 84322-5210

For: Proceedings of the Western Division of the American Fisheries Society, 1987

ABSTRACT

The distribution and movement patterns of fingerling rainbow trout stocked into reservoirs in Utah were investigated with SCUBA observations and by vertical gill netting. For several weeks after stocking, fingerling trout (ca. 80 mm standard length) were strongly oriented to the shore, and selected habitats providing cover. During the underwater observations, no fish were seen below depths of 2 meters. Two weeks after stocking, the fingerlings were most abundant under docks near where they were planted, indicating that dispersal was relatively slow. Jacob's electivity indices for natural substrates in water 0-1.5 meter deep were:

sand	-0.92	boulders	0.23
gravel	-1.00	inundated vegetation	0.75
cobble	0.19		

Thus, trout in this lentic system showed distinct habitat preferences, suggesting that the microhabitat characteristics of a lake or reservoir may be quite important for the survival and holding capacity of small fingerlings.

As the reservoir warmed and the trout grew, they moved progressively further offshore, but still maintained an affinity to the littoral zone. Small fish demonstrated an inshore-offshore diel migration, moving into the near-pelagic zone in the morning to feed where large zooplankton was abundant, but then retreating to shoreline cover in the afternoon. Larger trout (>100 mm S.L.) maintained themselves 30-50 meters offshore throughout the day. With further increases in size, and as lake surface temperatures increased to above 20 C, the fish moved into the pelagic zone and were concentrated at the thermocline. However, small fingerlings stocked when the temperature was 20 C still concentrated in the littoral area.

We suggest that these observed behaviors of the juvenile trout were consistent with their sometimes conflicting needs to: avoid predators (cover seeking); forage offshore where plankton was abundant; and, to maintain themselves where temperature and oxygen were suitable for growth and survival.