



Figure 5. Water and fish are retained in the stone arc as the tide recedes.

Work in the region continues to add to our understanding of the use and adaptations of a fishing society that began thousands of years ago and is still so evident on the landscape today.

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Related Readings

Krause, A.
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Ancient Fish Traps in Southeast Alaska

By Jane L. Smith



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Over the past several decades archaeologists have studied intertidal fishing structures across southeast Alaska's Alexander Archipelago. The structures are made of sharpened wood stakes (Figure 1) or piles of stones configured to form traps and weirs. The technology uses the ebb and flood of the tides to capture fish and radiocarbon analysis suggests the technique has been used for millennia.

The importance of fish to the original inhabitants of southeast Alaska is well documented by early visitors and oral histories. A geographer who studied in the region during the 1880s, remarked "the Tlingit directs his attention primarily toward fishing; through this he gains the main part of his livelihood and to it he devotes the greatest part of his working hours." (Krause 1956 [1885]:118). More recent ethnographic studies suggest that salmon was the mainstay of the Tlingit diet and critical to their rich and complex culture (Langdon 2006:1).



Figure 1. An adz-sharpened stake is eroding from a tide channel.

Three hundred and sixty nine fish trap and weir sites are reported in the region (see Table 1); a total of 182 wood stakes, representing 108 sites, have been radiocarbon dated (Smith 2011). A few of the samples date to modern times while the oldest stake dates back to about 5600 calibrated radiocarbon years before present (cal ¹⁴C yrs BP). Adjusted to calendar years, this trap was built sometime around 3700 BC, about 1000 years before the first Egyptian pyramids. Most of the dated sites were built

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between about 2250 and 1500 cal ¹⁴C yrs BP, a time when many camps and villages were present across the region.

Traps and weirs function differently though are often referred to interchangeably. In general, a trap is a series of stakes or stones positioned to form an enclosure whereas a weir is a barrier-like alignment that crosses a stream or tidal channel. Most traps and weirs are on the tide flats where migrating fish school before moving upstream. They can be found from the grassy edges of the upper estuary to the often muddy areas exposed at an extreme low tide. A few sites are located in stream beds, within tidal reach, but not necessarily on the tide flats. As the tide floods, fish could pass over or around the structures; with the subsequent ebb, they were funneled into enclosures or trapped behind barricades.

Site Type	Quantity
Wood Stake	177
Stone	168
Stone and Stake	20
Basket	4
Total	369

Wood stake traps and weirs were made by driving sharpened saplings or limbs into tidal or stream sediments. The stakes were positioned close to one another and extended above the ground to form a fence like barrier (Figure 2). The buried portions of the stakes are preserved in the oxygen-depleted sediments and remnants can be seen protruding just above the ground surface. Some barriers resembled a picket fence and probably had boughs woven among the stakes. Others were wide swaths or pavements of densely packed stakes.



Figure 2. Wood stakes exposed at the edge of a tide channel. Photo by Paula Rak.

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Stone traps and weirs are low barricades made of stacked cobbles and small boulders (Figure 3). The stones scatter with time but general designs are often visible. Bedrock outcroppings and immovable boulders were sometimes incorporated into stone alignments.



Figure 3. A stone weir crosses a tide channel.

Most traps and weirs we find today appear incomplete; stakes have washed away, cobbles have moved or portions are buried. Still, a variety of different configurations are evident. Some are simple alignments located in small bays while others are massive complexes that stretch across vast tide flats.

Reported sites include funnel-shaped leads that direct fish to enclosures (Figure 4) or removable basketry. Others corral fish in box-shaped dead ends or oval loops. Side leads or parallel alignments were used to steer fish to desired locations. Stone traps are often a series of arcs with openings that face upland so fish moving with the ebb tide would be caught in the arc (Figure 5).



Figure 4. Leads funnel fish into a heart-shaped enclosure as depicted in the image and the drawing to the right. Photo courtesy of Alaska ShoreZone Imagery.