

The 'Anaeholo

AS TOLD TO US BY THE 'AMA'AMA

This portion of the Story of Maunalua tells of the experiences of the 'ama'ama and 'anae (reproductive adults) during their annual 'anae holo (spawning migration), their journey through Maunalua Bay, their interaction with the people there and the muliwai and nursery habitat at Kuapa Pond. This story recalls a chronology of events from which to assess the mauka to makai changes that affected the Maunalua coastal ecosystem and fisheries through time and is told to us by the 'ama'ama, the striped mullet (*Mugil cephalus*), a native species.

'ANAHOLO, A MULLET'S STORY

Aloha mai kakou! From ancient times, unlike our daily localized migratory habits, annually, beginning in October we 'ama'ama would gather with our 'anae cohorts from Wai'anae to begin our 'anae holo (spawning migration) from the west end of O'ahu and Hono'uli'uli (Pearl Harbor), travelling east along the Kona side of O'ahu, to fatten ourselves by visiting favorable habitats for food. These key locations were supported by the flow of fresh water and shelter and included Pu'uloa, Honolulu, Ala Moana, Waikiki, Kahala, Wailupe, Niu, Kuli'ou'ou, then around Portlock and Makapu'u to Waimanalo, Waikane, Wai'ahole, Kahana, all the way to La'ie. Our great migration around the islands would certainly catch the attention of fishermen and non-fishermen alike, as the size of our school that would grow in numbers as we proceeded was often described as "a giant black shadow moving through the water". Francis Funai, a shoreline fisherman during the 1930s, recalled watching from the lookout as we moved outside of the reef around Diamond Head or Le'ahi.

During our eastward journey through these regions, the konohiki's most familiar with the fisheries under their care, including "Joe" Lukela at Kuapa Pond or Keahupua-o-



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Maunalua, would await our annual visit to their kuleana and allow us to swim up into the pond by opening the makaha (gates) on the dropping tide. We would then suck upon the critters (diatoms, etc.) hiding in the limu 'ele (Enteromorpha prolifera), a very fine, bright green limu that grows on rocks in fine sand where there is fresh water intrusion. These places provided our offspring their preferred estuarian habitat or muliwai needed for their safe growth and development. Some of our keiki were also caught in the nearby tidal flats by the keepers of the fishponds to additionally stock their ponds, traditionally a significant food source for the community (as was recalled by Mrs. Dolores "Young" Chun whose father once operated Kuapa Pond).

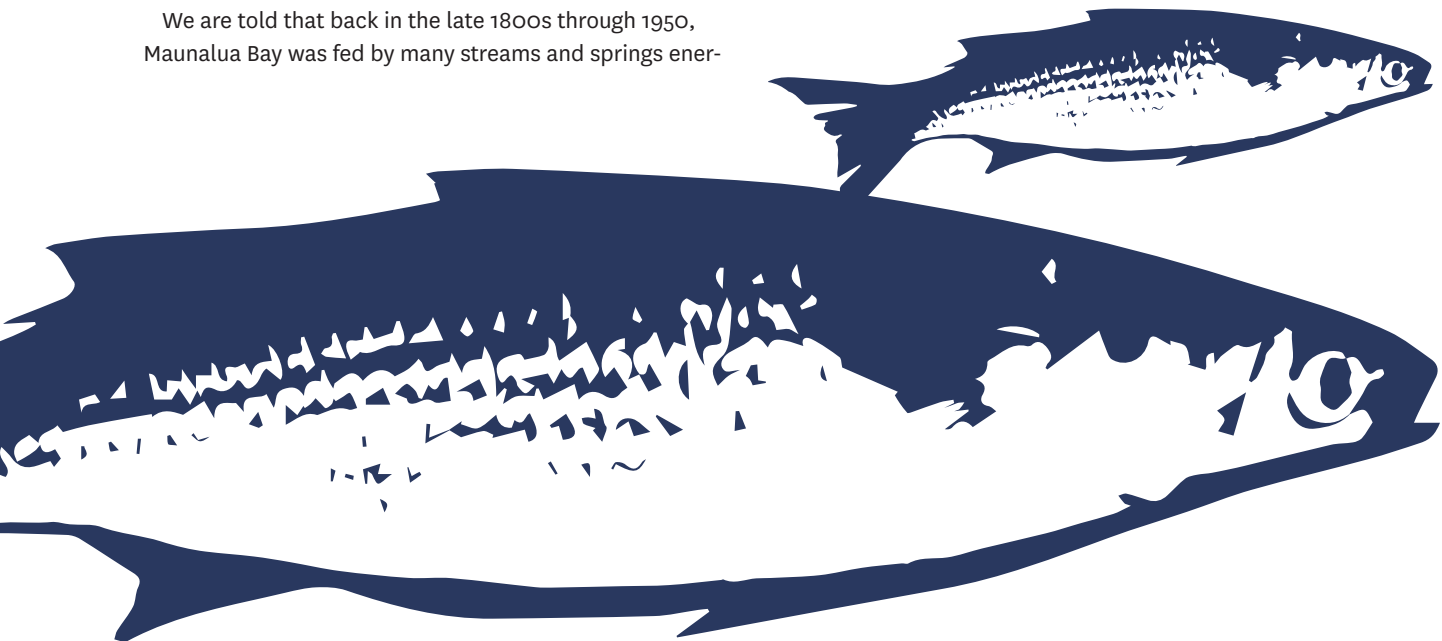
Along the way we would also pass by the makeshift wooden stilts placed by the ever-patient mullet fishermen at Ke'ehi, Ala Moana, the Ala Wai and Wailupe who used special techniques developed specifically to catch one or more of us for their dinner. During this long journey, we would be fiercely attacked by voracious predators, including ulua, barracuda, sharks and pelagic species that waited along our route. This also provided the opportunity for yet another group of shoreline fishermen to use us as bait for a chance to catch the prized ulua (giant trevally), with some exceeding 100 pounds.

Once we reached La'ie around March, we would begin our 'anaepali or return to the west, now fattened, fully satiated and ready for spawning along the route back to our homes in Hono'uli'uli and Wai'anae to shelter, rest and await our next trip. Sadly though, our story of the decline in our 'anae holo begins in more recent times, triggered by the rapid changes that occurred along the Kona side of O'ahu and, in particular, Maunalua Bay beginning in the 1950s.

We are told that back in the late 1800s through 1950, Maunalua Bay was fed by many streams and springs ener-

gizing its waters and providing us with the food and nutrient rich habitat to fatten ourselves and our keiki. It was also where there were three major fishponds at Wailupe, Niu and Kuapa that provided refuge and shelter for our keiki. Once known as Keahapua-o-Maunalua, which means 'the shrine of the baby mullet of Maunalua', Kuapa Pond was the largest in the Hawaiian Archipelago and covered 523 acres. The land mauka of Maunalua Bay was largely comprised of truck farms, dairies, and cattle ranches and the resulting biotic nutrients that flowed into the bay from the streams and surface runoff from rains. This all filtered through the underbrush that created natural wetlands and contributed to the vibrancy of the bay. The bay was alive with aquatic flora and fauna. However, as we watched, the urban sprawl that steadily forced the farms further east along the bay, we began to fear that our annual 'anae holo was in jeopardy. Then in 1961, with the sale of the Kuapa Fishpond that is today the expansive residential neighborhood of Hawai'i Kai, we knew that the end was near.

THESE PLACES PROVIDED OUR OFFSPRING THEIR PREFERRED ESTUARIAN HABITAT OR MULIWAI NEEDED FOR THEIR SAFE GROWTH AND DEVELOPMENT.



Not significant losses by any means, smaller fishponds, numbering to be at least 74 in operation during the 1900s, dotted the shoreline around the island of O'ahu and those also supported our brothers and sisters. Beginning post WWII, most were left in disrepair and abandoned, left for invasive mangrove to smother the once vibrant resources. Unlike open ocean reef areas, fishponds defined by rock wall borders could be sold and leased as dry land. Developers found them to be very valuable because they could be filled in to create subdivisions like those we now know as Niu and Wailupe Peninsulas within Maunalua Bay and Ka Hanahou and Mahalani Circles, Miomio Loop, and Mikiola Drive in Kane'ohe, to name a few.

This recent period of rapid urban expansion along the mauka of Maunalua Bay critically affected life in the bay. This cut off the abundant flow of groundwater from the artesian springs that dotted the coastline, severing our life blood of nutrients as the once verdant limu fields slowly disappeared. Along with the clearing of land for housing, roads and infrastructure, channelization and diversion of streams all contributed to the increased deluge of urban siltation from runoff and flooding events, most notably beginning in 1957-58 at Wai'alaie Nui and Wai'alaie-iki, 1967 at Wailupe, Wai'alaie-iki, 'Aina Haina, Niu and Kuli'ou'ou, 1987-88 Wai'alaie-iki, 1990 at Niu and most recently in 2018 at 'Aina Haina, Niu and Kuli'ou'ou. The resulting deposits of sedimentation further smothered the reef, destroyed the muliwai and forever altered the bay's ecosystem, resulting in the loss of our food, preferred habitat and the grow out areas for our keiki along the bay's coastline and especially at Kuapa Pond. It was tough, but we made a marginal effort to continue our annual trek to and from La'ie.

Then it happened: the accidental release of the kanda (Marquesan mullet - *Osteomugil engeli*) in 1955 and 1958, along with the import of Marquesan sardines [*Sardinella marquesensis* (Maciolek, 1984)] that was introduced to supplement the live bait supply for the local skipjack tuna fishery. These aggressive kanda competed with our young fish in the intertidal zone and muliwai and quickly outnumbered and displaced us. Compounding this loss of habitat, the State of Hawaii introduced several varieties of tilapia into Hawai'i from the 1950s to the 1960s to control aquatic

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vegetation and to be used as baitfish for the tuna fishing industry. These tilapia also firmly established themselves in our traditional habitats, further diminishing our ability to survive and perhaps were the proverbial "nail in the coffin" to the decline of our annual 'anae holo. The tilapia also affected the recreational mullet fishermen who used those stilt platforms, specialized equipment and techniques to try and catch us. Hopefully, the fishermen will tell their story and elaborate on the importance of our journey and the effects of our decline when they share their story of fishing at Maunalua Bay.

However, when we thought that the worst had occurred, then came the ever-increasing intrusion and further disruption to our home and habitat by ocean recreation activities like para sailing, scuba, whale watching, jet skiing, snorkeling tours, etc., both offshore and on the reef, that disturbed our passage, resting habitat and food resources.

Alas, the aggregate of these changes was simply too much for us to overcome and our journey of 'anae holo is now but a memory of those of us old enough to have witnessed and participated in. It will soon also be lost to history. We are hopeful that someday, fishery resource managers and lawai'a will restore stream flows and groundwater, re-establish the muliwai and tidal flats will begin to complement the current movement to reconstruct fishponds along our 'anae holo route. If and when that should happen, our stocks may be able to recover sufficiently to restart our annual 'anae holo. 6

Till then, Aloha Pumehana!
'Ama'ama and 'Anae

Author's Note: The migration of mullet continues in other parts of the United States when there is a mass exodus of mullet from their summering grounds in the estuaries of Georgia, the Carolinas and beyond. Turning south on a migration journey of months takes them to the southern tip of Florida, where the adult mullet gather up in schools and move offshore to spawn. You can see their annual journey by searching: "mullet migration map USA".