

Supplementary material from: **Odors from marine plastic debris induce food search behaviours in a forage fish**

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Animal collection and experimentation protocols:

Fish were donated from J&P Bait, who collected the animals under commercial fishing license from the State of California Department of Fish and Wildlife, #L44917.

As an accredited member of the Association of Zoos and Aquariums (AZA), the Aquarium of the Bay is mandated to follow stringent animal welfare protocols. The AZA is dedicated to maintaining standards of excellence in all aspects of animal care and management. Cooperative management of animals among AZA-accredited institutions ensures healthy, genetically diverse populations. In addition, Animal Care Manuals are developed by AZA species experts, who compile all of the recommended best practices in caring for an animal to advance the best animal health, husbandry, and welfare practices of that species. Experimental procedures were assessed and verified by UC Davis' Institutional Animal Care and Use Committee, protocol #17920.

Additional experimental methods:

Through preliminary observation, we determined that a minimum of three days after transport was required for anchovy to begin displaying normal schooling and foraging

behaviours; as a result, anchovy were allowed three to five full days to acclimate before any experimental trials were conducted. Each day of the experiment, anchovy schools were presented with no fewer than three and no more than five odor treatments, in addition to a control. We randomized the treatments within each day to minimize order effects. The treatment was injected halfway down the water column (30-40cm) at a rate of  $10\text{mL sec}^{-1}$ . Immediately after injection, the syringe was drawn back with  $100\text{mL}$  water from the tank to and flushed into the tank at a rate of  $10\text{mL sec}^{-1}$ . This was done three times to ensure that the entirety of the solution was added to the tank. We varied the location of the injection to control for bias due to the location of the treatment injection. A unique syringe and associated Tygon tubing was used for each treatment type to prevent cross contamination between solutions. After each trial, the syringe and Tygon tubing were washed with a solution of 70% ethanol and rinsed with distilled water.

The source concentration of the treatments represents the concentration of plastic or krill used to make the odor solutions that were injected into the tank. Our experimental design did not allow testing the odor concentration the fish were responding to within the tank, but it was lower than the source concentration of the solution as a result of being diluted by seawater in the 1325L tank.