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Driving factors for habitat choice appear to be habitat complexity, which refers to the amount and varying sizes of holes and crevices, as well as food potential. But are there other factors that contribute to this lack of productivity in artificial reefs, such as what the reef is made of?



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The idea is that a sculpin will learn what is a safe shelter and will return to it. So if they could be taught to associate a man-made object with safety, then they will return to it when they feel threatened. So when given the choice between two habitats, a sculpin will choose the habitat most similar to one it knows to be safe, regardless of what the shelter is made of. But if sculpin had an aversion to man-made materials, then they would consistently choose natural shelters regardless of what they were acclimated to.



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Near Cape Perpetua – classified as rocky intertidal and is high in productivity. We collected 33 fish using little hand nets ad blindly swiping through red algae



Each of the 33 fish got their own container with either a rock structure, a lego structure, or nothing at all. I designed the two structures to be similar in complexity. I put them in this water table and left them undisturbed for a minimum of three days



Each fish was place in this choice tank, which has a Lego structure on one side and a rock structure on the other. I would monitor them for 20 minutes, taking not of which side of the tank the fish was one, if it was interacting with a structure and which one, every minute





60 percent of fish spent at least some proportion of time interacting with at least one of the structures. A majority of those spent less than 40 percent of their time interacting with any structure. This is likely because the fish did not feel threatened enough to hide.



Of all the time spent interacting with shelters, lego fish spent more time with lego structures and rock fish spent more time with rock structures. This supports my hypothesis. Because sculpin interact with the structures they were acclimated to, it supports the idea that sculpin to do not have aversion to man –made materials, well at least they don't dislike legos.



Average minutes spent on either side, but this is just the fish that interacted with shelters. As you can see, it's the opposite of what you would expect. Even though the acclimated fish spent more interaction time with their acclimated shelters, they spent more time on the opposing site. This could be explained by an exploratory behavior. As in, the fish was introduced to a new environment, so it was checking out the new things in it. Of course, this is just a speculation.



Sculpin don't appear to have an aversion to Legos, which means they probably don't dislike other man-made materials. While further research needs to be done, this implies that materials are not a limiting factor when it comes to artificial reefs. From a materials perspective, this means artificial reefs have the potential to be just as productive as their natural counterparts



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