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**PROFESSOR:** That zigzag dance-- I think we missed at the very beginning of the film. At least the audio wasn't working yet. But you saw it later with the movement the male makes. It's a fixed action pattern he makes in order to lead a female-- usually a female he has picked out from a group-- to his nest. And it's when the female sees that, if she's ready to lay eggs, she is induced to follow him. But the cause of her behavior is the sight of his behavior.

So you saw an example of the use of dummy stimuli with the models of females of different shapes. And you saw their analysis of the purpose. They were looking for why that's adaptive. And the fairly obvious reason was the larger females, the larger swollen belly, and so forth have more eggs. So it benefits the male to choose such a female. Because then he can inseminate larger numbers. And it should result in a greater number of offspring.

And by the way, the purpose, I mean-- if you were dealing with humans, and you say well, if you want to know that purpose of something, just ask the person. It doesn't work. You don't have to be aware of the purpose. The purpose is the evolutionary purpose. It's what's evolved. And you don't have to be aware of it at all. In fact, you may give totally different reasons. You would give approximate reasons. But not the reasons where the whole behavior pattern evolved.

And then you saw the study of development where they buried the orphan on the naturally-reared fish. And how they differed in their anti-predator behavior, their escape behavior. Apparently, the early experience plays an important role in shaping later responses. So it's their patterns of escape from attacking fish is not totally unlearned. It has a learned component as well.

And you learned the answers to these from that film also. By looking at the fish that have evolved in isolation from each other for long enough, they were able to see differences that have evolved with that, because of different-- In one case, some of the stickleback were initially ocean-going. And then they became isolated in the smaller lake that became freshwater lake. And you learned why the male stickleback fish drives the female away, because she's cannibalistic.

The behavior of these animals, of course, involves the behavior of both male and female. An individual female can benefit by cannibalizing eggs. Because most of the eggs she will be eating aren't hers. And if she now can lay a lot more eggs, she has a greater chance of reproducing. Or reproducing a larger number of individuals. But of course, that's not in the male's favor. He wants to preserve those eggs that he has inseminated. And he is the one in charge of the safety of those eggs, until they hatch. The female in this-- Sorry?

**AUDIENCE:** So what does the male eat?

**PROFESSOR:** What does the male eat? He doesn't eat eggs. They eat very small organisms and vegetation. But I'm not sure of the details. There's plenty online about sticklebacks. It would be a pretty easy thing if you want details.

OK. So next time, we'll be talking about Tinbergen's studies of birds-- kittiwake gulls.