

ECONOMIC REVITALIZATION

Boys Will Be ... Girls?

Imagine a world populated solely by females whose “fathers” were females converted to males! Sounds vaguely X-rated and more than a little weird, doesn’t it? Believe it or not, it’s the world CTAHR’s Spencer Malecha has been working to create—with shrimp.

For years, shrimp farmers have sought ways to maximize their production of females, which are plumper and faster growing than males. If it were possible to produce only females, farmers could increase their production—and their profits—by as much as 30 percent. Malecha and his co-workers have shown that if the male shrimp reproductive gland is transplanted into a female, she produces a hormone that makes her male—but only for reproductive purposes. This “neomale” parent can then fertilize eggs of a normal genetic female, but because the “father” is genetically female, the offspring are all female.

The surgical technique, in reality, is cumbersome and expensive, but Malecha is now investigating ways to produce the hormone synthetically and feed it to females to achieve the same result as the surgical procedure. Work is progressing well and should be complete within the next two to three years. Shrimp recently replaced tuna as the world’s most-consumed seafood, with worldwide sales around \$6 billion. Through Malecha’s work, Hawai‘i will have a good opportunity to garner a sizeable share of those sales, especially as a producer of lucrative brood stock.

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