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Water as a Habitat: Episode 5 What's Lurking in the Waters?

If You Can't Beat Them, Eat Them!

"Big problems call for big solutions, and there has been a lot of talk recently about how to address the big problem of invasive Lionfish (*Pterois volitans/miles*) in the Atlantic, Caribbean, and Gulf of Mexico. Although experts believe complete eradication of lionfish is highly unlikely, we can – and should – work toward population control. Divemasters are hunting them on dives, conservation organizations like REEF are hosting successful lionfish derbies, and lobstermen are hauling them up by the hundreds in their traps. But how can the average person help the lionfish problem?

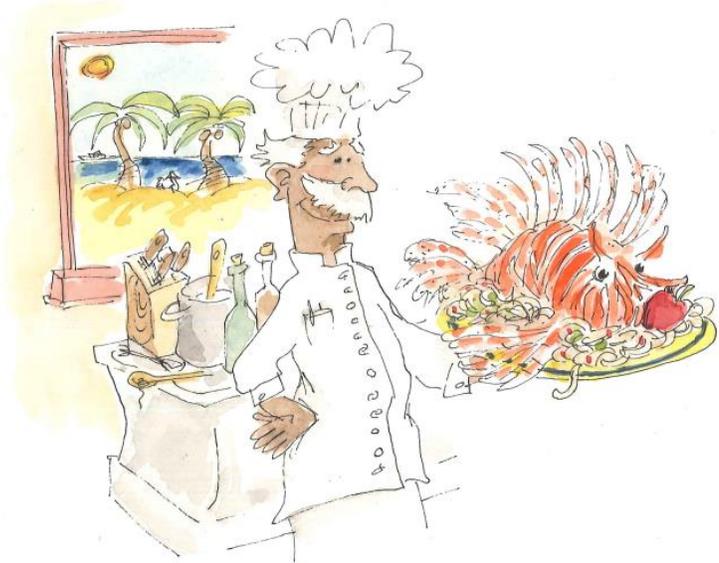


Illustration by Richard King for *CORAL Magazine*

The answer is simple. **Eat them.**"

Erin Spencer, *National Geographic Young Explorer*

Background Information

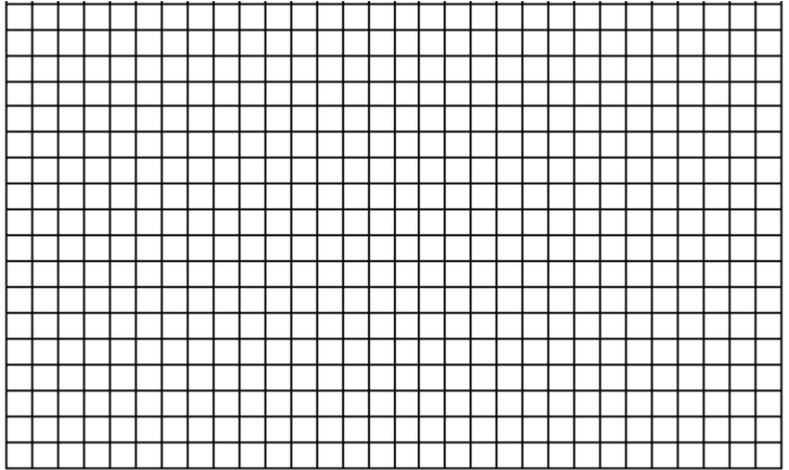
- Starting in May 2016, grocery chain Whole Foods began selling lionfish to consumers. The price per pound for an entire fish was set at \$9.99. Another grocer, Publix, also began selling the invasive fish by special order. Lionfish fillets at Publix can be special ordered for \$27.99 per pound.
- Lionfish is available to restaurants at 35% of the retail price. Whole Lionfish are sold for \$3.50 per pound and fillets for \$9.80 per pound.
- The typical restaurant mark-up, from cost to menu, is 300% of the food cost.
- The typical lionfish yield, or amount of edible flesh when the fish is filleted, is 30.5%.
- On average, lionfish weigh 1 to 2 pounds and are 13 inches in length.
- Depending on the season, an estimated 10 to 20 restaurants in Florida feature lionfish on their menu, including 4 on the Treasure Coast.

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5. In order to maximize profits, the owner limits the lionfish budget for the season to \$20,000. Write and graph a system of linear inequalities that can be used to represent the constraints on the combinations of types of fish to be purchased in order to optimize cost.

Let x be the number of pounds of whole fish purchased

Let y be the number of pounds of filleted fish purchased



6. Assuming you keep the number of whole lionfish dinner entrees constant, determine how the \$20,000 restraint on the budget could affect the number and types of the other 2 dishes being served per evening.

7. Using a system of inequalities, determine the number of appetizers and fillet dinners to be sold that maximizes the profit. The appetizer is sold for \$9.99, and the fillet entrée is sold for \$16.99. Write and graph the system below. Label the vertices of the feasible region.

Let x be the number of ceviche appetizers sold

Let y be the number of fillet dinners sold

