Researchers studying lobsters in 1984 find the crustaceans send signals and mate using an acute sense of smell and the release of chemicals that they fan through the water with their fins.

**Keywords**

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Transcript

They Have Chemistry: How Lobsters Communicate, Mate

ROBERT BAZELL, reporting:

The Marine Biological Laboratory in Woods Hole on Cape Cod, Massachusetts, seems a wonderful and appropriate place to study lobsters. And that is what Dr. Yella Atama does full time, for reasons we can all appreciate.

DR. YELLA ATAMA (Marine Biological Laboratory): Those of us who like to eat, and particularly who like to eat lobster should care about how these animals live, so that hopefully they will live happily for a long time hereafter. The fishermen can go out and their grandchildren can still make a living fishing for lobster.

BAZELL: In studying the habits of the lobsters, Dr. Atama and his colleagues have also learned a great deal which would fall under the heading of basic science. In this experiment, the scientists place a dye near the creature’s fins, and the lobster spews it out past its head. This flow is important because lobsters send messages with minute amounts of chemicals through the water. The sending and sensing of chemicals are the crucial elements of lobster communication. As this year old lobster burrows underground, it is constantly fanning with its feelers and legs. Partly this is for housekeeping, but also the lobster is maintaining that flow of water in which it sends and receives messages. On their claws, feet, antennae, and other parts of their bodies, the lobsters have about a half-million chemoreceptors, that is organs to detect specific chemicals. These organs are more specialized, more complex, then our senses of taste and smell. One function is to get food. Here, the researchers put some liquid food into the tank of a baby lobster. The baby notices it as it fans water, and this guides it towards the meal. But the sending and receiving of chemicals is also the main way the lobsters talk to one another, and this is particularly evident during the mating ritual, which has a set of rules which would not appeal to feminists. The male stays
safely inside caves, and await the females.

DR. ATAMA: She has to convince the male that she is a good investment, she, he should pay attention to her, and instead of to these other females, and in order for her to do so, she is giving off this chemical substance. Then when the time is really right, she then begins to make advances to the male. You can see her go in, poking her claws into the hole of the male, asking for access. All the while you have to imagine that this powder that she is producing is blown in by her own current, that you saw in the laboratory, is going into the shelter telling the male that she is ready to pair with him. After which they spend the whole week together.

BAZELL: The female is ready to mate just after she has shed her shell. She is vulnerable to predators then, and she seeks the company of a male who can protect her. The bigger the male is, the better.

DR. ATAMA: The male is identified by his body odor. And there is something magic about what the big male must be smelling like, because clearly he is the one that’s chosen, and the females move in, and one by one, that is a week at a time, the females ask for access, throw in their chemicals, male says thank you and allows them to come in, they spend a week, next female comes in, and so forth.

BAZELL: And that chauvinist behavior is what produces a meal, best served steamed or boiled with butter on the side.

JANE PAULEY, anchor:
So much for happily ever after.

BAZELL: Well, if the life of a lobster is not happily ever after, the reason that they’re studying them is because they’re, they sell for six or seven dollars a pound at your local fish market.

PAULEY: Did, were they surprised at what they found?

BAZELL: Oh yeah, a lot of information about this is really kind of neat. They’re chemoreceptors, they have a sense of smell that’s ten thousand, a hundred thousand times better than a human’s.