The guts of the Environmental Sample Processor contain the chemicals used in DNA analyses and other measurements.

**SYRINGE:** Sends reagents into pucks

**ROTARY VALVE:** Manages fluid connections

**REAGENT BAGS:** Store liquid reagents

**PUCK CAROUSEL:** Holds pucks where analyses take place

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**FOOD SAFETY**

**Searching the Sea for Toxins**

Harmful algal blooms can turn normal-looking shellfish into poisonous harvests that, if eaten, can cause illness and even death. Scientists at the Monterey Bay Aquarium Research Institute are developing a robot that can alert scientists to these blooms. The robot, the Environmental Sample Processor (ESP), is a molecular laboratory attached to an autonomous underwater vehicle. Unlike its predecessors, it can move around to gather samples at different locations and depths. To determine algae species and toxicity, the machine collects particulate matter from the water and heats it to dissolve organic material. It then performs DNA and protein analyses and transmits its findings to shore via radio and cellular signals. Scientists can use the data to forecast shellfish contamination. — ALLIE WILKINSON