MARINE BULLETINS

NEW YORK

Developing a PSP Toxin Analyzer

■ In a New York Sea Grant–funded project, Gregory Boyer and his team of researchers at the SUNY College of Environmental Science and Forestry (ESF) are working on ways to analyze the toxins that cause seafood poisoning. Two instruments are being developed: one for laboratory purposes and another for use by shellfish harvesters and aquaculturists.

Paralytic Shellfish Poisoning (PSP) is caused by marine algae, scientifically known as *Alexandrium* or *Gonyaulax*. These species, members of the order Dinophyta, produce a red pigment that discolors the water, hence the name "red tide." Some species are toxic to fish, while others produce a series of neurotoxins that accumulate in shellfish and cause paralytic shellfish poisoning in humans who consume them. Through a series of collaborative projects, Boyer has been studying links between these PSP toxins and various organisms. "We have analyzed several bacterial samples for researchers interested in the importance of bacteria in the formation of PSP toxins. We have also analyzed a series of copepod fecal pellets for a researcher in Newfoundland studying the movement of PSP toxins through the food chain and have collaborated with an Ohio University researcher as part of his studies on nutrient effects of PSP production in toxic dinoflagellates."

Boyer reports completion of the laboratory unit, termed ECOS, designed for use by regulatory agencies and research laboratories skilled in PSP toxin analysis. This instrument is undergoing testing in a shellfish monitoring laboratory. Key to the operation of this analyzer is the preparation of a detailed technical manual on the setup and maintenance of the ECOS instrument. Copies of the manual, due out at the end of the summer, will be available through New York Sea Grant.

Boyer and his team are also working on a PSP analyzer designed for use by the shellfish industry. This unit will require only minimal laboratory experience to operate. "Our goal is to construct a simple device that can easily be used on a scallop boat to tell immediately if that day's catch is potentially contaminated. [Our] experience installing the research unit in governmental analytical labs has convinced us that our goal is possible." However, Boyer cautions that the endeavor will not be an easy one. "Problems regarding proteins and fats in the shellfish, which can interfere with the toxin analysis, must be eliminated before the instruments are made available to the shellfish industry."

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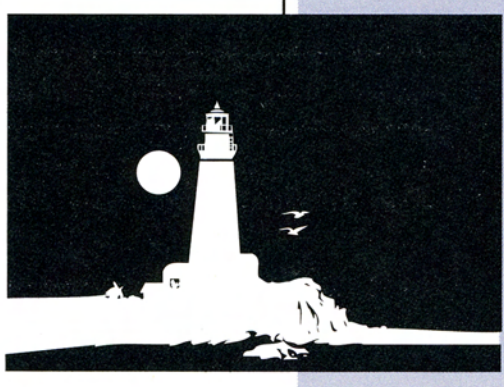

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