Toxic Shellfish 101

How plankton can ruin your dinner plans

Step 1: Phytoplankton "Bloom"

When conditions are just right, one species or genus of plankton can multiply especially rapidly. If the plankton is toxin-producing, toxin levels can rapidly increase with the populations. The exact factors that lead to algal blooms and to toxin production are still not well-known.

Step 2: Shellfish Pick Up Toxins

Shellfish like clams, mussels, and scallops eat plankton that they filter out of the water. During a harmful bloom, a shellfish's daily meal is almost entirely made of toxic plankton. Since a single shellfish can filter up to 20 gallons of water a day, even low toxin levels can become highly concentrated. Most shellfish are unaffected by planktonic toxins and continue feeding as usual throughout the bloom.

Step 3: Shellfish Are Eaten

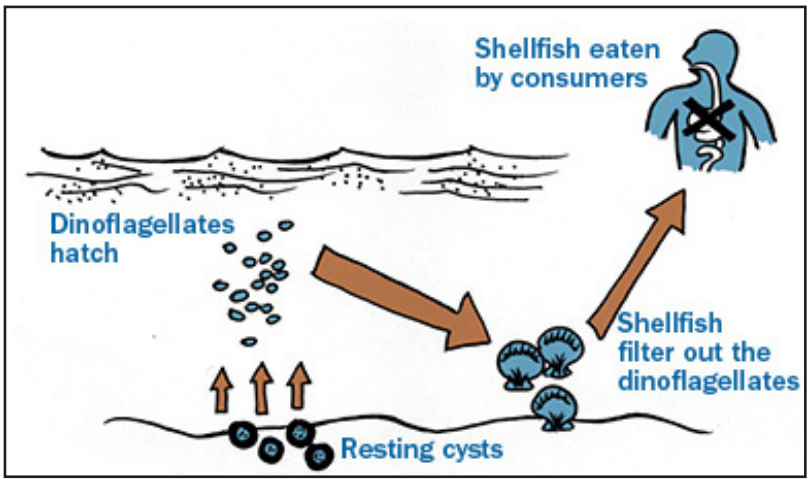
There is no visual way to tell if a shellfish is safe or not. The water can be clear or colored, the shellfish can be eaten or shunned by local wildlife, the time since the last bloom could be recent or extensive, but it would still be impossible to say whether wild shellfish were safe to harvest. As a result, people are hospitalized every year in Alaska after eating unsafe shellfish.

Getting sick could require as many as thirty shellfish or as few as one and could take only minutes or up to 48 hours depending on the toxin type and the amount present.

Step 4: The Threat Dissipates

After as little as a few days or as long as a few months, the bloom fades away. As shellfish stop eating toxic food, their toxin levels also decrease. Some species like blue mussels clear their toxins relatively quickly, while others, like butter clams, can take months to return to safe levels.

A non-toxic *Noctiluca* bloom colors the water in Puget Sound a vivid orange. Photo: Don Paulson.



Which Animals Should You Be Most Concerned About?

Filter feeding bivalves are especially prone to accumulating dangerous levels of toxin. These include mussels, clams, oysters, and scallops. Carnivorous scavengers like crabs can pick up toxins in their viscera (the crab's "butter") from eating contaminated shellfish. Plankton-eating forage fish like herring and sand lance are also susceptible to planktonic toxins.

Since chitons, limpets, and sea urchins are primarily herbivorous, they are generally not at risk for accumulating planktonic toxins.

Get your shellfish tested!
Contact STA's Environmental Lab for testing information and protocols. 907-747-7356
Email: seator@sitkatribe-nsn.gov

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