Land to Sea Mystery

Searching for the Source of Pollution
Pollutants from land

- *Toxoplasma gondii* – a parasite that causes neurological problems in California sea otters
  - **Source:** released in felid (cat) feces and enters the ocean in runoff water
  - **Conclusions:** Wild cats are involved in infecting sea otters, BUT domestic cats are also known to carry it

Still unsolved: How does the parasite get from the water into the sea otter?
Pollutants from land

- **Domoic acid** – a toxin that causes brain damage and seizures in California sea lions
  - **Source:** Released by harmful algal blooms (HABs) in rivers or the ocean
  - **Conclusions:** nutrients are often from agricultural fertilizers, **BUT also from natural sources**

(Left) A healthy sized hippocampus of a sea lion

(right) shrunken hippocampus of a sea lion brain as a result of domoic acid toxicity

(Marine Mammal Center)

Still unsolved: How to reduce HABs without negatively affecting agriculture?
Map Components

- Scale
- Legend
Actions to Minimize Land to Sea Pollution

**Personal**: Join beach clean-up groups, don’t pollute, use fewer chemicals, don’t flush cat litter, participate in conservation groups.

**Charitable**: Support local conservation groups.

**Political**: Tell your representatives that you support a healthy environment