

## Synthesis Document

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Project Title: A survey of algal toxins in the Salton Sea

I know of no published report of specific toxins being isolated from algal blooms in the Salton Sea. In the absence of any known causes for the unnatural bird deaths at the Salton Sea, food chain accumulation of natural toxic substances, particularly those arising from the observed phytoplankton blooms, must be regarded as a likely cause of mortality.

In 1994, my research group collected an algal sample that contained mainly dinoflagellates. A crude extract was prepared and this was sent to Dr. Robert Dickey at the FDA in Dauphin Island. He reported that the extract contained a fast acting toxin (mice: 2 - 4 minutes). This study was not statistically significant and should not be quoted.

The checklist of phytoplankton blooms in the Salton Sea that was provided by Dr. Hurlbert as part of his proposal, contains some marine species that have been reported to be toxic elsewhere. It does not follow that specimens from the Salton Sea produce the same toxins but the probability must be regarded as quite high. For a general overview of toxic phytoplankton in the marine environment see: "Toxic marine phytoplankton, zooplankton grazers, and pelagic food webs" by J. T. Turner and P. A. Tester in *Limnol. Oceanogr.* **1997**, *42*,1203-1214.

I have a specialized personal database that allows me to enter the molecular weight of a suspect molecule and obtain literature references that provide the physical properties of possible toxins. The marine natural product dereplication database is not available for general distribution although it could be used to generate a limited database relevant to this project.