

Pesticides in Yosemite BRIEFING STATEMENT

Issues:

- Elevated concentrations of **current-use pesticides** (chlorpyrifos, endosulfans, dacthal, and lindane), and have been found in vegetation samples taken from Yosemite National Park.
- Concentrations of mercury and of **historic-use pesticides** (dieldrin and DDT) in fish taken from a few lakes in Sequoia and Kings Canyons National Park have exceeded the health threshold for human consumption.

Background:

These results come from a larger 6 year study called the "Western Airborne Contaminants Assessment Project" (WACAP). This project was designed to provide initial screening-level assessments of contaminant loading and impacts in western parks by looking at airborne contaminants in air, water, snow, lake sediment, vegetation and fish in two watersheds each at six western National Parks (Sequoia, Rocky Mountain, Glacier, Olympic, Mount Rainier, Denali) and one watershed each in Noatak and Gates of the Arctic. **Yosemite was NOT one of these core parks, so we only have data from vegetation and air samples from which to report.**

Advantages:

- Although elevated compared with other parks, concentrations of all pesticides and heavy metals in Yosemite vegetation and air are not at levels known to directly impact human health. These include current-use pesticides (endosulfans, chlorpyrifos, dacthal, g-HCH or lindane), historic-use pesticides (a-HCH, HCB), PAH's, and PCB's.
- Sediment cores show that historic-use pesticides (i.e., banned pesticides like DDT and Dieldrin), and heavy metals (lead and cadmium) found in the sediment from SEKI lakes have been decreasing since their peak in the 1970's (when they were banned). Mercury has increased since the late 1800's and has now stabilized, probably due mostly to regional, not global sources.

Risks:

- We do not have enough data to say with any confidence whether concentrations of historic-use pesticides (i.e., DDT and dieldrin) or heavy metals (i.e., mercury) in Yosemite fish reach levels that exceed thresholds for human consumption as they have in Sequoia and Kings Canyon National Park.
- Ecological impacts of elevated concentrations of the current-use pesticides on Yosemite ecosystems are unknown, but potentially of concern.
- Most of these pollutants are coming from regional sources outside the park: agricultural areas located within 150 km of the park are probable major sources of current-use and historical-use contaminants, while regional coal combustion sources (e.g., power plants) are associated with the elevated mercury.

Recommendations:

- Current levels of mercury and pesticides in Yosemite fishes are unknown. The regional nature of historic-use pesticide distributions and mercury transport, combined with the tendency for these pollutants to accumulate more readily at higher elevations and/or nearer to agricultural areas suggests that some fishes in Yosemite may also have elevated body burdens of pesticides, and that levels might approach levels found in the SEKI fish. Further sampling and analyses are needed to settle this issue.
- 2008 is year one of a three year USGS study (Mast et al.) to assess more precisely the spatial distribution of current-use pesticides. No research to further quantify concentrations of heavy metals (mercury) or historic-use (DDT, dieldrin) in sensitive park resources has been initiated.