

# Dog Deaths in Humboldt and Mendocino County Water Bodies Possibly Related to Cyanobacterial Toxicity

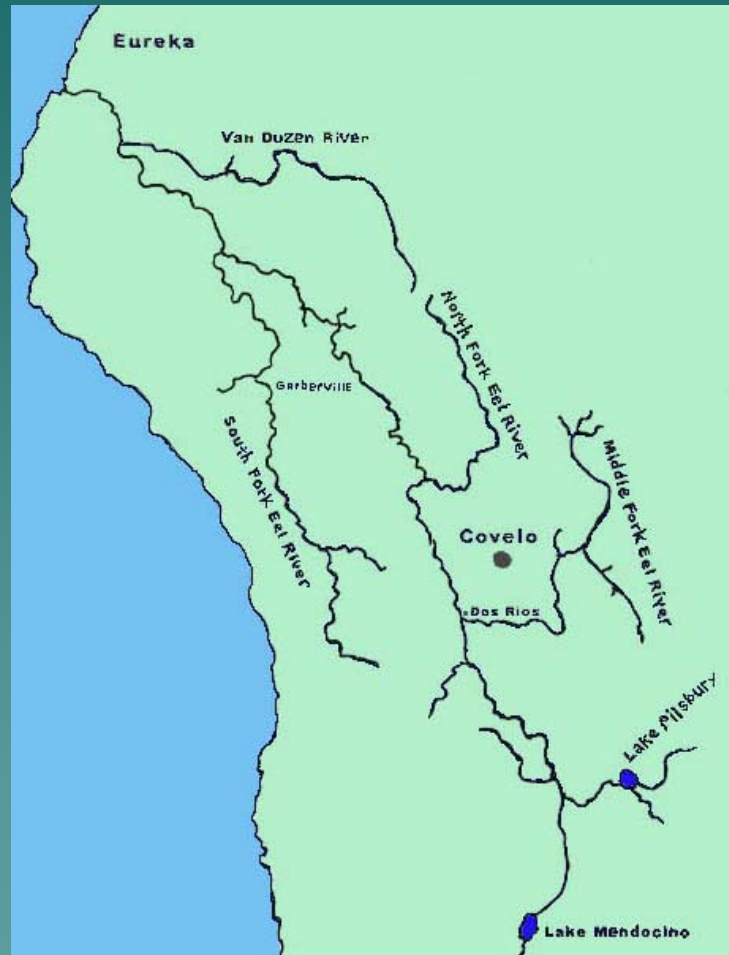
*Harriet Hill*

*REHS, Humboldt County Division  
of Environmental Health and  
the California Animal Health and  
Food Safety Laboratory*

# Recent Dog Deaths in North Coast Water Bodies

- ◆ Since 2001, 9 deaths following contact with Humboldt & Mendocino County water bodies could be related to cyanobacterial poisoning.
- ◆ 5 dogs died in Big Lagoon in 2001, – no direct evidence of cyanobacterial toxins.
- ◆ 4 dogs died in South Fork Eel River in 2002 & 2004 - stomach analyses for 2 dogs indicated that anatoxin-a was present.
- ◆ Will focus on the documented South Fork Eel River incidents.

# Eel River



# South Fork Eel River – Avenue of the Giants



# South Fork Eel River – Sylvandale



# South Fork Eel River Incidents - 2002

- ◆ 2 of 3 dogs had seizures within 5-10 minutes of exposure to water and died within 15 minutes.
- ◆ Water sample taken by Mendocino County DEH in this area (Standish- Hickey Park) identified as *Anabaena* and *Lyngbya*.
- ◆ Separate sample analyzed by the CA Animal Health and Food Safety Lab (CAHFSL) and Univ. of North Carolina contained *Planktothrix* only.

# South Fork Eel River Incidents - 2002

- ◆ CAHFSL analyzed dog stomach contents for common neurotoxins - none present
- ◆ CAHFSL collaborated with Wright State Univ. & detected **anatoxin-a** in the stomach contents.
- ◆ **No microcystin** was found in the stomach contents.

# South Fork Eel River Incidents - 2002

- ◆ Exact source of the cyanobacterial toxin still being determined (Puschner, CAHFSL).
- ◆ CAHFSL & their collaborators believe that the 2 dogs were most likely poisoned by anatoxin-a.
- ◆ CAHFSL has developed their own methods to test for anatoxin-a & microcystins.



# South Fork Eel River Incident - 2004

- ◆ Dog convulsed and died shortly after swimming near Piercy - no autopsy conducted.

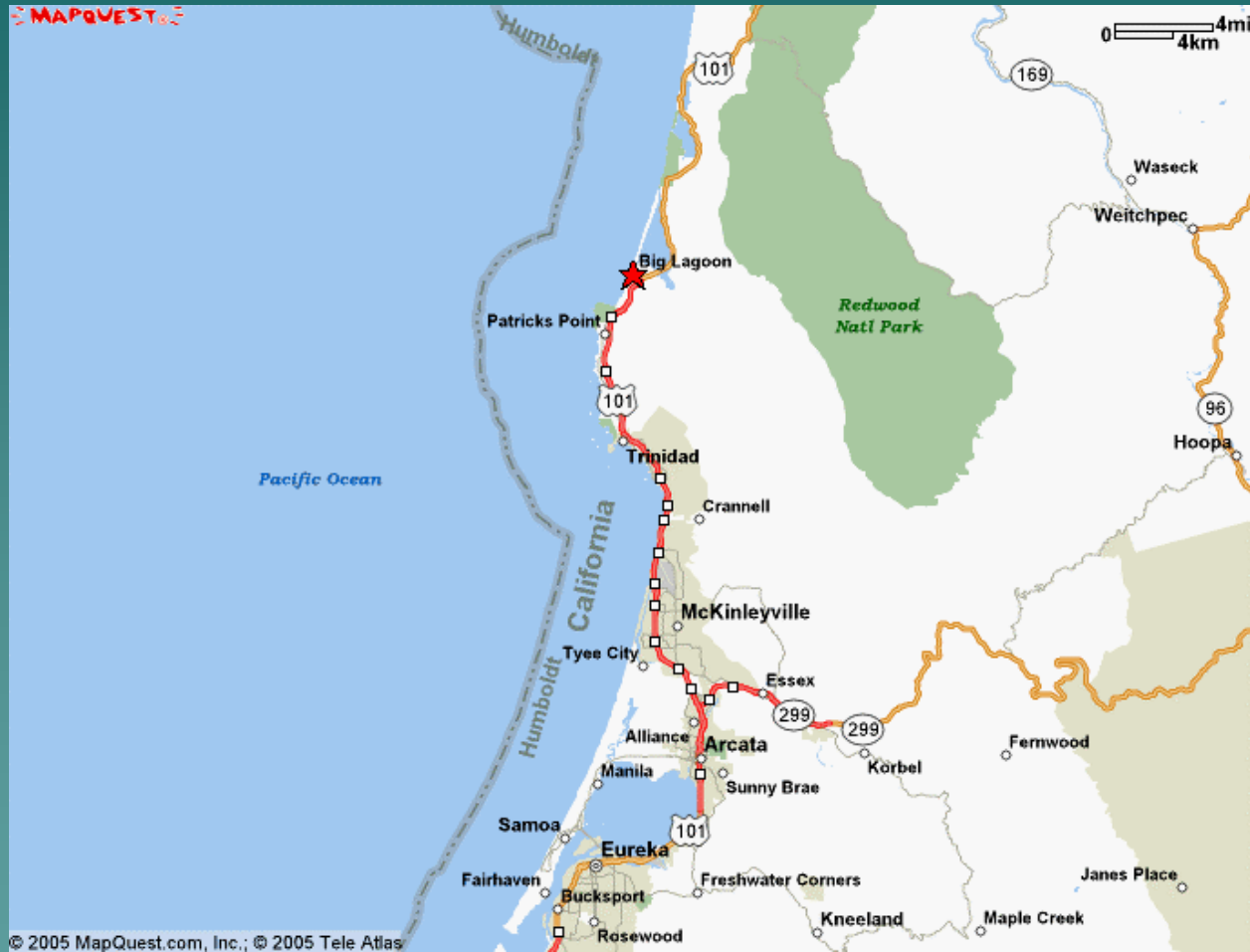
# Genera of toxin-producing cyanobacteria reported for South Fork Eel River :

- ◆ *Anabaena*
- ◆ *Nostoc*
- ◆ *Planktothrix*

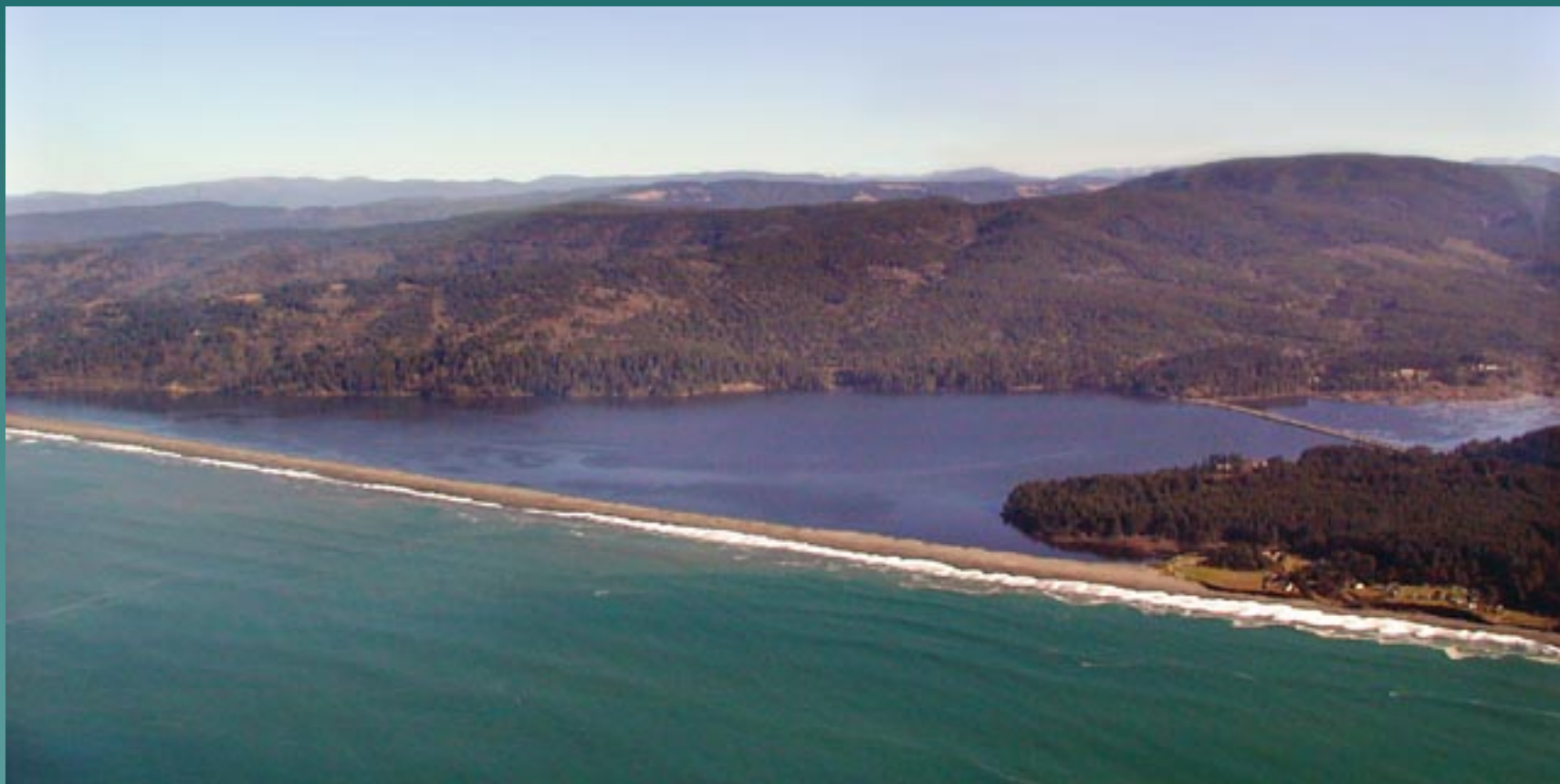
The only cyanobacterial toxin that has been documented as present in the South Fork Eel River is:

**anatoxin-a.**

# Big Lagoon



# Big Lagoon Dog Death Incidents - 2001



Jim Popenoe

# Big Lagoon incidents - 2001

- ◆ 5 dogs died after swimming in boat launch area in NE Lagoon in summer/fall
- ◆ Dogs experienced symptoms within 12 hrs, and died 2-4 days later
- ◆ Symptoms:
  - Severe gastrointestinal distress
  - Elevated liver enzyme levels

# Big Lagoon Incidents - 2001

- ◆ Water samples were taken in November, one month after the last incident .
- ◆ No microcystins or other cyanobacterial toxins were found.
- ◆ Notably, the lagoon had not breached to the ocean during the previous winter.

# Public Outreach Efforts

- ◆ Issue Annual Press Releases (2x/season)
- ◆ Provide Media Interviews
- ◆ Post Big Lagoon and South Fork Eel River
- ◆ Distribute Fact Sheets for Public at Recreational Locations
- ◆ Send Annual Letter and Detailed Fact Sheet to Animal Health Care Workers



# WARNING

## DOG OWNERS

### BLUE GREEN ALGAE PRESENT IN THE EEL RIVER

We recommend the following precautions:

1. Avoid swimming or wading in areas with visible concentrations of algae.
2. Keep pets out of areas containing visible concentrations of algae and do not allow them to drink river water.
3. Swimmers should shower and pets be rinsed off with tap water soon after swimming.
4. Supervise children at all times.

Presence of blue green algae in the Eel River during the summer and fall can result in dangerous buildup of toxins in the water.

If you have questions or comments, please contact:

# Acknowledgements

The scientific analyses of the California Animal Health, Food and Safety Laboratory, Davis, CA are acknowledged, as is the considerable assistance from Dr. Birgit Puschner of the CAHFSL in the preparation of this talk.