

Diamond Lake Water Quality Restoration

Issue:

Two interrelated problems adversely affecting the ecosystem, recreation, and economics at Diamond Lake are **water quality degradation** and **tui chub population explosion**. Toxic algae blooms during the summers of 2001, 2002, and 2003 forced restricted use of the lake to protect public health. Illegally introduced tui chub have overpopulated the lake in the last decade, devastating the traditional trout fishery and contributing to water quality degradation.

Algae bloom causing the pea-soup greening of Diamond Lake



Non-native tui chub

Background:

- ❑ **Diamond Lake is one of the largest** and most popular developed **recreation areas in Oregon**, with a historically world-class trout fishery and abundant summer and winter recreation use. The Forest Service provides over **450 campsites in three campgrounds** adjacent to the lake. **Diamond Lake Resort, a year-round destination, and a private RV Park** provides additional opportunities for food, lodging, and other services.
- ❑ Local, state and federal agencies partnered to **restore Diamond Lake's water quality** and **reestablish the diverse recreational and economic benefits** associated with the lake's great fishing and swimming opportunities.
- ❑ The **Diamond Lake Project Working Group formed** in 2002 and includes the following agencies: USDA Forest Service; USDI Fish and Wildlife Service; US Environmental Protection Agency; Douglas County; and Oregon Departments of Fish and Wildlife (ODFW), Water Resources, Environmental Quality, Economic and Community Development, Division of State Lands, and Representative Susan Morgan. Agencies signed an agreement for a successful partnership dedicated to creating a "fishable and swimmable" lake.
- ❑ There was a **high public demand for action** (e.g., rotenone treatment to kill tui chub) by Diamond Lake businesses, homeowners, anglers, and state and county elected officials.
- ❑ The **Final Environmental Impact Statement (FEIS)** was published in **November 2004** and the **Record of Decision** signed on **December 21, 2004**, by the Umpqua Forest Supervisor.
- ❑ **Alternative 5** was the **selected** alternative for the **FEIS**. This alternative utilizes a combined liquid and powdered **rotenone treatment** followed by a "put-grow-and take" **fingerling-based trout fishery** that is the **preferred stocking strategy** of **ODFW**.
- ❑ The **Forest Service's primary fiscal responsibility** in project implementation entailed **reconstructing an existing canal** that connected Lake Creek (outlet stream) and Diamond Lake. Through the canal, the lake's water level was lowered more than eight feet to reduce the amount, and cost, of rotenone needed.

- ❑ During summer of 2006, **68,000 pounds of tui chub** were removed using nets.
- ❑ The canal was closed in late summer 2006, and **107,141 pounds of powdered rotenone** and **9,301 gallons of liquid rotenone** applied by ODFW to Diamond Lake. Later, **35,000 pounds of dead fish** were skimmed out of the lake.
- ❑ Diamond Lake was **refilled with water**, and ODFW **stocked the lake** with about **100,000 fingerlings** and **78,000 larger fish** in 2007.
- ❑ Led by Oregon State Marine Board, an **invasive species prevention** committee used public contacts, brochures, signs, and volunteers to **reduce the likelihood of reintroducing tui chub and other invasive species**.
- ❑ Working Group partners continued with a detailed **monitoring plan** started in 2005, with a projected date through 2011.
- ❑ The Rogue-Umpqua Resource Advisory Committee (**RAC**) dedicated **\$1.29 million of Title II funds through the Secure Rural Schools and Community Self-Determination Act of 2000** to support **canal reconstruction, stream gauges, public information, rotenone purchase and treatment, and monitoring**.

Next Steps:

- ❑ **2007 – 2011:** Scientists continue to monitor the lake.
- ❑ **2007 and on-going:** Agencies continue efforts to avoid reintroduction of tui chub.

Knowledge gained from monitoring multiple aspects of project implementation and lake recovery will be invaluable in developing solutions for **other High Cascade lakes on national forest lands** that are also experiencing toxic algae blooms similar to Diamond Lake.

Partners:

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| <ul style="list-style-type: none"> ❑ Umpqua National Forest ❑ US Fish and Wildlife Service ❑ US Environmental Protection Agency ❑ US Army Corps of Engineers ❑ Oregon Department of Fish and Wildlife ❑ Oregon Department of Environmental Quality ❑ Oregon Department of State Lands ❑ Douglas County ❑ Oregon State Legislature ❑ PacifiCorp ❑ Diamond Lake Resort owner and employees ❑ Diamond Lake summer home owners ❑ Diamond Lake RV Park owners ❑ Anglers - local, regional, national, international | <ul style="list-style-type: none"> ❑ Environmentalists - local, regional, national ❑ Recreationists - campers, hikers, bikers, boaters ❑ Tourist-dependent local businesses ❑ Crater Lake National Park |
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Contact:

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