



Lake Characteristic: Stratified

Description

The development of discrete vertical layers of water with different water temperature resulting in two thermal habitats in the lake: (1) warm surface water that is always well oxygenated and (2) cold bottom waters that can have low to high oxygen concentrations. Lakes that are not stratified (unstratified) are generally shallow (< 2 m average depth), characterized by frequent complete mixing from top to bottom, and high oxygen levels throughout. Unstratified lakes generally can occur in one of two states. The first is characterized by high nutrients, high wind resuspension, no rooted plants, and turbid water; and the second is characterized by low to medium nutrients, low wind resuspension, rooted plants dominant, and clear water.

General Condition of Feature

This habitat is considered 50% in good to excellent condition, 30% in fair condition, and 20% in degraded to very degraded condition.

Associated Species of Greatest Conservation Need

FISH

- cisco or lake herring (*Coregonus artedii*)

Associated Threats

MODIFICATION OF NATURAL PROCESSES

- Altered hydrologic regimes
- Climate change: Altered seasonal climate; There seems to be an increasing anoxic zone in the hypolimnion, but many of these lakes have no increase in riparian development and so best guess is that it's somehow climate related

HABITAT CONVERSION

- Riparian modifications: Marina development

Conservation Actions Needed (Threats addressed)

LAND, WATER & SPECIES MANAGEMENT

- Decrease the amount of impervious surfaces (altered hydrologic regimes)
- Maintain or establish riparian buffers of at least 50 ft., but 500 ft. or wider maximizes conservation benefits (riparian modifications)
- Maintain or rehabilitate natural hydrology (altered hydrologic regimes)

LAW & POLICY

- Encourage clustered development rather than evenly spaced home lots (riparian modifications)
- Encourage green space planning (riparian modifications)
- Encourage sound water withdrawal practices that take into account species needs (altered hydrologic regimes)
- Protect and rehabilitate groundwater recharge by requiring that development-related runoff be captured by infiltration basins (altered hydrologic regimes)
- Protect existing hydrologic conditions of lakes and remaining natural lake outlets by prohibiting construction of new lake-level control structures (altered hydrologic regimes)
- Use best management practices (variety of threats)
- Work with local governments to develop and refine planning and zoning regulations and ordinances that consider natural processes (variety of threats)
- Work with local officials on setback and buffer ordinances (riparian modifications)

EDUCATION & AWARENESS

- Educate the public on stratified lake systems (all threats)

Research and Survey Needs

- Track climate change and affects to stratified water bodies
- Track amount of wetlands under 5 acres that are being drained or converted to other uses

Monitoring

- Dissolved oxygen
- Riparian modifications
- Wetland modification