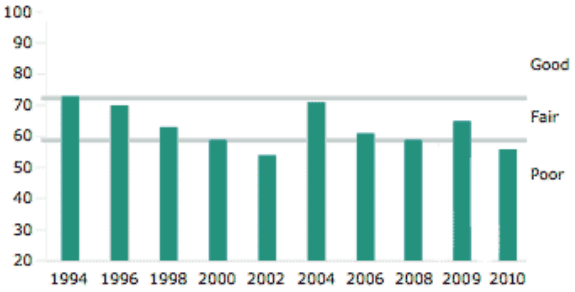
Watts Bar Reservoir

Ecological health rating

The overall ecological health condition for Watts Bar Reservoir rated poor in 2010. The reservoir ratings for Watts Bar have fluctuated between a "high fair" and poor and have generally followed reservoir flow conditions. Flow conditions in 2010 were low during most of the summer months in response to the generally dry weather pattern. The indicator most responsive to flow is dissolved oxygen, which rated poor in 2010 at both monitoring locations.

TVA monitors four locations on Watts Bar Reservoir—the deep, still water near the dam, called the forebay; the middle part of the reservoir; and the riverlike areas at the extreme upper end of the reservoir in the Tennessee and Clinch Rivers, called inflows—usually on a two-year cycle.

Watts Bar Reservoir Ecological Health Ratings, 1994-2010



Click chart for raw data.

The table below shows the ratings for individual ecological health indicators at Watts Bar in 2010. These ratings are briefly explained in the paragraphs that follow.

Ecological Health Indicators for Watts Bar Reservoir, 2010

Monitoring locations	Dissolved oxygen	Chlorophyll	Fish	Bottom life	Sediment
Forebay	Poor	Poor	Fair	Poor	Fair
Mid-reservoir	Poor	Poor	Fair	Fair	Fair
Tennessee River inflow			Good	Poor	

Watts Bar Reservoir is located on the Tennessee River below Knoxville in east Tennessee.

More about Watts Bar

Sport fishing ratings

Spring sportfish survey results

General information

To see monitoring results for other TVA reservoirs, choose from the list below.

Reservoirs

Clinch River inflow	Fair	Fair

Dissolved oxygen

Dissolved oxygen rated poor at both monitoring locations. Dissolved oxygen rated good at the mid-reservoir location all other years monitored except 2008, when it rated fair. Low dissolved oxygen levels (<2 mg/l) have occurred in the lower water column at the mid-reservoir in some previous years. However, the area with low dissolved oxygen was larger in 2010 than in other years and resulted in the first poor rating for this indicator at this location. Ratings have varied between good, fair, and poor at the forebay, primarily due to reservoir flows. Poorer DO conditions typically occur as a result of reduced flows through the reservoir during dry conditions. TVA has installed aeration equipment to add oxygen to the deep water above Watts Bar Dam and to improve conditions immediately downstream. Learn more about these improvements here.

Chlorophyll

Chlorophyll rated poor at both locations monitored because of elevated concentrations. Annual average chlorophyll concentrations have fluctuated through time at the forebay, with no specific trend of increasing or decreasing. Chlorophyll concentrations have shown an overall trend of increasing at the mid-reservoir site since monitoring began in 1991.

Fish

The fish assemblage rated good at the Tennessee inflow location and at the upper end of the fair range at the Clinch inflow, forebay and mid-reservoir locations. At all locations, the percent composition of tolerant individuals was higher than expected and catch rates were lower than expected. Better fish diversity at the Tennessee inflow location contributed to the higher (good) rating.

Bottom life

Similar to most previous years, bottom life rated poor at the forebay and Tennessee inflow and fair at the mid-reservoir location. The Clinch inflow rated at the lower end of the fair range. Bottom life rated poor at the Clinch inflow until 2004 when it received its first fair rating. Since 2004, bottom life at this location has scored within the fair to low- good range. Improvements in ratings at the Clinch inflow since 2004 are attributable to increases in the density and diversity of organisms in the samples collected from the reservoir bottom.

Sediment

Sediment quality rated fair at the forebay and mid-reservoir locations. Arsenic was higher than expected background levels at both locations. Copper was elevated at the mid-reservoir location in 2009. Arsenic was also elevated at both monitoring locations that year resulting in fair ratings. Low levels of PCBs and chlordane, a pesticide previously used to control termites and crop pests, were detected in some previous years at both locations. Lindane, an agricultural insecticide, was detected in 2006 in sediments collected from the forebay.

See definitions of ecological health indicators and monitoring locations.

Fish consumption advisories

Watts Bar Reservoir TVA maintains a program to examine contaminants in fish fillets from TVA reservoirs and their major tributary streams on a rotational basis. The data collected from this program is distributed to the state officials who are responsible for placing or removing fish tissue consumption advisories on those bodies of water. For information on advisories currently in effect for Watts Bar Reservoir, visit the Water Quality Division of Tennessee Department of Environment & Conservation's web page.
http://www.tn.gov/environment/water.shtml

top of page