

## Key Excerpts from the Draft Columbia River Basin Fish and Wildlife Plan 2013/2014

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Finally, the Independent Scientific Advisory Board has cautioned the Council that while habitat work to date has been largely successful, these investments may be threatened by outside influences (for example, climate change, toxic substances in air and water, non-native species, invasive species) and that habitat strategies must be based on an ecosystem approach in order to appreciate all impacts on habitat purchased as mitigation through the program.

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### Water quality

#### Sub-strategy

The Council supports providing flows and habitat conditions of adequate quality and quantity for improved survival of anadromous and native resident fish populations at and between hydroelectric facilities on the mainstem Columbia/Snake rivers, as well as improving water quality in basin tributaries, to promote healthy and productive populations of anadromous and native resident fish and wildlife.

#### Rationale

The mainstem of the Columbia and Snake rivers are affected annually by elevated water temperatures and periodically by total dissolved gas (TDG) levels, while various tributaries are experiencing elevated water temperatures during certain times during the year. In addition, there is a growing concern about toxic contaminants in the mainstem Columbia and Snake rivers and tributaries. Degraded water quality may be having adverse effects on the health of both our native fish and wildlife populations and the ecosystem these populations depend upon, thus impacting mitigation and recovery efforts in the Columbia River Basin.

#### Principles

- The Council will continue to support and promote public awareness of pertinent water quality and toxic contaminant research information and related effects on the Columbia River Basin ecosystem or program mitigation efforts.
- Monitoring, assessment and reduction actions identified below will best be achieved with sustainable funding resources. The Columbia River Basin has been designated by EPA as a priority Large Aquatic Ecosystem similar to Chesapeake Bay, the Great Lakes, Gulf of Mexico, and Puget Sound. While each of these other ecosystems has designated funding sources to protect and restore the water quality within their defined areas, the Columbia River Basin does not.

#### General measures to address total dissolved gas and temperature

- Federal and non-federal project operators should:
  - Continue real-time monitoring and reporting of TDG and water temperatures measured at fixed monitoring sites in the Columbia River Basin.
  - Continue to develop and implement fish passage strategies that produce less TDG, such as spillway flow deflectors, spillway weirs and surface passage outlets, including updates and improvements to the System Total Dissolved Gas (SYSTDG) model to reflect ongoing modifications to spillways or spill operations.
  - Collaborate to complete the water temperature modeling capabilities in the mainstem Columbia River from Grand Coulee to McNary dams to better assess the effect of operations or flow depletions on summer water temperatures.
- The Corps should continue to:
  - Develop and use the SYSTDG model for estimating TDG production to assist in real-time decision making for spill operations, including improved wind forecasting capabilities, as appropriate

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- Develop and use the CE-QUAL-W2 model for estimating mainstem Snake River temperatures and cold-water releases from Dworshak Dam on the North Fork Clearwater River to assist in real-time decision making for Dworshak summer operations
- The federal action agencies should incorporate the provisions of various total maximum daily loads (TMDLs) as they are developed and approved into the regional Water Quality Plan, particularly TMDL provisions containing allocations affecting federal hydropower projects in the Columbia River Basin.

#### **General measures to address toxic contaminants**

- To support ongoing regional efforts to identify, assess and reduce toxic contaminants in the Columbia River Basin, the Council may initiate and will participate in, support, and coordinate periodic science-policy workshops on characterizing the state-of-the-science related to toxic contaminant issues. The Council will also assist regional parties in advancing public education and information on toxics issues
- The federal action agencies, in cooperation with the Environmental Protection Agency and other federal, tribal, regional, and state agencies, should:
  - Update and implement the Water Quality Plan for Total Dissolved Gas and Water Temperature in the Mainstem Columbia and Snake Rivers (WQP) and support implementation of the regional 2010 Columbia River Basin Toxics Reduction Action Plan. Both the WQP and *Toxics Reduction Action Plan* are comprehensive regional documents containing water quality monitoring, research and improvement measures needed to enhance the survival of anadromous and native resident fish and to meet Northwest Power Act, ESA and Clean Water Act responsibilities. The Council will continue to encourage preventive and remedial actions such as those identified by the WQP and the Toxics Reduction Action Plan.
  - Monitor water quality parameters and implement water quality improvement measures to reduce water temperatures, TDG and toxic contaminants to meet state and federal water quality standards to improve the health, condition, and survival of anadromous and native resident fish, as well as their related spawning and rearing habitat, in the Columbia Basin.
- The federal action agencies should partner with and support ongoing federal, state, tribal, and regional agencies' efforts to:
  - Monitor, assess and map high priority toxic contaminant hot spots in the Columbia River Basin and evaluate their relationship, if any, to the development and operation of the hydrosystem
  - Identify and assess the effects of toxic contaminants, alone or in combination with other stressors, on native fish, including sturgeon and lamprey, wildlife, and food webs in toxic hot spots in the Columbia River Basin
- The federal action agencies should partner with and support federal, state, tribal and regional agencies' efforts to conduct targeted monitoring in the Columbia River Basin of vulnerable native fish and wildlife species for specific, high priority toxic contaminants, particularly in the middle and upper Columbia reaches and in the Snake River
- At each hydropower project, federal and non-federal project operators in the Columbia River Basin should continue to: a) monitor for oil spills and leakages; b) replace all lubricating oils and fluids containing PCBs with non-PCB oils and fluids; and c) develop and implement best practices for reducing spills and leakages of oils and lubricating fluids
- Using all available water quality data, Bonneville and the other federal action agencies should continue to identify areas where aquatic habitat restoration projects implemented under the program may be affected by toxic contaminants and incorporate pollution reduction and mitigation techniques into restoration projects when toxic contamination is a concern
- The Council urges Congress to provide funding, similar to the funding of other Large Aquatic Ecosystems, to protect and restore water quality in the Columbia River Basin, including efforts to:
  - Develop sensitive diagnostic indicators of chemical exposure and salmon health, such as biomarkers, for use in field studies in the Columbia Basin;
  - Determine the extent to which toxics limit prey quality and abundance in degraded habitats and otherwise affect the food web; and
  - Improve understanding of contaminants of emerging concern, such as endocrine-disrupting pharmaceuticals and chemicals in personal care products, and their effects on salmonids, sturgeon and lamprey.

**Link to the subbasin plans:** See the Council's [subbasin plans](#) for subbasin-level information pertaining to toxics and water quality.