



Tonkin & Taylor

## Ribb River Irrigation Project, Ethiopia

### Client

World Bank/Ministry of Water Resources.

### Project

Tonkin & Taylor was engaged, in association with RJ Burnside of Canada, to carry out an EIA to World Bank standards, of the aquatic impacts of a proposed 70 m irrigation dam in the Lake Tana catchment, at the source of the Blue Nile in Ethiopia. A particular issue was the presence of 15 species of barbel which are known only from this catchment and may be adversely affected by the project.

T&T's approach to the project involved the following:

- Development of habitat suitability curves for various life stages of the potentially-affected fish species (in collaboration with fisheries experts from the University of Addis Ababa)
- Hydrological field measurements (discharge, stage/depth, velocity, substrate) at a number of discharges
- Development of synthetic discharge time-series pre and post-dam, using partial records from the subject catchment and neighbouring catchments
- Habitat availability modelling using the Instream Flow Incremental Methodology (IFIM). This used Physical Habitat Simulation (PHABSIM) software as developed by the US Geological Survey
- Modelling habitat availability under various operational regimes

- Development of mitigation and compensation measures to address issues such as compartmentalisation of the catchment, altered flow regime. Measures included a drought management plan to deal with very low flows during the dry season.



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