

Three Gorges Dam alters downstream schistosomiasis rates

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A fresh-water snail that can serve as host for schistosome parasites. Credit: Susanna Sokolow, PLOS

The Three Gorges Dam is a massive hydroelectric dam that spans the Yangtze River in central China and became fully operational in 2010. Ecological changes caused by the dam have altered the distribution of snails—including those that carry the *Schistosoma* parasites—researchers now report in *PLOS Neglected Tropical Diseases*.

The Three Gorges Dam (TGD) is the world's largest power station and is known to have far-reaching impacts on the environment and ecology in a vast area of China. The Dongting Lake is the first [lake](#) on the Yangtze after the dam, and is particularly impacted. The area around the lake is also one of the most severe schistosomiasis endemic areas in China. Schistosomiasis is a parasitic disease that's spread by infected freshwater snails.

In the new work, Hongzhuan Tan, of the Central South University, China, and colleagues collected data on snail distribution and human schistosomiasis infection in areas around the Dongting Lake and used existing hydrological data from 12 monitoring sites along the Yangtze. They then analyzed the impact of [ecological changes](#) from the dam on snail distribution and schistosomiasis rates.

Following the opening of the dam, they found, the volume of annual runoff into Dongting Lake declined by 20.85% and the sediment volume discharged into the lake declined by 73.9%. In turn, the mean density of living snails decreased by 94.35% and human rates of schistosomiasis decreased from 3.38% in 2003 to 0.44% in 2015, a reduction of 86.98%. The researchers hypothesize that low water levels in the summer and high levels in the winter led the lake to become an unsuitable environment for snails.

"Given that the impact of TGD on snail distribution and schistosomiasis prevalence in Dongting Lake area is much more complex, prolonged and in-depth studies are needed to address these issues for the effective

control of snails in Dongting Lake area," the researchers say.

More information: Li F, Ma S, Li Y, Tan H, Hou X, Ren G, et al. (2017) Impact of the Three Gorges Project on ecological environment changes and snail distribution in Dongting Lake Area. *PLoS Negl Trop Dis* 11(6): e0005661. doi.org/10.1371/journal.pntd.0005661

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