Title	**Predicted capture of 11 fish species, 1977–2015**
Type	Dataset
Subject	indigenous, exotic, biodiversity
Source	NIWA
Description	Freshwater fish are an important component of freshwater ecosystems, have intrinsic biodiversity values and are a valued resource for Māori, recreational and commercial fishers. The presence of fish species can be affected by changes in catchment land cover and land use, in-stream habitat, fish passages (routes for moving up and down waterways), pests, and contaminants. File contains predicted capture, including upper and lower confidence intervals for 11 fish species, including indices of native fish, exotic fish, and all fish, over the period 1977–2015.
Variables	- Year - Probability of capture: Probability that a particular species of fish will be captured in a particular year - Lower CI: Lower 95% confidence interval - Upper CI: Upper 95% confidence interval
Rights	Creative Commons Attribution 4.0 New Zealand
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Coverage	National, 1977–2015
Identifier	FW17/011
Language	New Zealand English
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Environmental reporting topic	Freshwater species, taonga species and genetic diversity
Environmental reporting category	Case study
Environmental report	Our fresh water 2017
Relevant measure on the Environmental Indicators, Te taiao Aotearoa website	Trends in freshwater fish
Other data and reports which	Freshwater fish observational data, 1977–2015

relate to this measure	
Methodology (collection & analyses)	NIWA analysed the trends in abundance of freshwater fish using data from the New Zealand Freshwater Fish Database (NZFFD). Anyone can enter information in the NZFFD, which means there are differences in sampling methods across sites and time. To reduce the impact sampling differences have on trends in fish species' abundance over time, NIWA standardised the NZFFD for 11 species (with sufficient data) using generalised linear models (Crow et al, 2016). These models estimate the probability that a species will be present for each year of the 1977-2015 period. We use this data to calculate trends in the 11 fish species over time. NIWA used a weighted Sen Slope Estimator (WSSE) to simplify the complex variability in trends over time into straight lines. The WSSE approach means NIWA put greater 'weight' on years for which there was greater confidence in the estimate of the probability of the presence of a species. We used these results to display trends in abundance over time. Further details on methodology can be found in Crow et al, (2016).
Limitations to data & analysis	The accuracy of the data source is of medium quality. The following limitations exist to the freshwater fish database: • It is open source – anyone can input data into it, so no common sampling approach from year to year • Fish display distinct habitat preferences, so where you sample and the time of year can influence what is caught • Fishing method used and the skill of the collector can influence catch rates The following variables are known to influence what is caught: • Temperature • Presence of barriers • Downstream and local slope • Sediment • Rainfall • Distance to coast • Indigenous forest cover • Nutrients. The standardisation methodology described above aims to control these confounding factors. Further details on limitations can be found in Crow et al, (2016)

Changes to time series	There is no time series associated with any particular sites or data points.
References	Crow, S, Snelder, T, Jellyman, P, Greenwood, M, & Dunn, A (2016). Temporal trends in the relative abundance of New Zealand freshwater fishes: Analysis of New Zealand Freshwater Fish Database records. Prepared for the Ministry for the Environment. NIWA Client Report No CHC2016-049.