

Dataset: Eastern Freshwater Cod Indicative Distribution in NSW



Indicative Distribution in NSW
Eastern Freshwater Cod

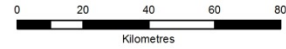


(*Maccullochella ikei*)



— Indicative Distribution

Distribution based on survey records, predicted occurrence (MaxEnt 3.3.3) and expert opinion. Output restricted to named streams with a modelled average daily flow of more than 5 megalitres, 2015.



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Department of Primary Industries

Dataset/Product Description

The Eastern Freshwater Cod (*Maccullochella ikei*) is a large fish that is only found in the Clarence and Richmond River catchments of northern NSW. The species has suffered dramatic declines in recent decades and as a consequence the species is listed as endangered in NSW: <http://www.dpi.nsw.gov.au/fisheries/species-protection/conservation/what-current/endangered-species/eastern-freshwater-cod>.

The methods used to create the indicative distribution of Eastern Freshwater Cod are described fully in: [NSW Department of Primary Industries \(2016\), Fish communities and threatened distributions of NSW – Final Report](#).

All available records of the species were collated and assessed for accuracy. For current distribution, only records after 1 January 1994 were used. Within the framework of the Australian Hydrological Geospatial Fabric V2 surface hydrology network, the records were associated with attributes from the National Environmental Stream Attributes Database and River Styles® geomorphology. The Australian Hydrological Geospatial Fabric V2 surface hydrology network (Geofabric) is a fully connected and directed stream network based a 9 second DEM. It allocates a unique stream segment number to each river reach in Australia. The Environmental Attributes Database is a set of lookup tables supplying attributes describing the natural and anthropogenic characteristics of the stream and catchment environment that was developed by the

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	<p>Australian National University (ANU) in 2011 and updated in 2012. The data is supplied as part of the supplementary Geofabric products which is associated with the 9 second DEM derived streams and the National Catchment Boundaries based on 250k scale stream network. 30 Stream variables were assessed for the modelling.</p> <p>River Styles® provides a high resolution categorical classification of river character within a nested hierarchy of criteria based on valley setting, channel planform, geomorphic units, and bed material. The NSW Office of Water compiled a spatial dataset of River Styles® classifications for a large number of the waterways of NSW. From 65 River Style® categories we generated two new fields representing Planform (34 categories) and Substratum (8 categories) for each stream segment. River Style® planform and substratum categories were then assigned to each Geofabric segment.</p> <p>MaxEnt 3.3.3 is a widely used species distribution modelling program that utilises presence records to generate probabilities of occurrence based on a suite of environmental variables quantified across the area of interest. It was used to model the current geographic distribution of each listed threatened freshwater aquatic species or population. We utilised logistic output to plot the predicted distribution of each species. This output equates to a probability that the species will be observed in each river reach, given the environmental conditions that exist there relative to the environmental conditions where the species is known to occur. For this mapping, above 33% probability was considered predicted presence. Only stream segments with a modelled average daily flow of more than five megalitres were selected for output. In addition, predicted separate populations were connected by manual interpretation. The predicted values for each river reach were converted from the Geofabric framework to the higher resolution 2013 NSW Strahler Stream Order Hydroline.</p>
Dataset Uses	<p>The dataset has a number of primary functions including but not limited to;</p> <ul style="list-style-type: none"> • spatially representing the status of fish communities at river reach scale across NSW • providing additional support to strategic planning frameworks to ensure they effectively integrate biodiversity considerations into planning and decision making processes
Current Status	<p>The Eastern Freshwater Cod Distribution in NSW dataset was produced as part of the NSW Fish Community Status 2015.</p>
Standards & Specifications	<p>ANZLIC Metadata Profile: An Australian/New Zealand Profile of AS/NZS ISO 19115:2005, Geographic information – Metadata</p>
Access and Licensing	<p>The Eastern Freshwater Cod Distribution in NSW is authored by the Department of Industry, Skills and Regional Development is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License.</p>

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Metadata	See: NSW Department of Primary Industries (2016), Fish communities and threatened distributions of NSW – Final Report.
Updates	As required.
Custodian Agency & Contact	Threatened Species Unit Department of Primary Industries Email: fisheries.threatenedspecies@dpi.nsw.gov.au
Aggregator(s)	
Distributor(s)	Geospatial Consultant Department of Industry Ph: 02 4931 6492 Email: Adam.King@industry.nsw.gov.au
Additional Comments	