The following supplements accompany the article

Ecosystem equivalence and the ability to generalise: insights from global consistencies in mangrove fish assemblages

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Supplement S1. Sampling considerations and assumptions

The diverse derivation of the data on which the present study was based presented a range of difficulties, some of which were addressed at least partially by the inclusion of explanatory variables and some that required specific assumptions:

1) The different studies had used different sampling gears and sampling approaches because they had been conducted under different local conditions and for different purposes. There was no sensible way to standardise for this, and although 'gear type' was included as an explanatory variable, to account for any systematic difference due to sampling gear, it is likely that gear-related differences and selectivities would still add substantial random variation to the data set, both in the species captured and the extent to which catch per unit effort (CPUE) related to actual abundances. For this reason, rather than concentrating on species and CPUE, the present study focussed on the relative number of species per family (i.e. the proportion of species per family for each study), a robust approach that also helped reduce the impact of a number of other issues (see below).
2) The studies dealt with a range of structurally different systems, ranging from mangroves on fringing reefs through coastal mangrove forests to riverine mangroves spanning a range of salinity environments. Thus, the data included a variety of mangrove setting and types and a vast range of physical environments. Although this was captured to some extent in 2 variables, one indicating system type and the other salinity regime, the exact type of system or its equivalence to systems reported in other studies was not always clear, again adding additional unexplainable variation to the data set. For studies that reported data from ecosystems other than mangrove forests or mangrove systems, the non-mangrove data were excluded, to the extent that they could be identified. However, the information needed to do this was not always available.
3) The scales of the different studies varied in terms of spatio-temporal extent, size of systems sampled, size of sampling units and the range of habitats sampled. While it was difficult to account for all these differences because many studies did not provide the information necessary to do so, a 'system scale' variable was included in the explanatory data set.
4) One particularly important scale issue related to the focus of the study. A number of studies explicitly targeted mangrove forests, either sampling inside the forest or using gears such as fyke nets to capture fish leaving the forest; however, the majority of studies either sampled

the whole system or did not define an explicit focus. It may have been preferable to concentrate only on studies with a purely mangrove forest focus, but there were relatively few of these, and they did not provide a broad global coverage. Consequently, data of both types were included, and these differences were accounted for with an explanatory variable.

5) Sampling intensity varied greatly among the studies in the number of units sampled, the spatio-temporal extent of sampling and the amount of effort per sampling site. This was extremely variable and difficult to account for but again underlines the need to deal with the data only at the most robust level. At a larger conceptual scale, the intensity of research differed greatly among geographic regions, with a large number of studies in some parts of the world but few studies in many others. To account for this disparity, any studies from a single geographic area that included data sets from multiple mangrove systems that had been (a) sampled using equivalent methods by the same sampling team and (b) reported to have consistent faunal composition (e.g. Sheaves & Johnston 2009) were treated as a single data set. In contrast, other studies reported different assemblages from different locations, and these were treated as independent data sets.

Supplement S2. The 76 studies from which data sets were extracted

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Supplement S3. 170 families of fish reported from mangroves in 4 faunal regions of the world defined by mCART analysis. P indicates presence in a region. EC Atlantic: Eastern central Atlantic, Central IP: Central Indo-Pacific

Family	EC Atlantic	Australasian	Caribbean	Central IP
Adrianichthyidae	-	P	-	-
Acanthuridae	P	P	P	P
Achiridae	P	-	P	-
Acropomatidae	-	-	-	P
Albulidae	-	-	P	P
Alestidae	P	-	-	-
Ambassidae	-	P	-	P
Amiidae	-	-	P	-
Anabantidae	-	P	-	-
Anablepidae	P	-	-	-
Anguilidae	-	P	P	P
Antennariidae	P	P	P	P
Aploactinidae	-	P	-	-
Aplocheilidae	-	-	-	P
Apogonidae	-	P	P	P
Aracanidae	-	-	-	P
Ariidae	P	P	P	P
Arripidae	-	-	-	P
Aspredinidae	P	-	-	-
Atherinidae	P	P	P	P
Atherinopsidae	-	-	P	-
Auchenipteridae	P	-	-	-
Aulostomidae	-	-	P	-
Bagridae	P	P	-	P
Balistidae	P	P	P	P
Batrachoididae	P	P	P	-
Belonidae	P	P	P	P
Blenniidae	-	P	P	P
Bothidae	P	P	P	P
Bythitidae	-	-	P	-
Callionymidae	-	P	P	P
Carangidae	P	P	P	P
Carcharhinidae	-	P	P	P
Catostomidae	-	-	P	-
Centrarchidae	-	-	P	-
Centriscidae	-	P	-	P
Centrogenyidae	-	P	-	-

Centropomidae	P	P	P	P
Chaetodontidae	P	P	P	P
Chanidae	P	P	-	P
Channidae	-	P	-	-
Characidae	P	-	-	-
Chirocentridae	-	P	-	P
Cichlidae	P	P	P	P
Citharidae	-	-	-	P
Clariidae	P	P	P	-
Claroteidae	P	-	-	-
Clupeidae	P	P	P	P
Congridae	-	-	P	-
Cynoglossidae	P	P	P	P
Cyprinidae	-	P	P	P
Cyprinodontidae	P	P	P	P
Dactylopteridae	P	P	P	P
Dasyatidae	P	P	P	P
Diodontidae	P	-	P	P
Drepaneidae	P	P	-	P
Echeneidae	-	P	P	P
Elassomatidae	-	-	P	-
Eleotridae	P	P	P	P
Elopidae	P	P	P	P
Engraulidae	P	P	P	P
Ephippidae	P	P	P	P
Esocidae	-	-	P	-
Exocoetidae	P	-	-	-
Fistulariidae	-	P	P	P
Fundulidae	-	-	P	-
Galaxiidae	-	-	-	P
Gerridae	P	P	P	P
Ginglymostomatidae	-	-	P	-
Gobiesocidae	-	-	P	-
Gobiidae	P	P	P	P
Gymnotidae	P	-	-	-
Gymnuridae	P	-	P	-
Haemulidae	P	P	P	P
Hemigaleidae	-	P	-	-
Hemiramphidae	P	P	P	P
Hepsetidae	P	-	-	-
Holocentridae	-	-	P	P
Ictaluridae	-	-	P	-
Kraemeridae	-	-	-	P
Kuhliidae	-	-	-	P
Kurtidae	-	-	-	P
Kyphosidae	-	-	P	P
Labridae	-	P	P	P
Labridsomidae	-	-	P	-

Lactariidae	-	P	-	P
Lateolabracidae	-	P	-	-
Latidae	-	P	P	P
Leiognathidae	-	P	-	P
Lepisosteidae	-	-	P	-
Leptobramidae	-	P	-	P
Lethrinidae	-	P	-	P
Lobotidae	P	-	P	P
Loricariidae	P	P	-	-
Lutjanidae	P	P	P	P
Megalopidae	P	P	P	P
Melanotaeniidae	-	-	-	P
Mochokidae	P	-	-	-
Monacanthidae	P	P	P	P
Monodactylidae	P	P	-	P
Moringuidae	-	P	-	P
Mormyridae	P	-	-	-
Moronidae	P	-	-	-
Mugilidae	P	P	P	P
Mullidae	-	P	P	P
Muraenesocidae	-	P	-	P
Muraenidae	P	P	P	P
Myliobatidae	P	P	-	-
Narkidae	-	-	-	P
Nemipteridae	-	-	-	P
Ogcocephalidae	P	-	P	-
Ophichthidae	P	P	P	P
Opistognathidae	-	P	-	-
Orectolobidae	-	P	P	-
Ostraciidae	-	-	P	P
Pallostethidae	-	P	-	P
Paralichthyidae	P	P	P	P
Pegasidae	-	P	-	P
Pempheridae	-	P	-	P
Percichthyidae	-	-	-	P
Percophidae	-	-	-	P
Pimelodidae	P	-	-	-
Platycephalidae	-	P	-	P
Plesiopidae	-	P	-	-
Pleuronectidae	-	-	-	P
Plotosidae	-	P	-	P
Poeciliidae	P	P	P	P
Polynemidae	P	P	P	P
Pomacanthidae	-	-	P	P
Pomacentridae	-	P	P	P
Pomatomidae	P	P	-	P
Priacanthidae	-	-	-	P
Pristidae	-	P	-	-

Pristigasteridae	P	P	-	P
Psettodidae	P	P	-	-
Pseudaphritidae	-	-	-	P
Pseudomugilidae	-	P	-	P
Ptereleotridae	-	-	-	P
Rachycentridae	-	P	-	P
Rhinobatidae	P	P	-	P
Rivulidae	-	-	P	-
Scaridae	-	-	P	P
Scatophagidae	-	P	-	P
Schilbeidae	P	-	-	-
Sciaenidae	P	P	P	P
Scombridae	P	P	-	P
Scorpaenidae	-	P	P	P
Serranidae	P	P	P	P
Siganidae	-	P	-	P
Sillaginidae	-	P	-	P
Siluridae	-	P	-	-
Soleidae	P	P	P	P
Sparidae	P	P	P	P
Sphyraenidae	P	P	P	P
Sphyrnidae	-	P	-	P
Sternopygidae	P	-	-	-
Stromateidae	-	P	-	-
Synanceiidae	-	P	-	P
Synbranchidae	-	-	-	P
Syngnathidae	P	P	P	P
Synodontidae	P	P	P	P
Terapontidae	-	P	-	P
Tetraodontidae	P	P	P	P
Tetrarogidae	-	P	-	P
Toxotidae	-	P	-	P
Triacanthidae	P	P	-	P
Trichiuridae	P	P	-	P
Triglidae	P	-	P	-
Uranoscopidae	-	P	-	P
Urolophidae	-	-	P	P

Supplement S4. The 64 families of mangrove-dwelling fish evaluated as using nekton as a major part of their diet

Habit group	Family
Ambush	Achiridae
	Bothidae
	Citharidae
	Paralichthyidae
	Pleuronectidae
	Psettodidae
	Uranoscopidae
	Platycephalidae
	Antennariidae
	Batrachoididae
	Channidae
	Congridae
	Eleotridae
	Muraenidae
	Ophichthidae
	Percophidae
	Synanceiidae
	Tetrarogidae
Forager	Ginglymostomatidae
	Muraenesocidae
	Orectolobidae
	Priacanthidae
	Triglidae
	Scorpaenidae
	Hemigaleidae
	Centrogenyidae
	Plesiopidae
	Characidae
	Hepsetidae
	Lethrinidae
	Lobotidae
	Moronidae
	Centropomidae
	Latidae
	Lutjanidae
	Polynemidae
	Sciaenidae
	Serranidae
	Nemipteridae
	Percichthyidae
	Synodontidae
	Lactariidae
	Centrarchidae

	Kuhliidae
	Kurtidae
	Lateolabracidae
Cursorial	Elopidae
	Scombridae
	Rachycentridae
	Carcharhinidae
	Arripidae
	Leptobramidae
	Trichiuridae
	Carangidae
	Chirocentridae
	Megalopidae
	Pomatomidae
	Sphyrnidae
Static habituator	Esocidae
	Fistulariidae
	Lepisosteidae
	Aulostomidae
	Belonidae
	Sphyraenidae