Appendix 4. Measuring market indicator.

To assess coastal-urban integration, we used the linear distance between each coastal municipality and its respective state capital. Based on the walking distance from Google Maps, we calculated the average distance for all coastal municipalities, by state. This measure was used to represent an economic concern for fishers. Given the poor local transportation infrastructure, urban access can be used as a proxy for external transaction commerce costs (Davidova et al. 2009, Basurto et al. 2013). Even if fish value chains are networks with non-linear movements, for the sake of simplicity we assumed that longer distances to the urban center may imply fewer exploitation rates due to higher costs and, thereby, result in less ecological vulnerability to the SES. Moreover, we used per capita fish consumption (KG/Inhabitant/Year) because higher consumption implies more fish biomass required, which increases the system's vulnerability. We know that higher consumption could also be associated with cultural or economic issues, but we chose to focus on the consumption/demand for fish and not necessarily for a market analysis. Even if the linear distance and the per capita consumption adopted here are not the best variables, they are good proxies for fisheries demand in the absence of more refined data. Thus, these variables were combined to form a single market indicator that attempts to capture fisheries market demand in the coastal states.

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