Supplementary Material

1 Supplementary Information

To analyse the resilience of alternative supply chain configurations to external disruptions, we used the Supply Chain Index (SCI) from Plaganyi et al. (2014), which involves first calculating a metric for individual nodes as follows:

$$SCI_j = \sum_{i=1}^{n} s_{ji} p_j^2 \qquad \text{(S.1)}$$

which identifies the elements j in the supply chain that have large throughput rates p_j and enhanced connectivity, represented by the proportion s_{ji} of total product that receiver j receives from supplier i relative to all product flowing into that element j.

The total standardised Supply Chain Index (SCI) for the supply chain as a whole is obtained by summing over individual SCI_j scores and dividing by the number of links L:

$$SCI = \sum_{i=1}^{n} SCI_j \Big/ L \qquad \text{(S.2)}$$

Identification of critical elements can inform development of adaptation strategies that reduce the risks associated with future climate change or other disruptions to the system (Plaganyi et al., 2014; Lim-Camacho et al., 2015). The network-based approach involves identifying the number of elements (or nodes), the number of links (or connections) and squaring the product 'inflow' proportion to accord more weight to high throughput that indicates important pathways in the system. Ranking individual scores allows us to scale the importance of an element in the supply chain and identify key elements. Because inflows from one node to the next are used to calculate the SCI, the first node in the chain, i.e. fishers, cannot be identified as a key element in this analysis. Plagányi et al (2014) noted that the index is not overly sensitive to levels of aggregation because the throughput rate is squared, so nodes that handle a large amount of product will be given more weight.

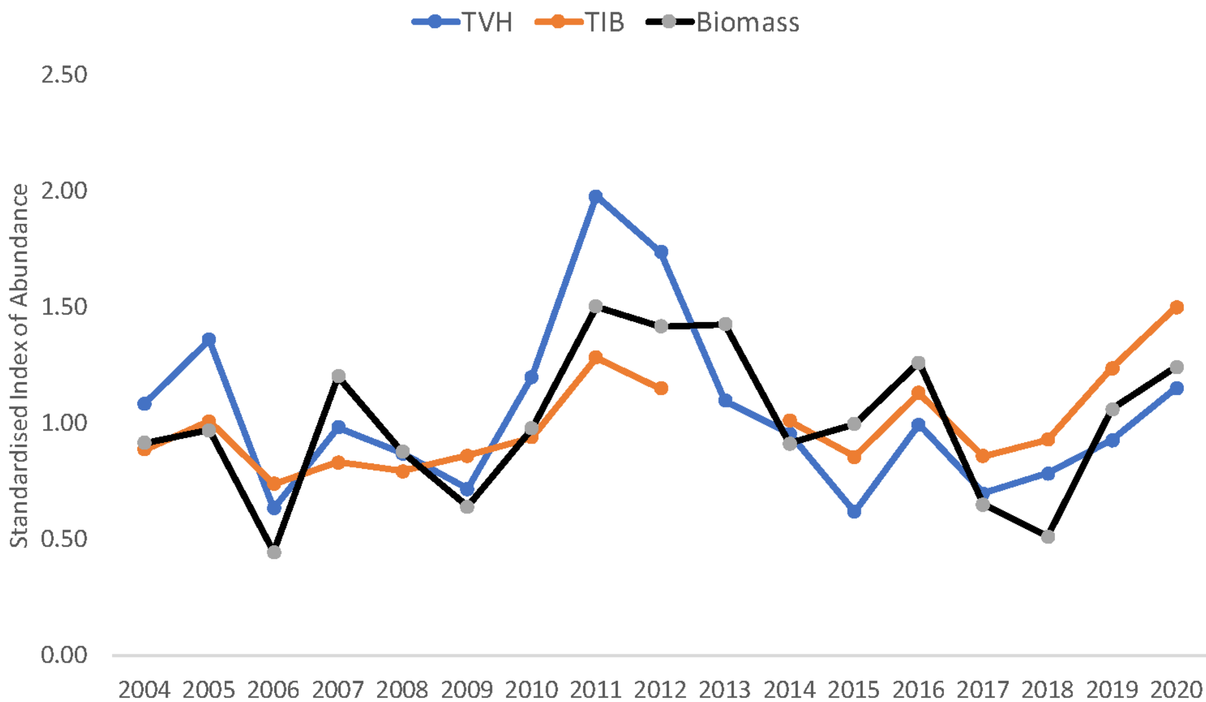
The metric above is in turn used to compute a *resilience* score, which is intended to broadly reflect the ability to carry on as before in the face of disruptions to the system, requiring whole supply chains to be flexible and adaptable when challenged by an extreme or intermittent shock (Plaganyi et al., 2014; Lim-Camacho et al., 2017). Lower standardised SCI scores (representing the sum of the individual SCI_j scores) suggest greater resilience because the overall supply chain is less reliant on a few key nodes. Hence, the score for the *resilience* metric is computed simply as 1-SCI so that higher values reflect improved resilience. Hence

$$resilience = 1\text{-SCI} \qquad \text{(S.3)}$$

with the range of scores falling between 0 (possible with a simple linear chain where SCI=1 and if one of the links breaks, the whole chain breaks) and 1 (theoretically maximum resilience).

We acknowledge that since 2012 there have been other positive increases in diversification of the supply chain in the form of additional processors. This increased supply chain complexity would increase the resilience score, but is beyond the scope of this paper which focuses on changes in the final market destinations.

2 Supplementary Figure



Supplementary Figure 1. Comparison of standardised Catch-Per-Unit-Effort (CPUE) for Indigenous Traditional Inhabitant Boat (TIB) sector, CPUE non-Indigenous Transferable Vessel Holder (TVH) and stock assessment-based fished (2 yrs and older) biomass trends (from (Plagányi et al., 2020b) to assess the extent to which the indices are consistent with each other.