**Table S1** Supplementary data. Model type, index type, index years and values, and references of 33 stock assessments used in the analysis. Model types are as follows: BSPM = Bayesian surplus production model; SS-BSPM = state-space Bayesian surplus production model; SPM = surplus production model; ASPM = age-structured production model; CFASPM = catch-free age-structured production model; SS3 = stock synthesis model; ASM = Age-structured model; SR = stock reduction model; Index = model based on an index of abundance. *It=1* (year) is year when the index begins; *It* (year) is year when the index ends; *It=1* is value of index in first year; *It* is value of index in last year.





**Reference list for Table S1**

Andrade, H.A. (2015) Preliminary stock assessment of blue shark (*Prionace glauca*) caught in Indian Ocean using a Bayesian State-Space Production Model. IOTC–2015–WPEB11–30.

Carvalho, F., Ahrens, R., Murie, D. *et al.* (2014) Incorporating specific change points in catchability in fisheries stock assessment models: An alternative approach applied to the blue shark (*Prionace glauca*) stock in the south Atlantic Ocean. *Fisheries Research* **154**, 135–146.

DFO (2010) Assessment of spiny dogfish (*Squalus acanthias*) in British Columbia in 2010. *Canadian Science Advisory Secretariat, Science Advisory Report* 2010/057.

Grubert, M. A., Saunders, T. M., Martin, J. M., Lee, H. S. and Walters, C.J. (2013) Stock assessments of selected Northern Territory fishes. Northern Territory Government, Australia. *Fishery Report* 110, 63 pp.

Hammond, T.R. and Ellis J.R. (2005) Bayesian assessment of Northeast Atlantic spurdog using a stock production model, with prior for intrinsic population growth rate set by demographic methods. *Journal of Northwest Atlantic Fishery Science* **35**, 299–308.

Hayes, C. G., Jiao, Y. and Cortés, E. (2009) Stock assessment of scalloped hammerheads in the western North Atlantic Ocean and Gulf of Mexico. *North American Journal of Fisheries Management* **29**, 1406–1417.

ICCAT (2009) Report of the 2008 shark stock assessments meeting. *Collective Volume of Scientific Papers ICCAT* **64**, 1343–1491.

ICCAT (2010) Report of the 2009 porbeagle stock assessments meeting. *Collective Volume of Scientific Papers ICCAT* **65**, 1909–2005.

ICCAT (2013) Report of the 2012 shortfin mako stock assessment and ecological risk assessment meeting. *Collective Volume of Scientific Papers ICCAT* **69**, 1427–1570.

IOTC (2015) Stock assessment of blue shark (*Prionace glauca*) in the Indian Ocean. IOTC–2015–WPEB11–49. Indian Ocean Tuna Commission Secretariat, Victoria, Seychelles.

Kleiber, P., Clarke, S., Bigelow, K., Nakano, H., McAllister, M. and Takeuchi, Y. (2009) North Pacific blue shark stock assessment. *NOAA Technical Memorandum* NMFS-PIFSC-17.

MPI (Ministry for Primary Industries) (2014) Fisheries Assessment Plenary, May 2014: stock assessment and stock status. Compiled by the Fisheries Science Group, Ministry for Primary Industries, Wellington, New Zealand, 1381 pp.

NMFS (2006) Southeast Data, Assessment and Review (SEDAR) 11: Final Stock Assessment Report: HMS Large Coastal Sharks, blacktip and sandbar shark. Highly Migratory Species Management Division, Silver Spring, MD, USA. Available at: http://sedarweb.org/docs/sar/Final\_LCS\_SAR.pdf.

NMFS (2007) Southeast Data, Assessment and Review (SEDAR) 13: Final Stock Assessment Report: HMS Small Coastal Sharks, Atlantic sharpnose, blacknose, bonnethead, and finetooth shark. Highly Migratory Species Management Division, Silver Spring, MD, USA. Available at: <http://sedarweb.org/docs/sar/SAR_complete_2.pdf>.

NMFS (2011a) Southeast Data, Assessment and Review (SEDAR) 21: Final Stock Assessment Report: HMS Atlantic Blacknose Shark. North Charleston, SC, USA. Available at: <http://sedarweb.org/docs/sar/Atl_Blacknose_SAR.pdf>.

NMFS (2011b) Southeast Data, Assessment and Review (SEDAR) 21: Final Stock Assessment Report: HMS Gulf of Mexico Blacknose Shark. North Charleston, SC, USA. Available at: <http://sedarweb.org/docs/sar/GoM_Blacknose_SAR.pdf>.

NMFS (2011c) Southeast Data, Assessment and Review (SEDAR) 21: Final Stock Assessment Report: HMS Sandbar Shark. North Charleston, SC, USA. Available at: <http://sedarweb.org/docs/sar/Sandbar_SAR.pdf>.

NMFS (2011d) Southeast Data, Assessment and Review (SEDAR) 21: Final Stock Assessment Report: HMS Dusky Shark. North Charleston, SC, USA. Available at: http://sedarweb.org/docs/sar/Dusky\_SAR.pdf.

NMFS (2012) Southeast Data, Assessment and Review (SEDAR) 29: Final Stock Assessment Report: Gulf of Mexico Blacktip Shark. North Charleston, SC, USA. Available at: http://sedarweb.org/docs/sar/S29\_GOM%20blacktip%20report\_SAR\_final.pdf.

NMFS (2013a) Southeast Data, Assessment and Review (SEDAR) 34: Final Stock Assessment Report: Atlantic Sharpnose Shark. North Charleston, SC, USA. Available at: <http://sedarweb.org/docs/sar/S34_ATSH_SAR.pdf>.

NMFS (2013b) Southeast Data, Assessment and Review (SEDAR) 34: Final Stock Assessment Report: Bonnethead Shark. North Charleston, SC, USA. Available at: <http://sedarweb.org/docs/sar/S34_Bonnethead_SAR.pdf>.

NMFS (2015a) Southeast Data, Assessment and Review (SEDAR) 39: Final Stock Assessment Report: HMS Gulf of Mexico Smoothhound Shark Complex. North Charleston, SC, USA. Available at: http://sedarweb.org/docs/sar/S39\_Gulf\_Smoothhound\_Complex\_SAR.pdf.

NMFS (2015b) Southeast Data, Assessment and Review (SEDAR) 39: Final Stock Assessment Report: HMS Atlantic Smooth Dogfish. North Charleston, SC, USA. Available at: http://sedarweb.org/docs/sar/S39\_Atl\_smooth\_dog\_SAR.pdf.

Punt, A. E. and Walker, T.I. (1998) Stock assessment and risk analysis for the school shark *Galeorhinus galeus* (Linnaeus) off southern Australia. *Marine and Freshwater Research* **49**, 719–731.

Rice J. and Harley, S.J. (2012) Stock assessment of oceanic whitetip sharks in the western and central Pacific Ocean. Western and Central Pacific Fisheries Commission. WCPFC-SC8-2012/SA-WP-06. 53 pp.

Rice J. and Harley, S.J. (2013) Updated stock assessment of silky sharks in the western and central Pacific Ocean. Western and Central Pacific Fisheries Commission. WCPFC-SC9-2013/SA-WP-03. 71 pp.

Rice, J. and Sharma, R. (2015) Stock assessment of blue shark (*Prionace glauca*) in the Indian Ocean using Stock Synthesis. Indian Ocean Tuna Commission Secretariat, Victoria, Seychelles. 64 p.

Semba, S., Kanaiwa1, M. and Yokawa, K. (2015) Update of standardized CPUE of blue shark (*Prionace glauca*) in the Indian Ocean estimated from Japanese observer data in the period between 1992 and 2014. IOTC–2015–WPEB11–30 Rev\_1.

Simpfendorfer, C. A., Donohue, K. and Hall, N. G. (2000) Stock assessment and risk analysis for the whiskery shark (*Furgaleus macki* (Whitley)) in south-western Australia. *Fisheries Research* **47**, 1–17.

Teo, S.L.H., Garcia Rodriguez, E. and Sosa-Nishizaki, O. (2016) Status of common thresher sharks, *Alopias vulpinus*, along the West Coast of North America. *NOAA Technical Memorandum* NMFS-SWFSC-557. 196 pp.