



Cumulative impacts across fisheries in Australia's marine environment

Final Report – Data Appendices

E.A. Fulton, Piers Dunstan, Rowan Treblico

May 2023

FRDC Project No **2018-020**

Cumulative impacts across fisheries in Australia's marine environment

2018-020

2023

Ownership of Intellectual property rights

Unless otherwise noted, copyright (and any other intellectual property rights, if any) in this publication is owned by the Fisheries Research and Development Corporation and CSIRO.

This publication (and any information sourced from it) should be attributed to **Fulton, E.A., Dunstan, P., Treblico, R. (2023), Cumulative impacts across fisheries in Australia's marine environment: Final Report, CSIRO: Hobart, November. CC BY 3.0**

Creative Commons licence

All material in this publication is licensed under a Creative Commons Attribution 3.0 Australia Licence, save for content supplied by third parties, logos and the Commonwealth Coat of Arms.



Creative Commons Attribution 3.0 Australia Licence is a standard form licence agreement that allows you to copy, distribute, transmit and adapt this publication provided you attribute the work. A summary of the licence terms is available from <https://creativecommons.org/licenses/by/3.0/au/>. The full licence terms are available from <https://creativecommons.org/licenses/by-sa/3.0/au/legalcode>.

Inquiries regarding the licence and any use of this document should be sent to: frdc@frdc.com.au

Disclaimer

CSIRO advises that the information contained in this publication comprises general statements based on scientific research. The CSIRO (including its employees and consultants) do not warrant that the information in this document is free from errors or omissions. The authors do not accept any form of liability, be it contractual, tortious, or otherwise, for the contents of this document or for any consequences arising from its use or any reliance placed upon it. The information, opinions and advice contained in this document may not relate, or be relevant, to a readers particular circumstances. No reliance or actions must therefore be made on that information without seeking prior expert professional, scientific and technical advice. Opinions expressed by the authors are the individual opinions expressed by those persons and are not necessarily those of the publisher, research provider or the FRDC.

The Fisheries Research and Development Corporation plans, invests in and manages fisheries research and development throughout Australia. It is a statutory authority within the portfolio of the federal Minister for Agriculture, Fisheries and Forestry, jointly funded by the Australian Government and the fishing industry.

CSIRO is committed to providing web accessible content wherever possible. If you are having difficulties with accessing this document please contact csiro.au/contact.

Researcher Contact Details

Name: Beth Fulton
Address: GPO Box 1538
Hobart TAS 7000
Phone: 03 62325018
Email: beth.fulton@csiro.au

FRDC Contact Details

Address: 25 Geils Court
Deakin ACT 2600
Phone: 02 6285 0400
Fax: 02 6285 0499
Email: frdc@frdc.com.au
Web: www.frdc.com.au

In submitting this report, the researcher has agreed to FRDC publishing this material in its edited form

Contents

Contents.....	2
Appendix 5: Maps of Stage 1 Results – Maximum Potential Effect (No Zoning).....	3
Commonwealth Fisheries Only	3
All Fisheries.....	69
Appendix 6: Maps of Stage 1 Results – Residual Cumulative Effects (with Zoning).....	143
Appendix 7: Maps of Stage II Results	211
Appendix 8: Impact Response Functions Derived from EwE.....	223

Tables

Table S 1: Summary of peak and mean Stage I “Sum of Pressures Analysis” Cumulative Scores (C Score), with no zoning effects and only Commonwealth fisheries included. ERA PSA and cumulative eSAFE scores are also given for comparative purposes. Those in grey have peak C Scores stronger then -5. For reference peak C Scores for all fisheries are shown in brackets where these values differ to the score when only Commonwealth fisheries are included.	137
--	-----

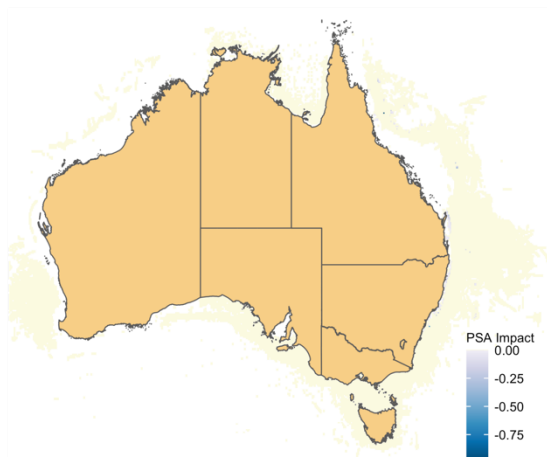
Appendix 5: Maps of Stage 1 Results – Maximum Potential Effect (No Zoning)

The following maps provide the Stage I “Sum of Pressures Analysis” CEA maps for the 405 species assessed Australia wide using the spatialised PSA approach with no zoning effects that have at least one non-zero spatial cell (i.e. something to map). The species are ordered alphabetically by Latin name (common names can be found via a name search at <https://fishesofaustralia.net.au/> or <https://www.ala.org.au/>). Larger negative values indicate greater cumulative effects.

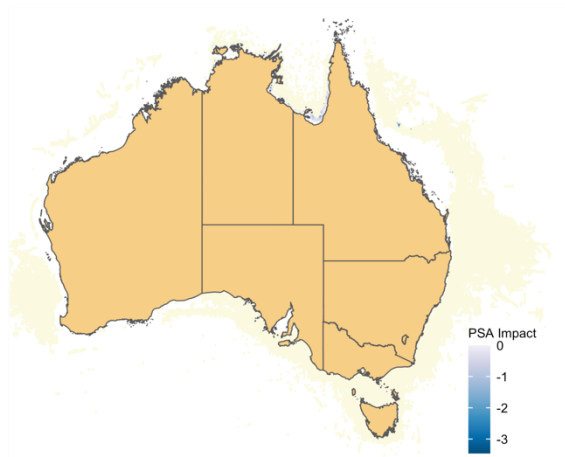
Commonwealth Fisheries Only

Cells where no effort/catch existed historically, but where species is distributed are shown in yellow for information purposes only.

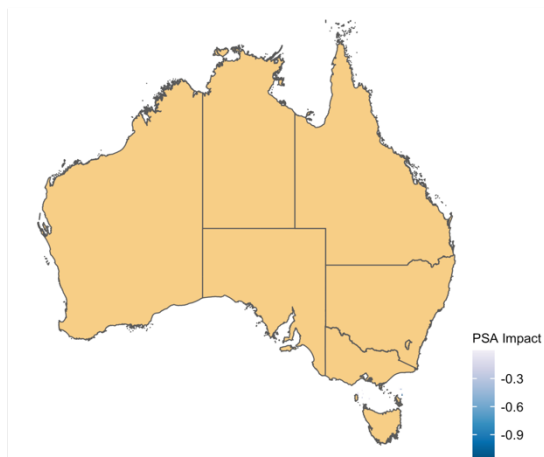
Abalistes stellaris



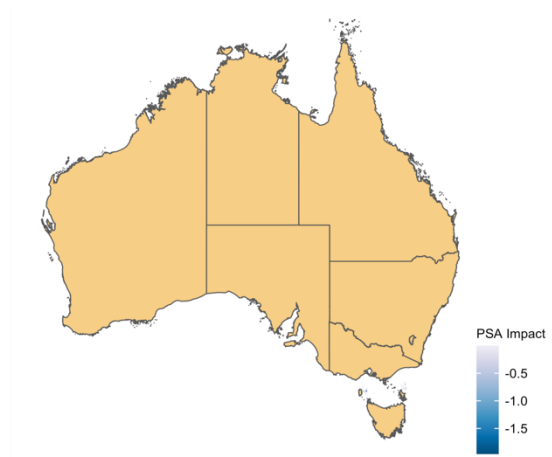
Acalyptophis peronii



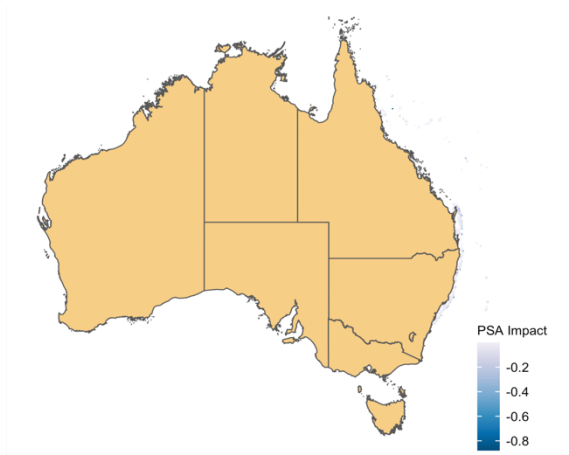
Acanthaluteres spilomelanurus



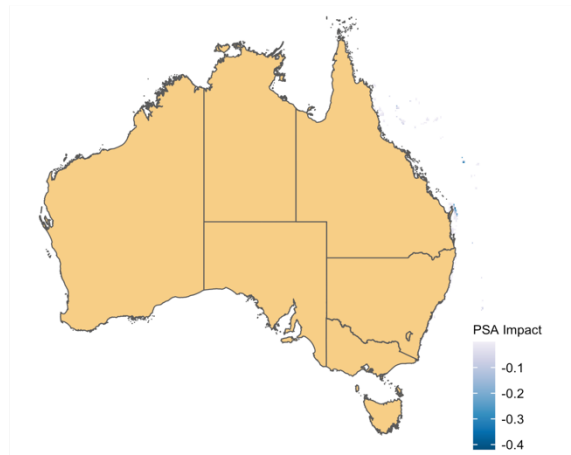
Acanthaluteres vittiger



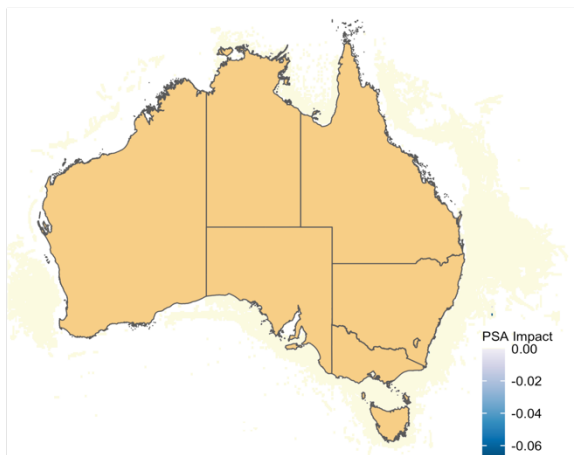
Acanthocybium solandri



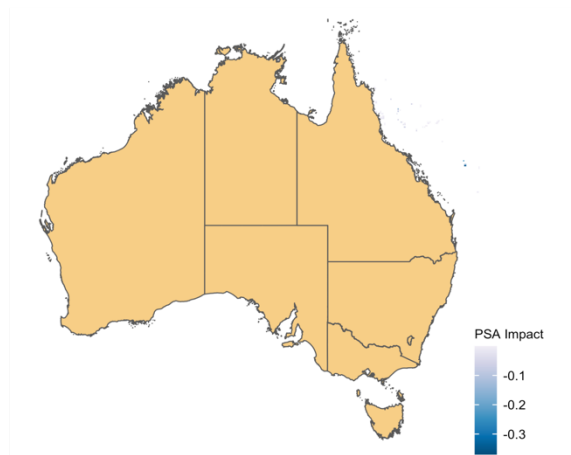
Acanthopagrus australis



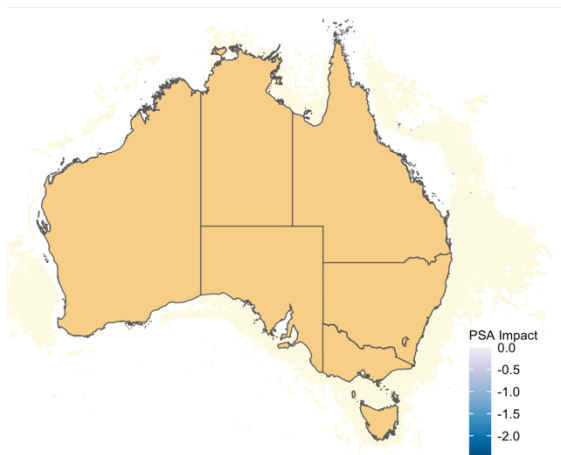
Acanthopagrus butcheri



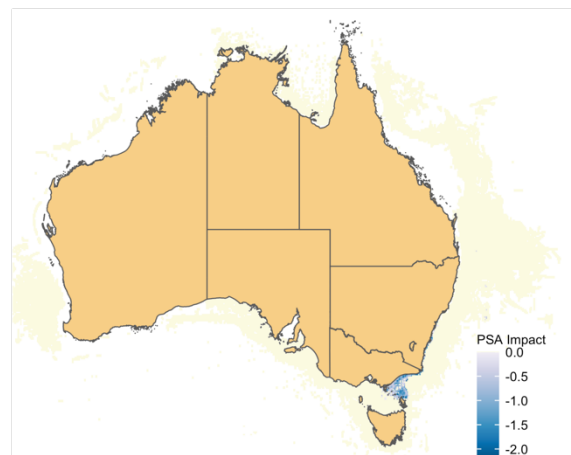
Acanthopagrus pacificus



Acentronura breviperula



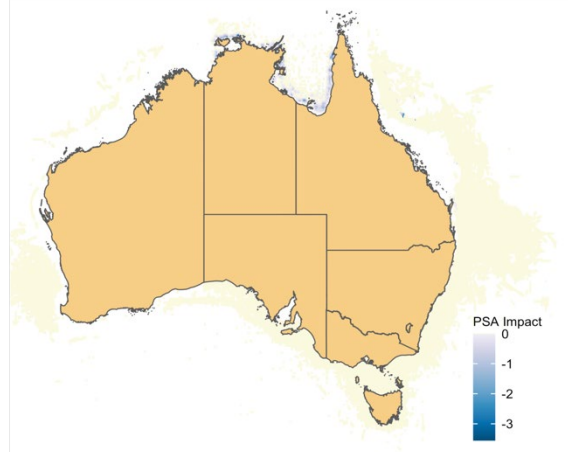
Achoerodus viridis



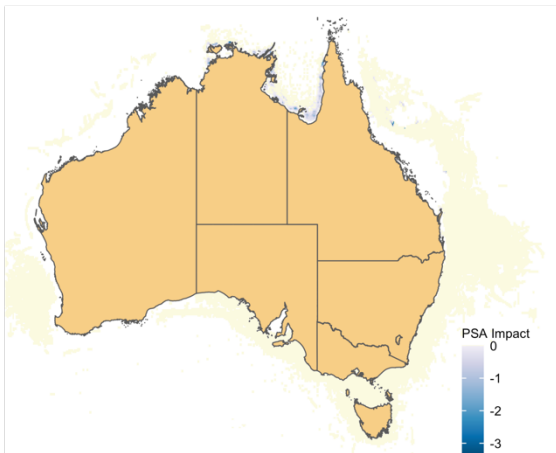
Aetapcus maculatus



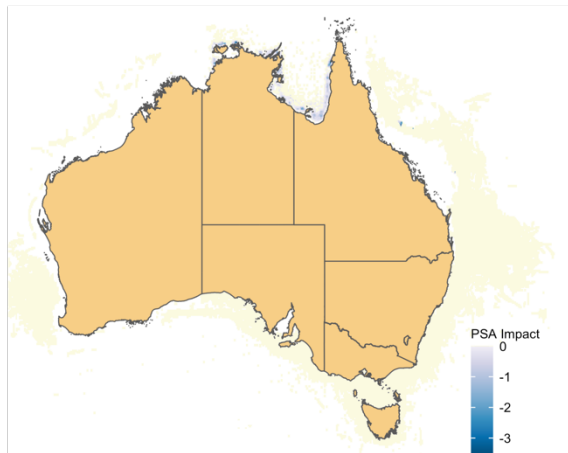
Aipysurus duboisii



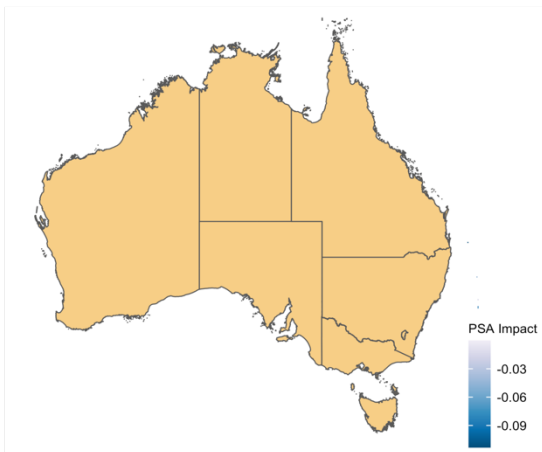
Aipysurus laevis



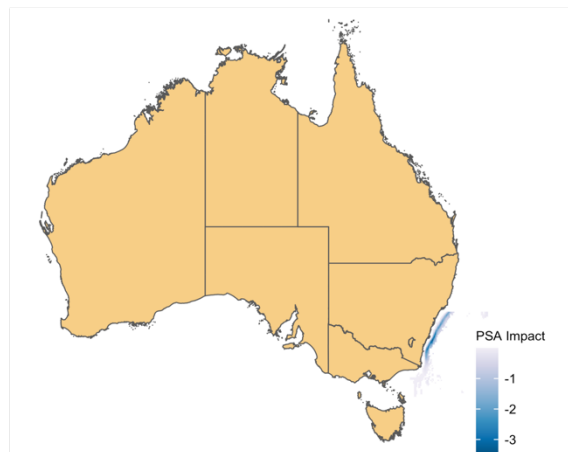
Aipysurus mosaicus



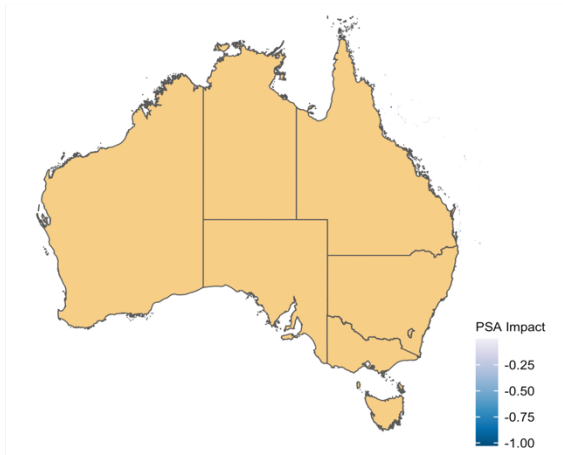
Alabes parvulus



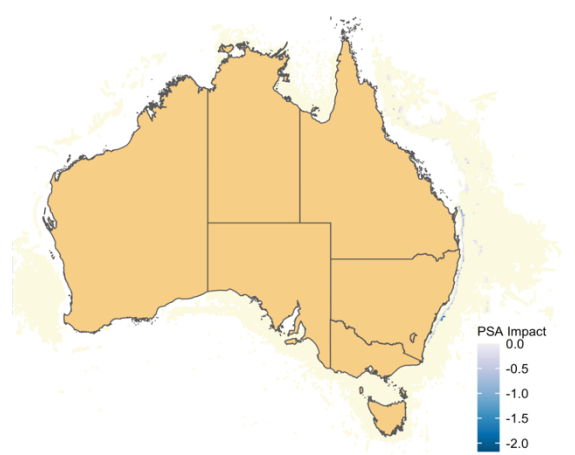
Alepisaurus ferox



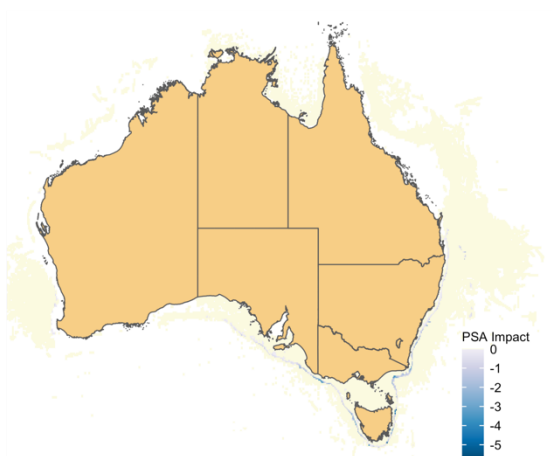
Alopias pelagicus



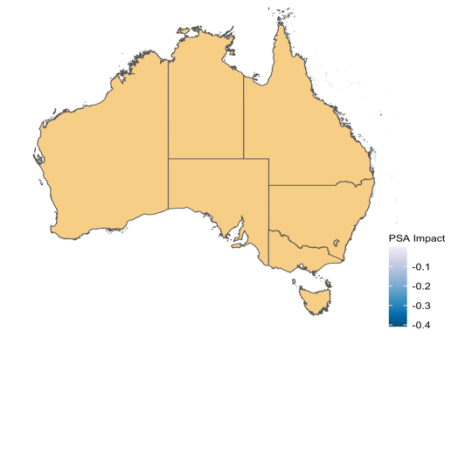
Alopias superciliosus



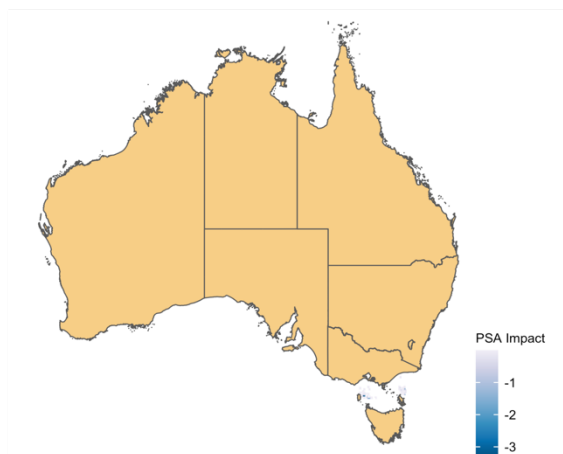
Alopias vulpinus



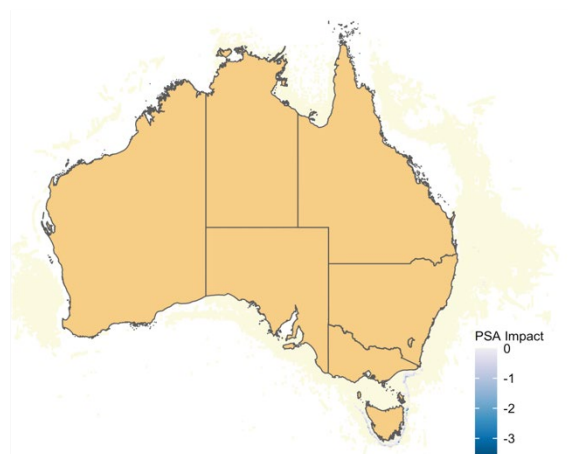
Aluterus scriptus



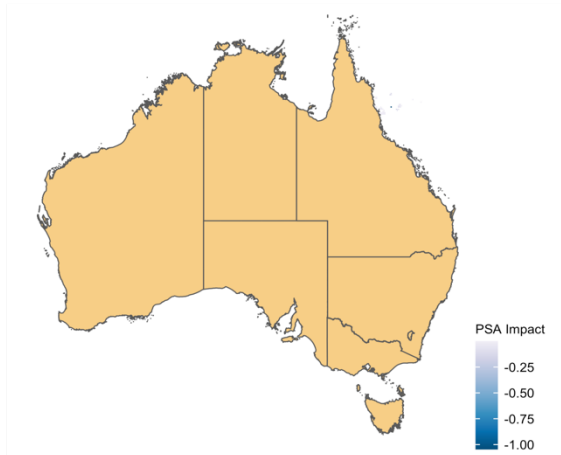
Ammotretis lituratus



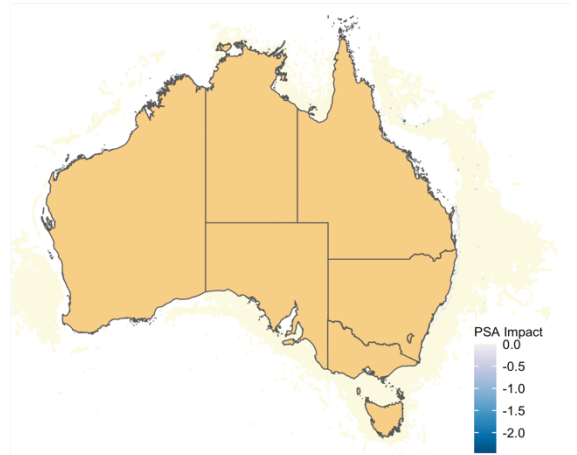
Anguilla reinhardtii



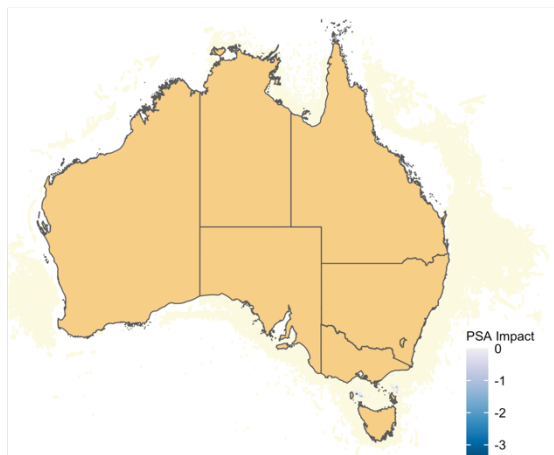
Aphareus rutilans



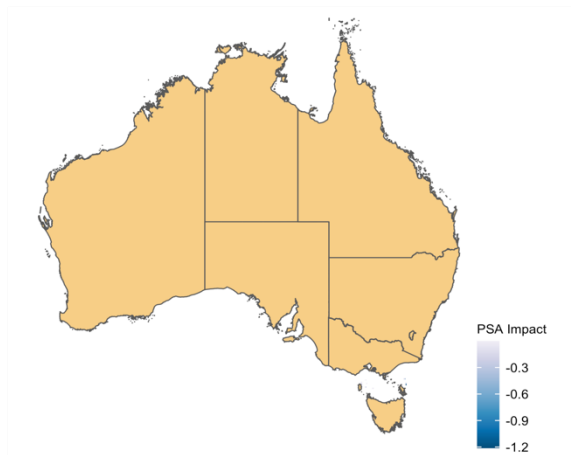
Aprion virescens



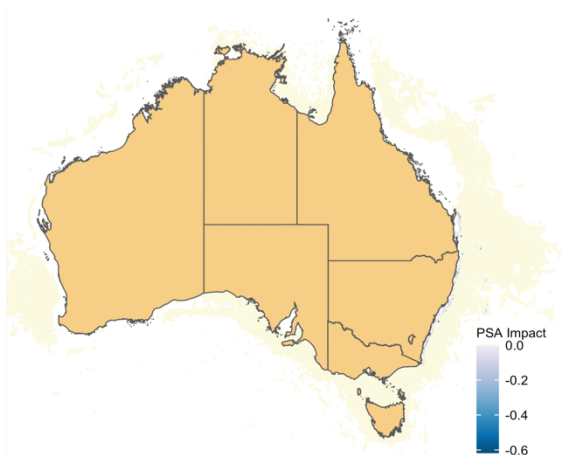
Aracana aurita



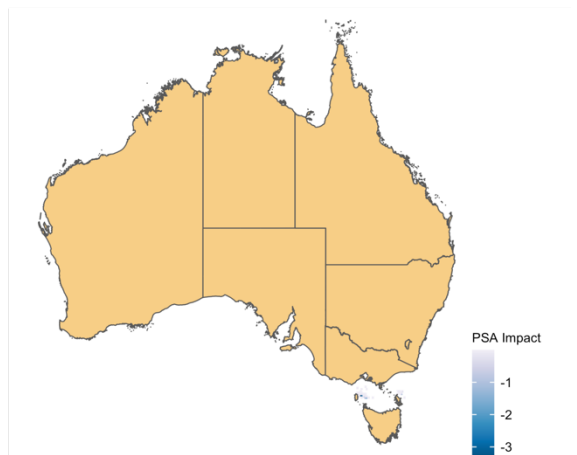
Aracana ornata



Argyrosomus japonicus



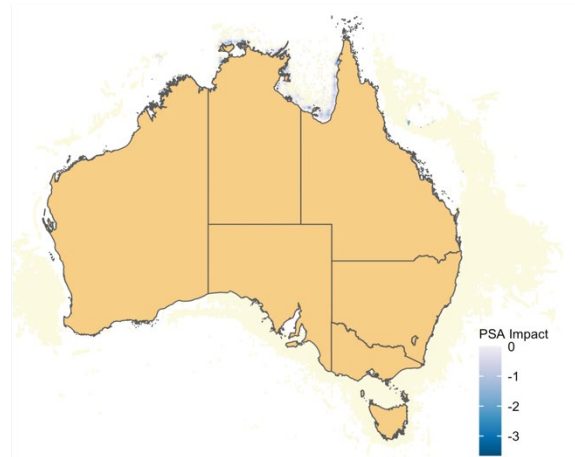
Arnoglossus muelleri



Arothron caeruleopunctatus



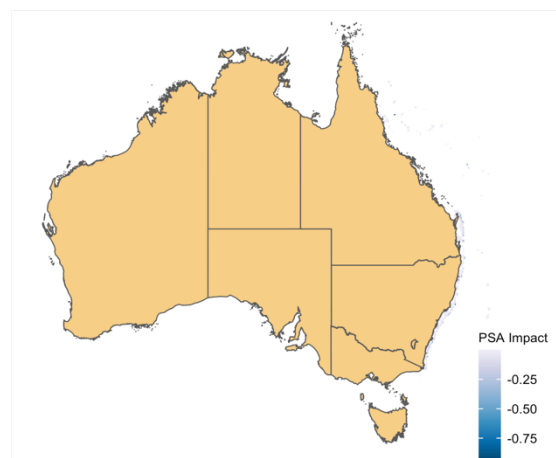
Astrotia stokesii



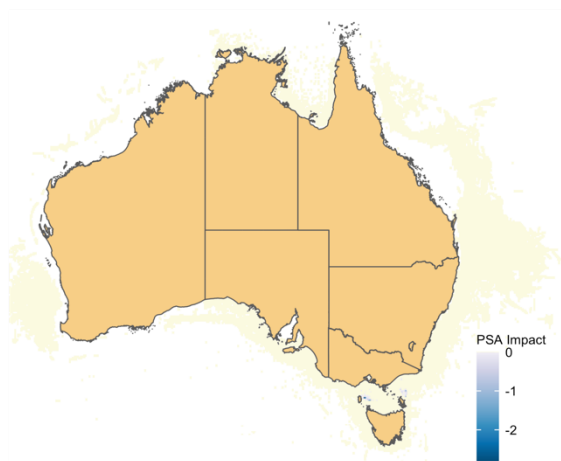
Aulohalaelurus labiosus



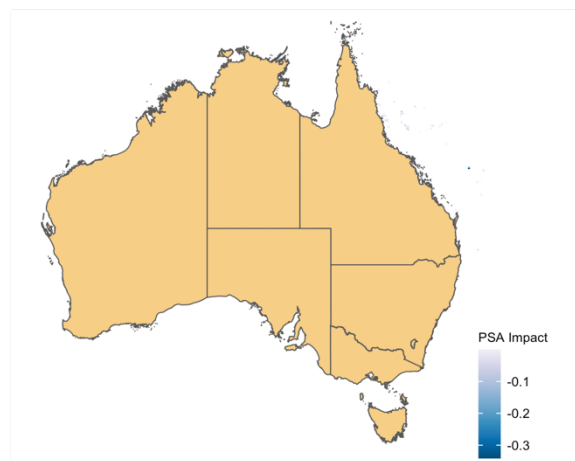
Auxis thazard



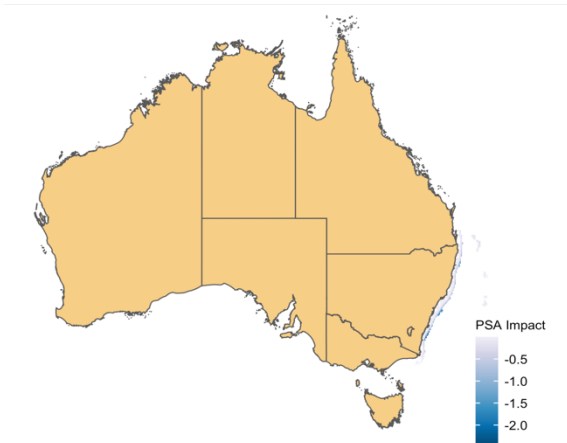
Bathytoshia brevicaudata



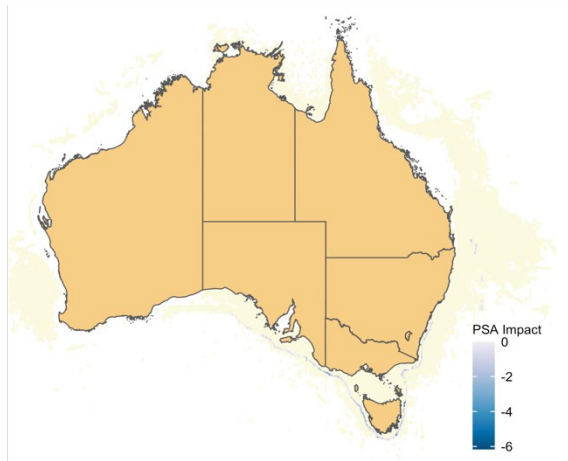
Belonepterygion fasciolatum



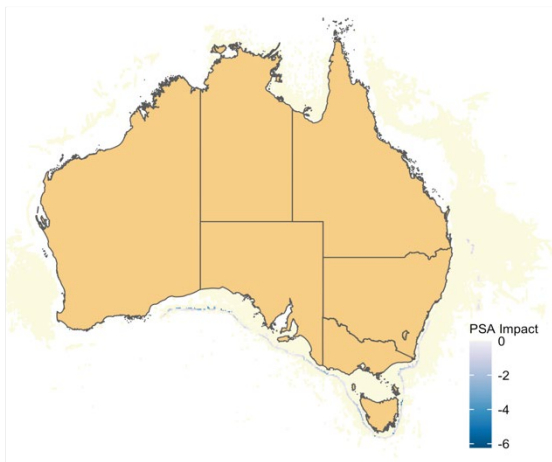
Benthodesmus elongatus



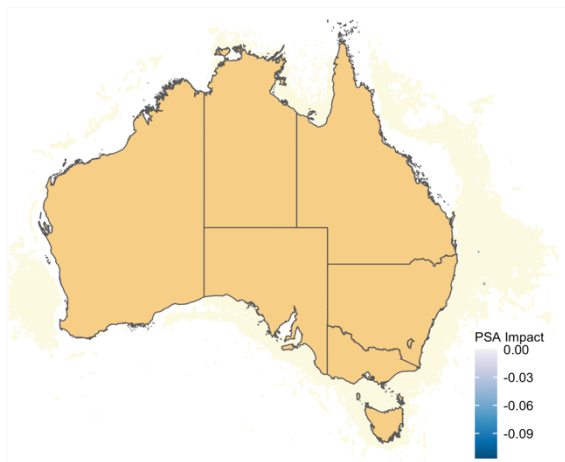
Beryx decadactylus



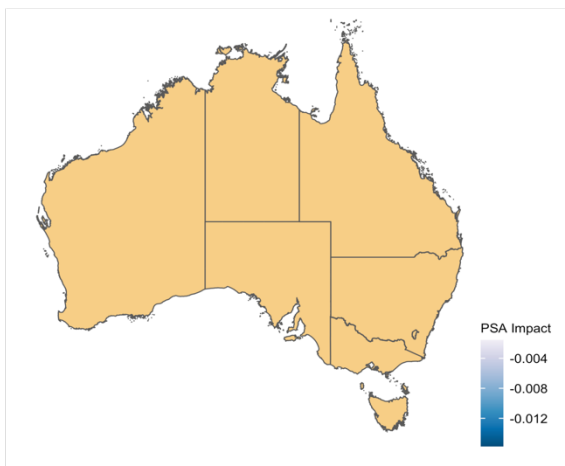
Beryx splendens



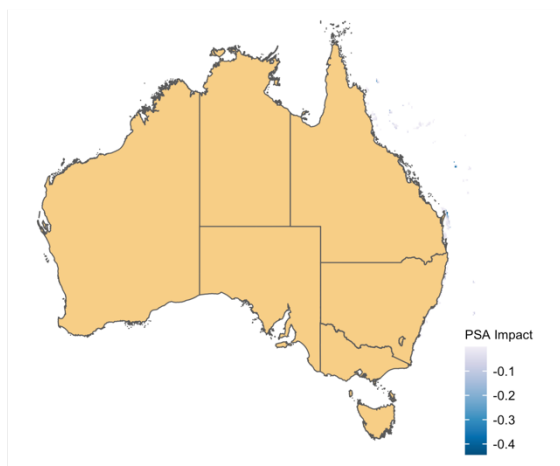
Brachaelurus waddi



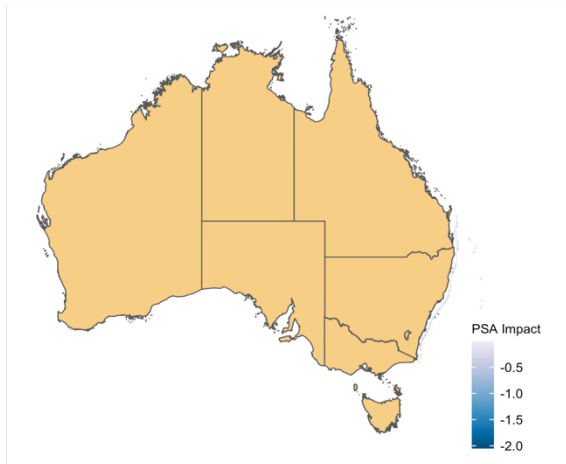
Brachynectes fasciatus



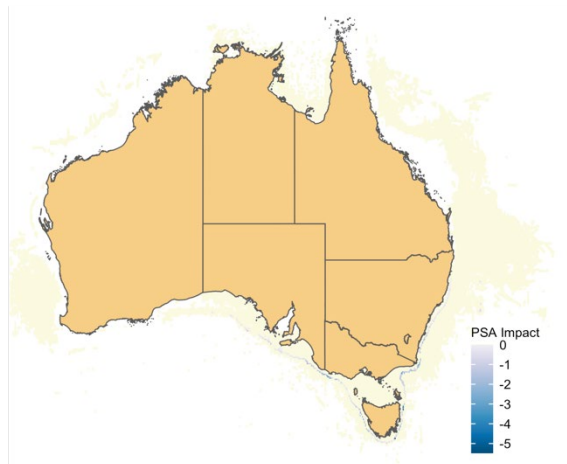
Brachypterois serrulifer



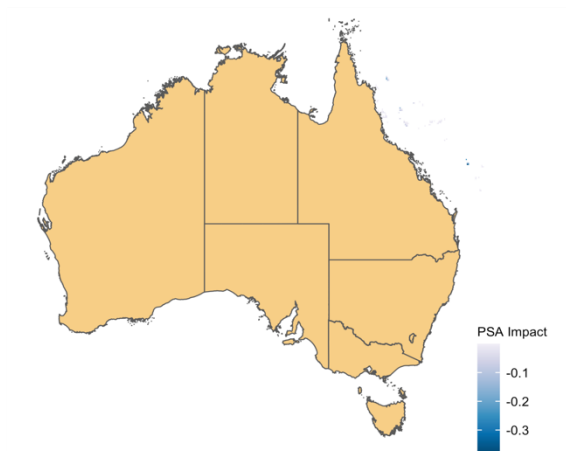
Brama australis



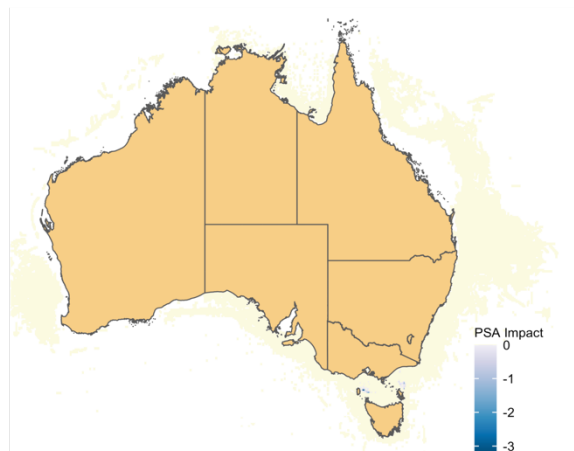
Brama brama



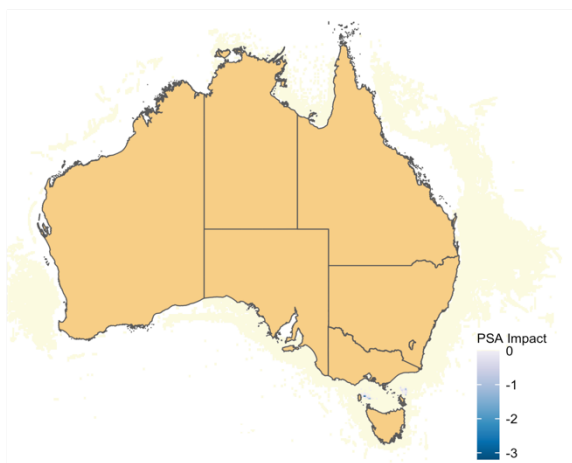
Bryaninops amplus



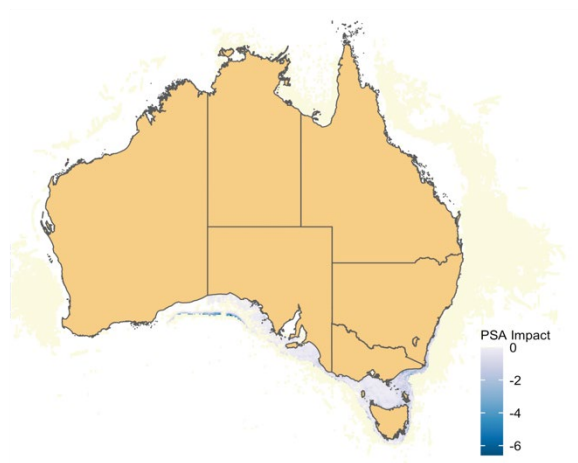
Caesioperca lepidoptera



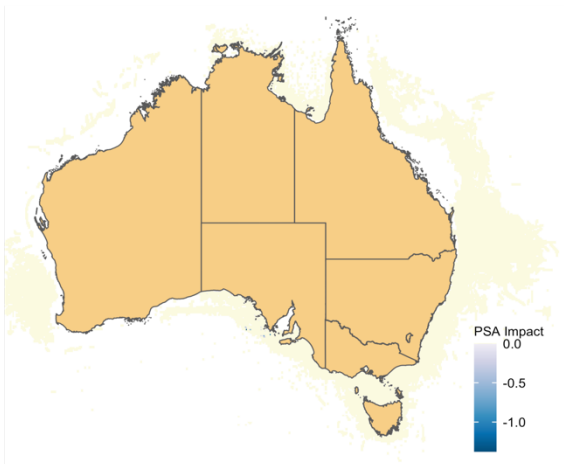
Caesioperca rasor



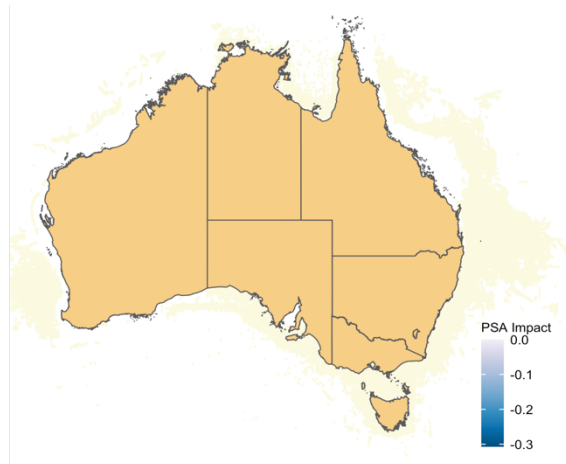
Callorhinchus milii



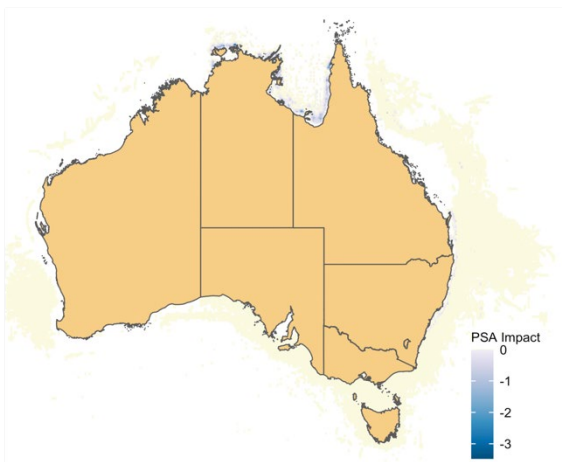
Campichthys galei



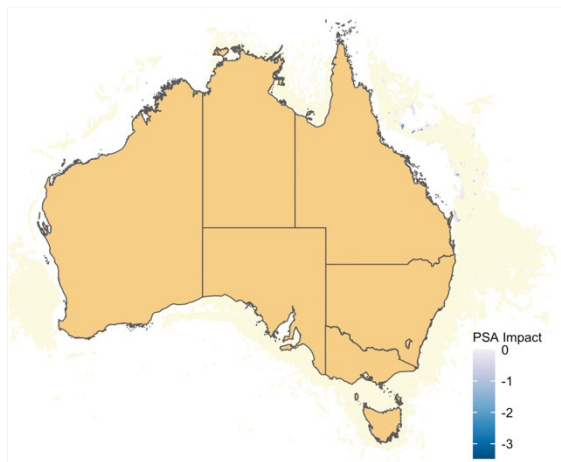
Campichthys tryoni



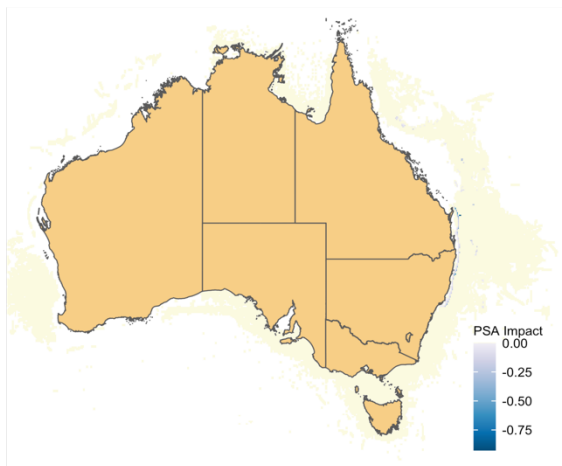
Caranx sexfasciatus



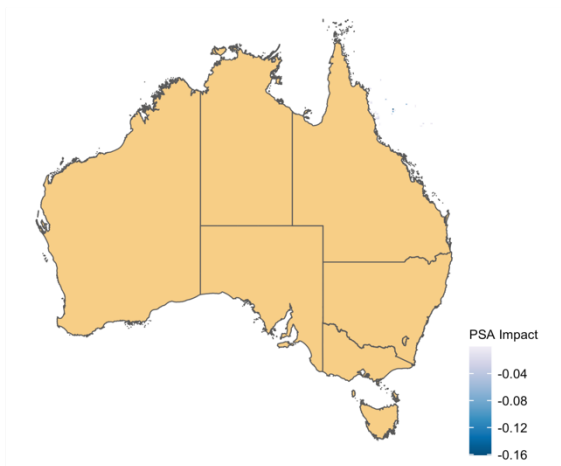
Carcharhinus albimarginatus



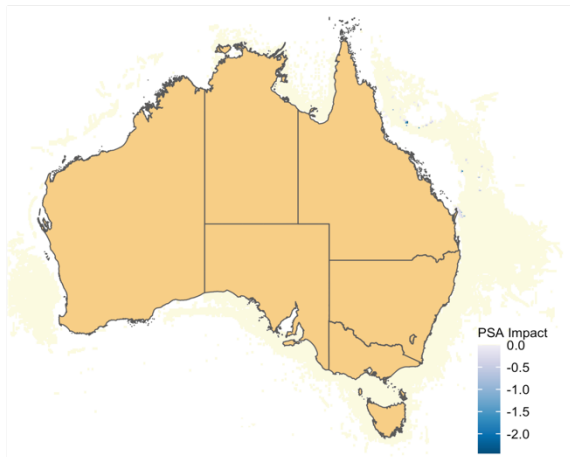
Carcharhinus altimus



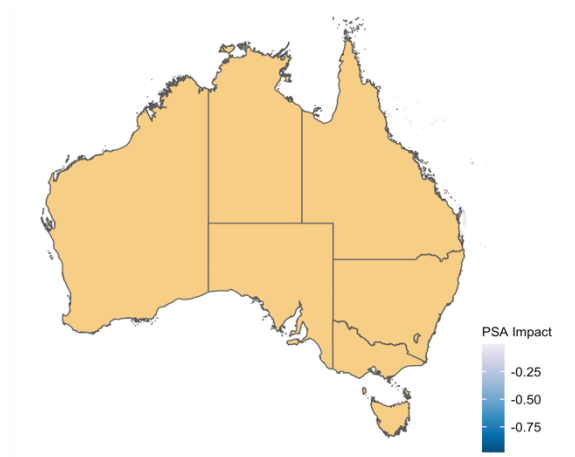
Carcharhinus amblyrhynchoides



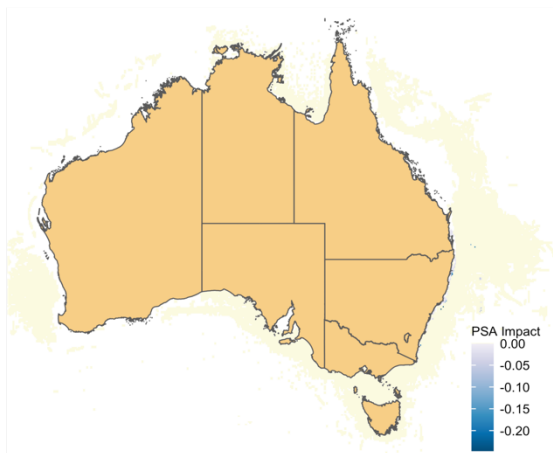
Carcharhinus amblyrhynchos



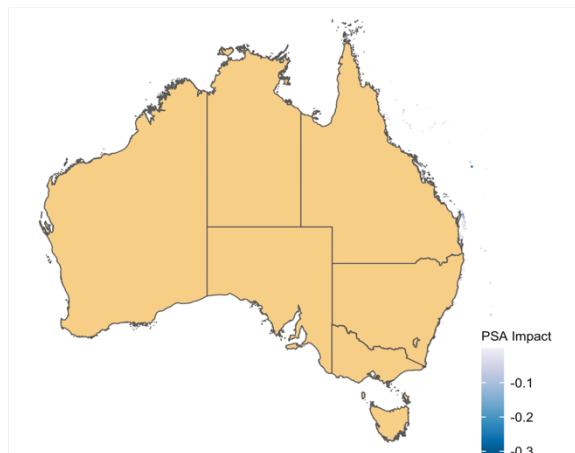
Carcharhinus amboinensis



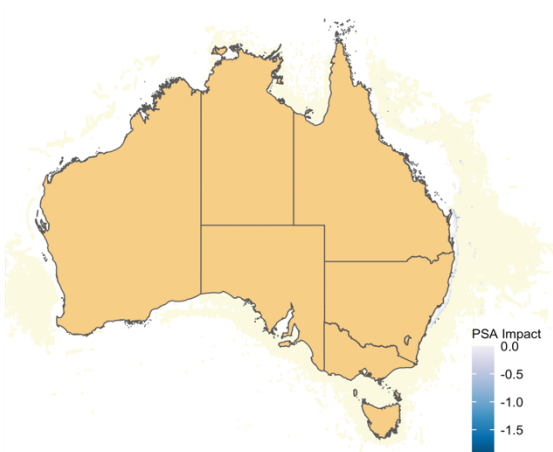
Carcharhinus brachyurus



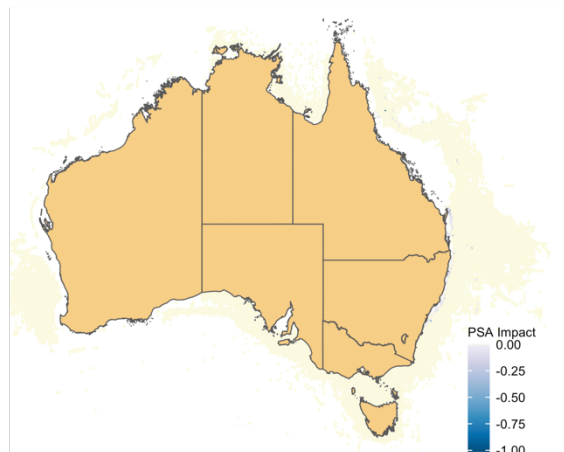
Carcharhinus brevipinna



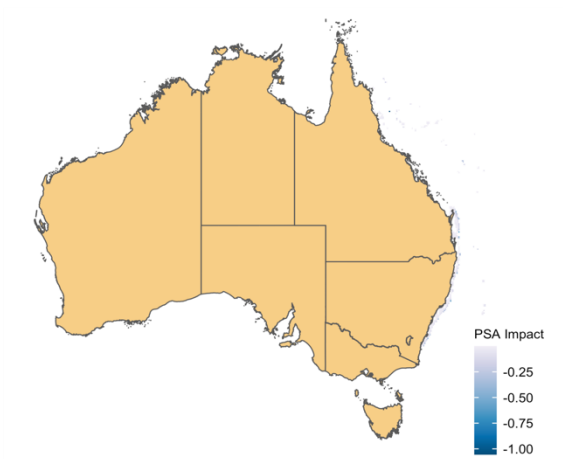
Carcharhinus falciformis



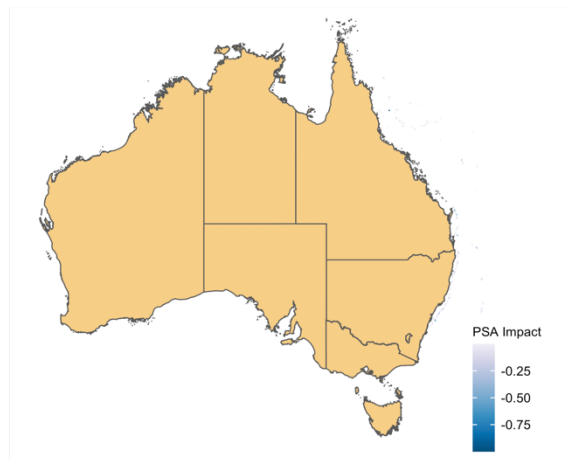
Carcharhinus leucas



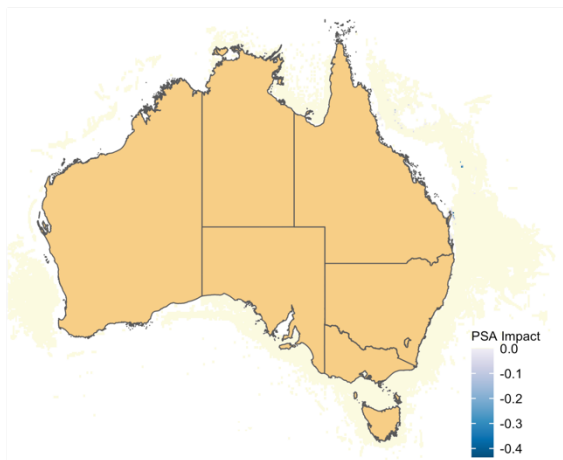
Carcharhinus limbatus



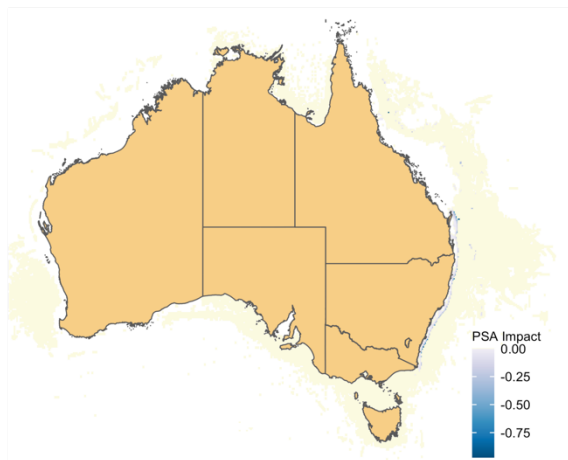
Carcharhinus longimanus



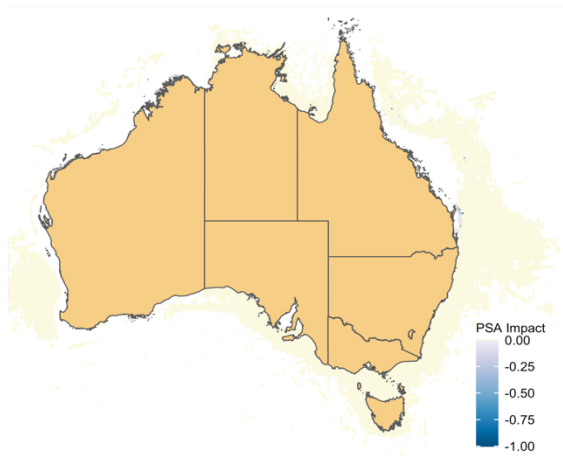
Carcharhinus melanopterus



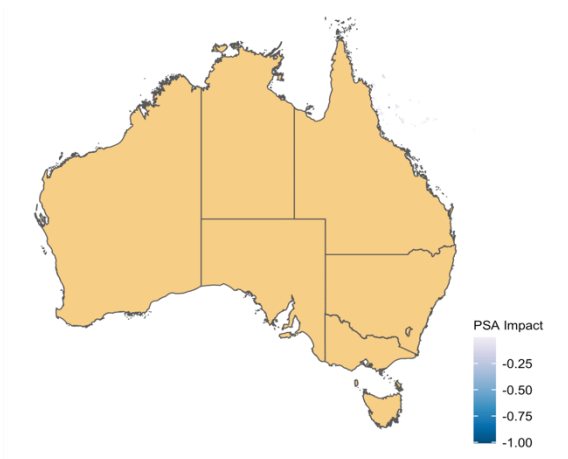
Carcharhinus obscurus



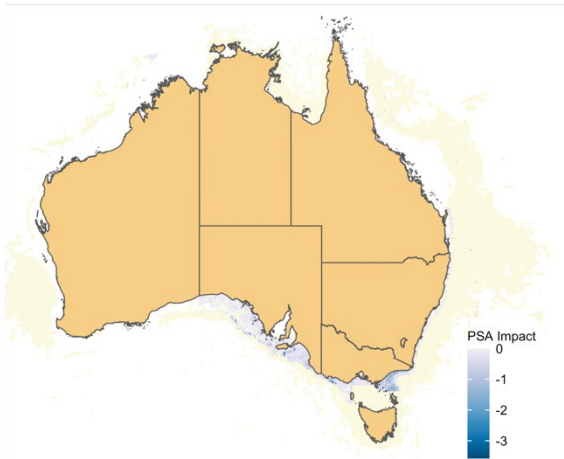
Carcharhinus plumbeus



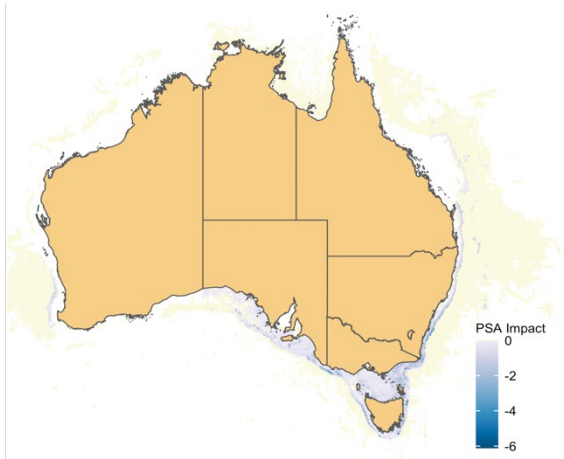
Carcharhinus tilstoni



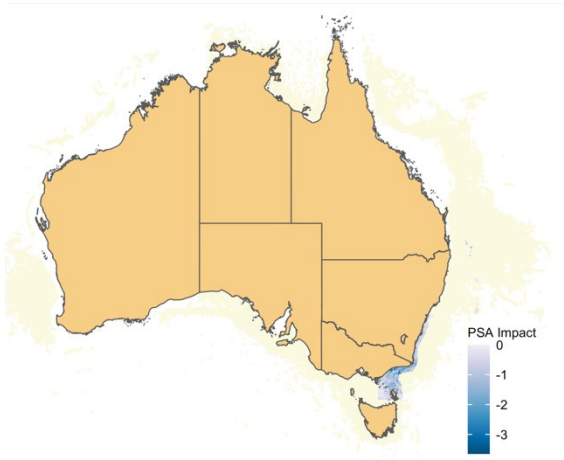
Carcharias taurus



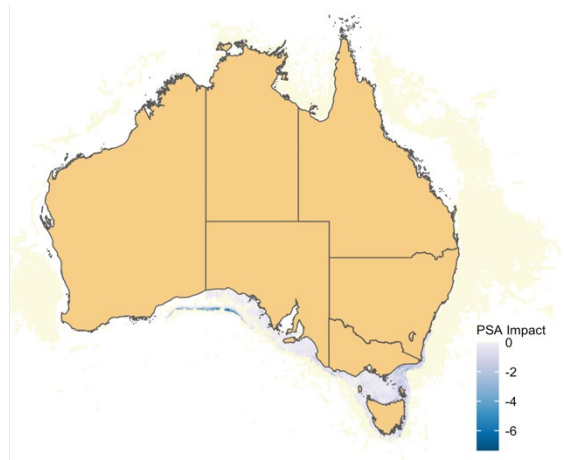
Carcharodon carcharias



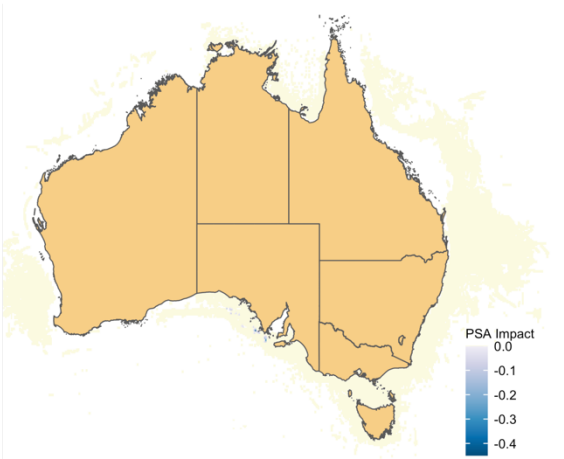
Centroberyx affinis



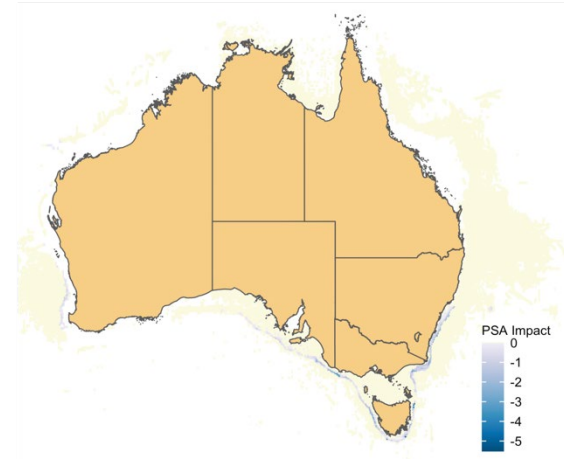
Centroberyx gerrardi



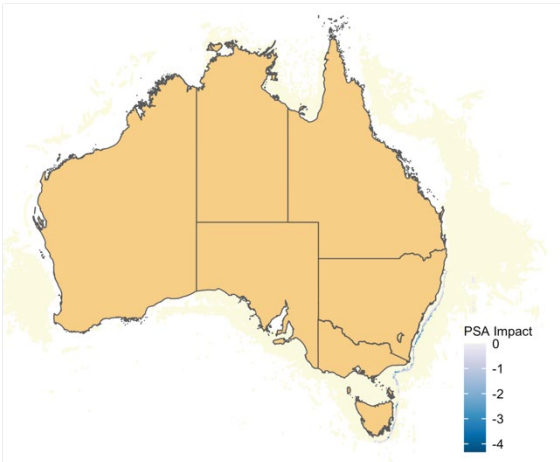
Centroberyx lineatus



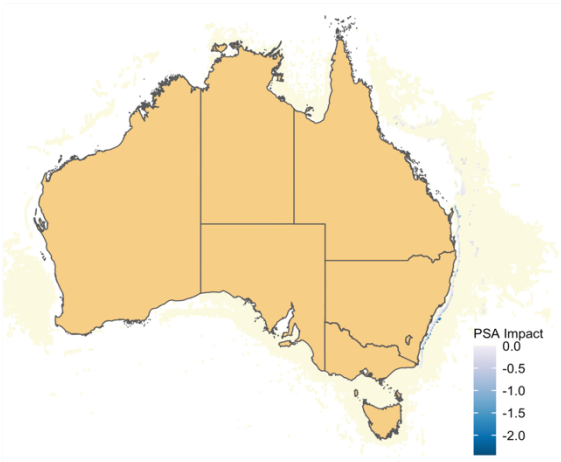
Centrolophus niger



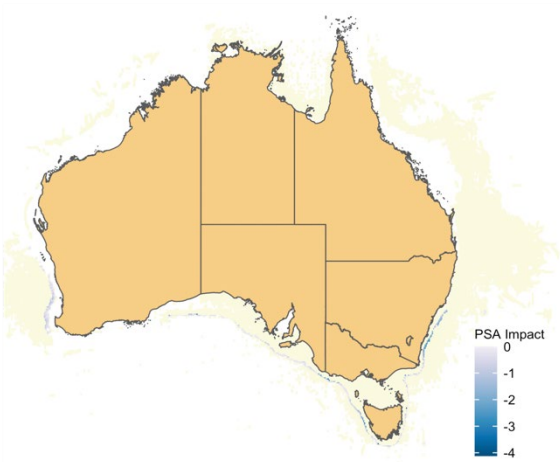
Centrophorus harrissoni



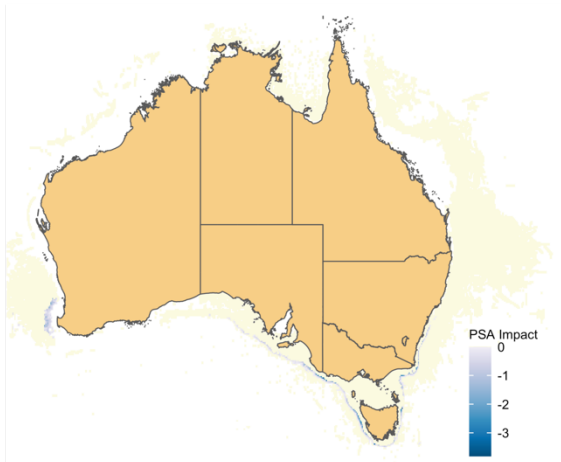
Centrophorus moluccensis



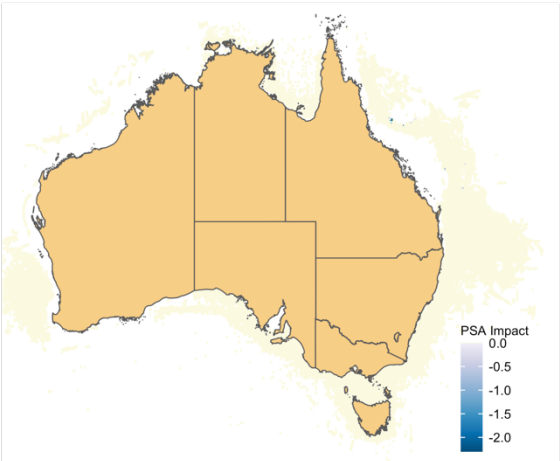
Centroscymnus owstonii



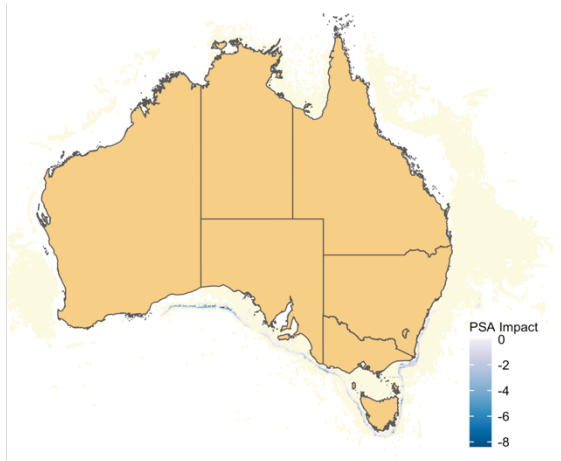
Centroselachus crepidater



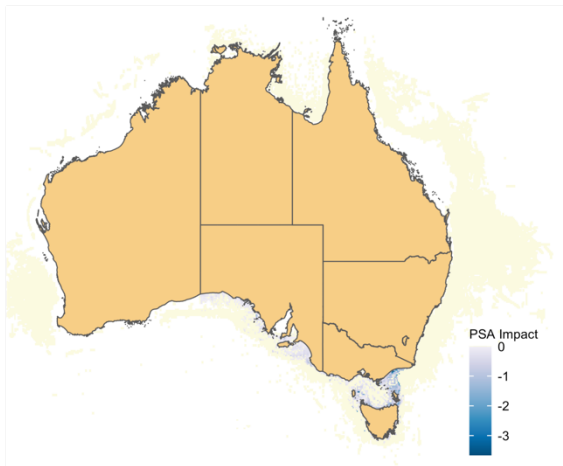
Cephalopholis cyanostigma



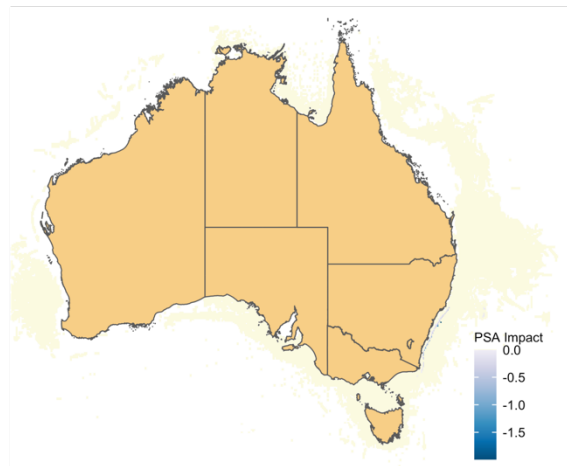
Cephaloscyllium albipinnum



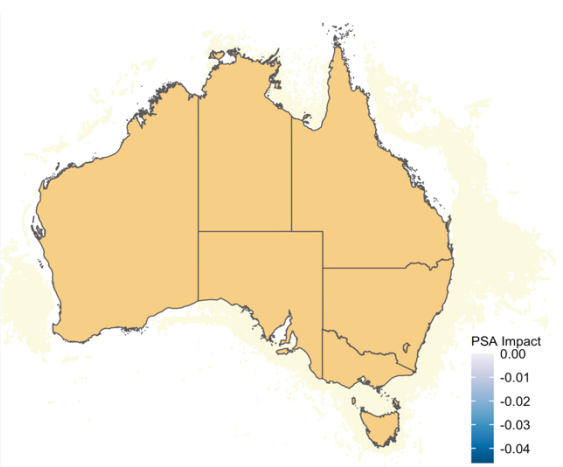
Cephaloscyllium laticeps



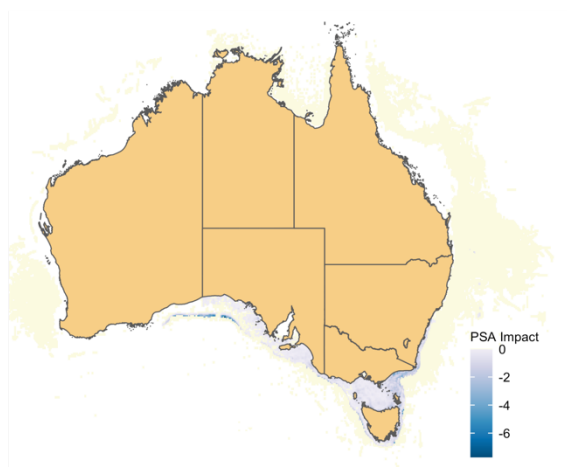
Cetorhinus maximus



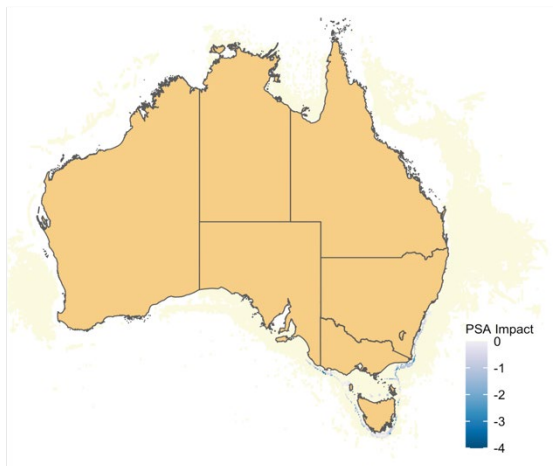
Cheilinus trilobatus



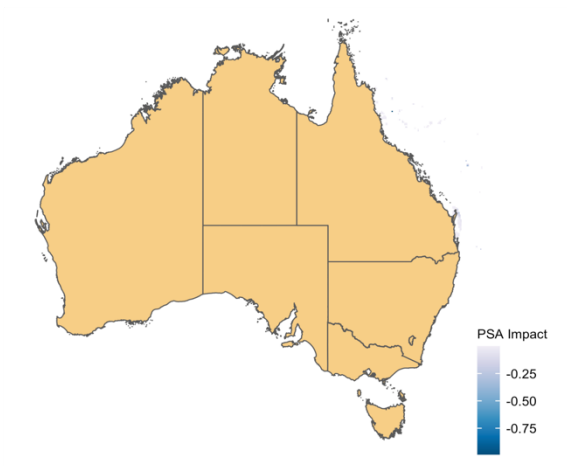
Chelidonichthys kumu



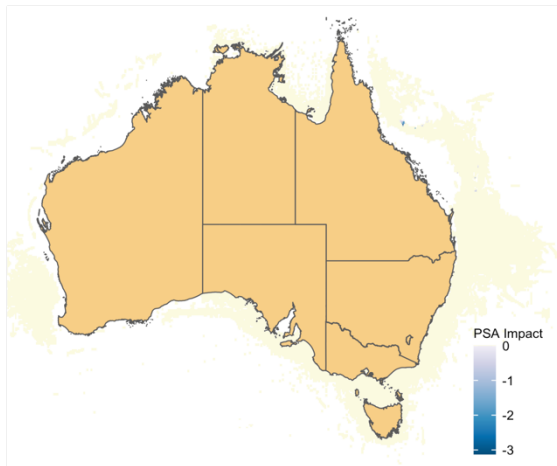
Chimaera ogilbyi



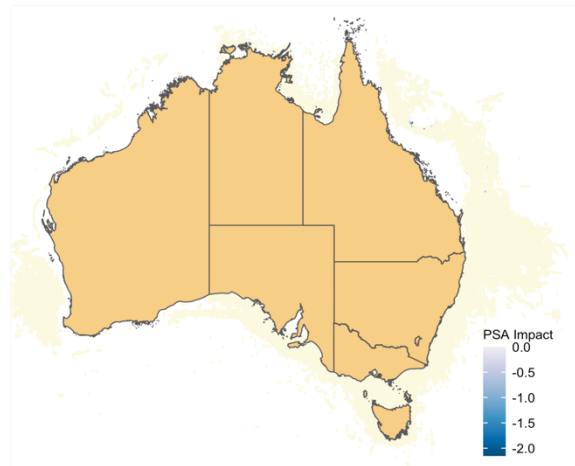
Chirocentrus dorab



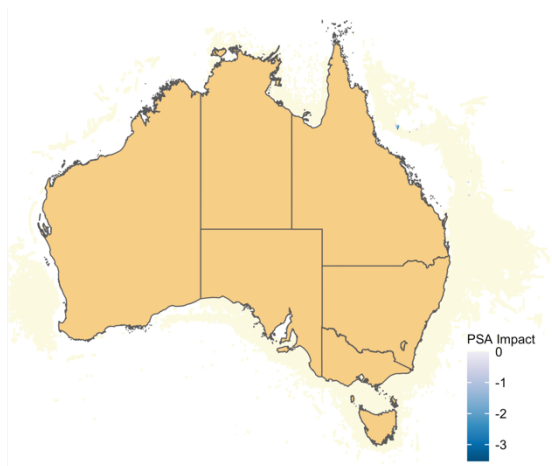
Choeroichthys brachysoma



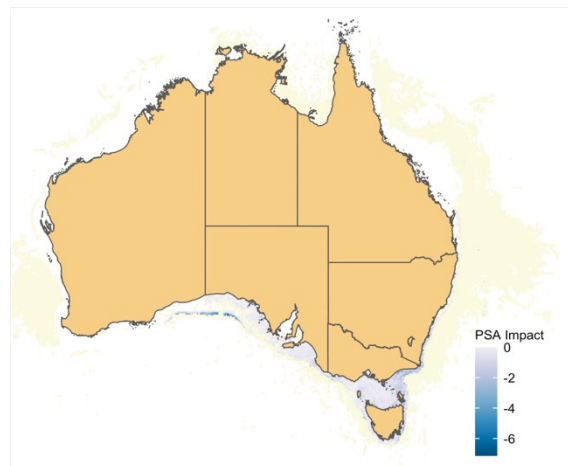
Choeroichthys sculptus



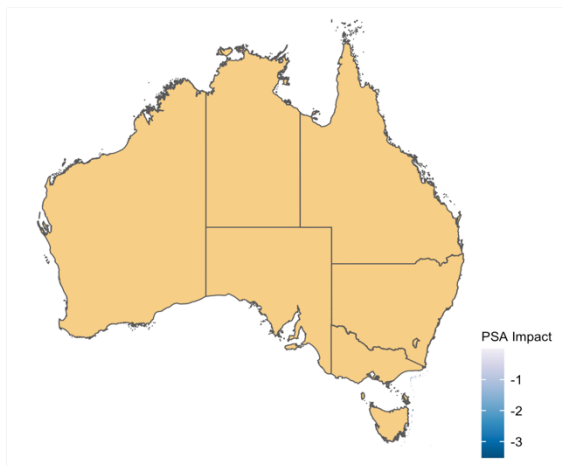
Choeroichthys suillus



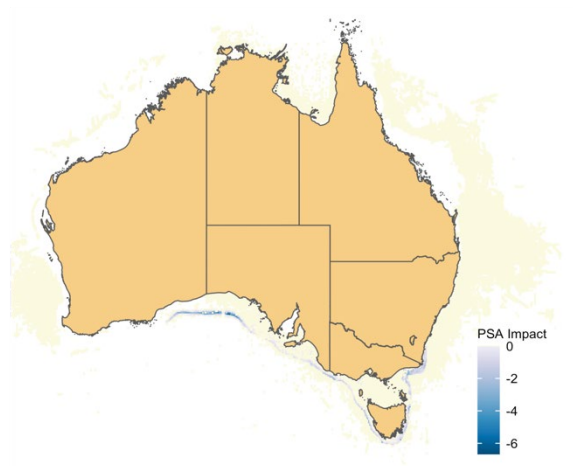
Chrysophrys auratus



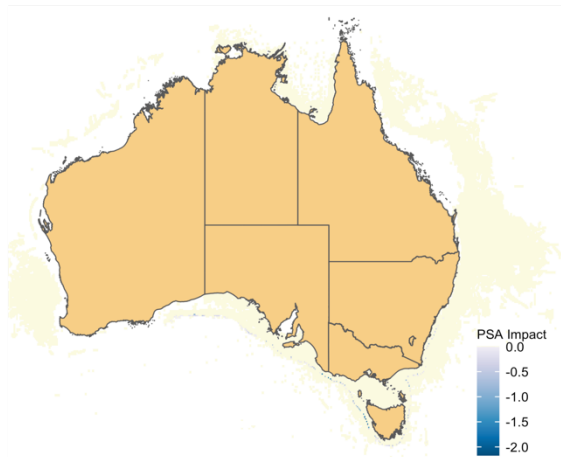
Cirrhitigaleus barbifer



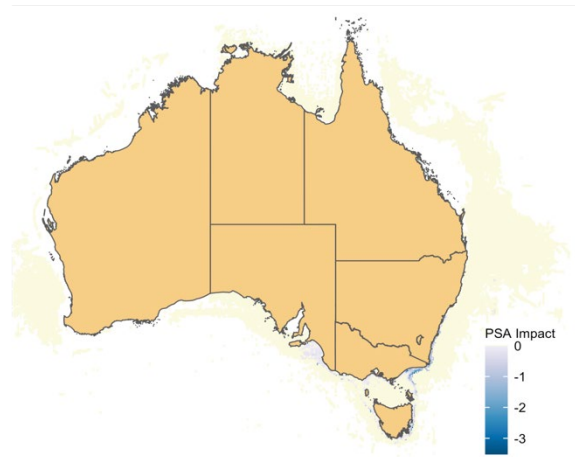
Coelorinchus australis



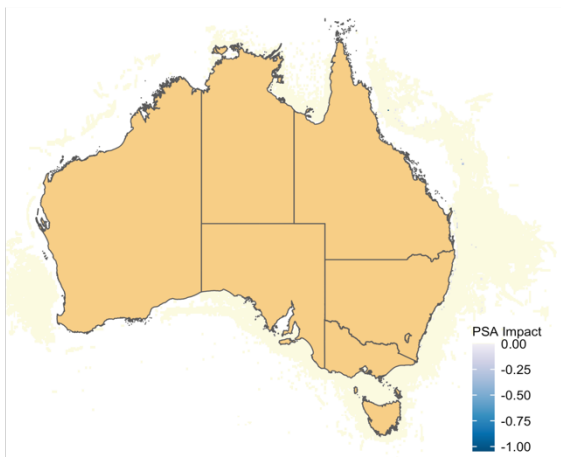
Coelorinchus fasciatus



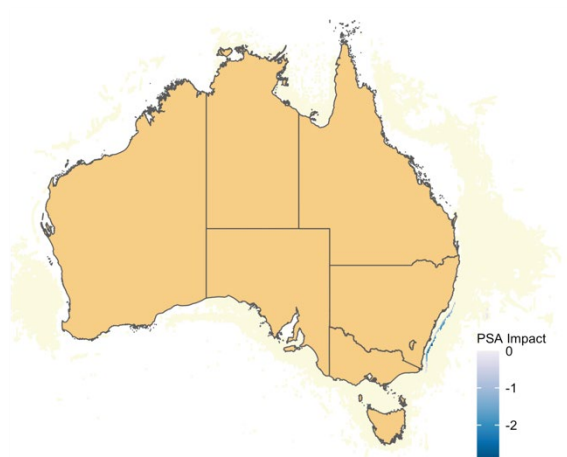
Conger verreauxi



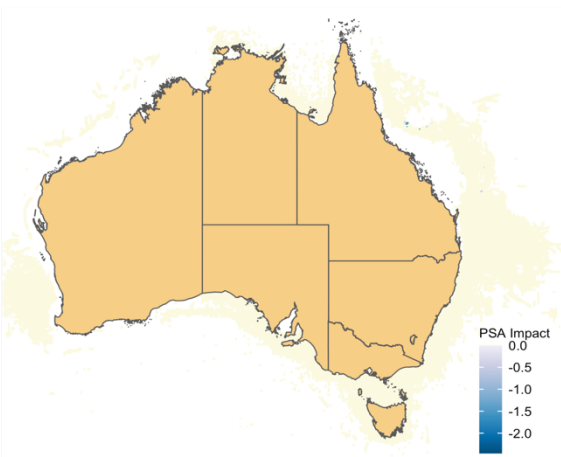
Coryphaena hippurus



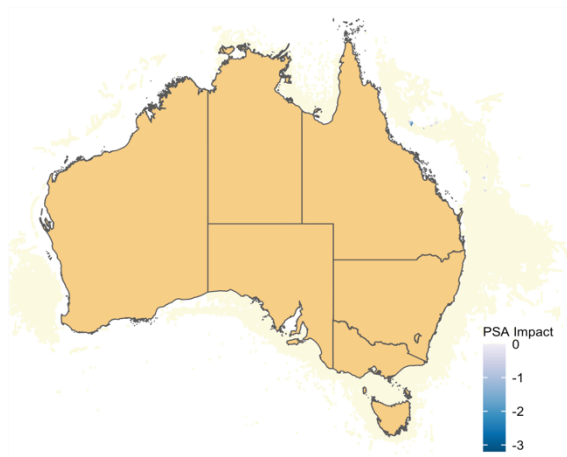
Coryphaenoides suberrulatus



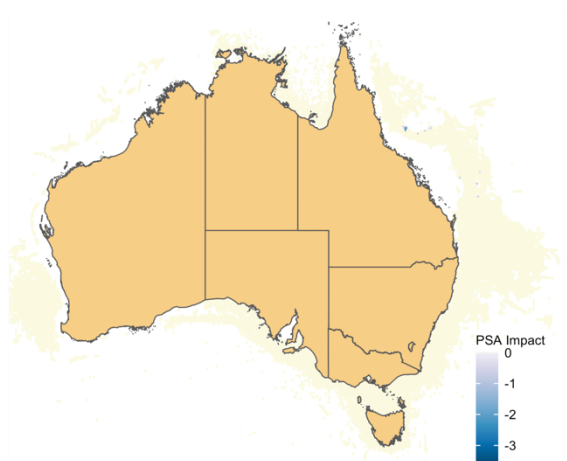
Corythoichthys amplexus



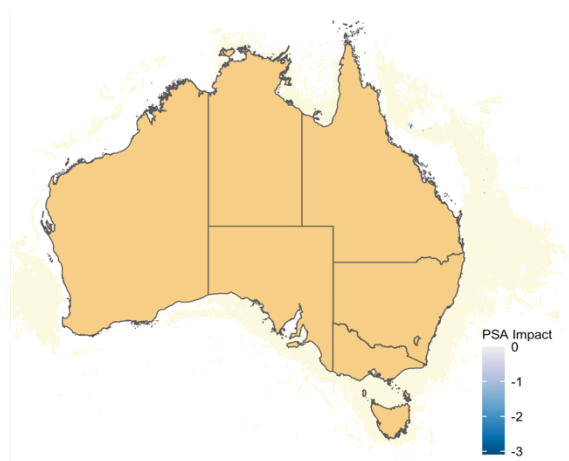
Corythoichthys conspicillatus



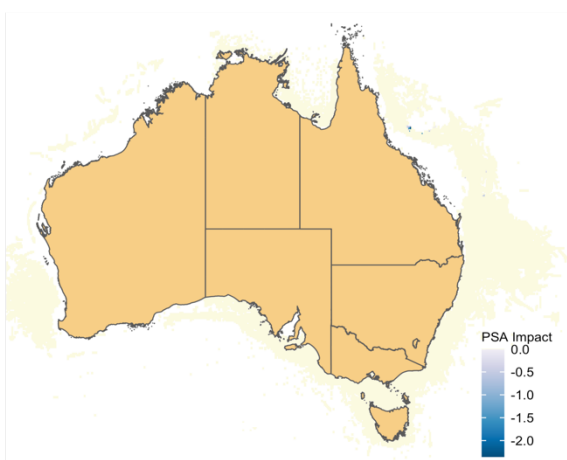
Corythoichthys intestinalis



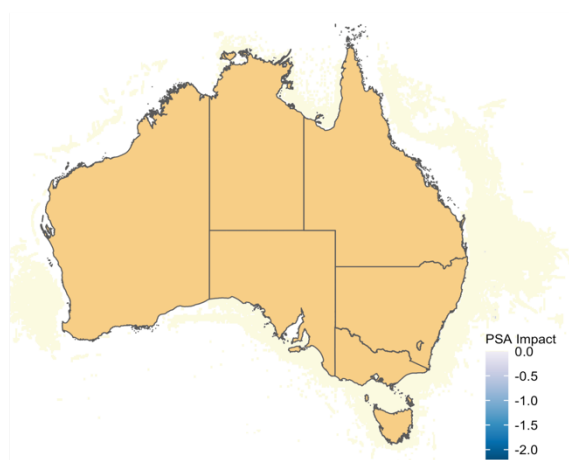
Corythoichthys ocellatus



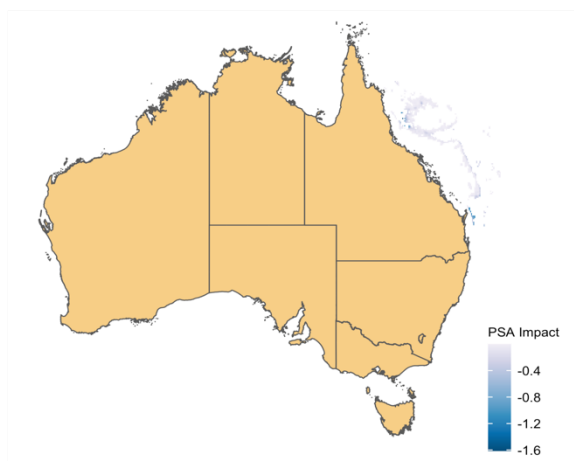
Corythoichthys schultzi



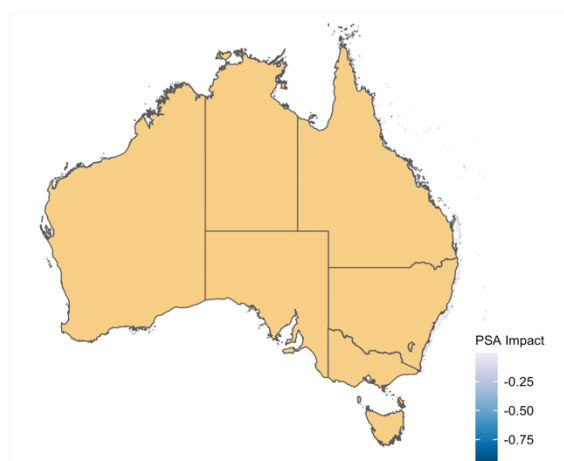
Cosmocampus howensis



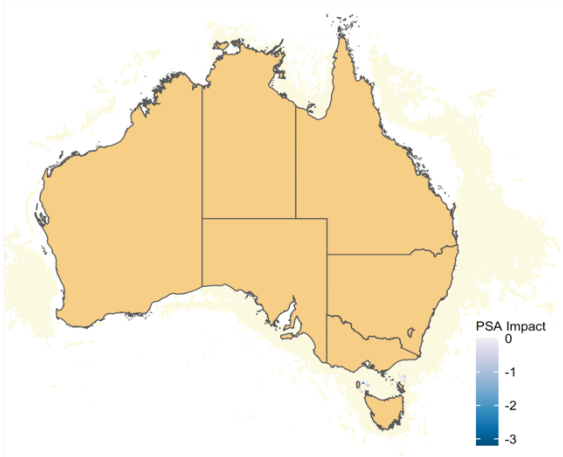
Cubiceps capensis



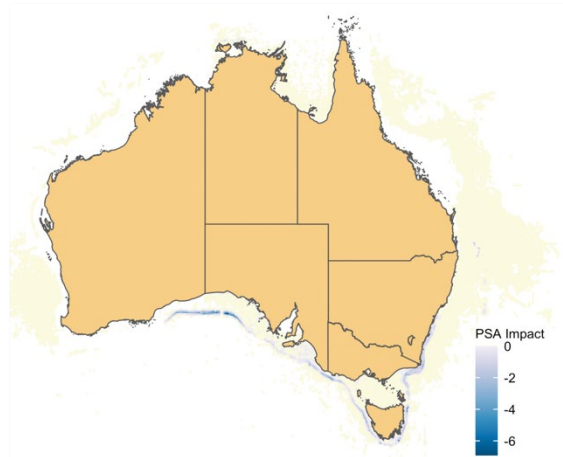
Cybiosarda elegans



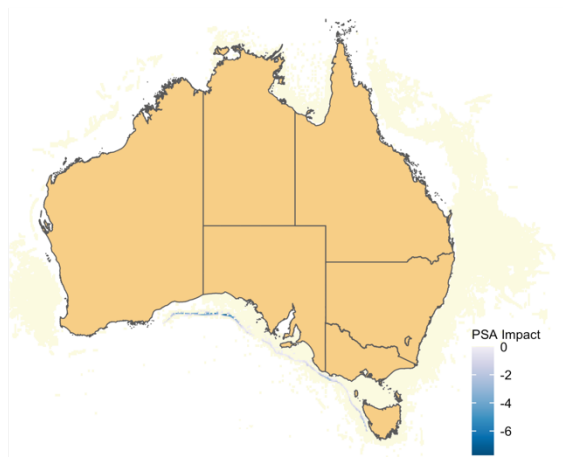
Cyttus australis



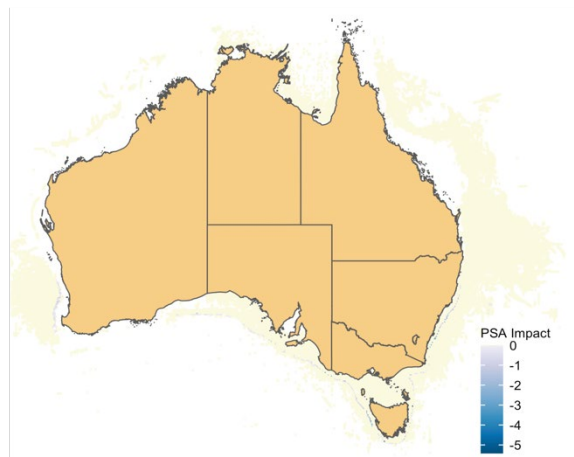
Dalatias licha



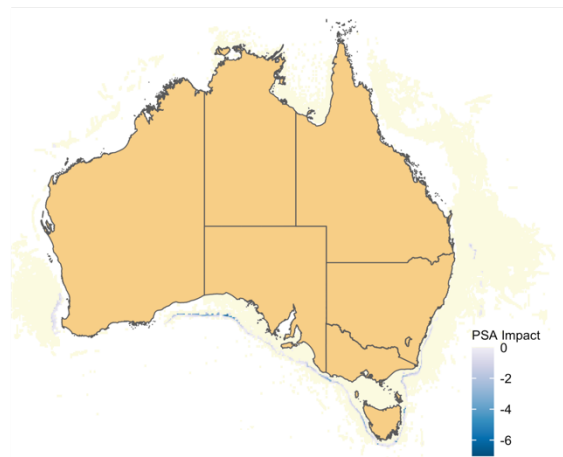
Dannevigia tusca



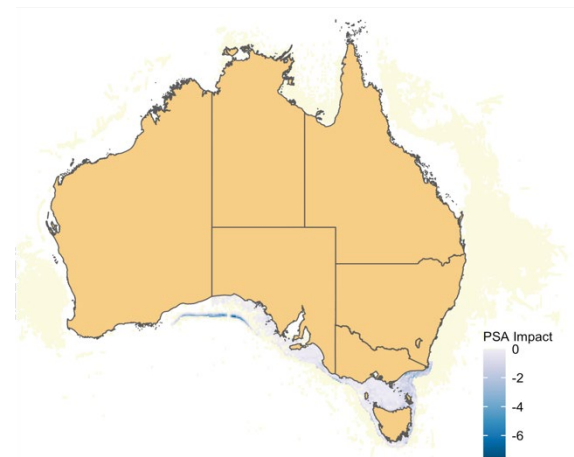
Deania calceus



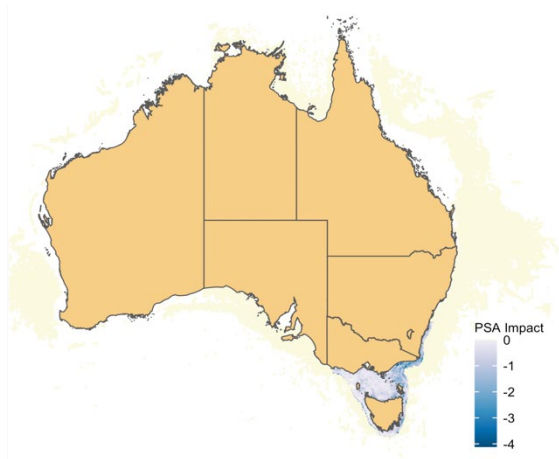
Deania quadrispinosa



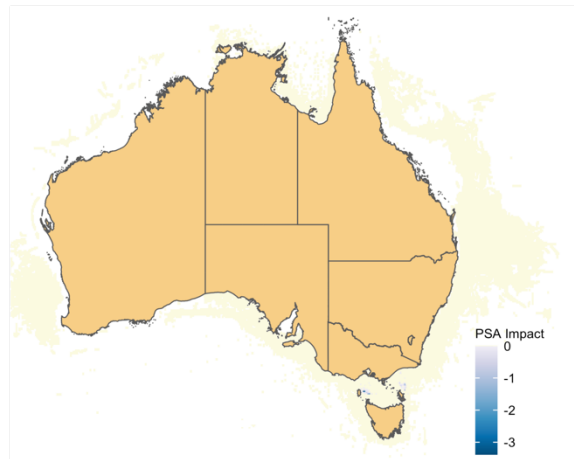
Dentiraja cerva



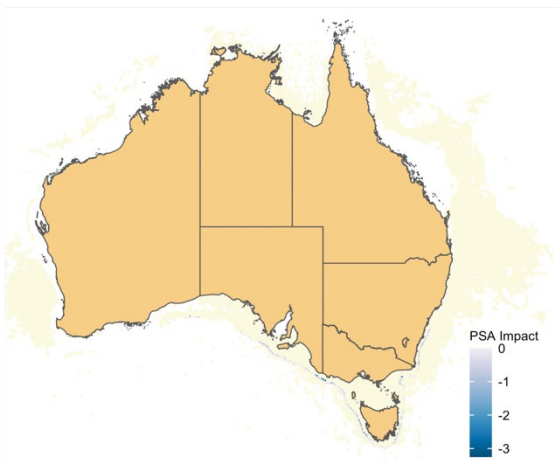
Dentiraja confusus



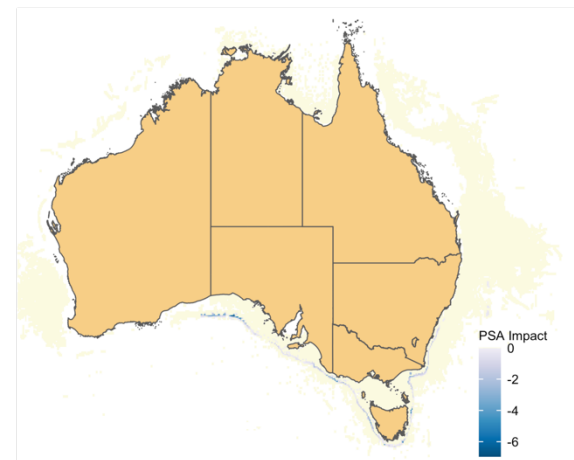
Dentiraja lemprieri



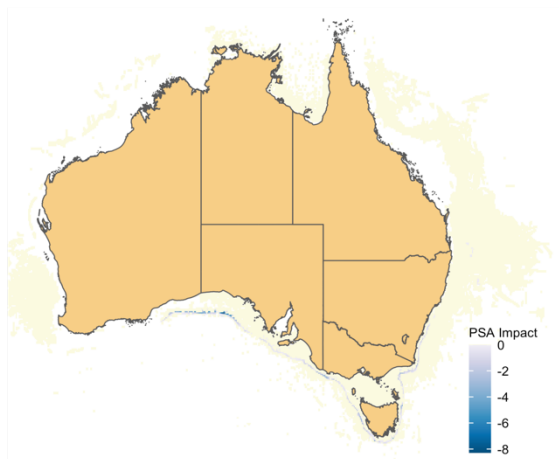
Diastobranchus capensis



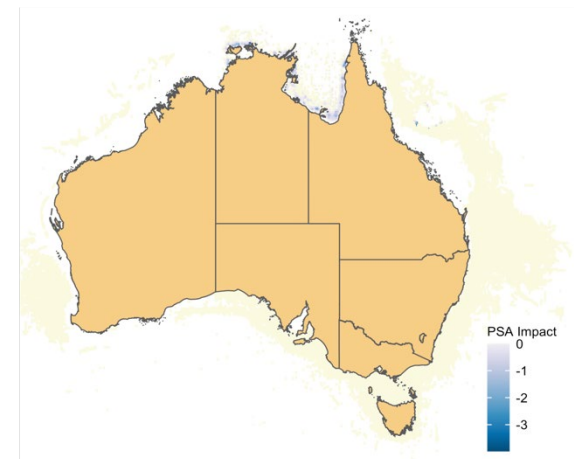
Dipturus canutus



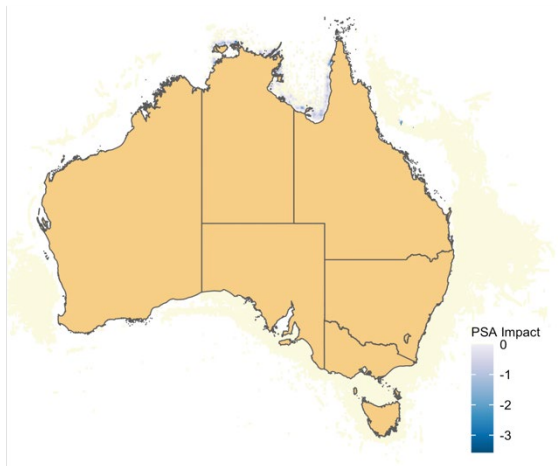
Dipturus gudgeri



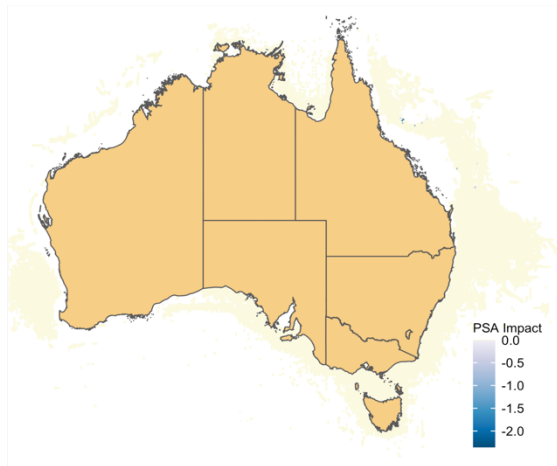
Disteira kingii



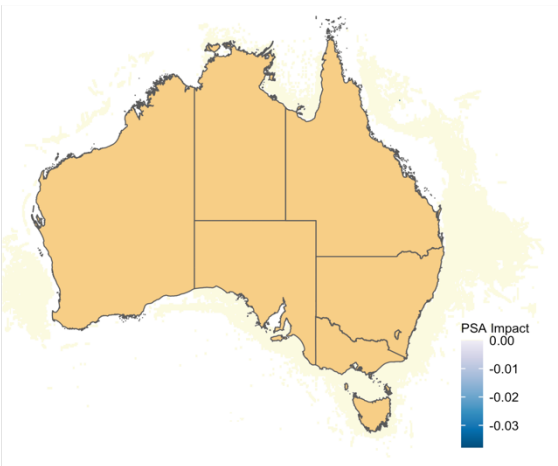
Disteira major



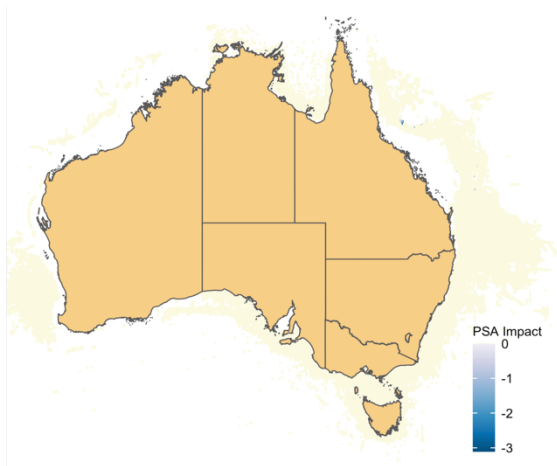
Doryrhamphus excisus



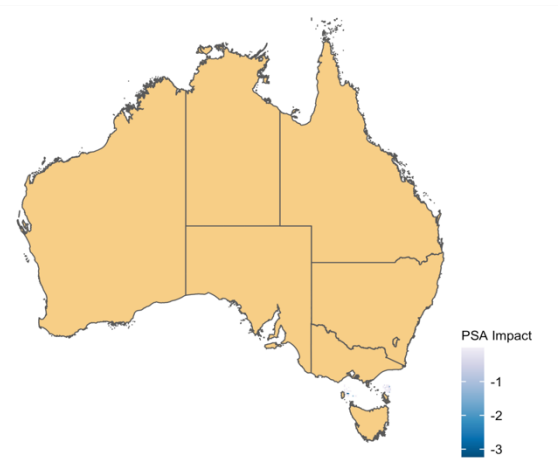
Doryrhamphus janssi



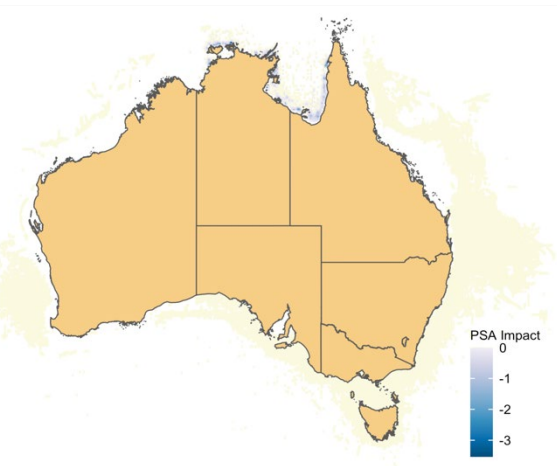
Doryrhamphus negrosensis



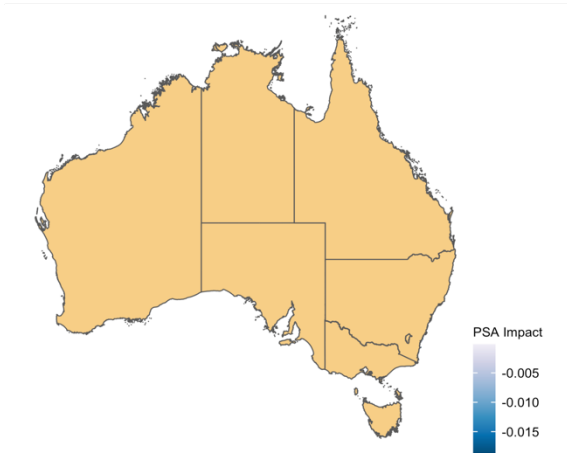
Dotalabrus aurantiacus



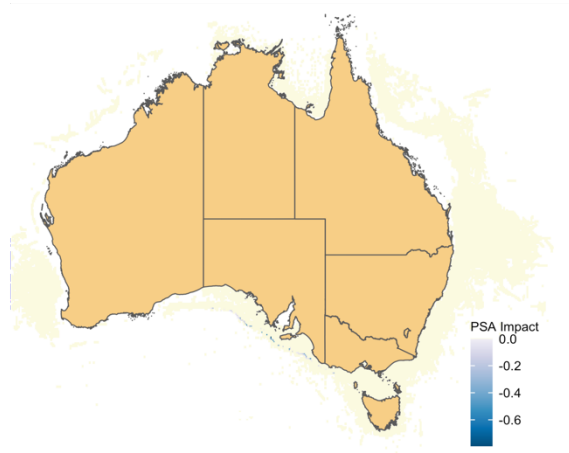
Echeneis naucrates



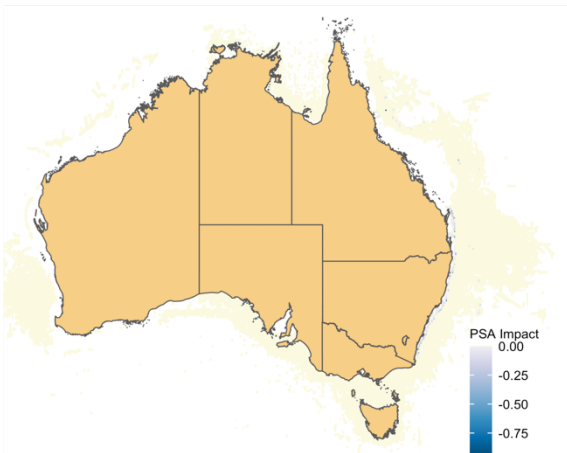
Echinophryne crassispina



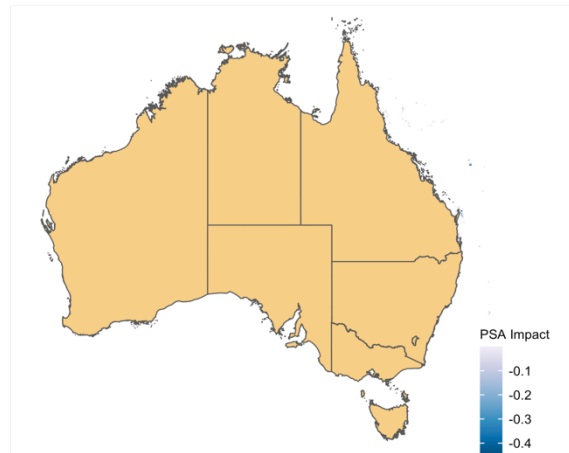
Echinorhinus brucus



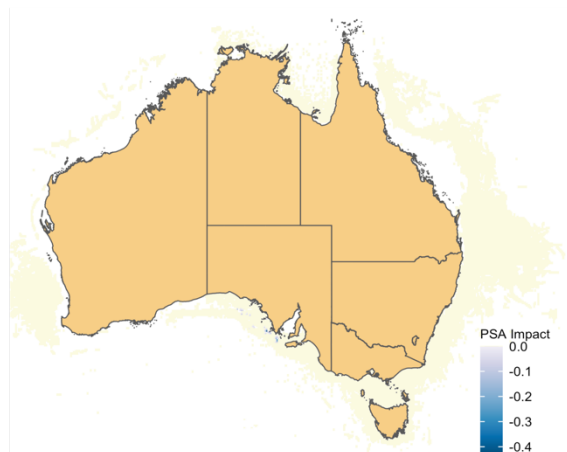
Elagatis bipinnulata



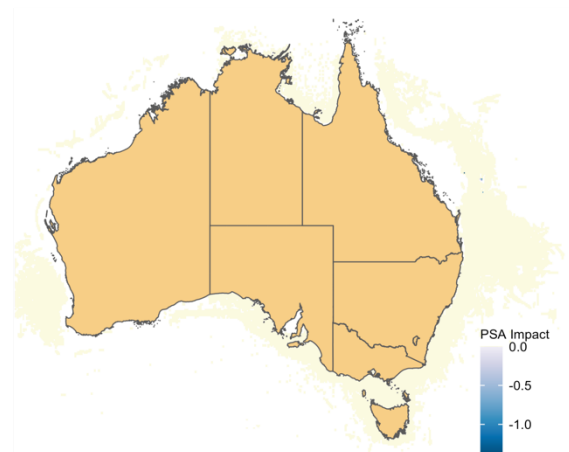
Elops hawaiiensis



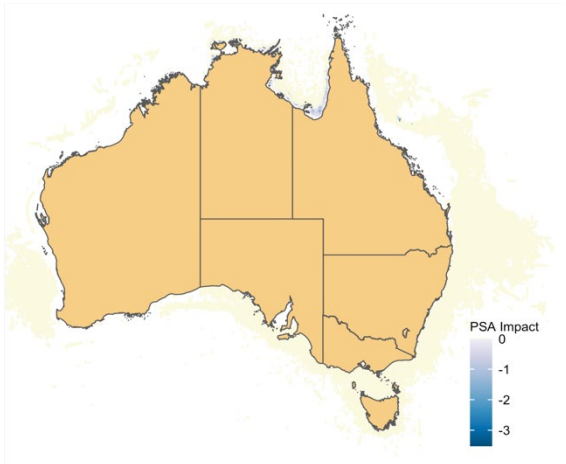
Emmelichthys nitidus



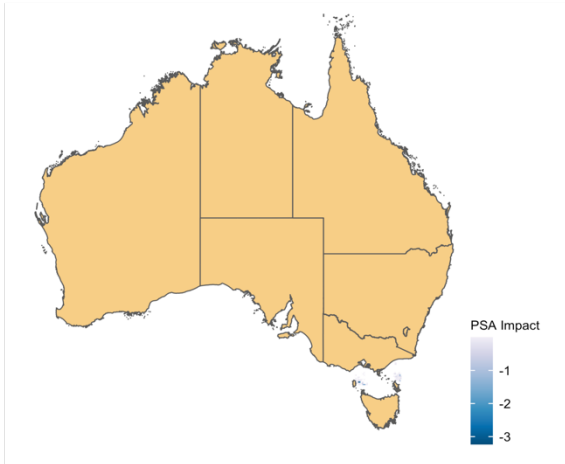
Emydocephalus annulatus



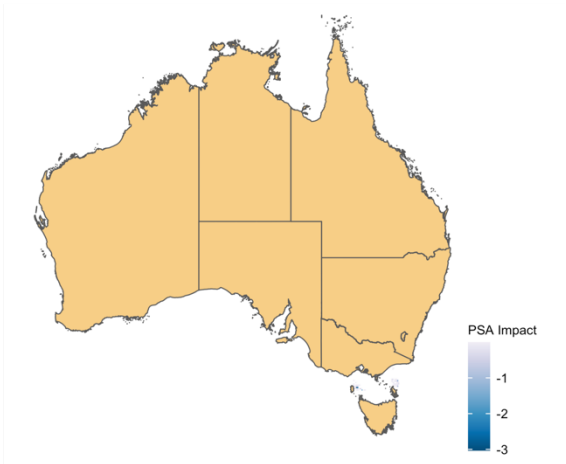
Enhydrina schistosa



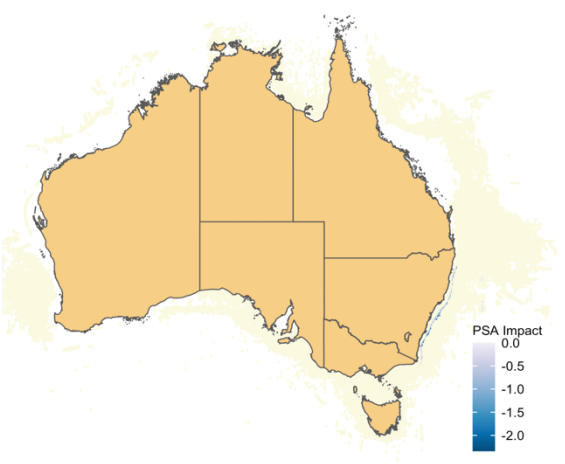
Enigmapercis reducta



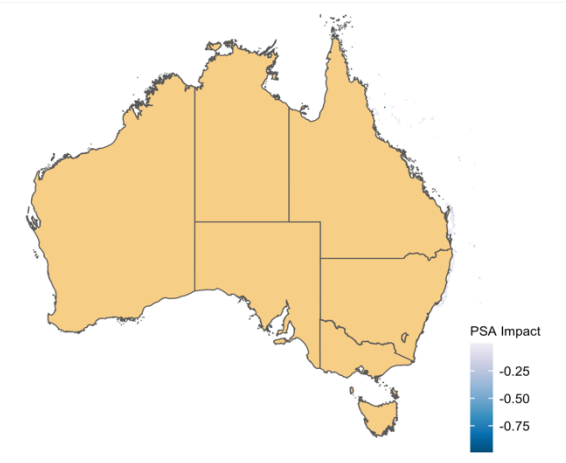
Eocallionymus papilio



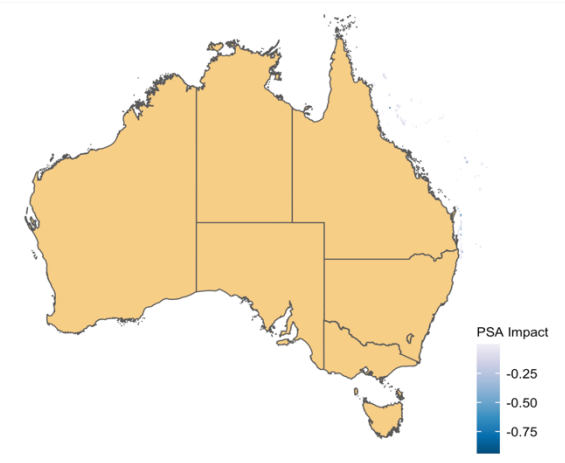
Epigonus denticulatus



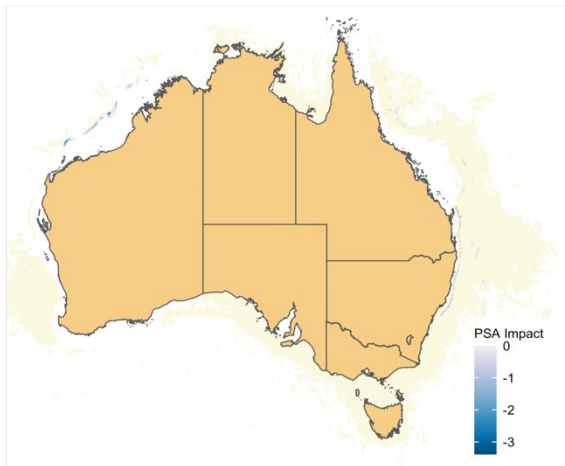
Epinephelus malabaricus



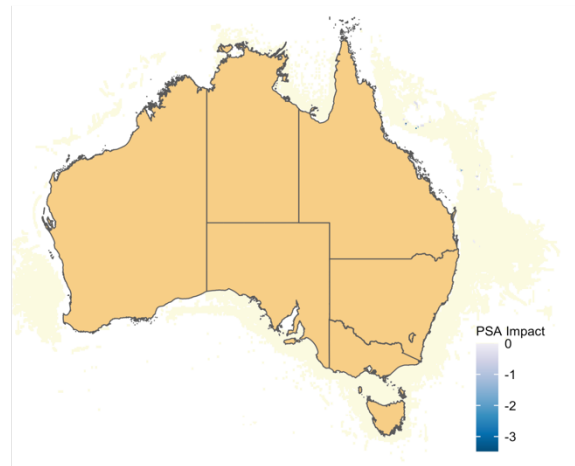
Epinephelus morrhua



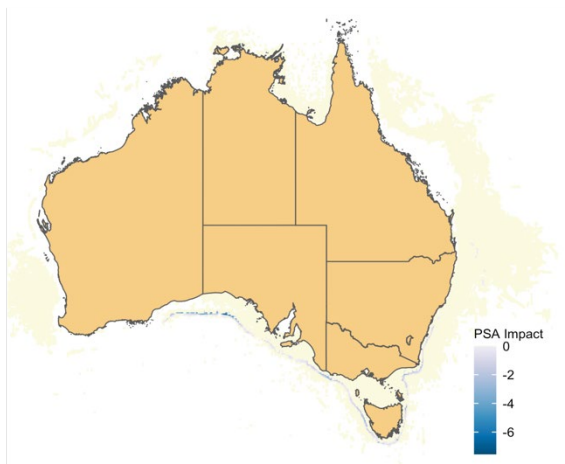
Etelis carbunculus



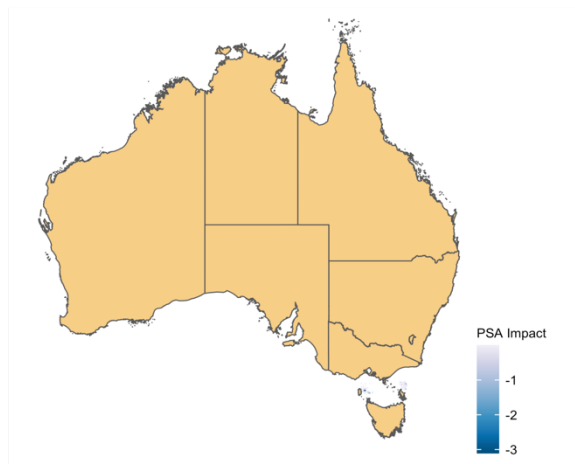
Etelis coruscans



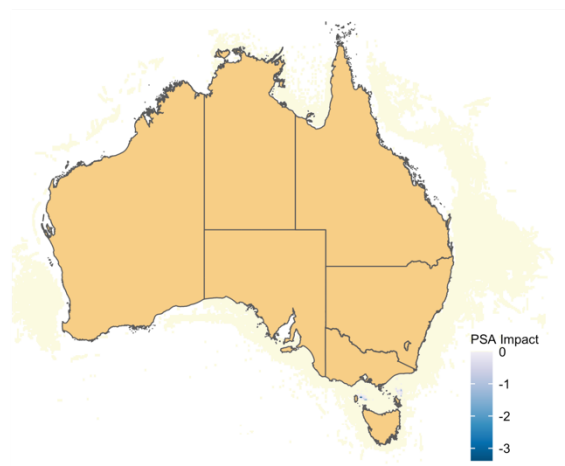
Etmopterus lucifer



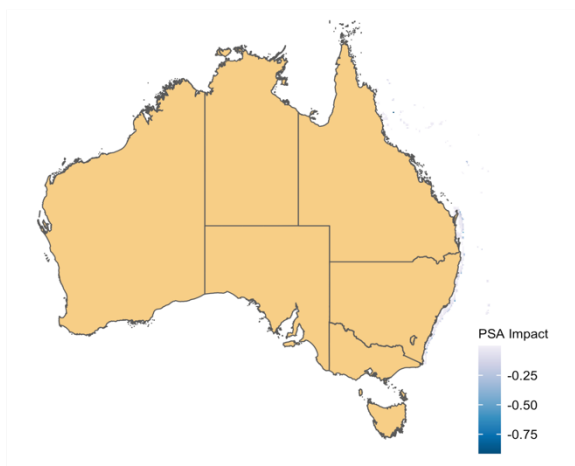
Eubalichthys gunnii



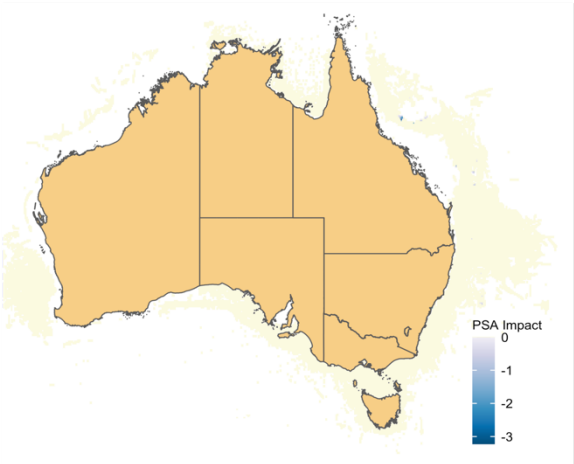
Eubalichthys mosaicus



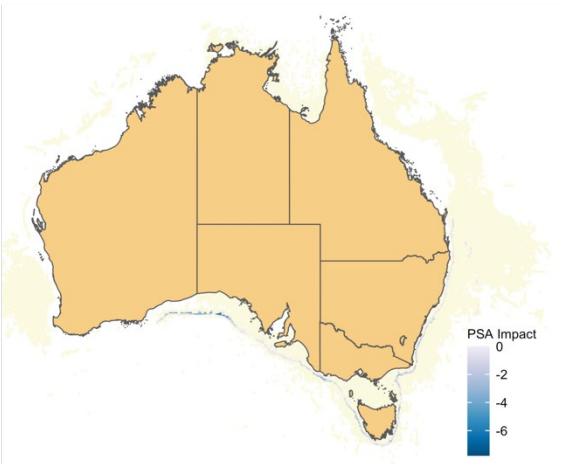
Euthynnus affinis



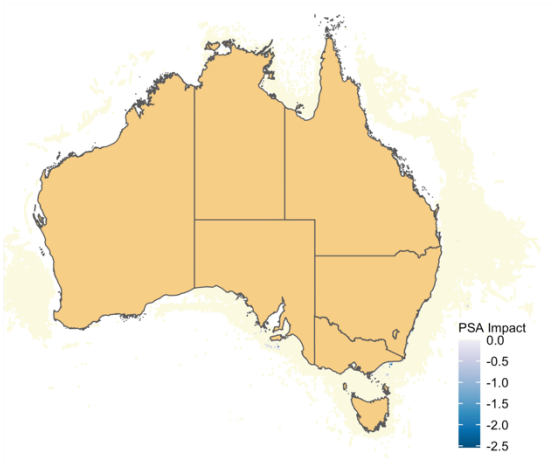
Festucalex cinctus



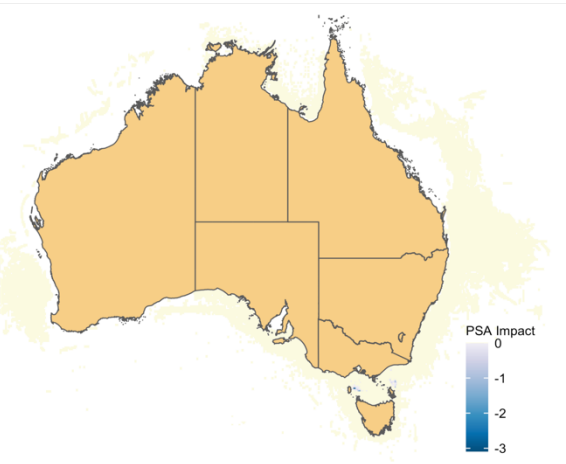
Figaro boardmani



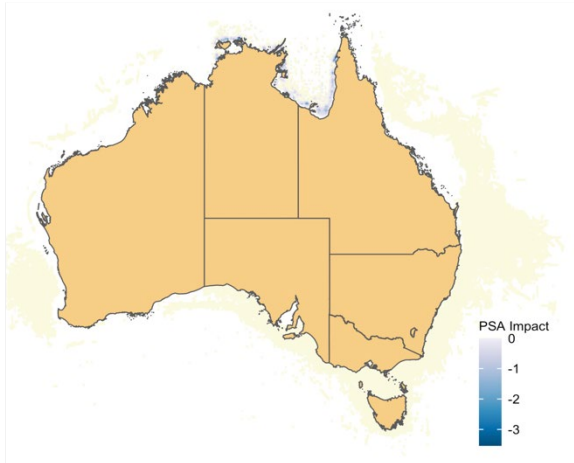
Filicampus tigris



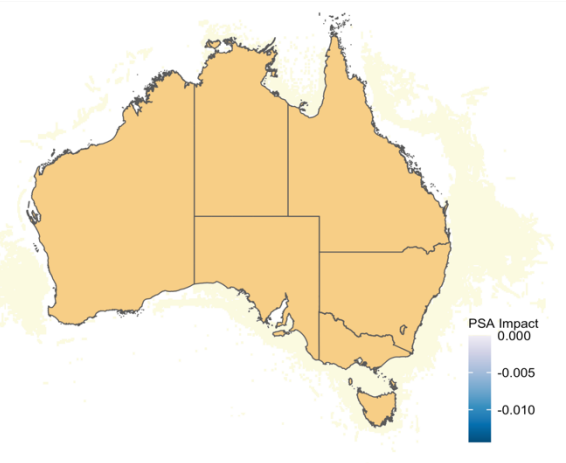
Foetorepus calauropomus



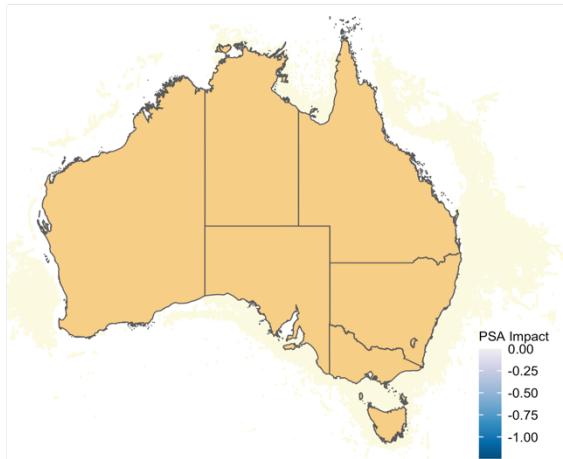
Forcipiger flavissimus



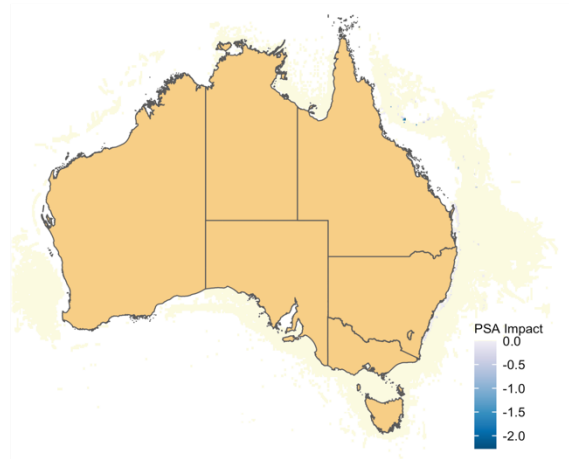
Furgaleus macki



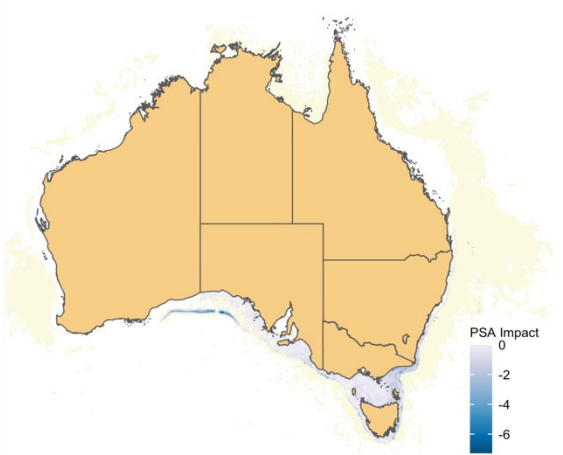
Gaidropsarus novaezealandiae



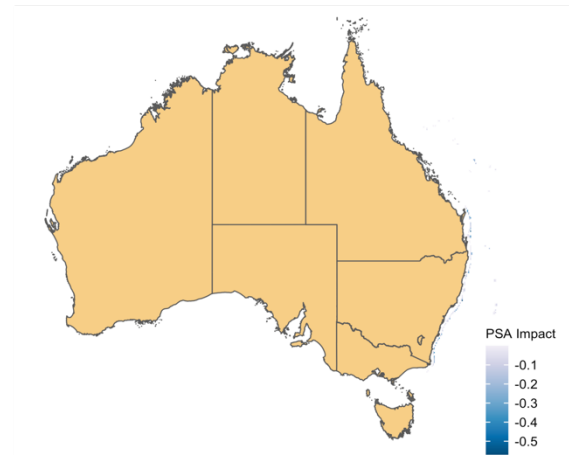
Galeocerdo cuvier



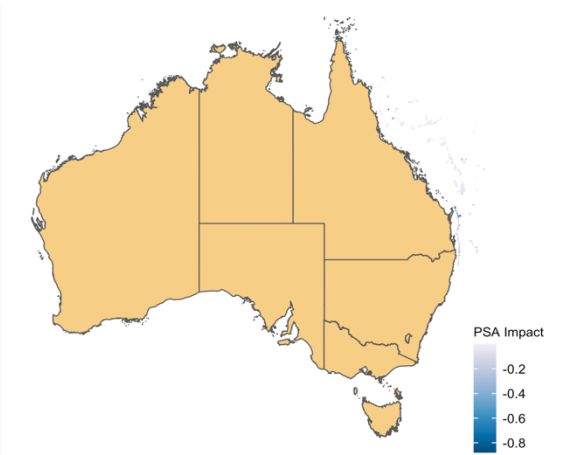
Galeorhinus galeus



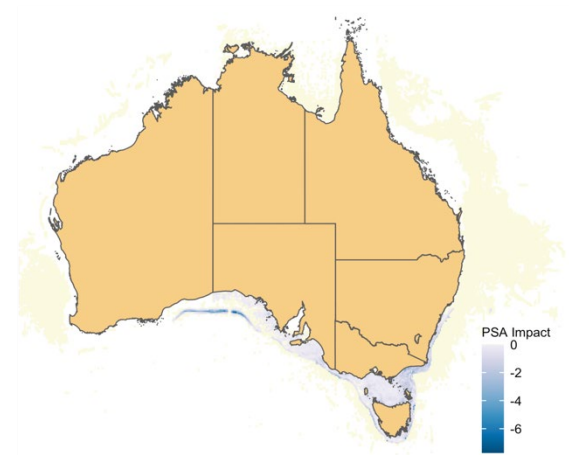
Gasterochisma melampus



Gempylus serpens



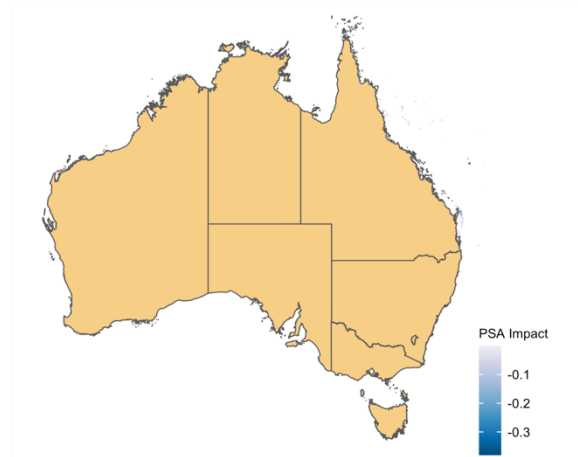
Genypterus blacodes



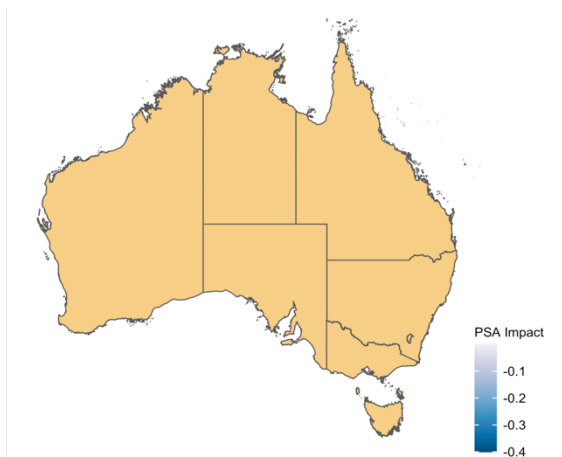
Geotria australis



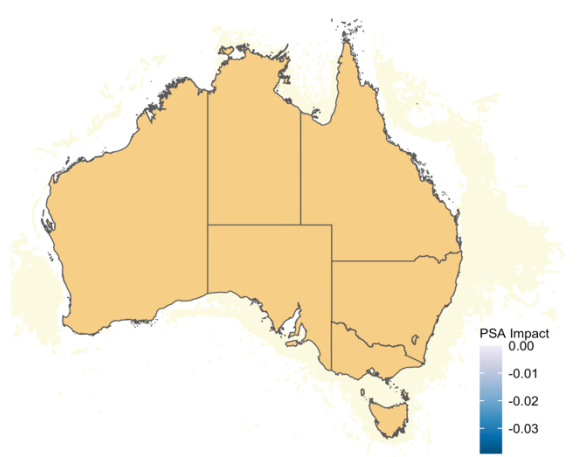
Gerres filamentosus



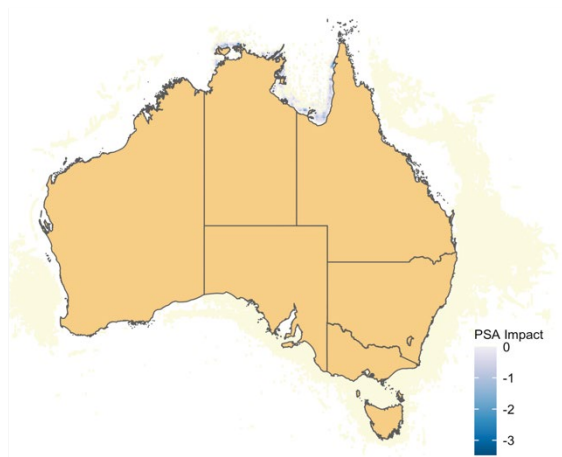
Gerres oblongus



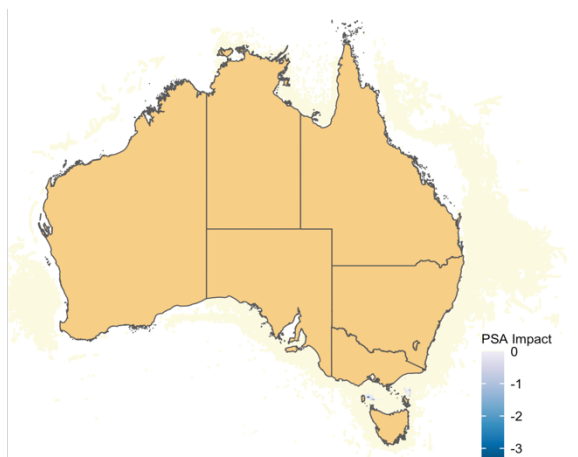
Glyphis glyphis



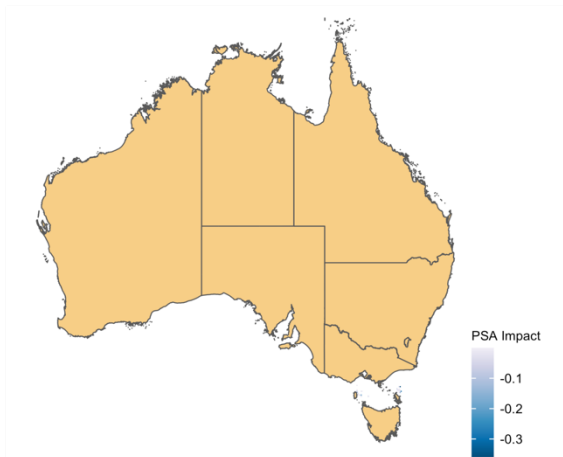
Gnathanodon speciosus



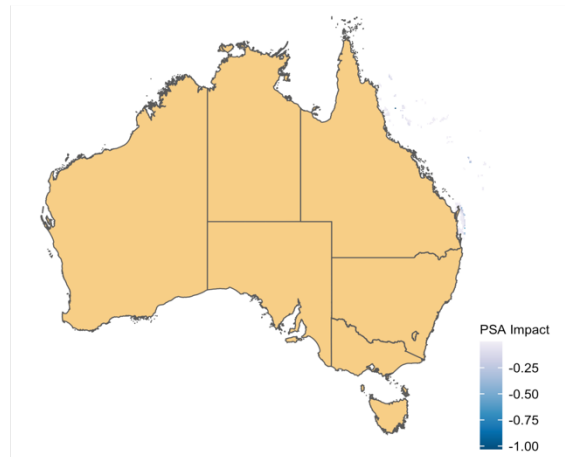
Gonorynchus greyi



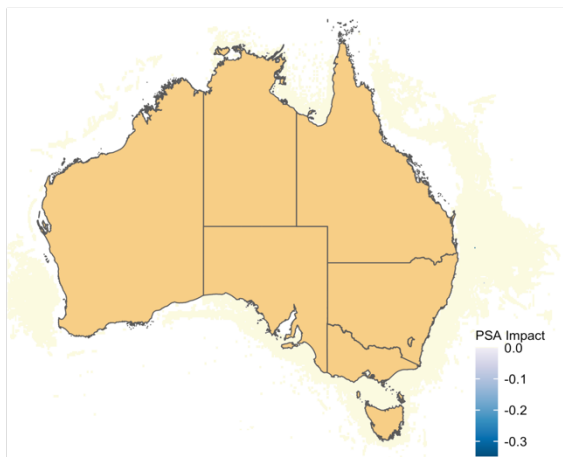
Gymnapistes marmoratus



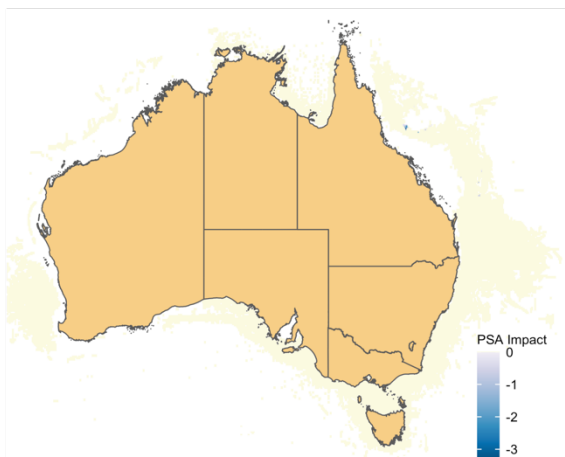
Gymnosarda unicolor



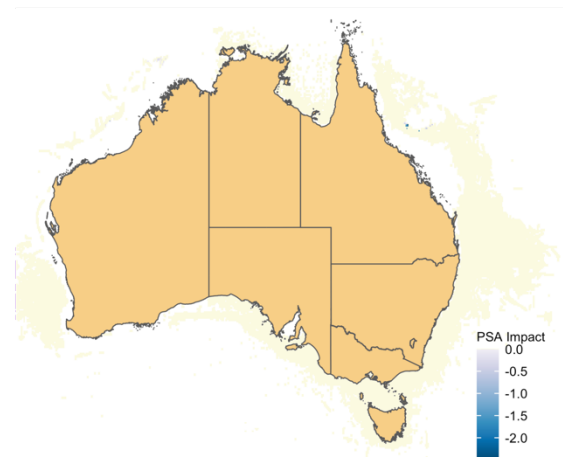
Halicampus boothae



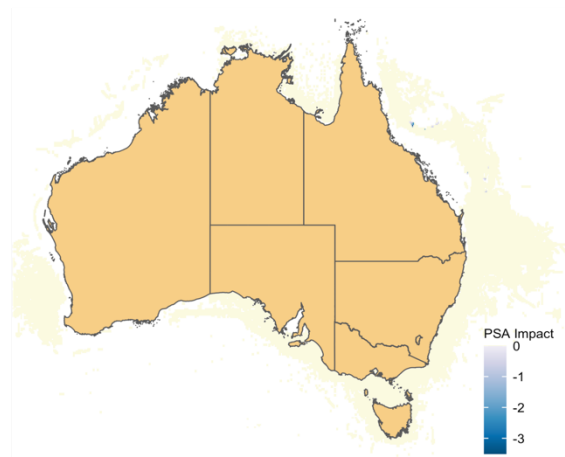
Halicampus dunckeri



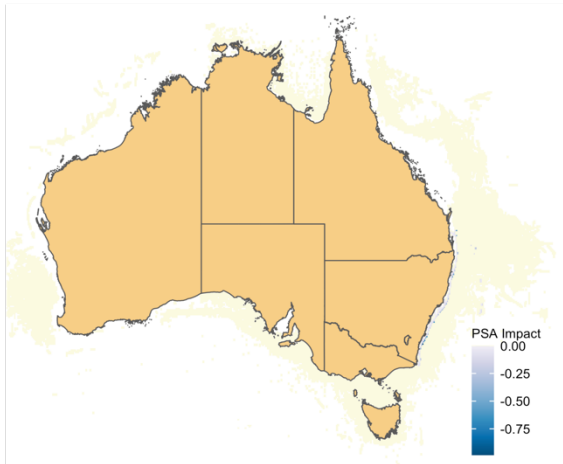
Halicampus grayi



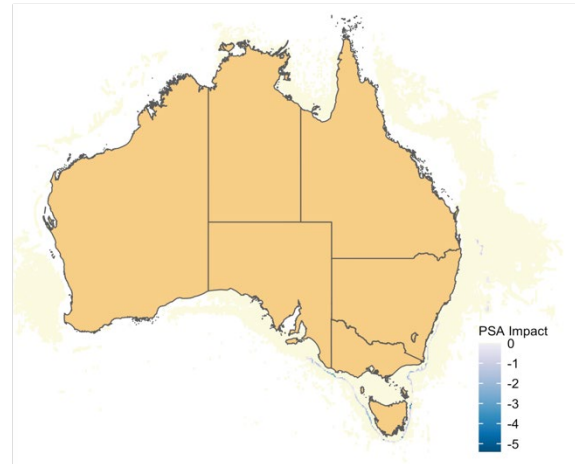
Halicampus spinirostris



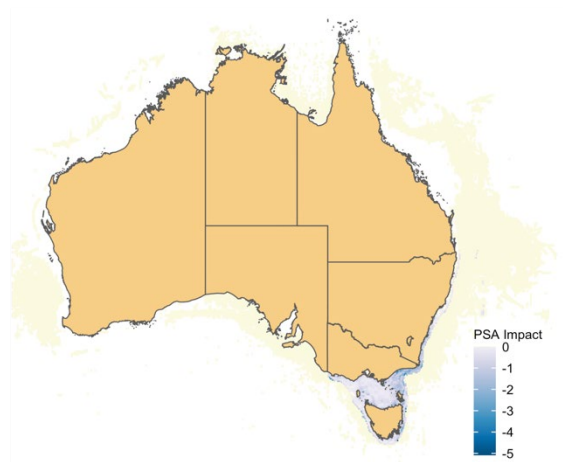
Halieutaea brevicauda



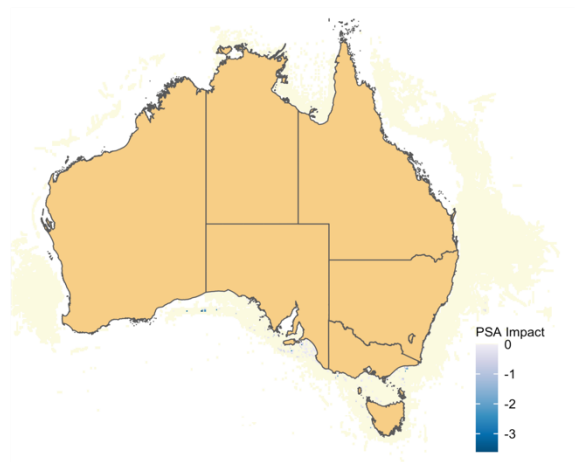
Helicolenus barathri



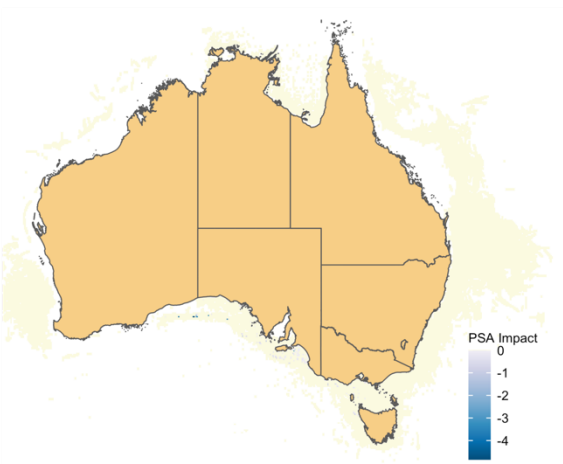
Helicolenus percoides



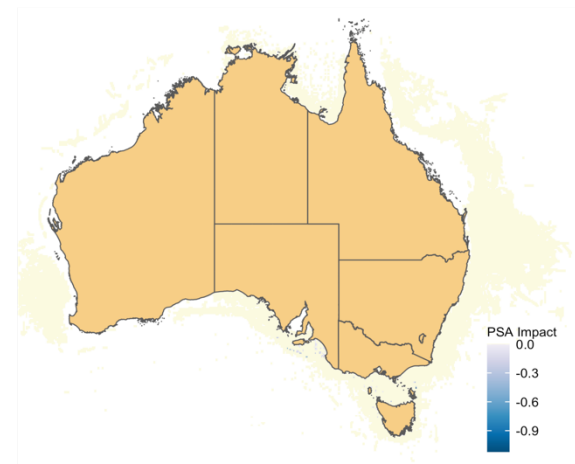
Heraldia nocturna



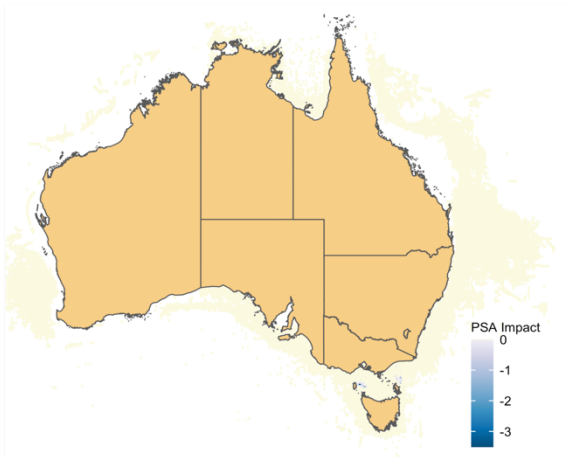
Heraldia sp. 1 [in Kuitert, 2000]



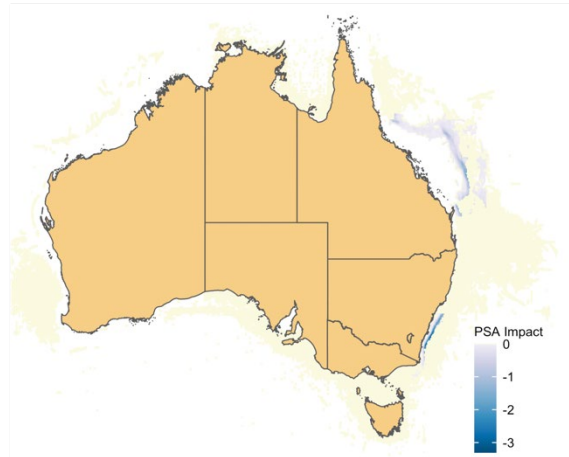
Heteroclinus perspicillatus



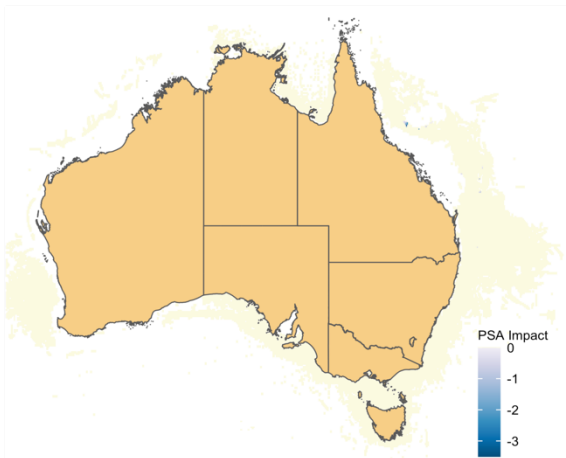
Heterodontus portusjacksoni



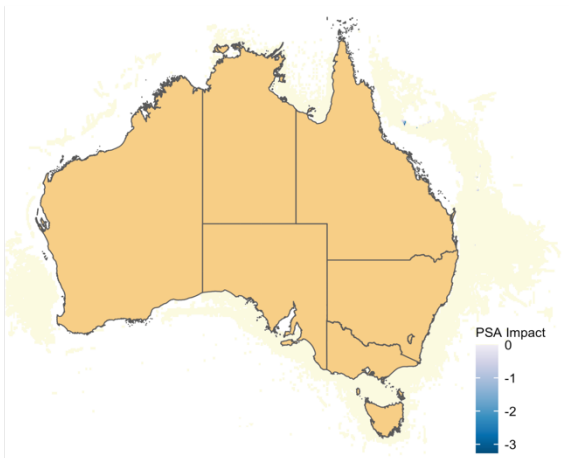
Hexanchus griseus



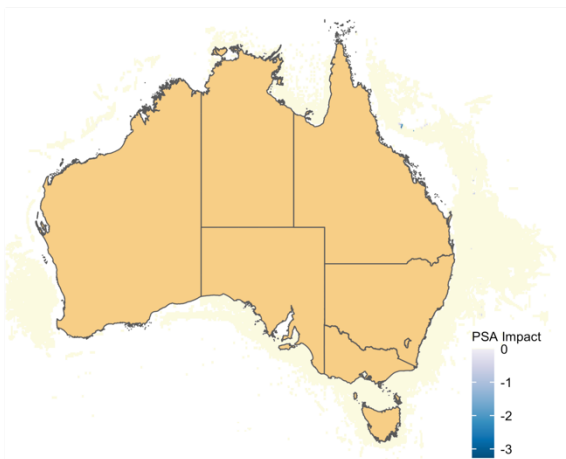
Hippichthys cyanospilos



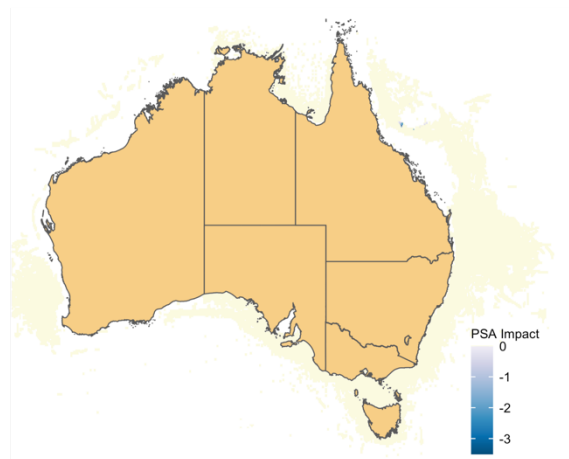
Hippichthys heptagonus



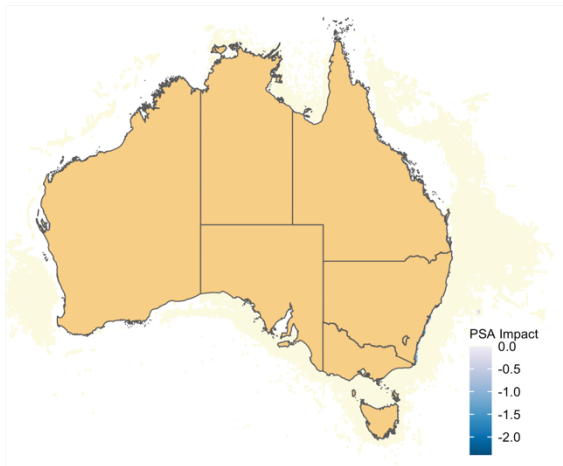
Hippichthys penicillus



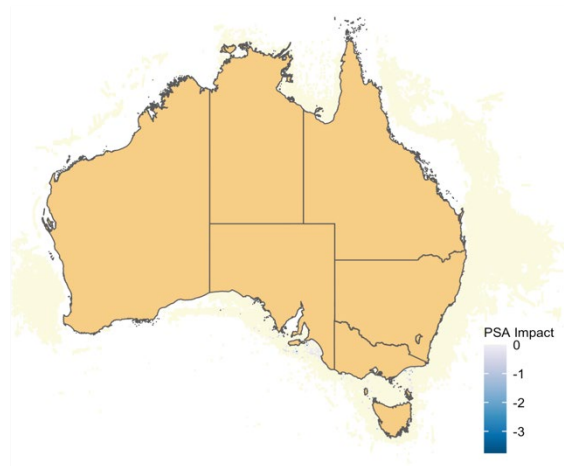
Hippichthys spicifer



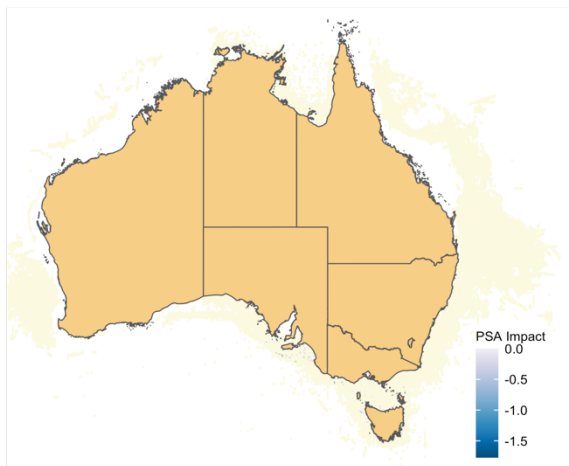
Hippocampus abdominalis



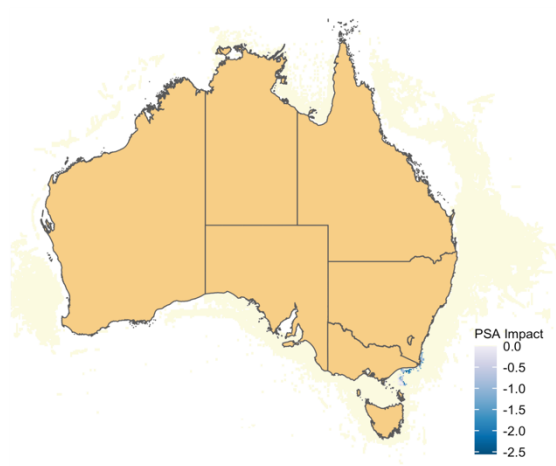
Hippocampus bleekeri



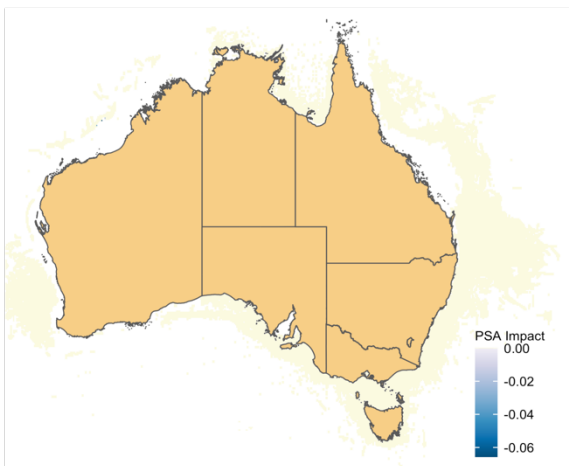
Hippocampus breviceps



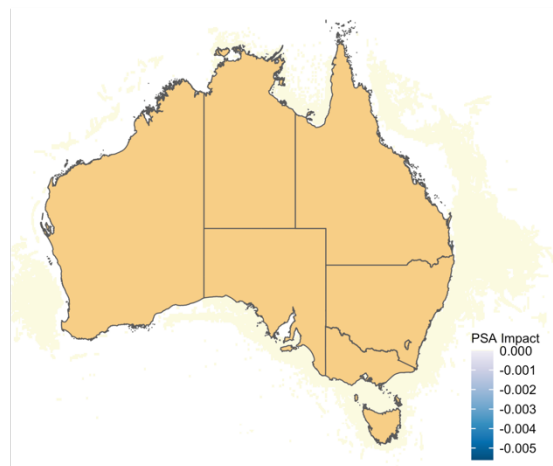
Hippocampus minotaur



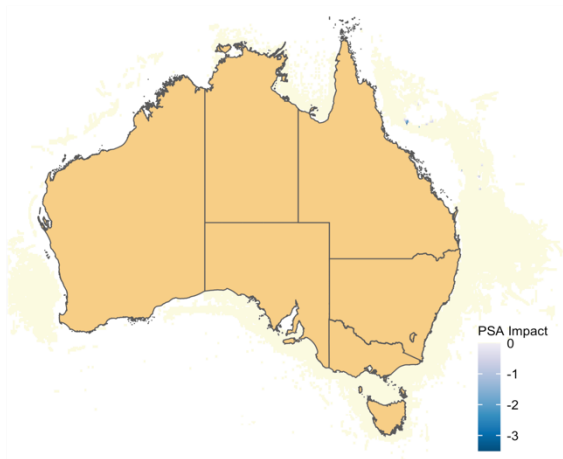
Hippocampus planifrons



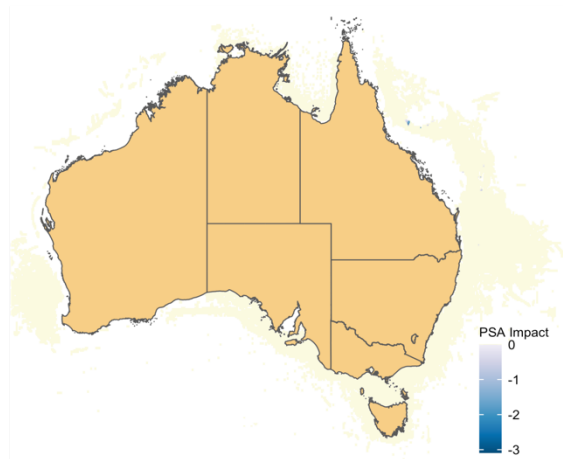
Hippocampus procerus



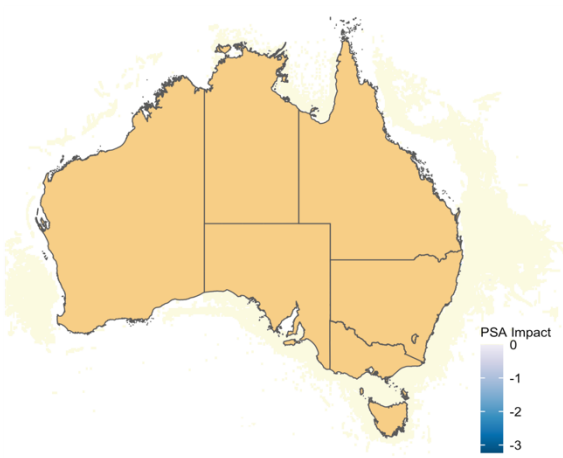
Hippocampus spinosissimus



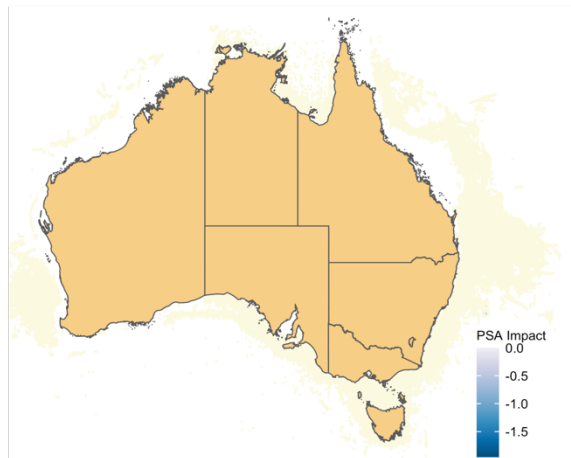
Hippocampus taeniopterus



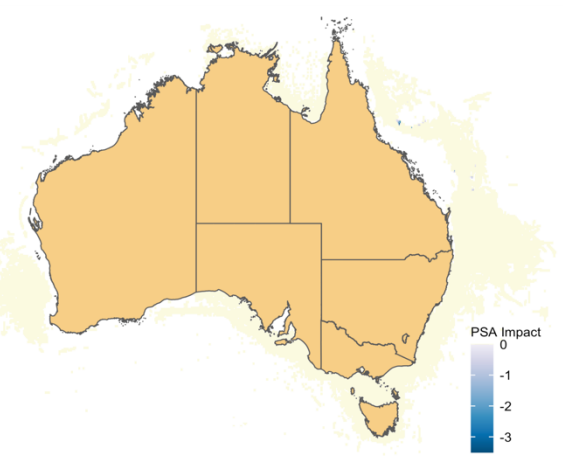
Hippocampus tristis



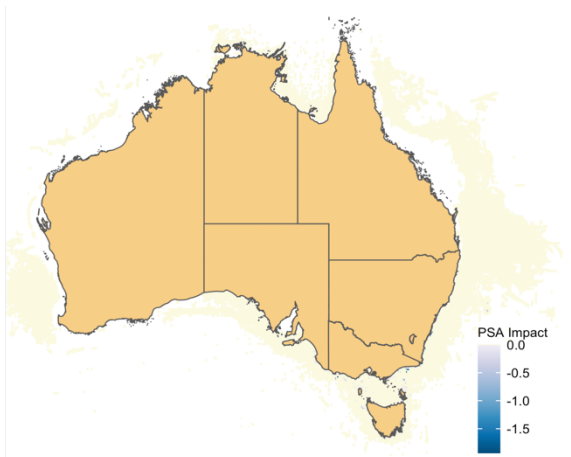
Hippocampus whitei



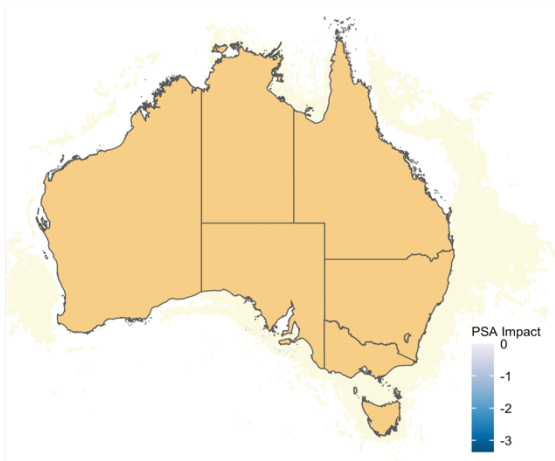
Hippocampus zebra



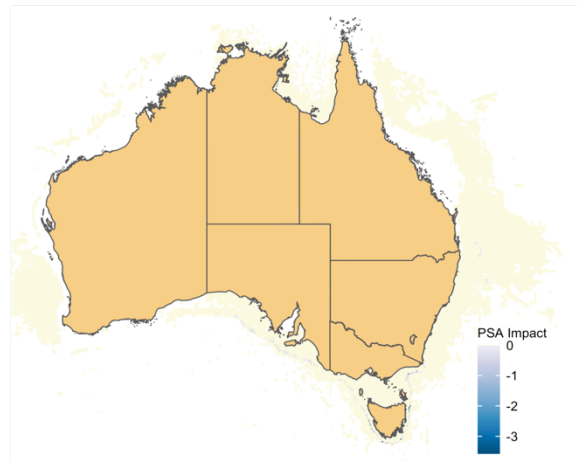
Histiogamphelus briggsii



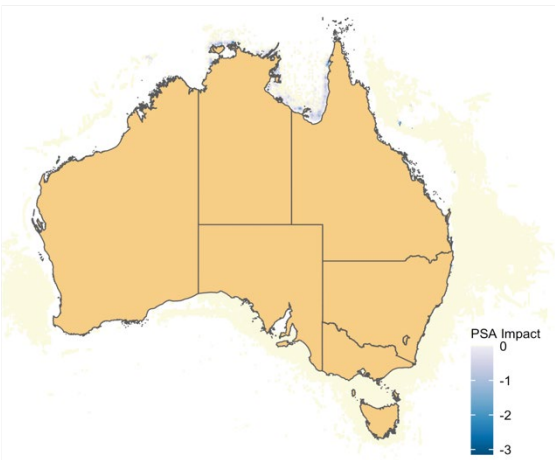
Histiogamphelus cristatus



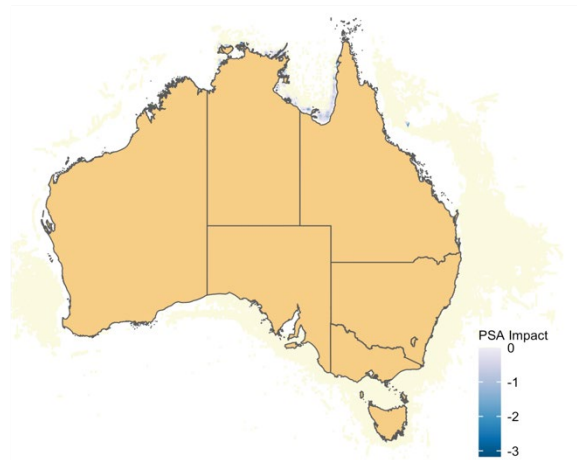
Hydrolagus lemures



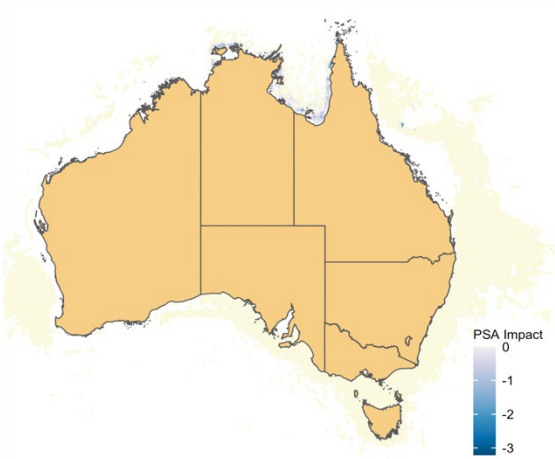
Hydrophis elegans



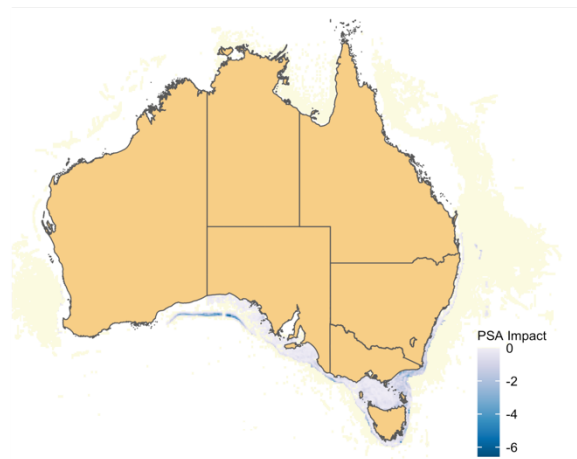
Hydrophis mcdowelli



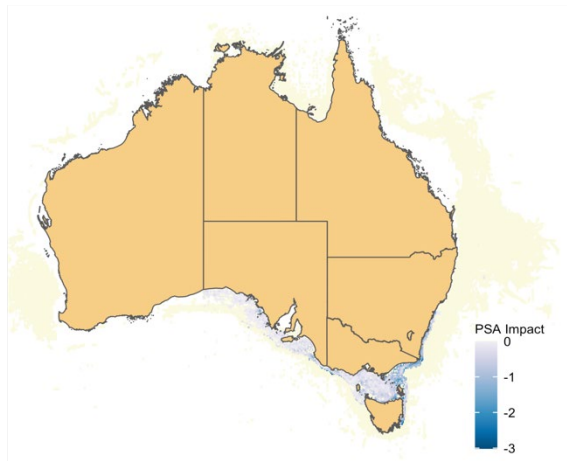
Hydrophis ornatus



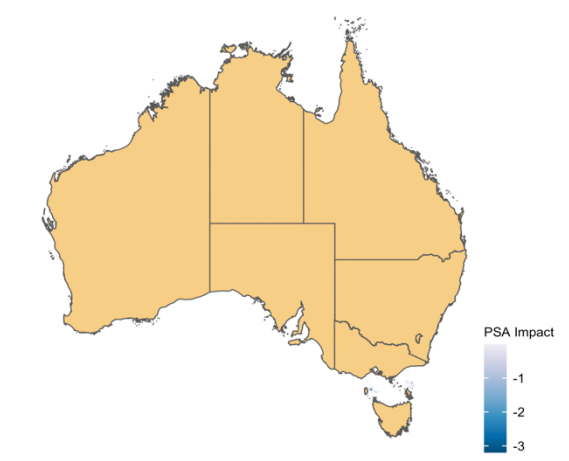
Hyperoglyphe antarctica



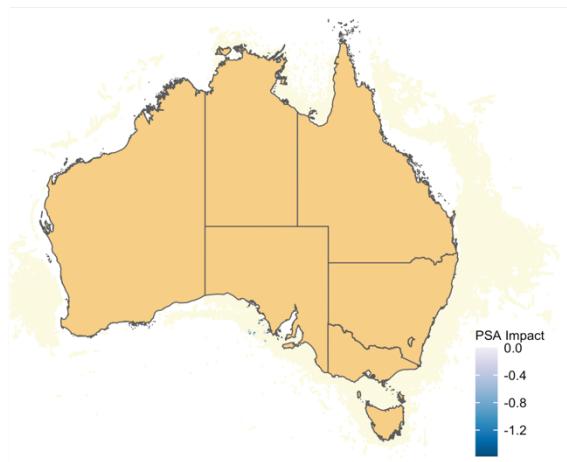
Hypogaleus hyugaensis



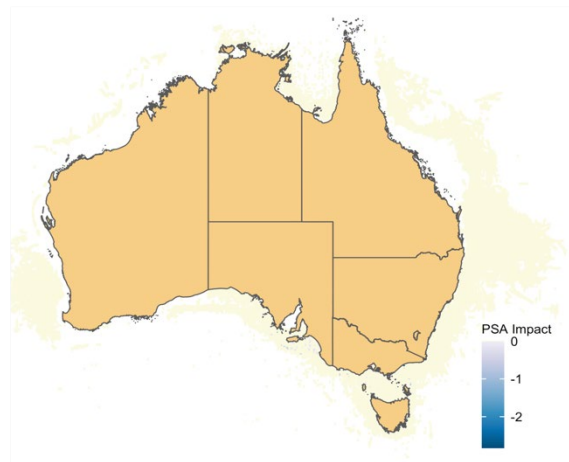
Hypoplectrodes maccullochi



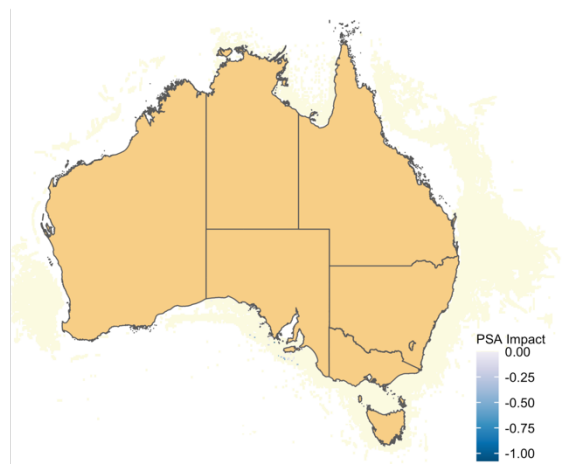
Hypselognathus horridus



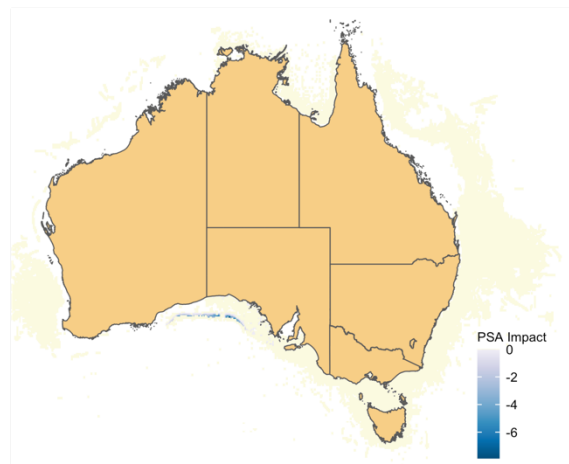
Hypselognathus rostratus



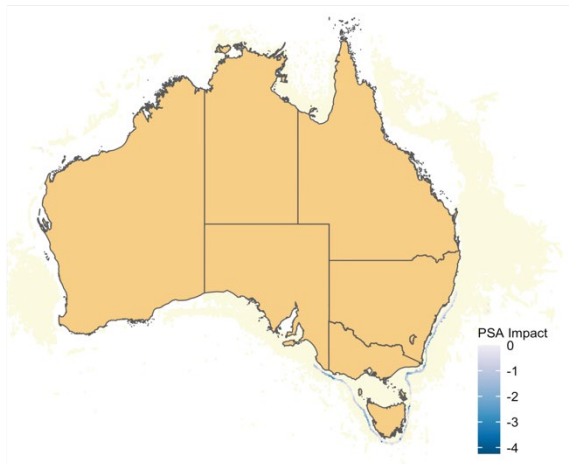
Idiotropiscis australe



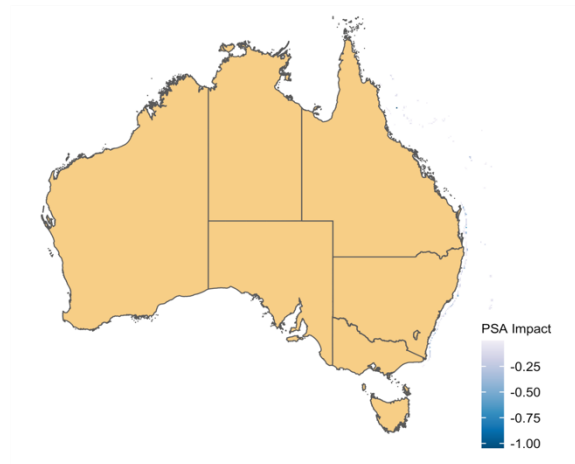
Irolita waitii



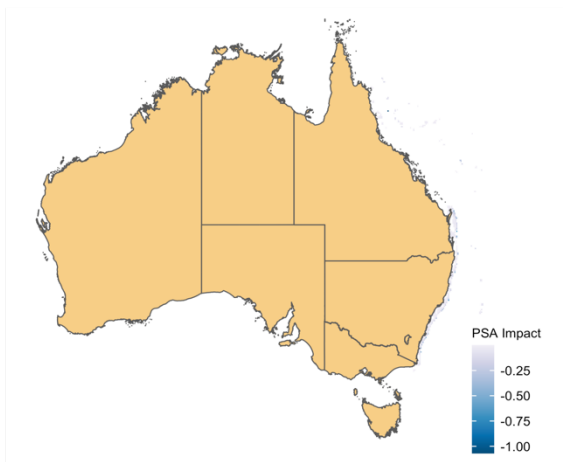
Isistius brasiliensis



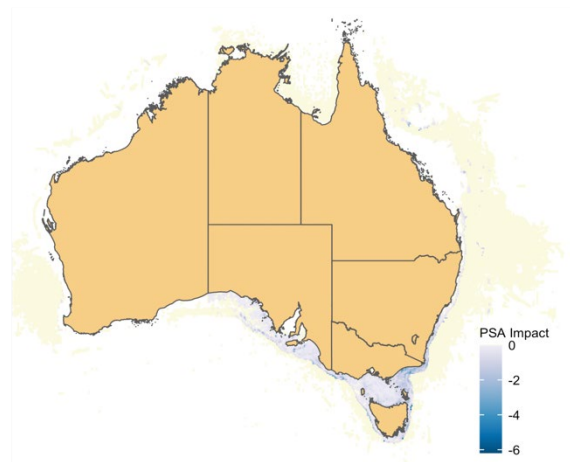
Istiompax indica



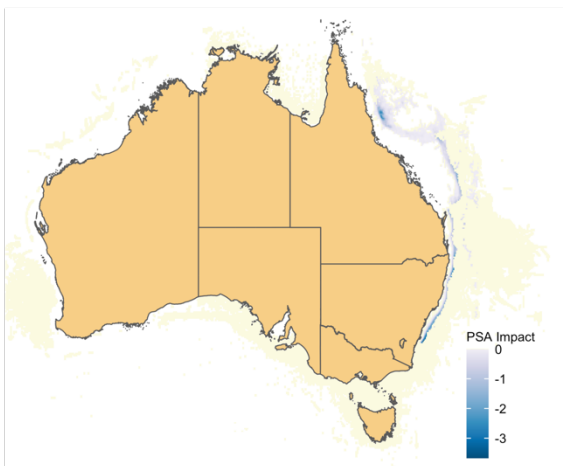
Istiophorus platypterus



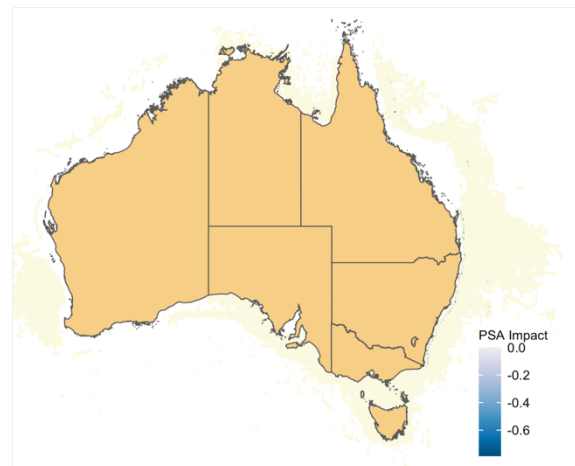
Isurus oxyrinchus



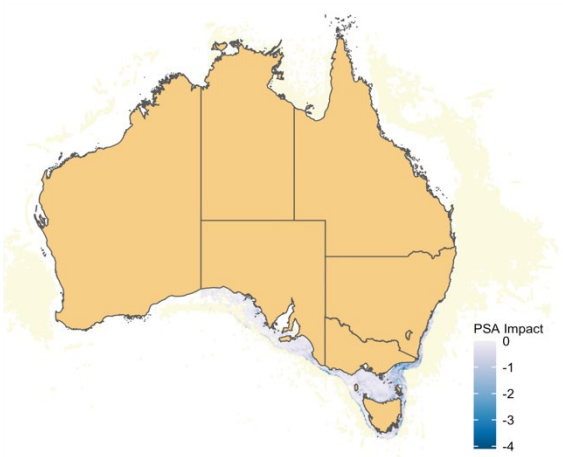
Isurus paucus



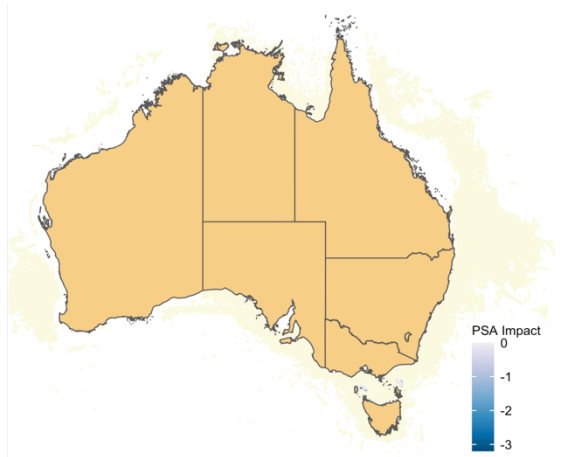
Kajikia audax



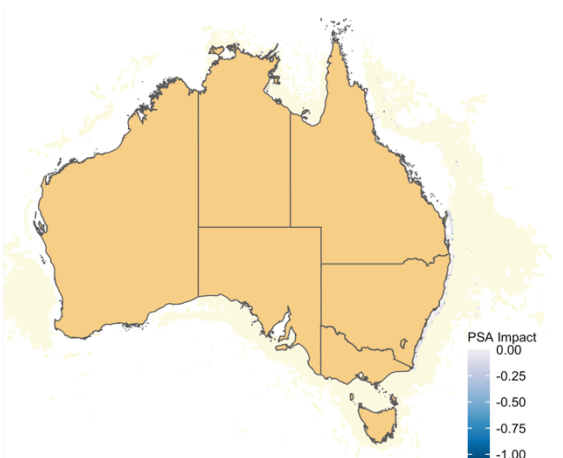
Kathetostoma canaster



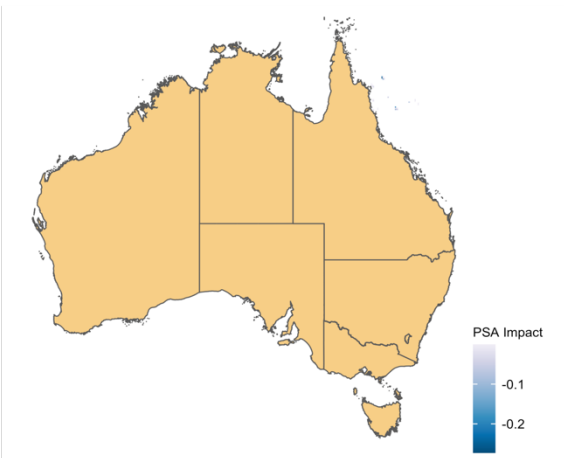
Kathetostoma laeve



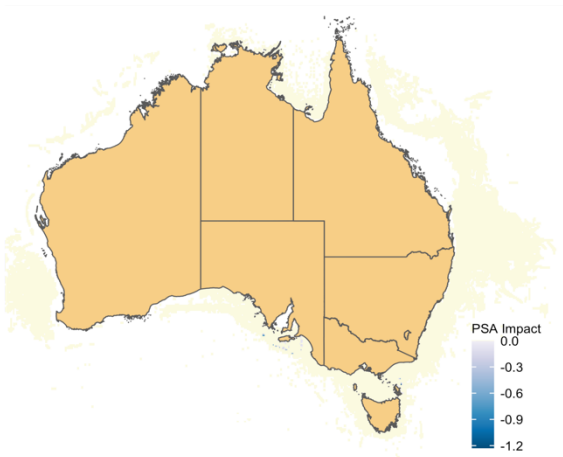
Katsuwonos pelamis



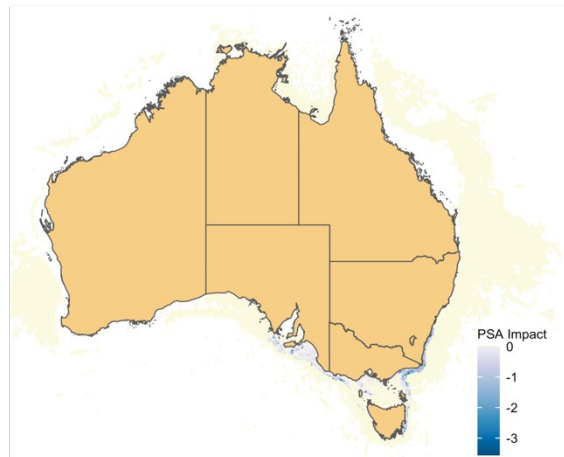
Kaupichthys diodontus



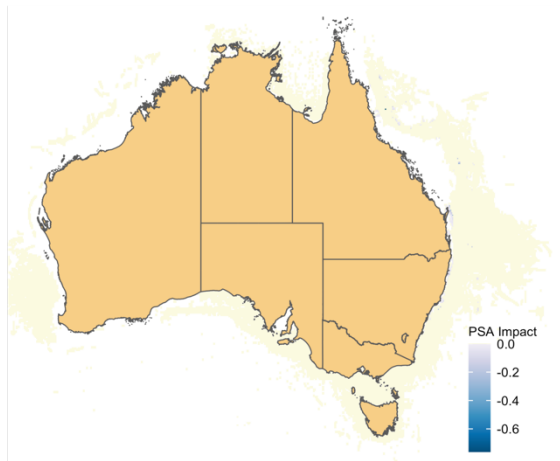
Kaupus costatus



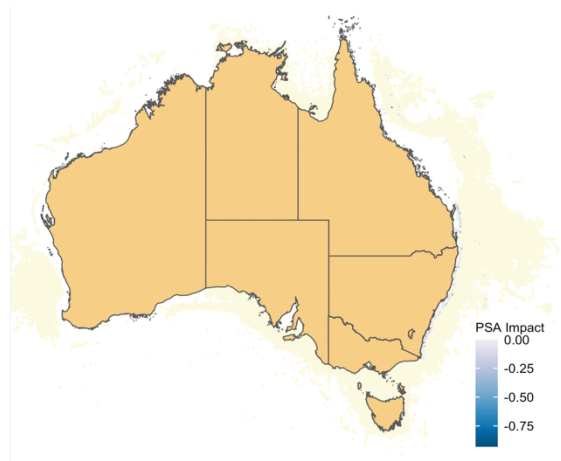
Kimblaeus bassensis



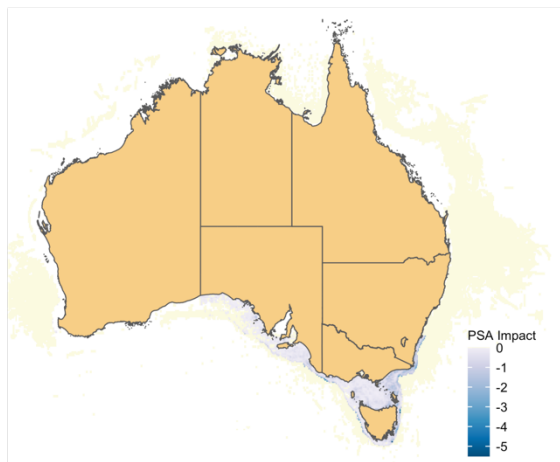
Lactoria cornuta



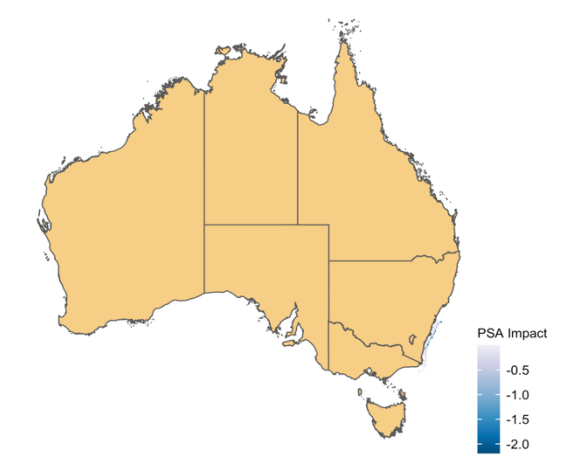
Lagocephalus lagocephalus



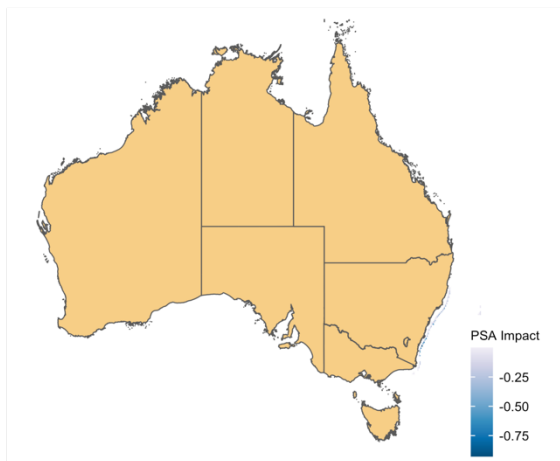
Lamna nasus



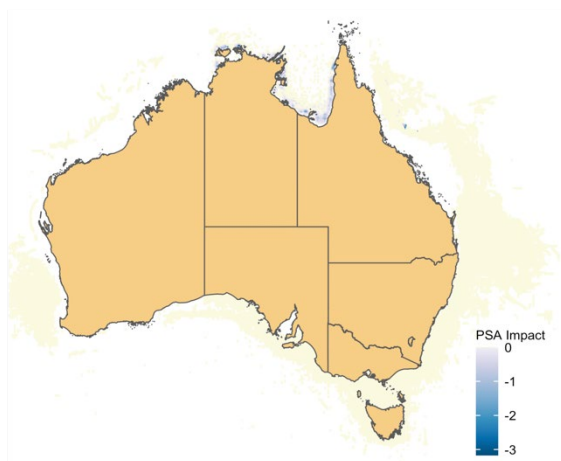
Lampanyctodes hectoris



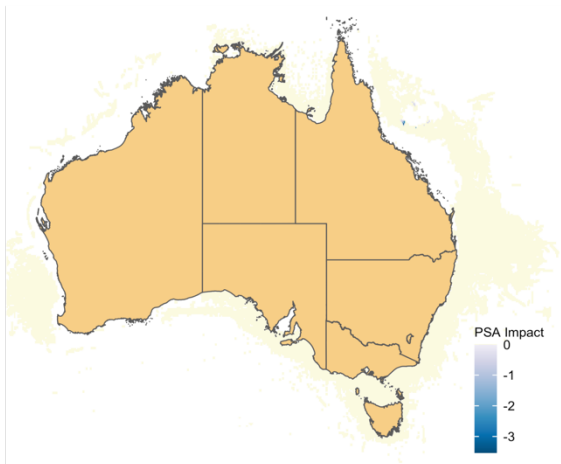
Lampris guttatus



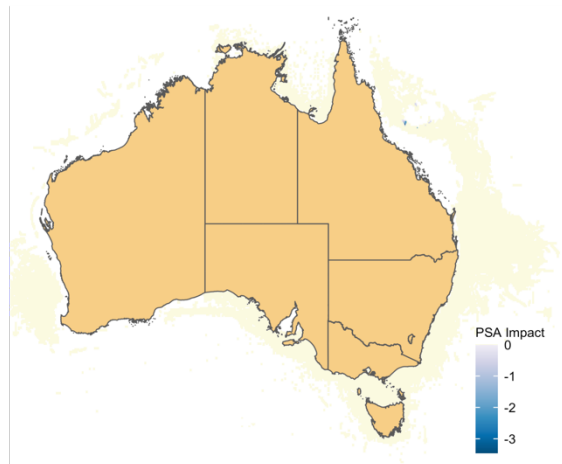
Lapemis curtis



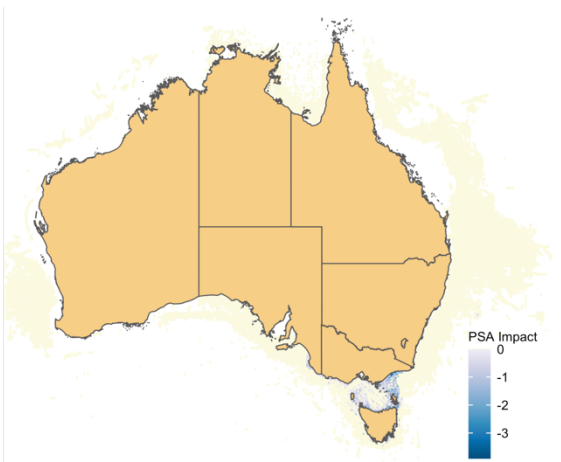
Laticauda colubrina



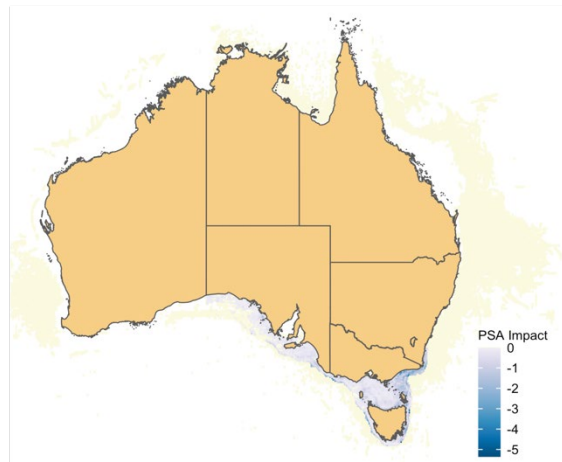
Laticauda laticaudata



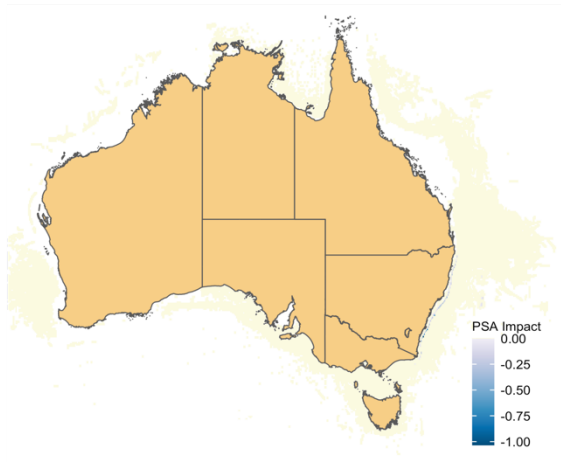
Latridopsis forsteri



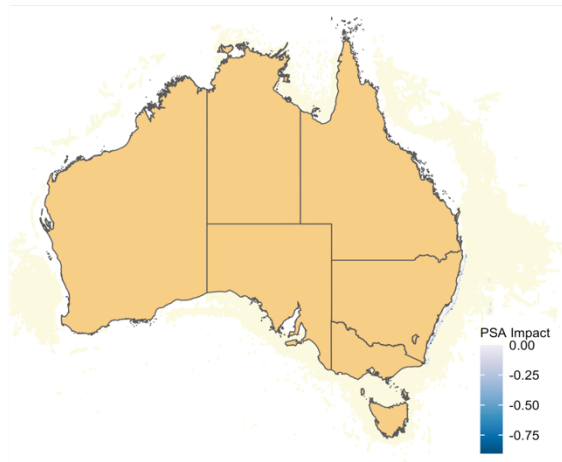
Latris lineata



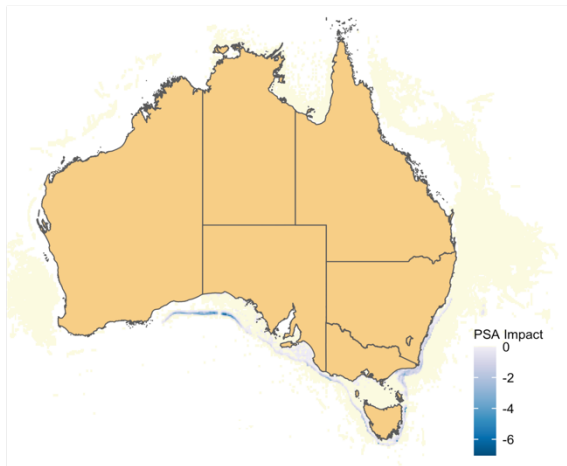
Lepidocybium flavobrunneum



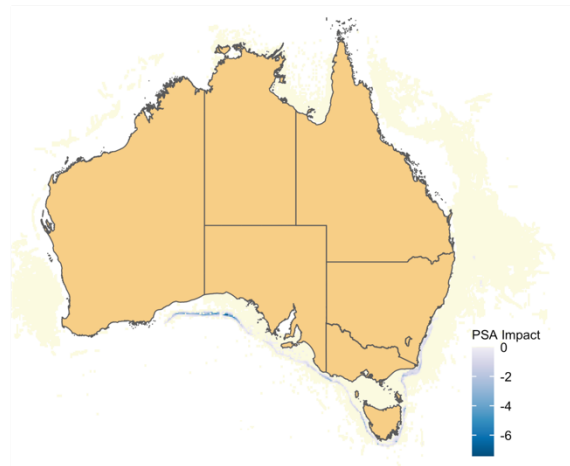
Lepidoperca pulchella



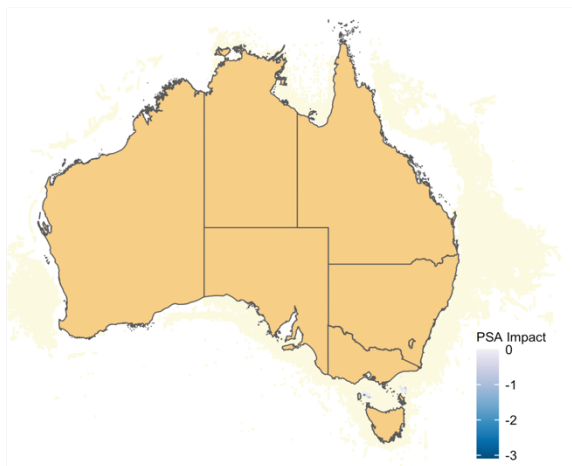
Lepidopus caudatus



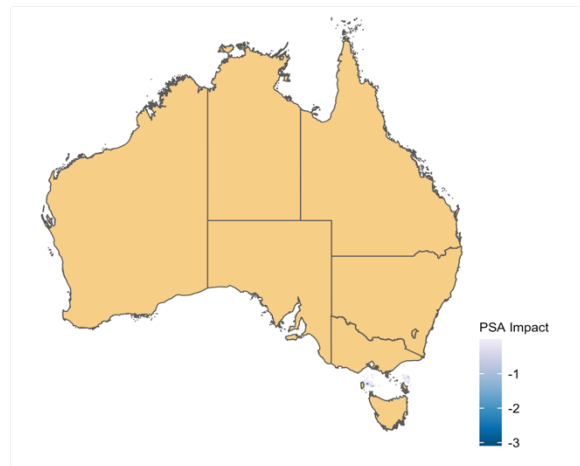
Lepidorhynchus denticulatus



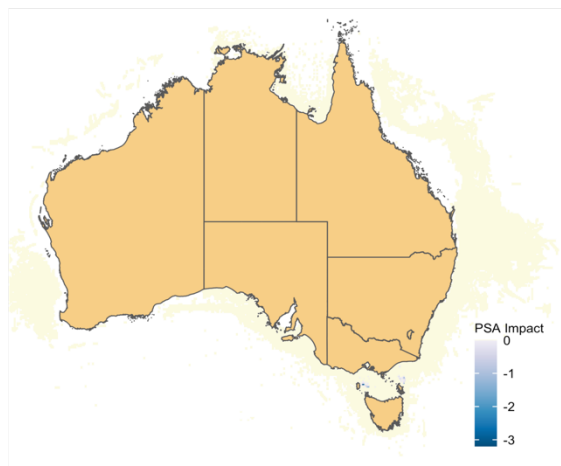
Lepidotrigla modesta



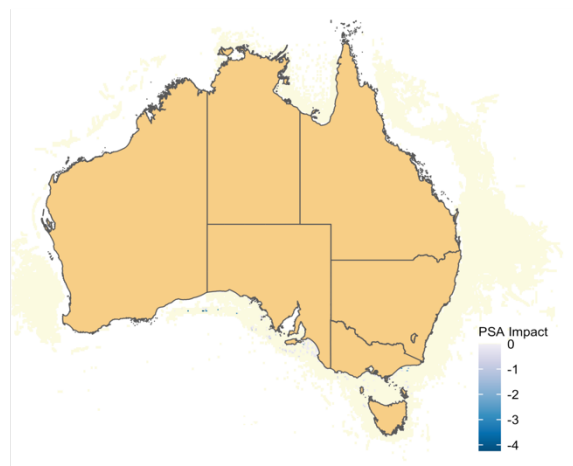
Lepidotrigla papilio



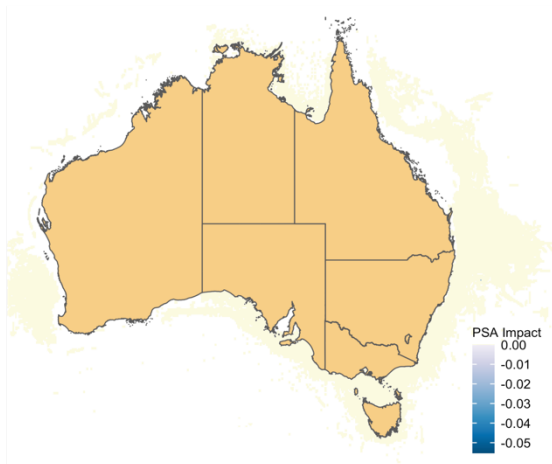
Lepidotrigla vanessa



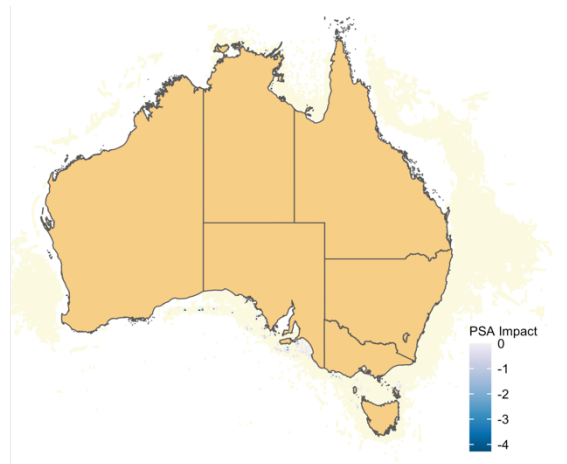
Leptoichthys fistularius



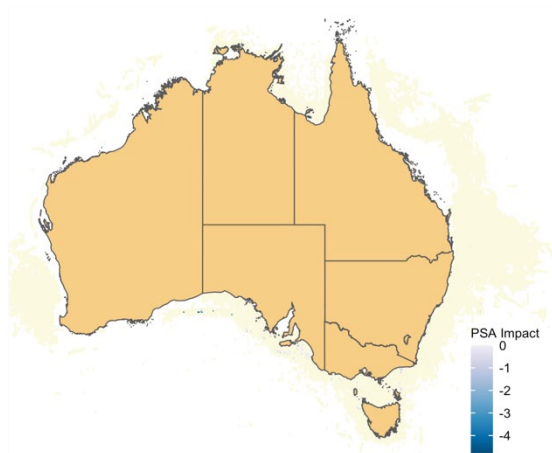
Lethrinus miniatus



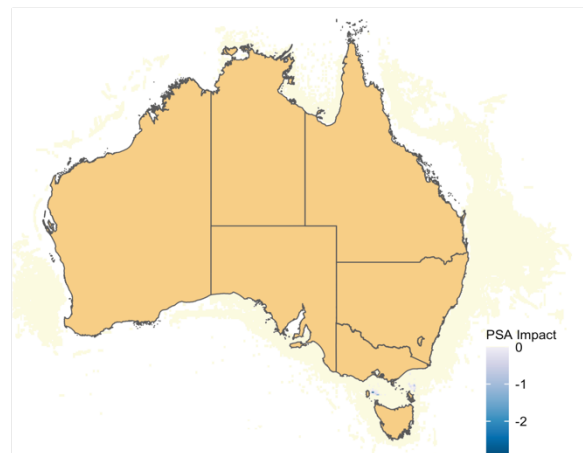
Lissocampus caudalis



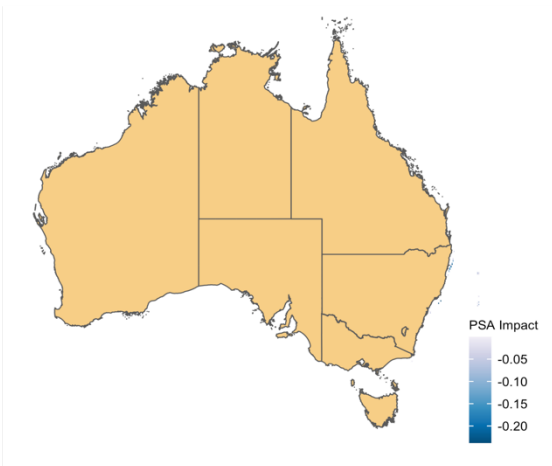
Lissocampus runa



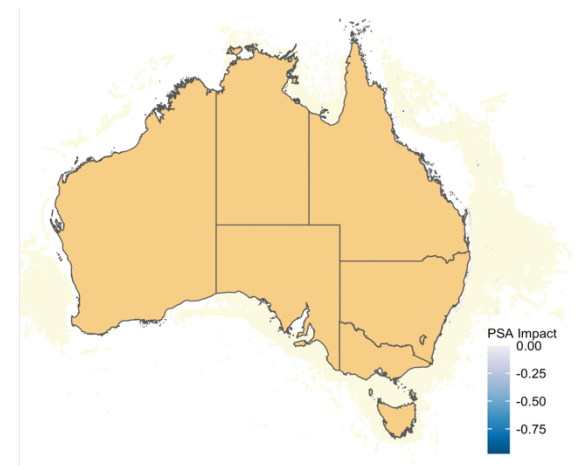
Lophonectes gallus



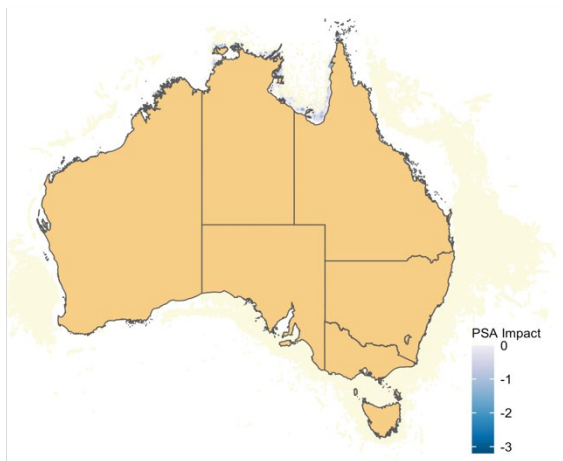
Lophotus lacepede



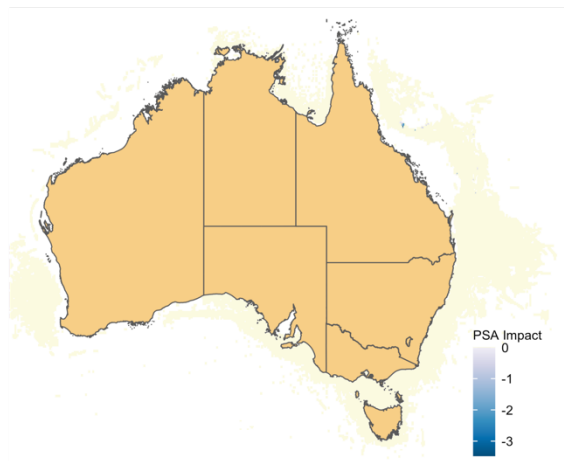
Lutjanus argentimaculatus



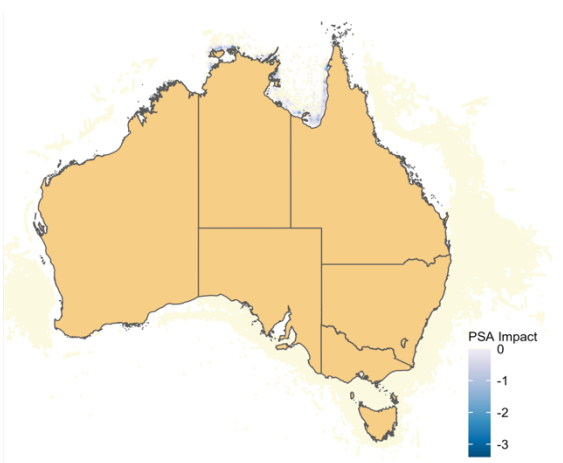
Lutjanus fulvivflamma



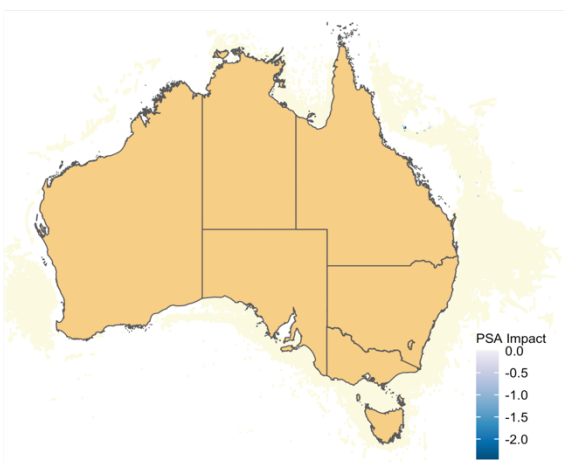
Lutjanus malabaricus



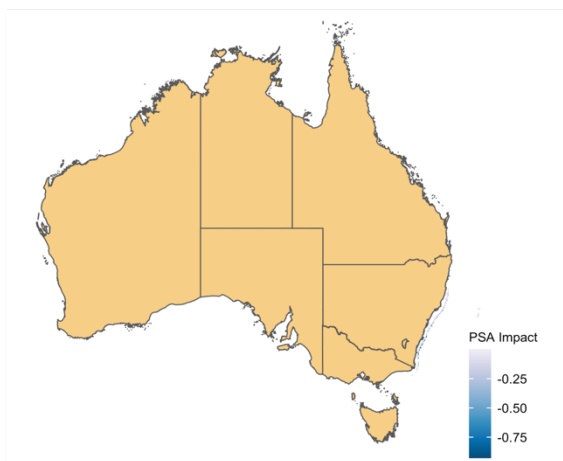
Lutjanus russellii



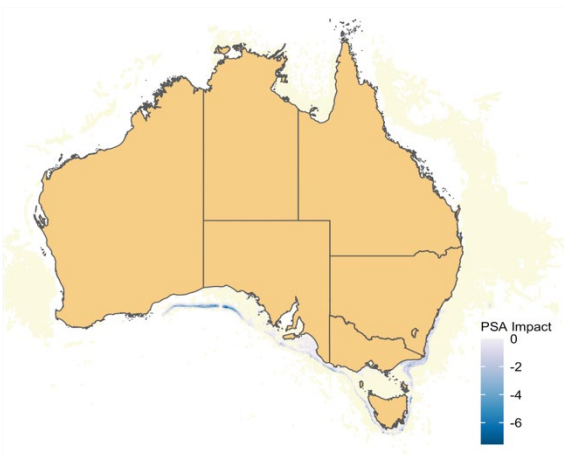
Lutjanus sebae



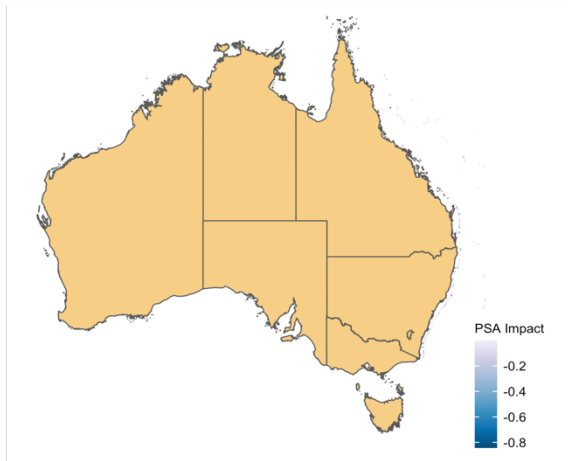
Luvarus imperialis



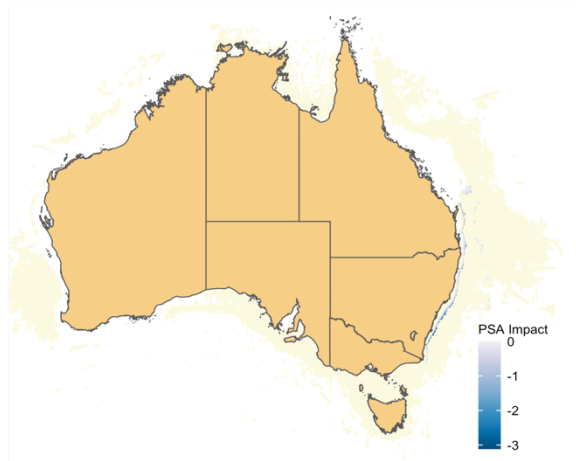
Macruronus novaezelandiae



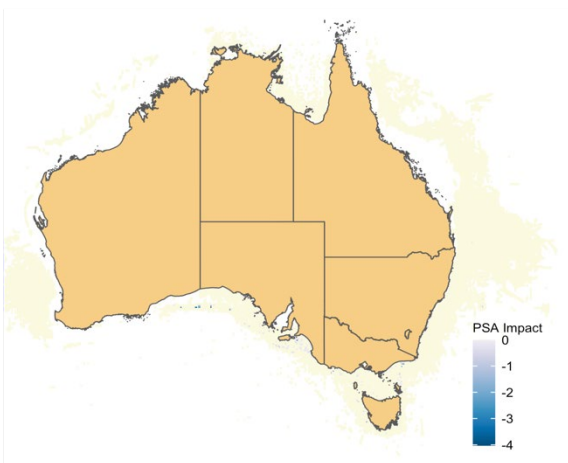
Makaira nigricans



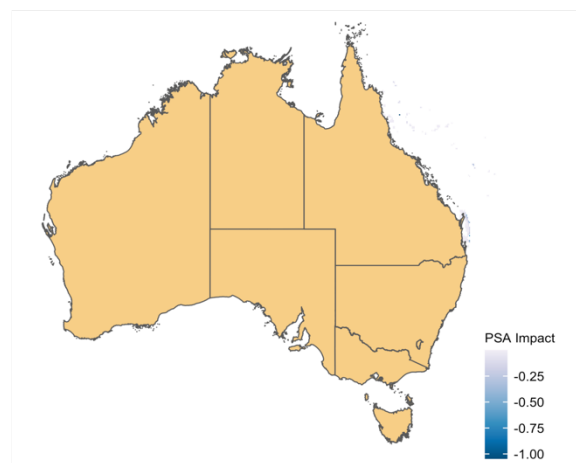
Malacocephalus laevis



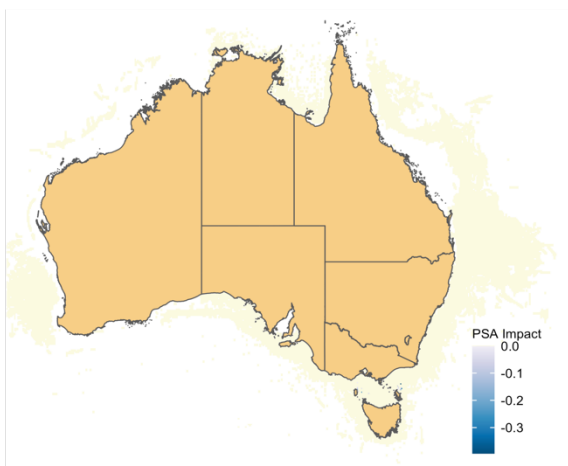
Maroubra perserrata



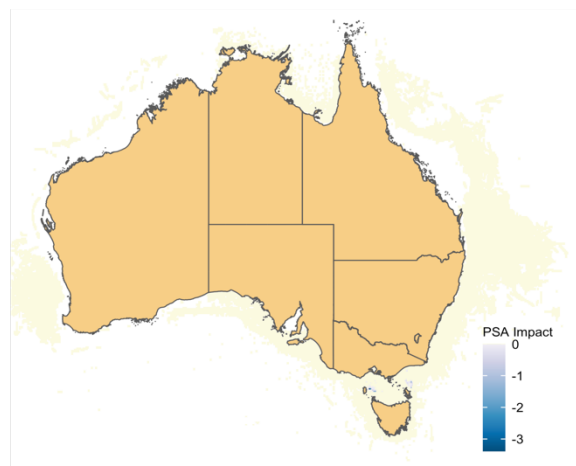
Mene maculata



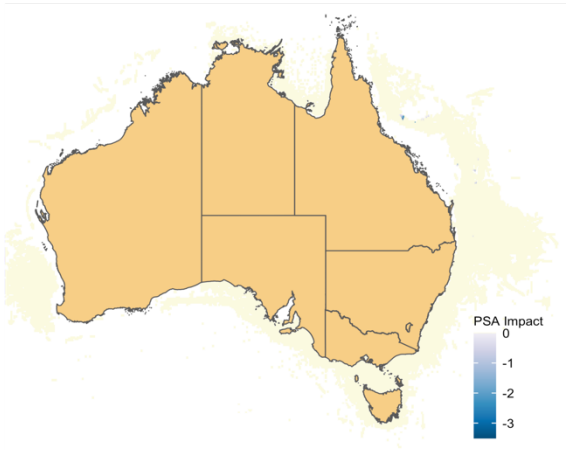
Meuschenia australis



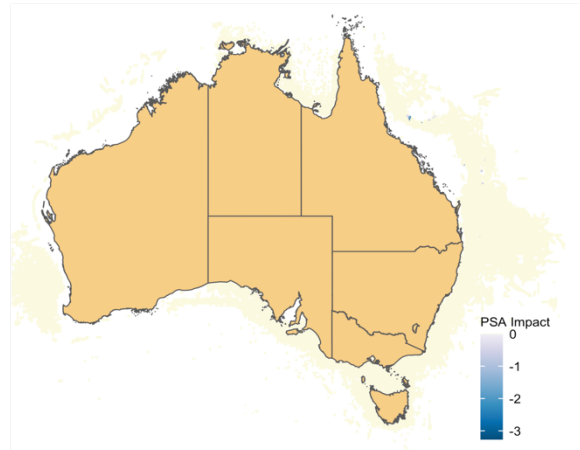
Meuschenia scaber



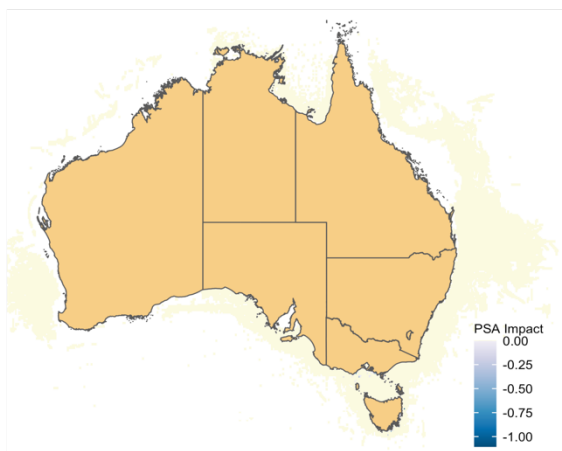
Micrognathus andersonii



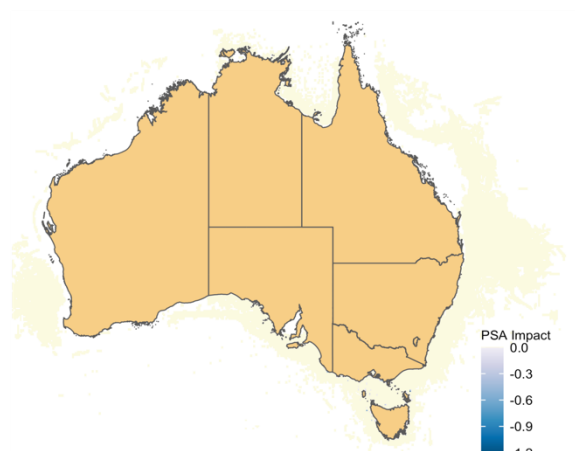
Micrognathus pygmaeus



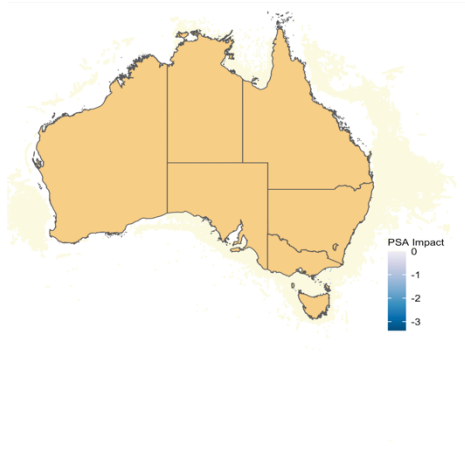
Mitotichthys mollisoni



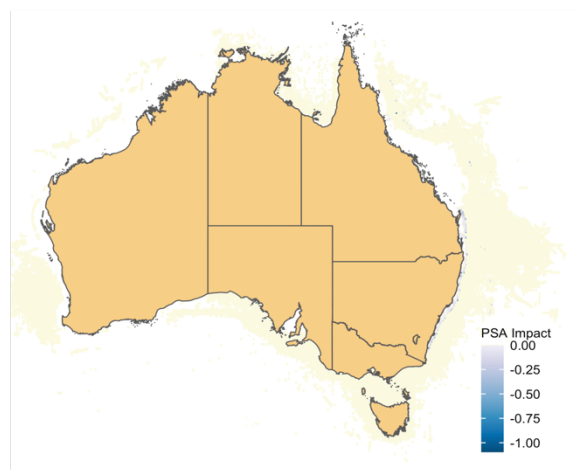
Mitotichthys semistriatus



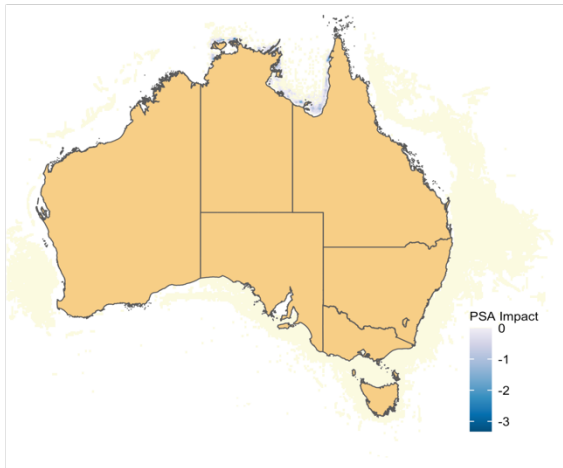
Mitotichthys tuckeri



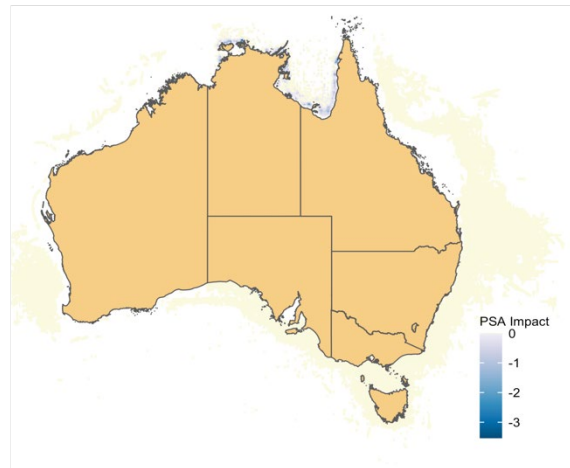
Mobula birostris



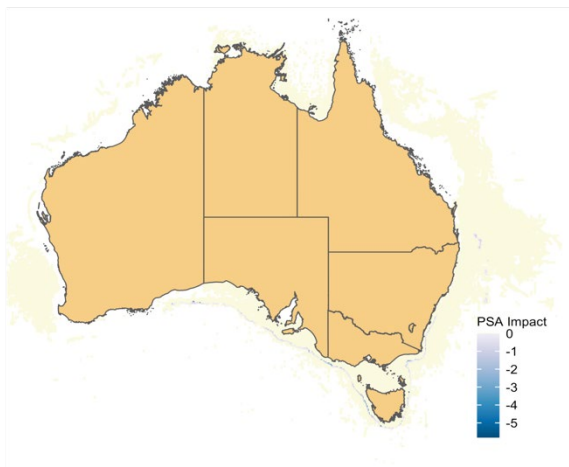
Monacanthus chinensis



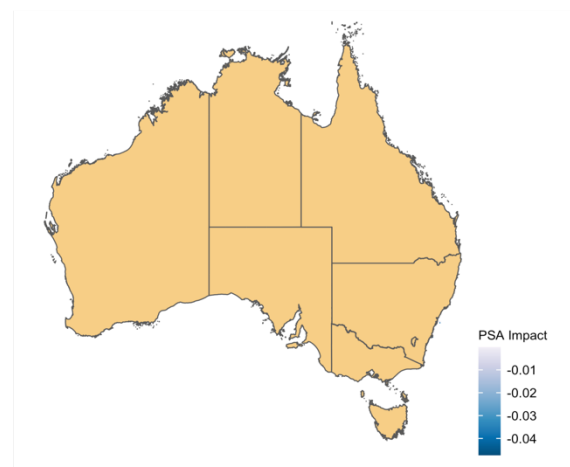
Monotaxis grandoculis



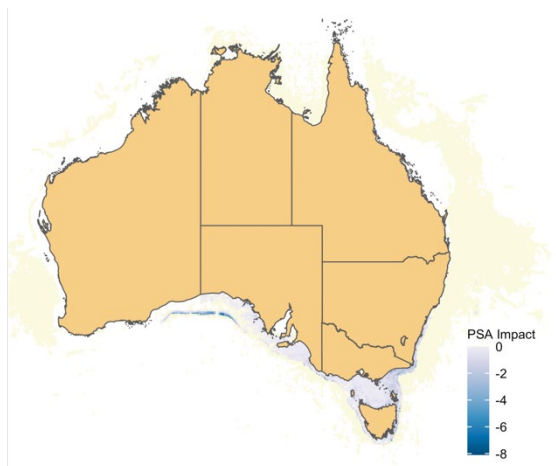
Mora moro



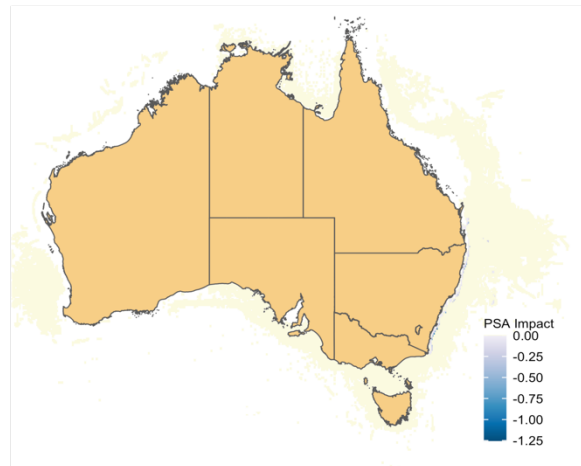
Mordacia mordax



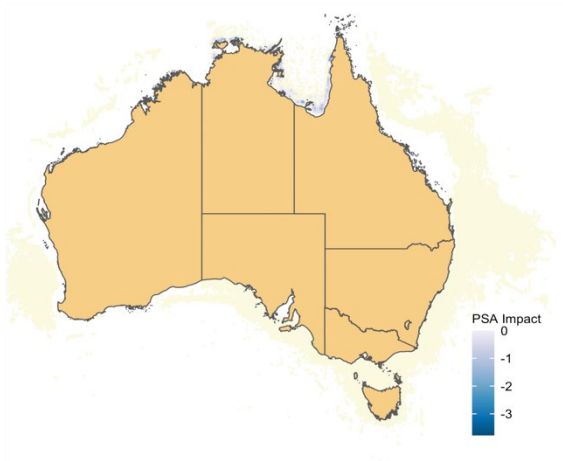
Mustelus antarcticus



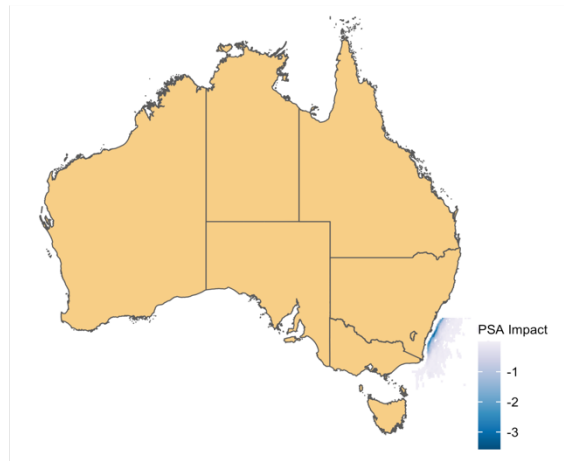
Myliobatis tenuicaudatus



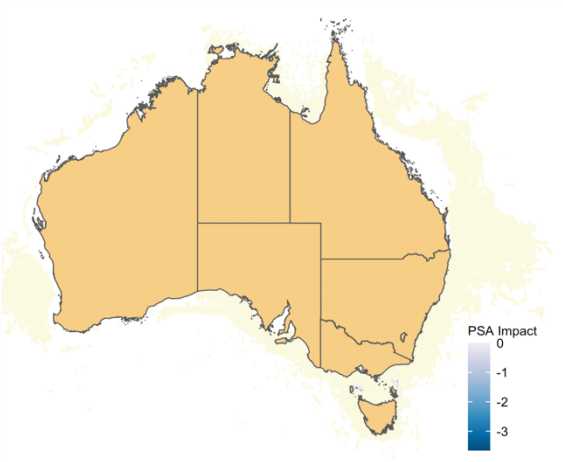
Myripristis murdjan



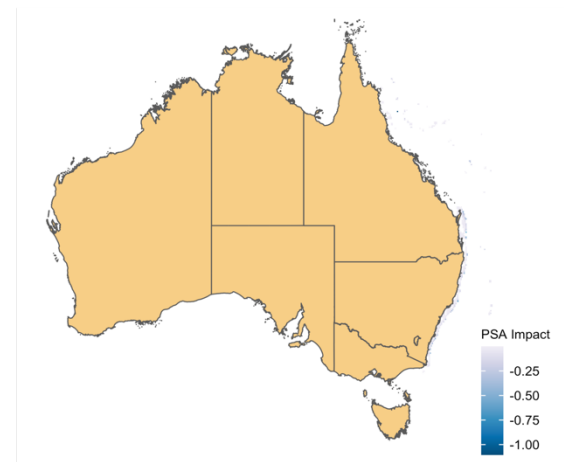
Nannobranchium achirus



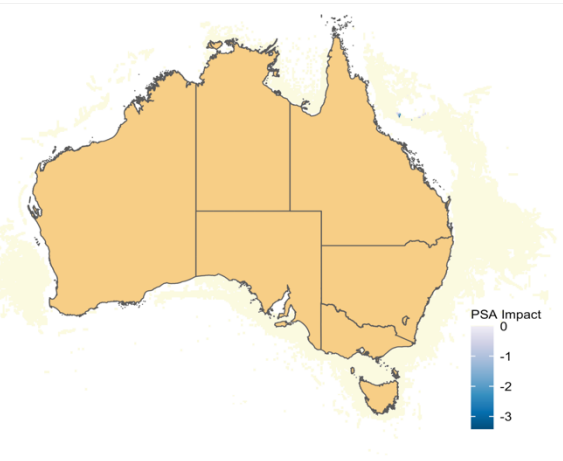
Narcine tasmaniensis



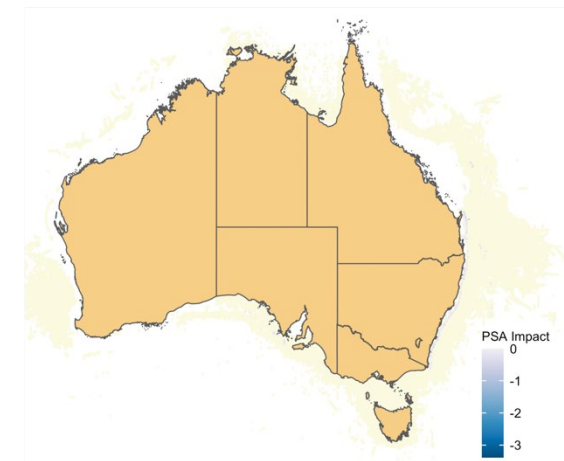
Naucrates ductor



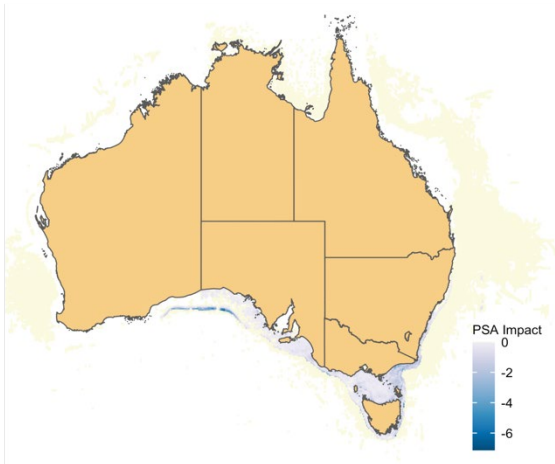
Nebrius ferrugineus



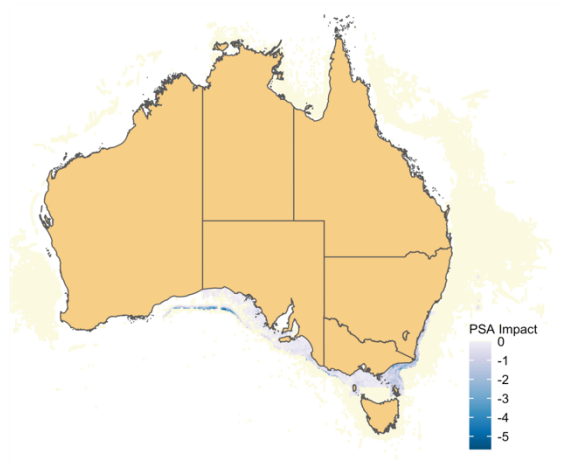
Nelusetta ayraud



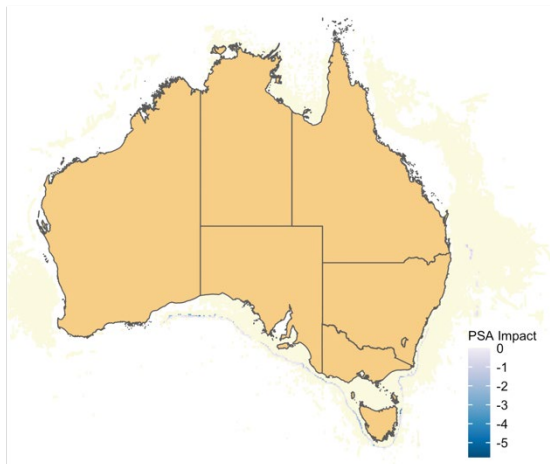
Nemadactylus macropterus



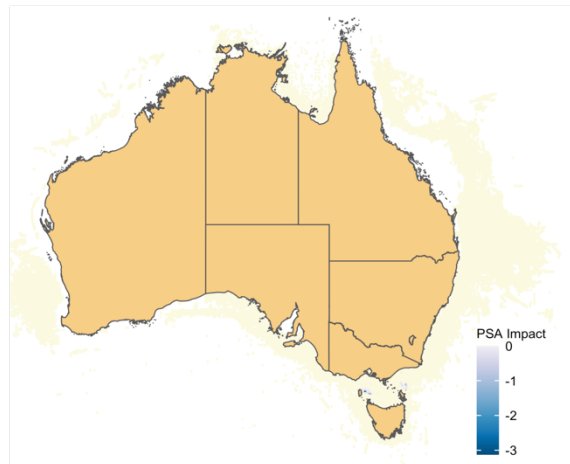
Nemadactylus valenciennesi



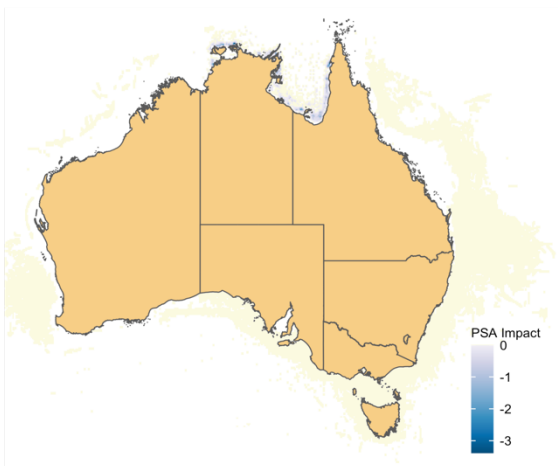
Neocyttus rhomboidalis



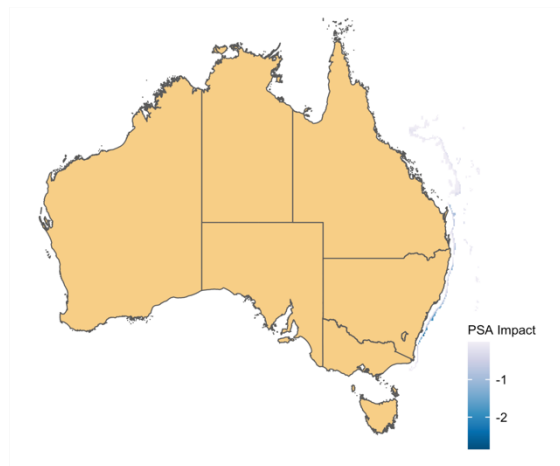
Neosebastes scorpaenoides



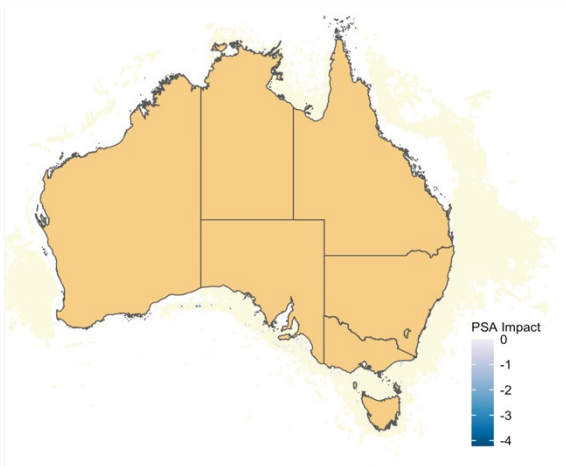
Neotrygon australiae



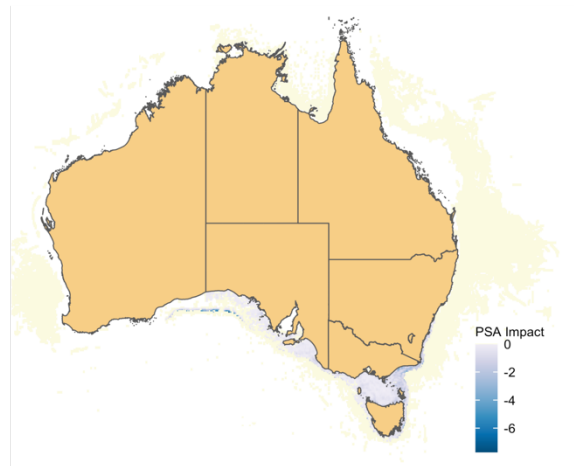
Nesiarchus nasutus



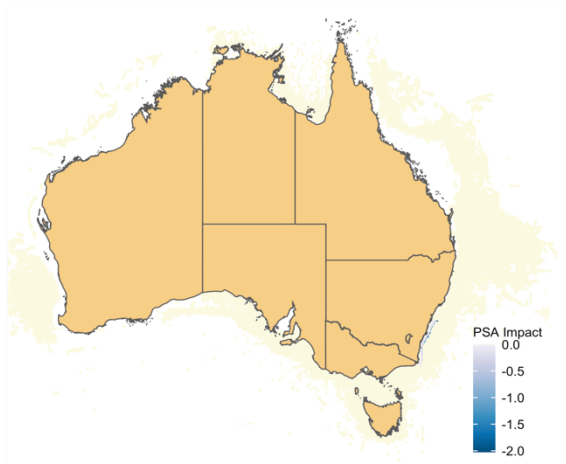
Notiocampus ruber



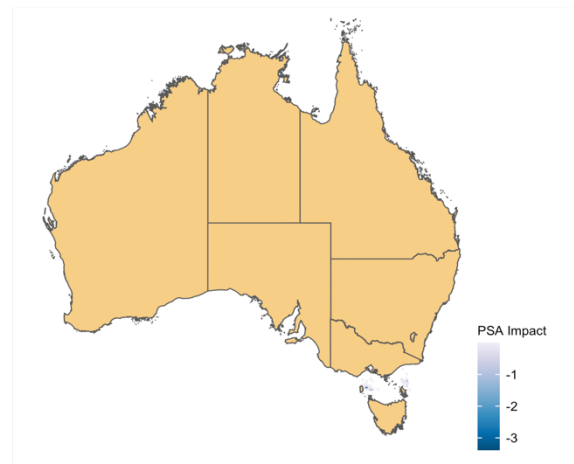
Notorynchus cepedianus



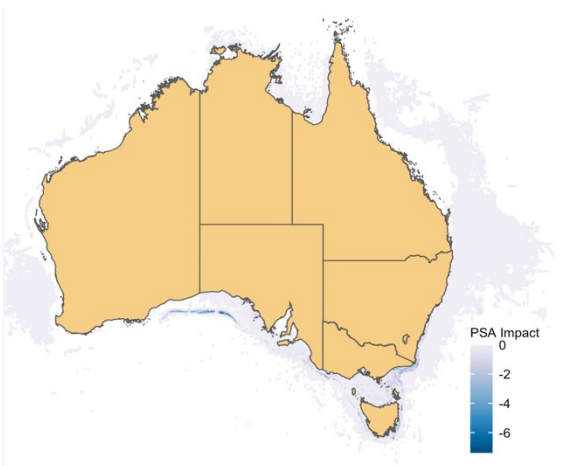
Odontaspis ferox



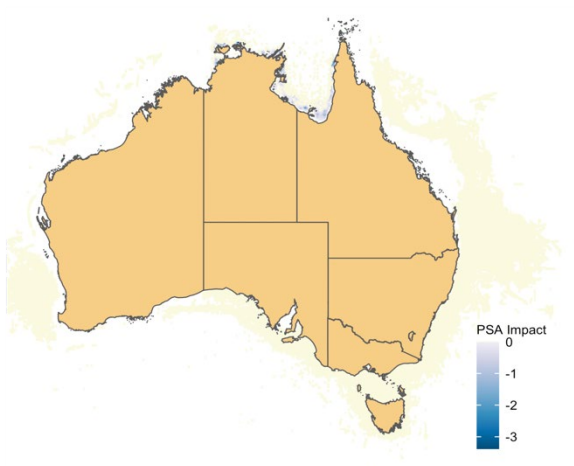
Ophisurus serpens



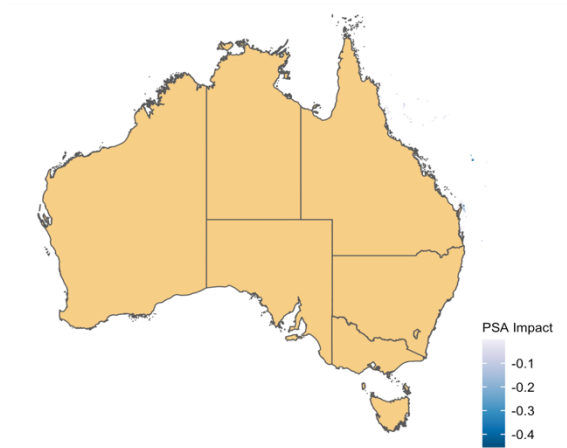
Oplegnathus woodwardi



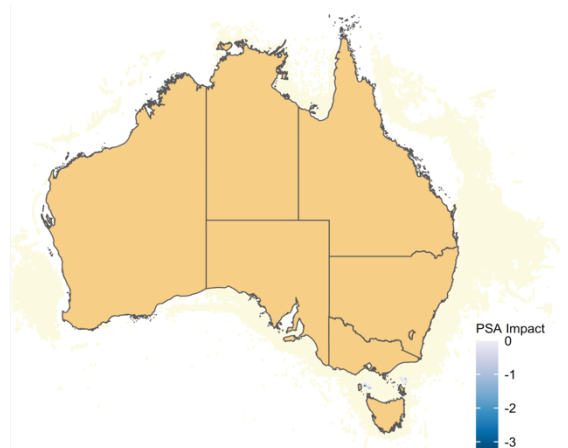
Ostracion meleagris



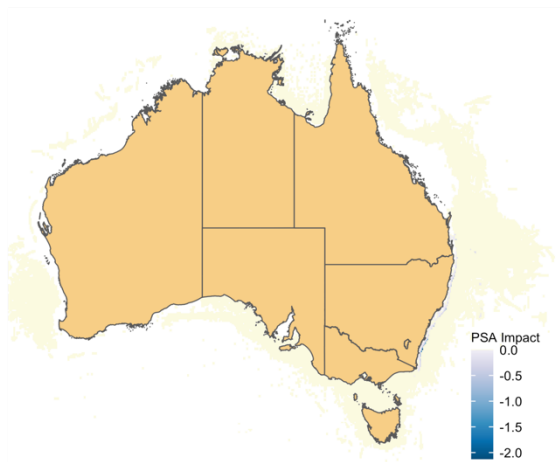
Parastromateus niger



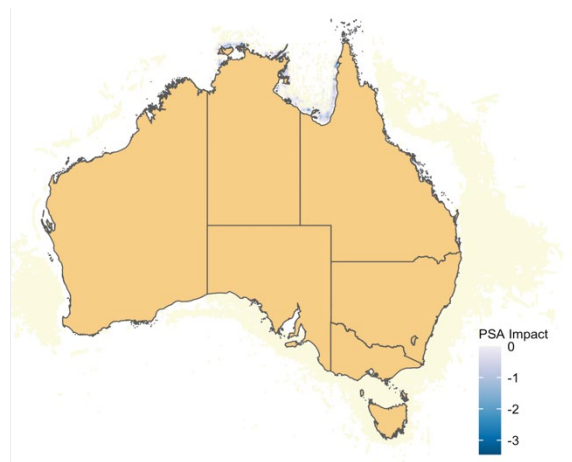
Parequula melbournensis



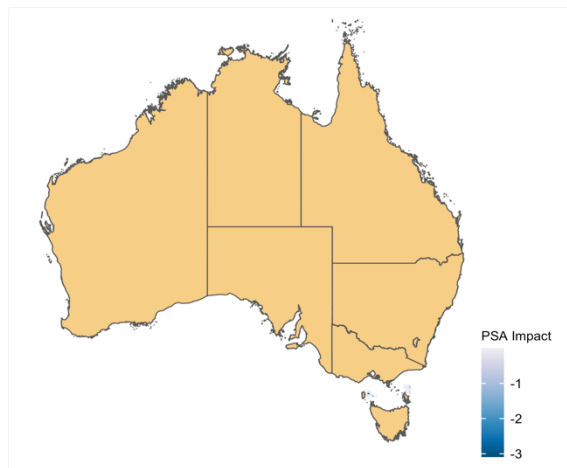
Paristiopterus labiosus



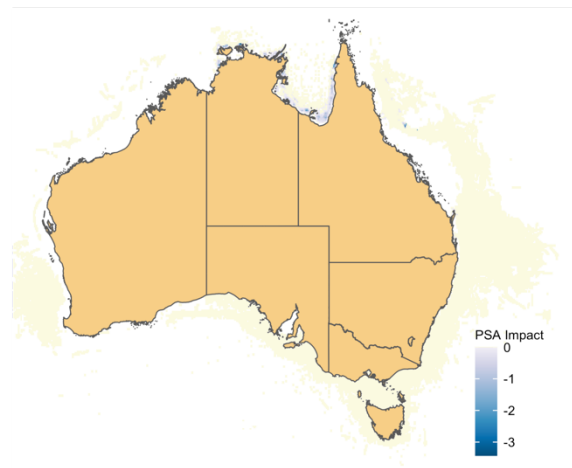
Parupeneus indicus



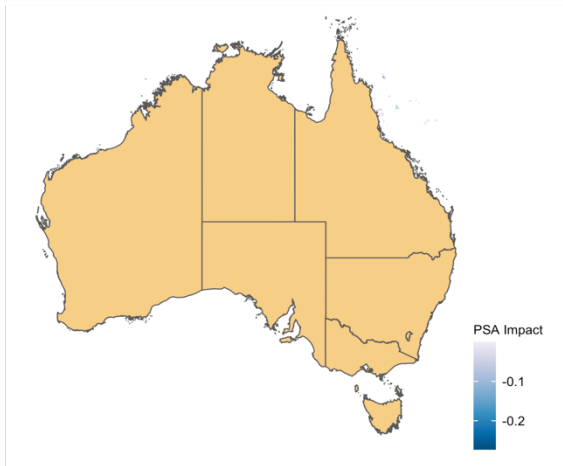
Pegasus lancifer



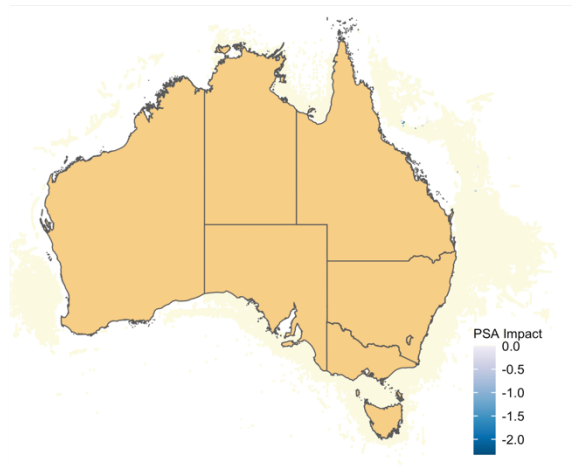
Pelamis platurus



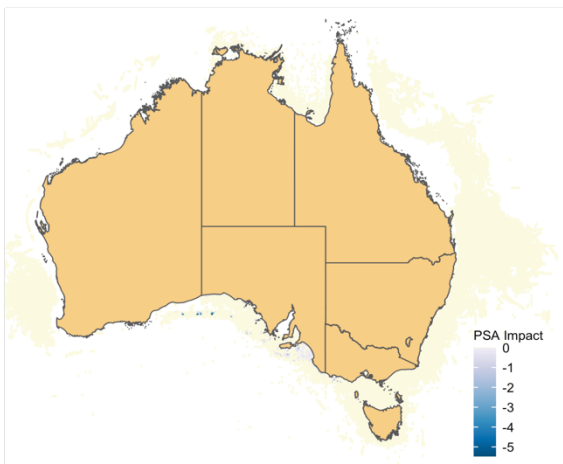
Pellona ditchela



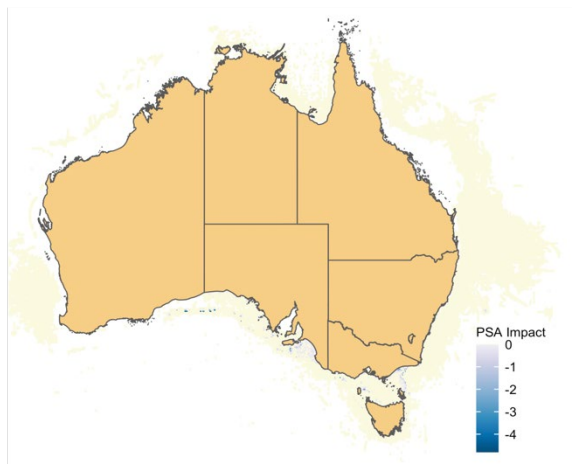
Phoxocampus diacanthus



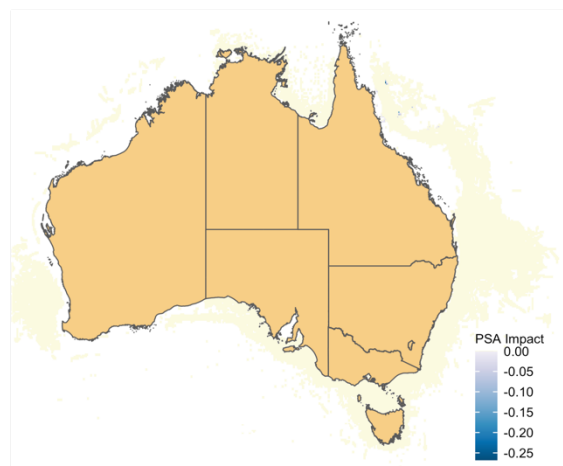
Phycodurus eques



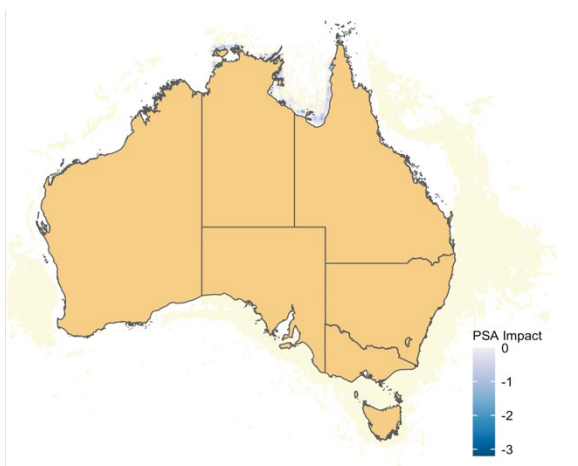
Phyllopteryx taeniolatus



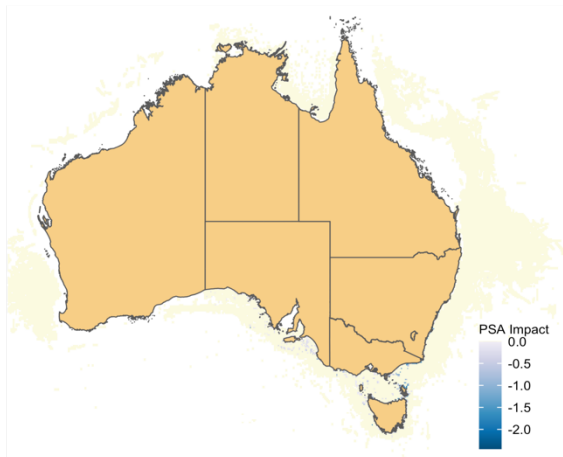
Platax orbicularis



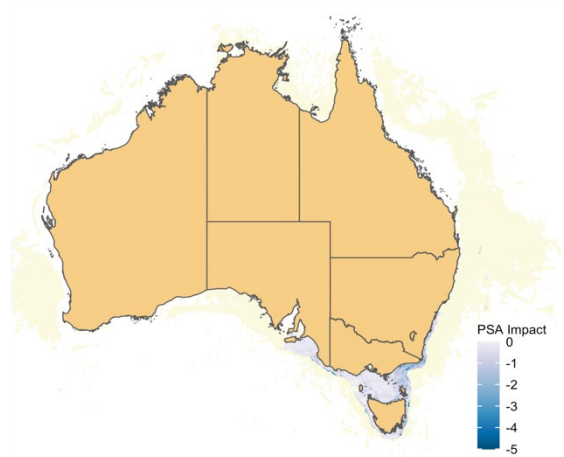
Platax teira



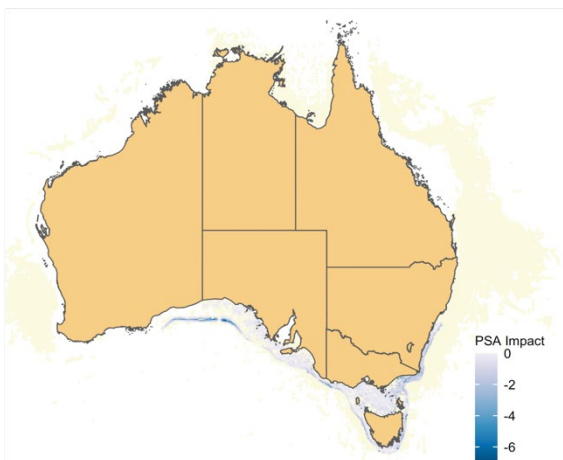
Platycephalus laevigatus



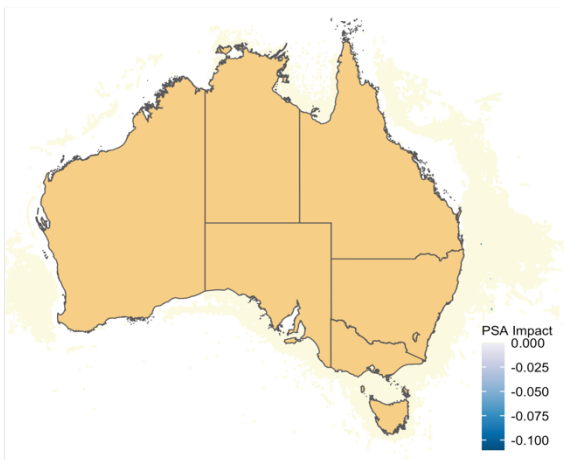
Platycephalus richardsoni



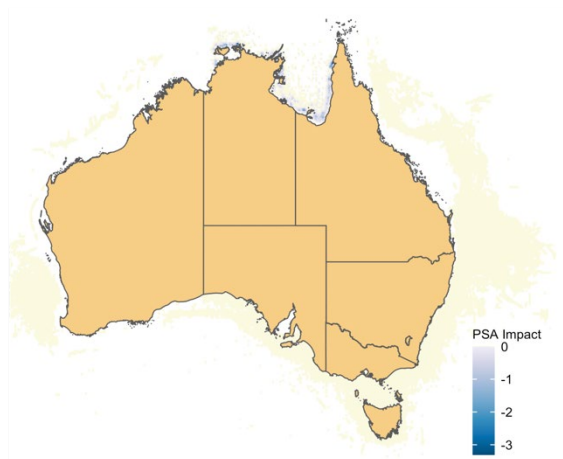
Polyprion oxygeneios



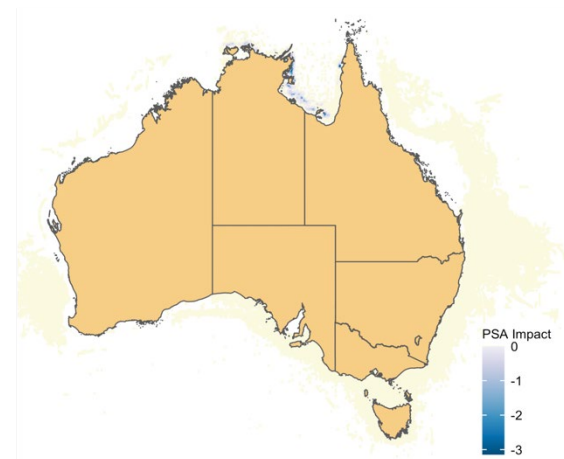
Pomatomus saltatrix



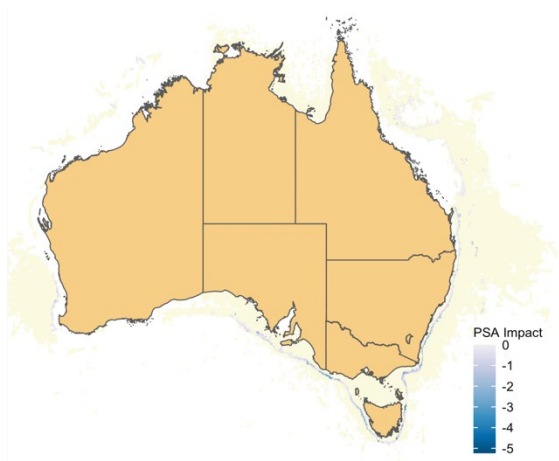
Priacanthus hamrur



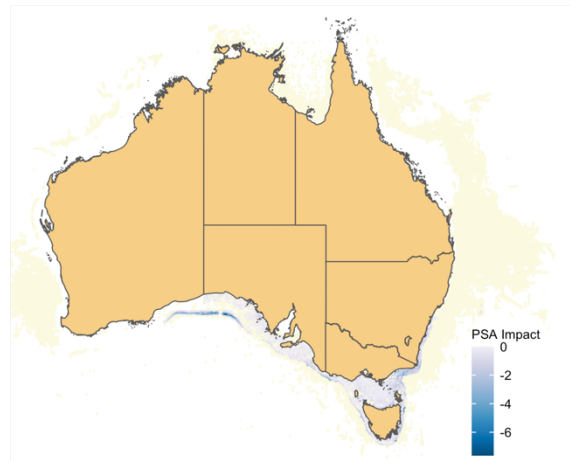
Priacanthus macracanthus



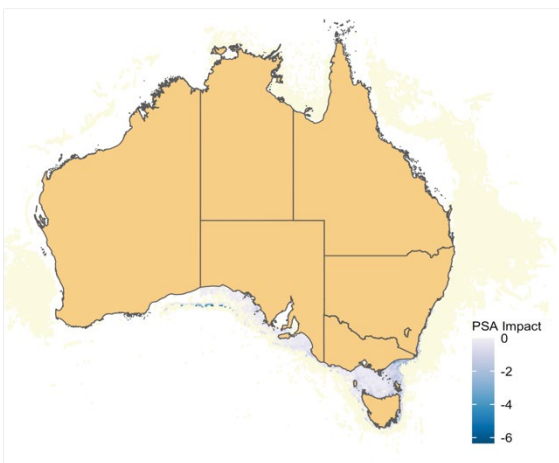
Prionace glauca



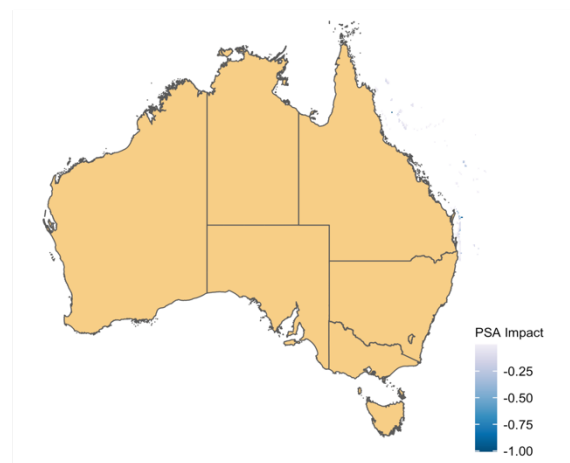
Pristiophorus cirratus



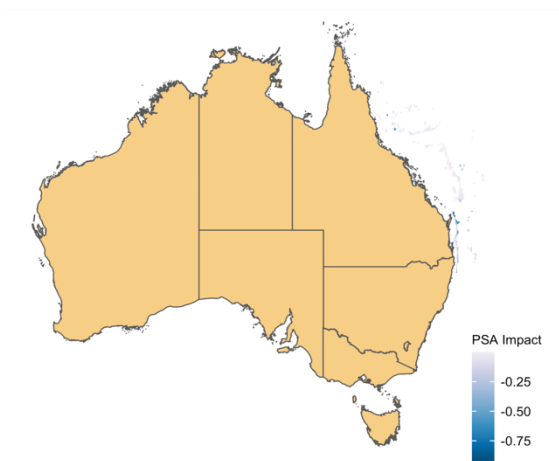
Pristiophorus nudipinnis



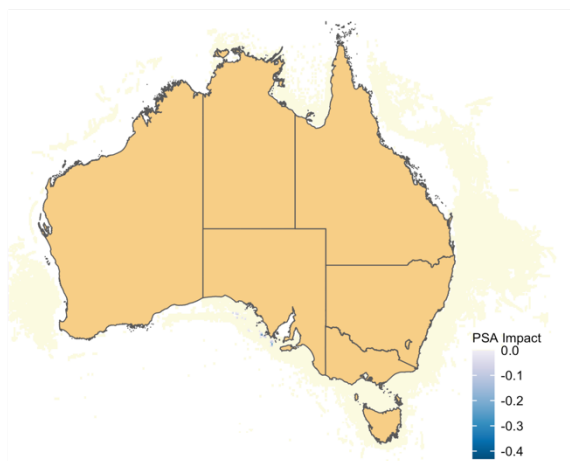
Pristipomoides filamentosus



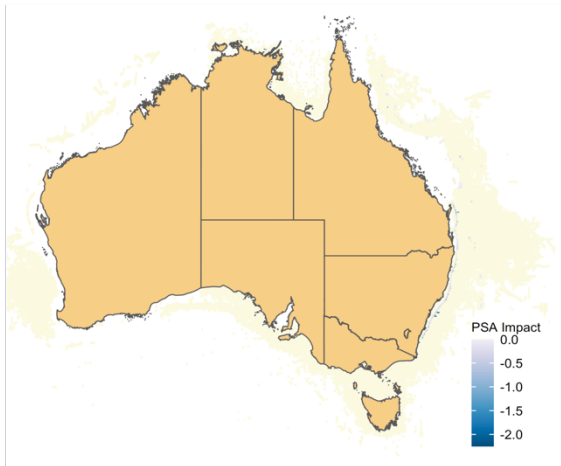
Promethichthys prometheus



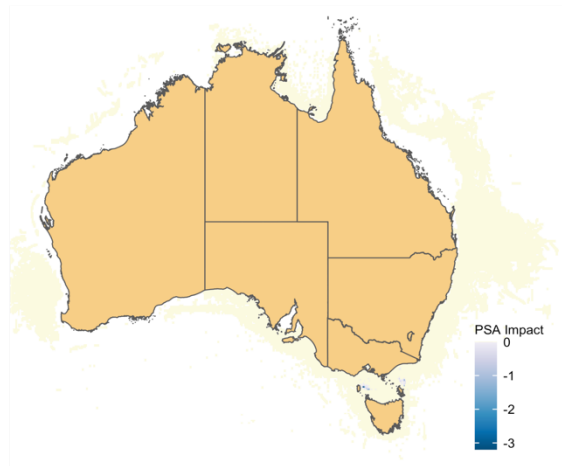
Pseudocaranx georgianus



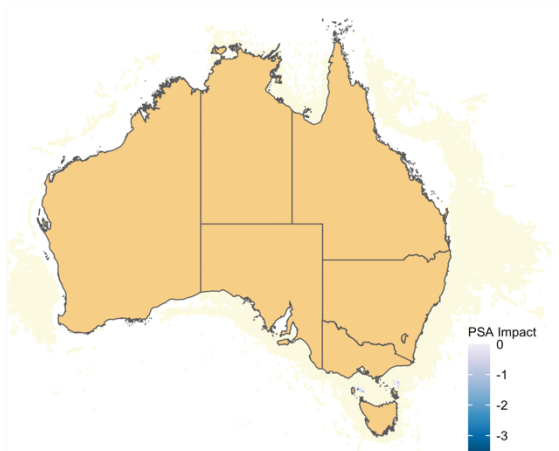
Pseudocarcharias kamoharai



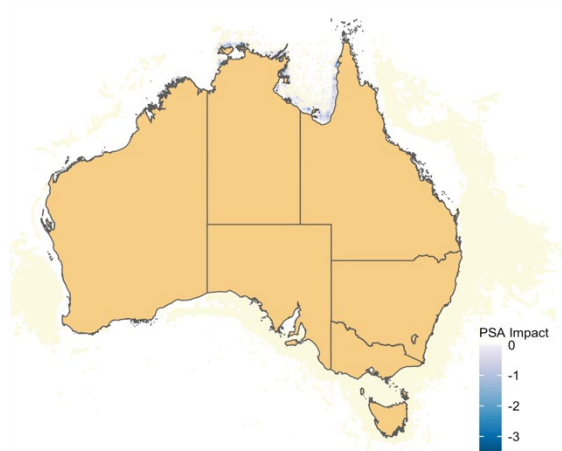
Pseudolabrus rubicundus



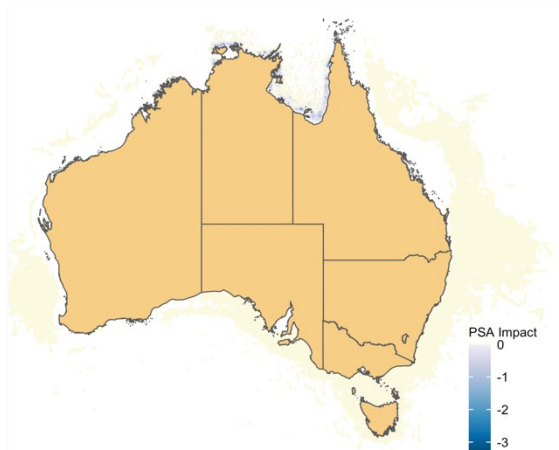
Pseudophycis barbata



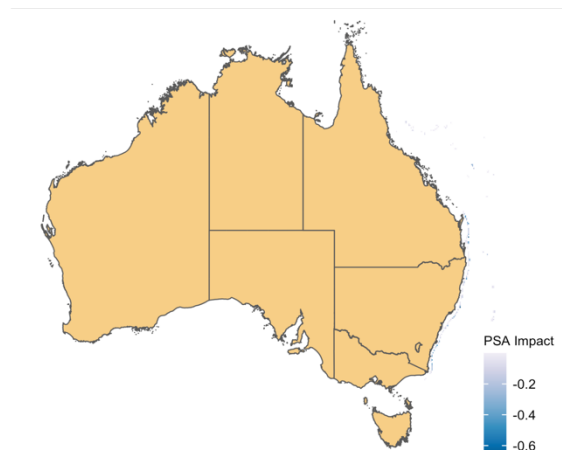
Pterois russelii



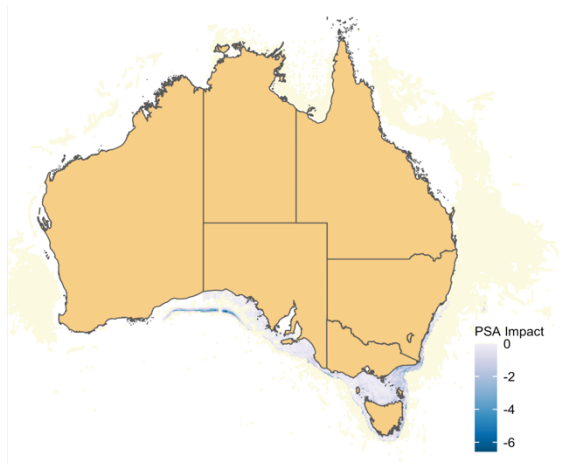
Pterois volitans



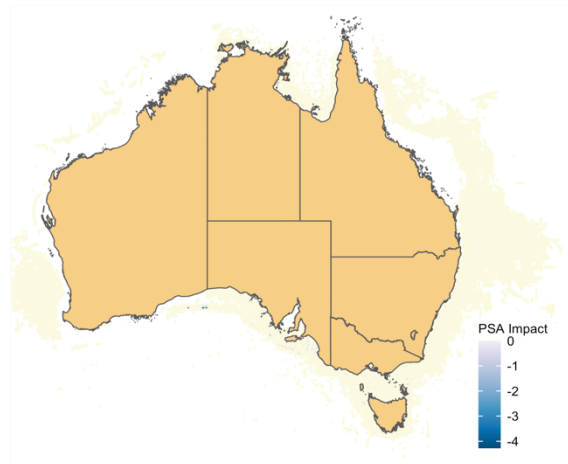
Pteroplatytrygon violacea



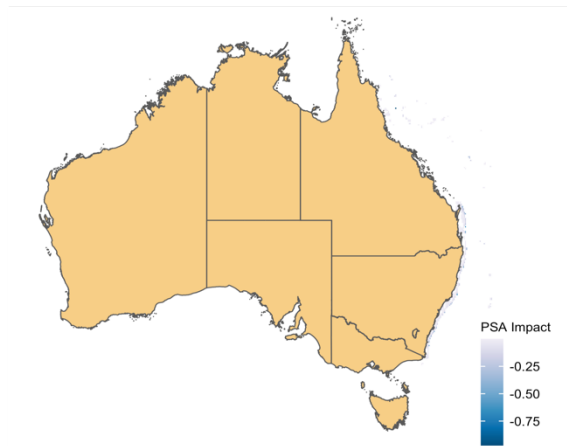
Pterygotrigla polyommata



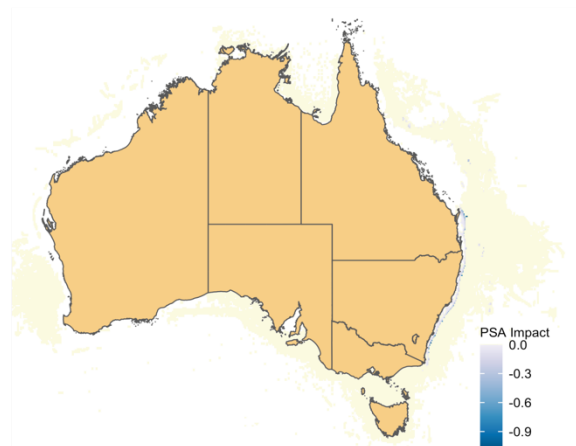
Pugnaso curtirostris



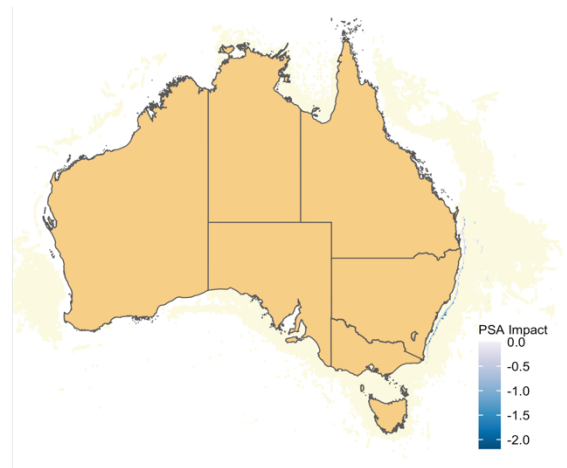
Rachycentron canadum



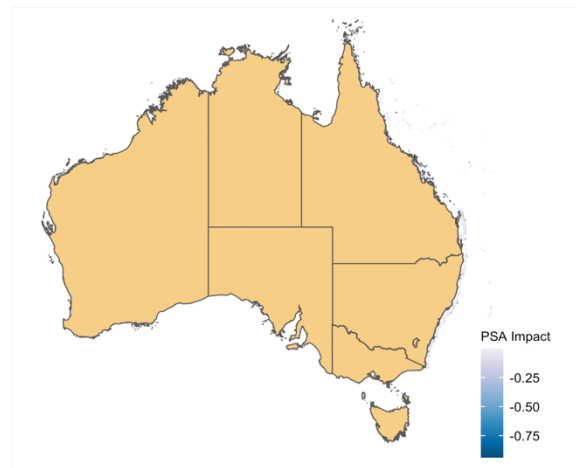
Ratabulus diversidens



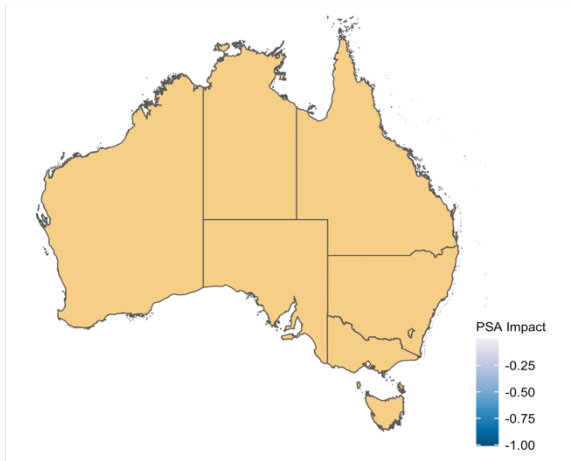
Regalecus glesne



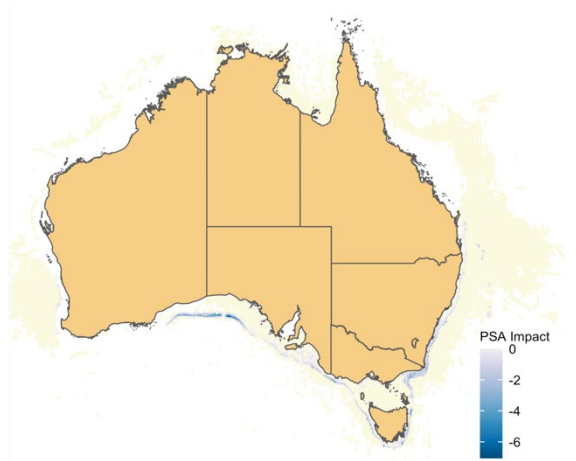
Remora brachyptera



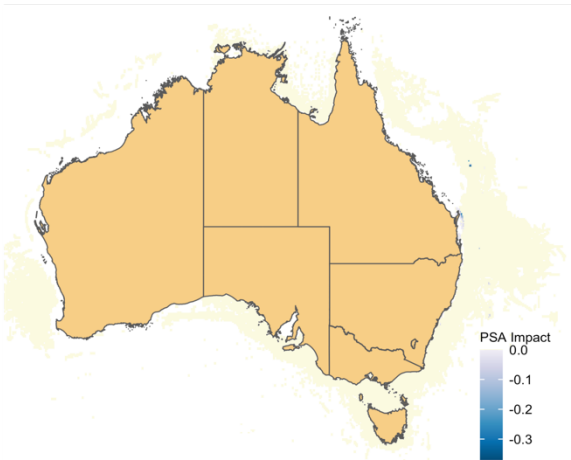
Remora remora



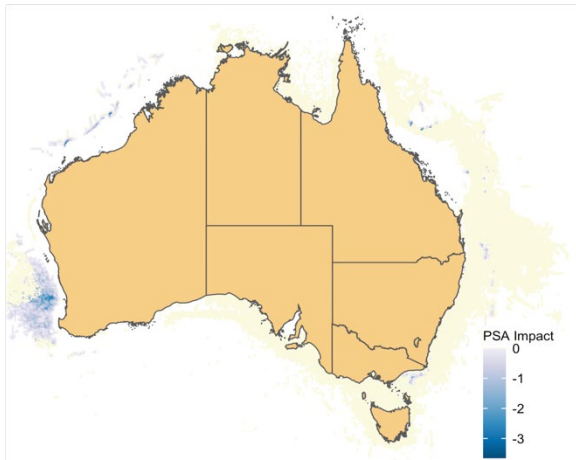
Rexea solandri



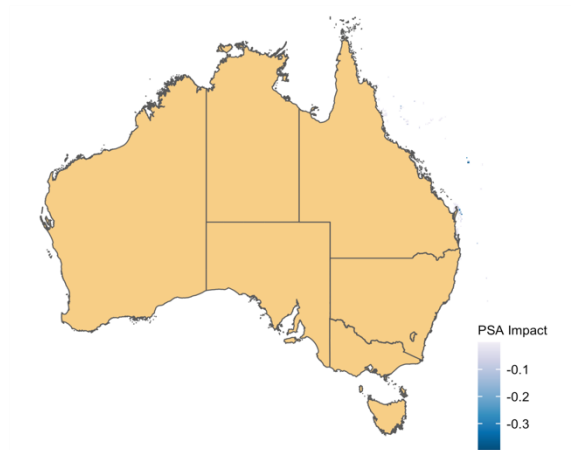
Rhabdosargus sarba



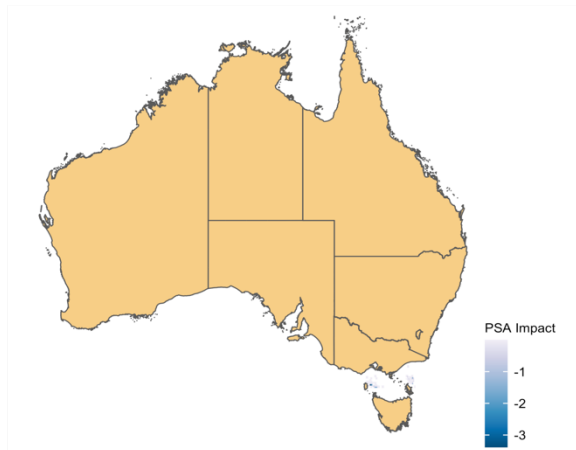
Rhincodon typus



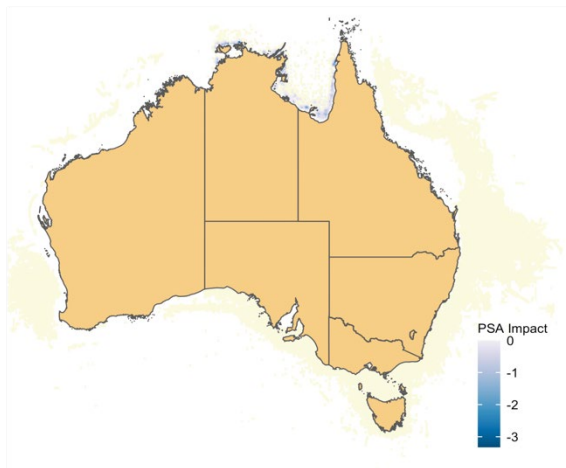
Rhinoptera neglecta



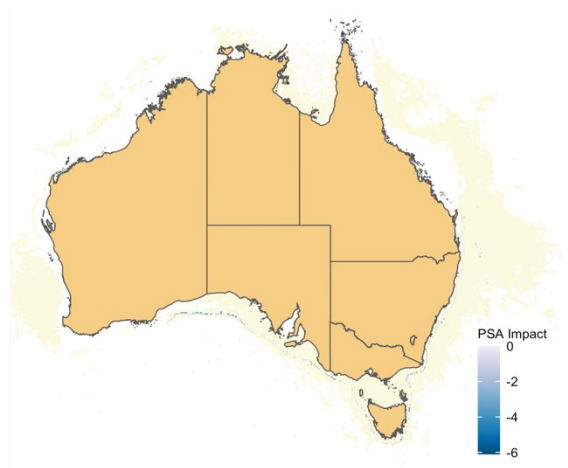
Rhombosolea tapirina



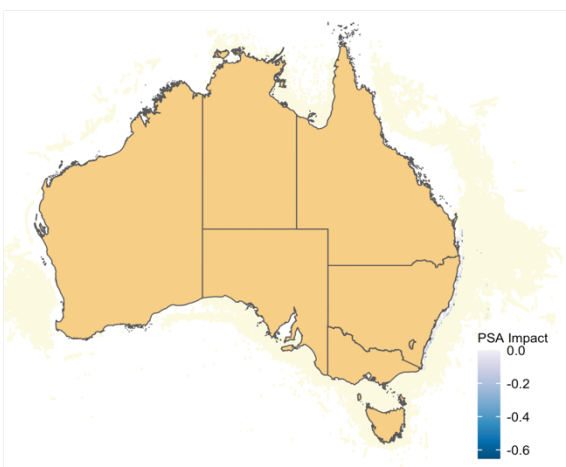
Rhynchobatus australiae



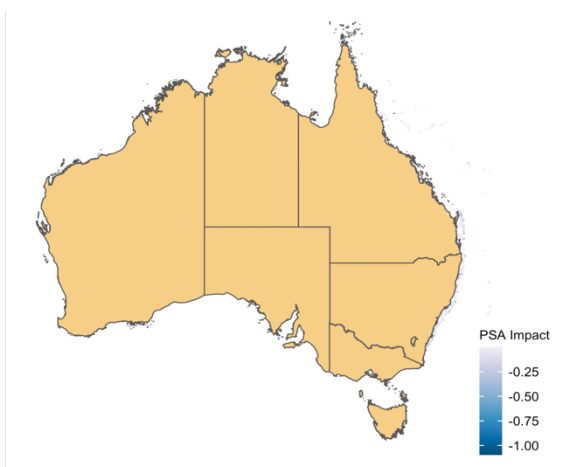
Ruvettus pretiosus



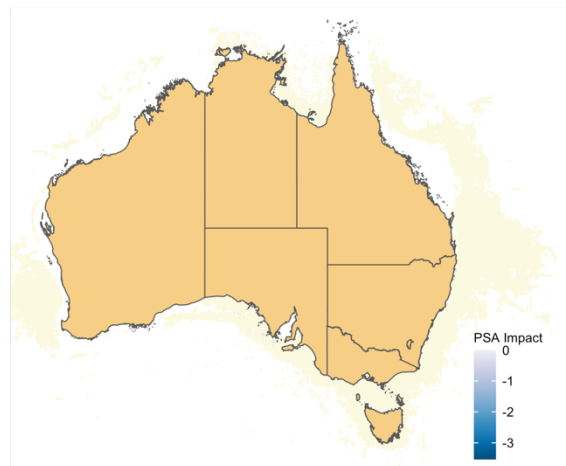
Sarda australis



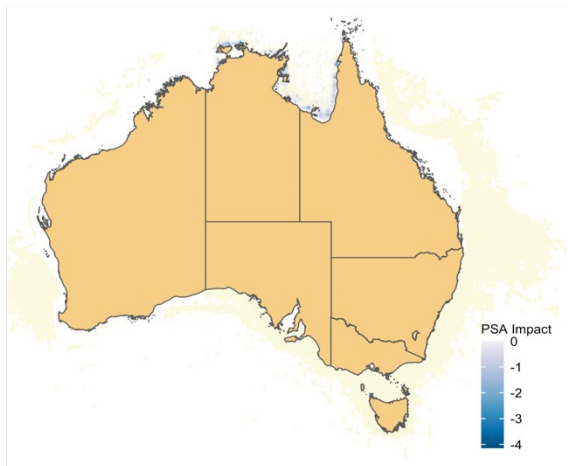
Sardinella gibbosa



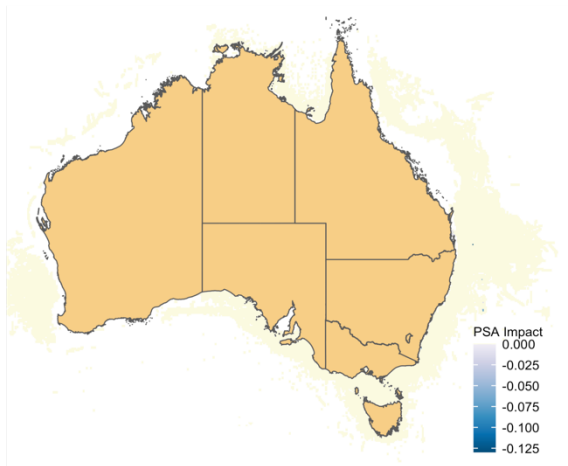
Sardinops sagax



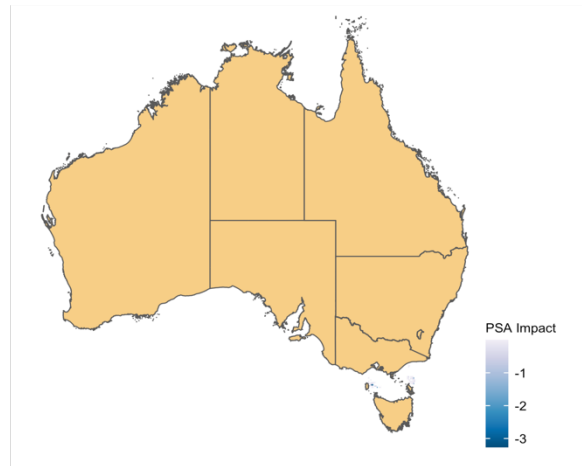
Sargocentron rubrum



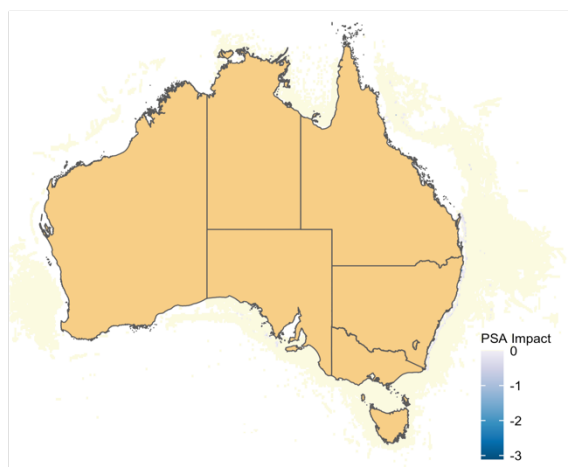
Scobinichthys granulatus



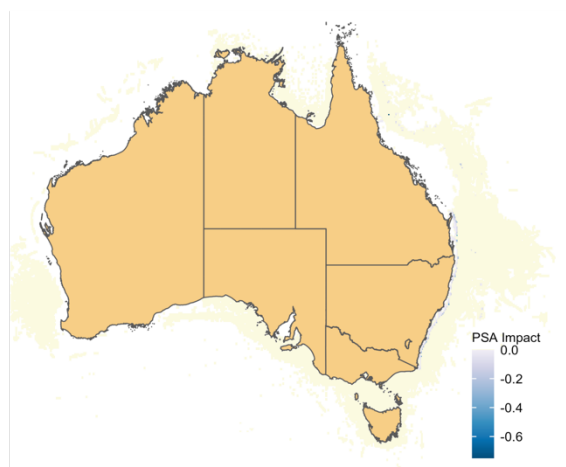
Scolecenchelys australis



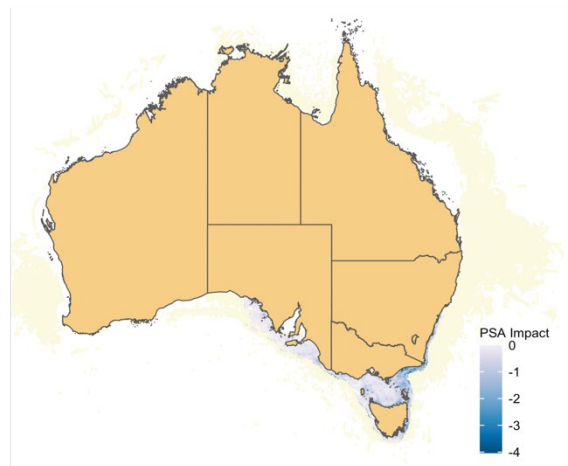
Scomber australasicus



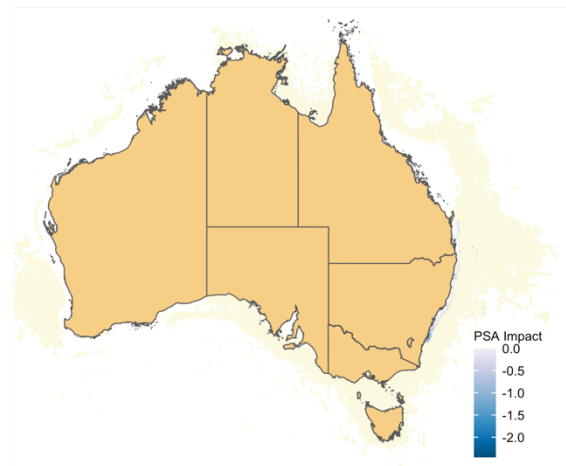
Scomberomorus commerson



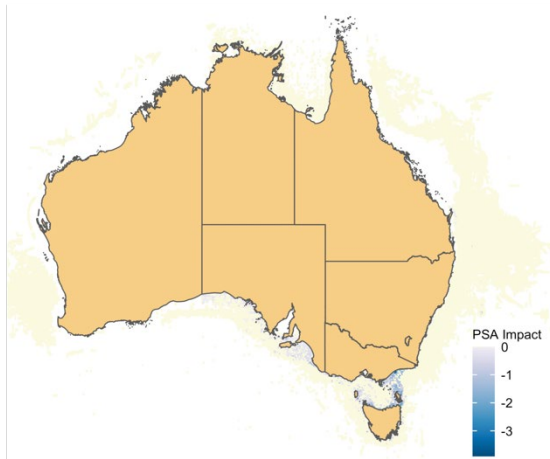
Scorpaena papillosa



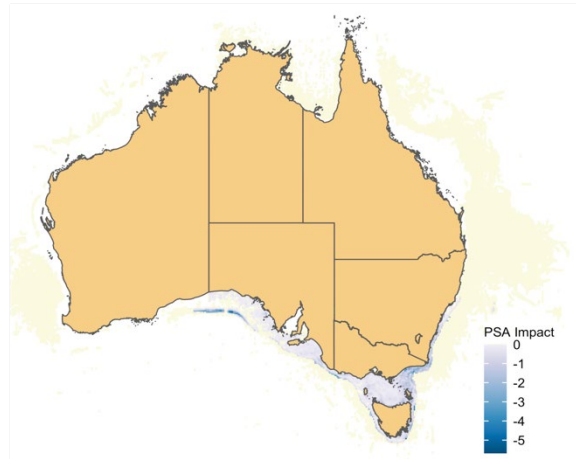
Seriola dumerilli



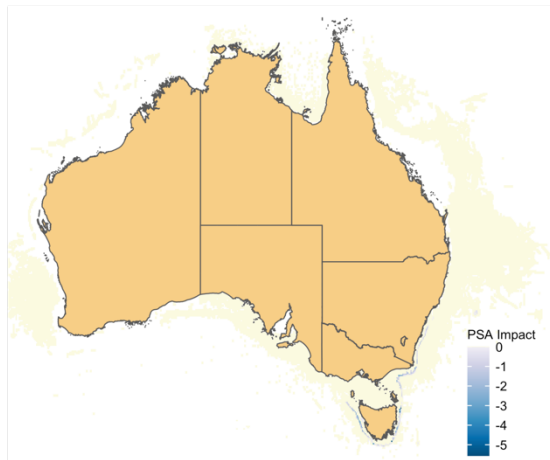
Seriola lalandi



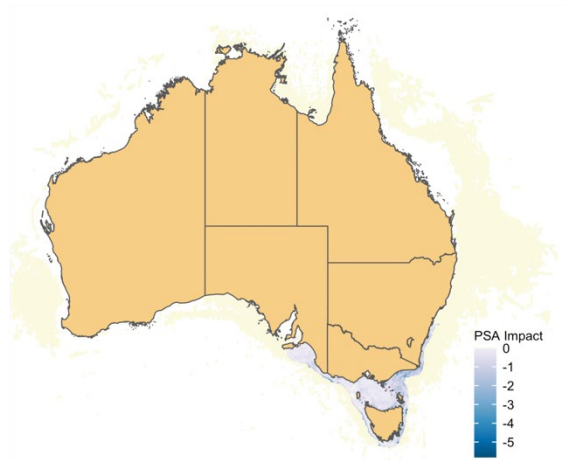
Seriolella brama



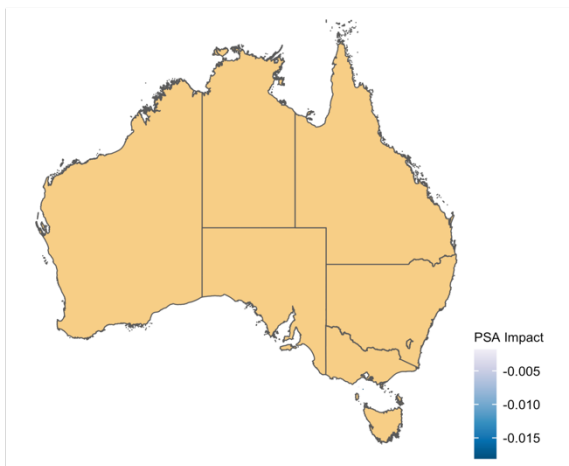
Seriorella caerulea



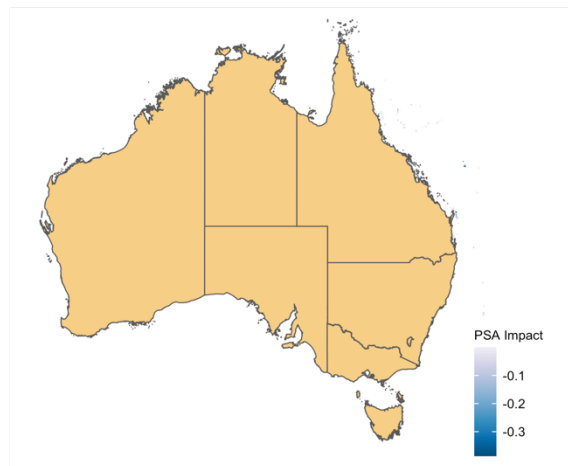
Seriorella punctata



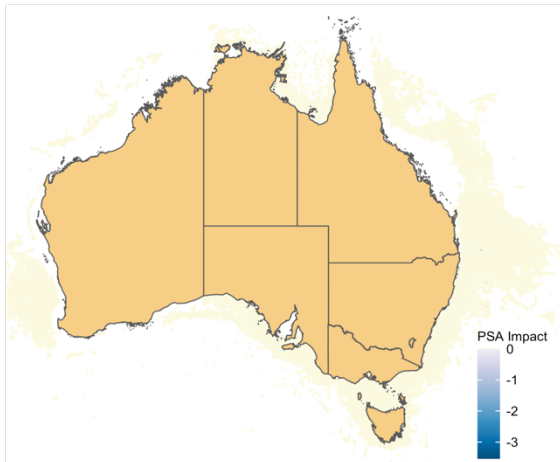
Sillago bassensis



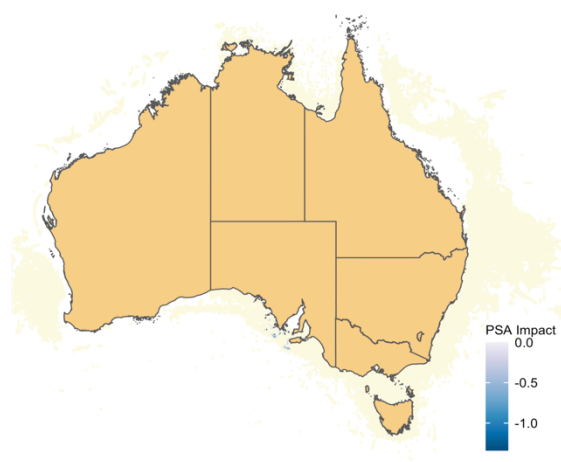
Sillago ciliata



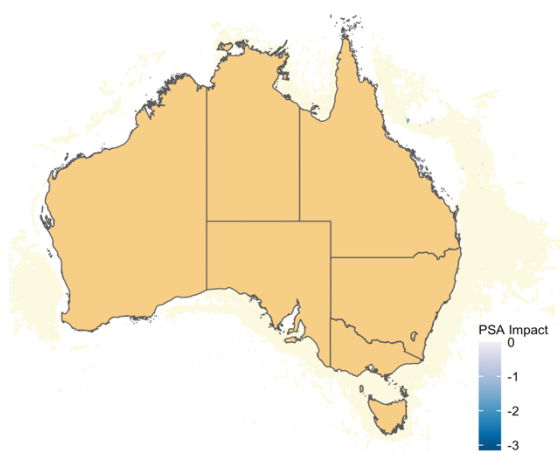
Solegnathus dunckeri



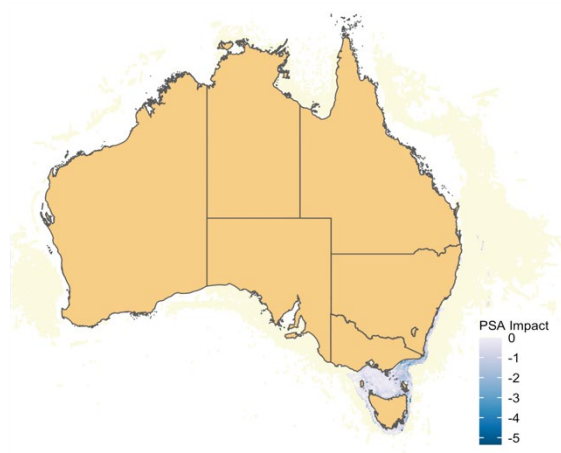
Solegnathus robustus



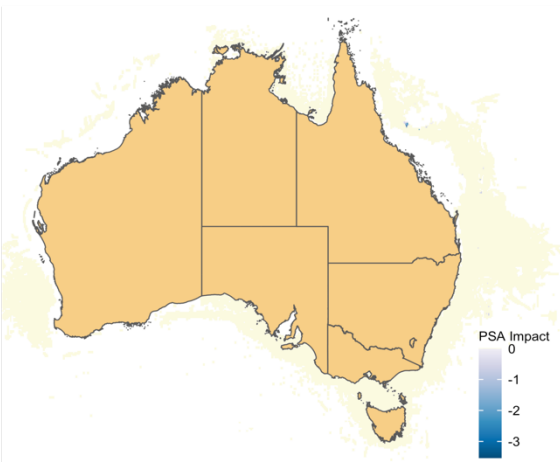
Solegnathus sp. 1 [in Kuiter, 2000]



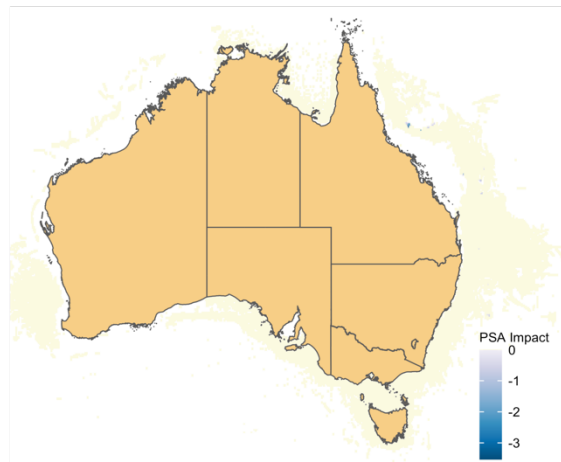
Solegnathus spinosissimus



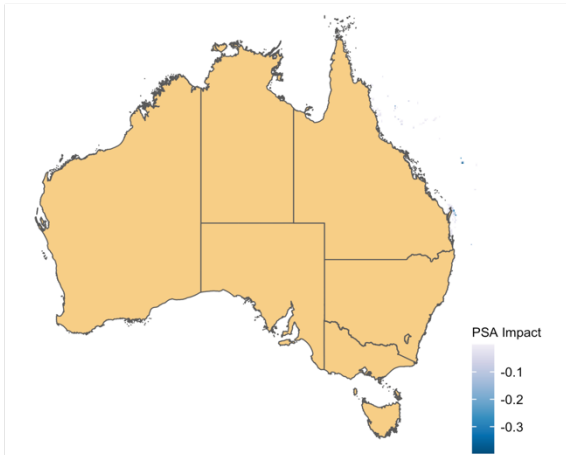
Solenostomus cyanopterus



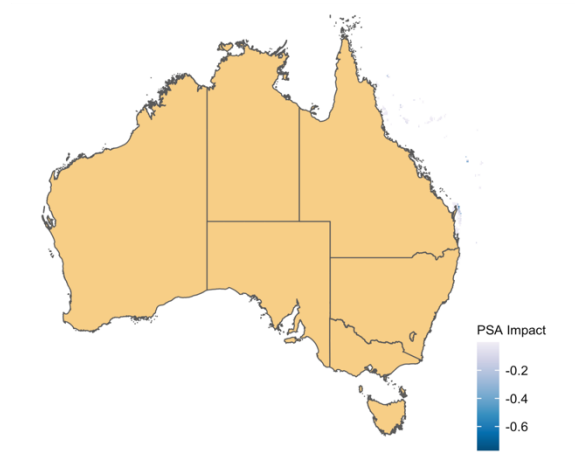
Solenostomus paradoxus



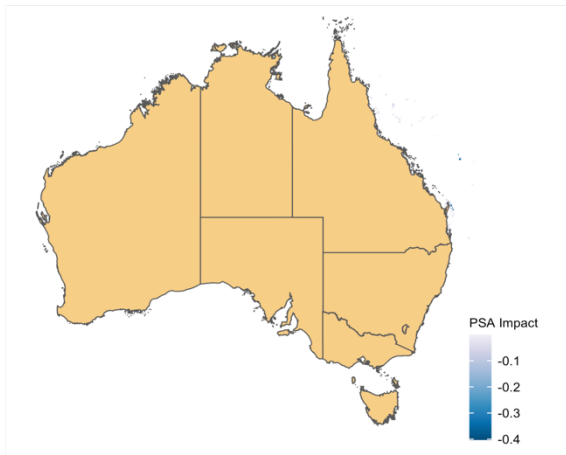
Sphyraena barracuda



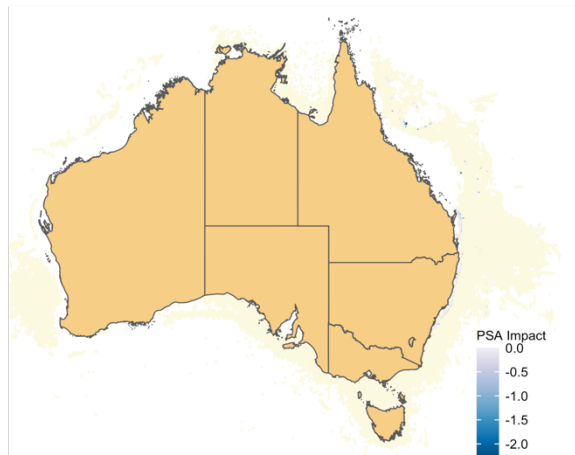
Sphyraena jello



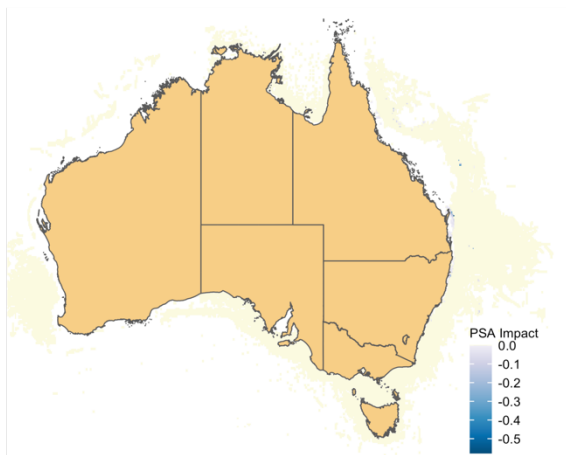
Sphyraena qenie



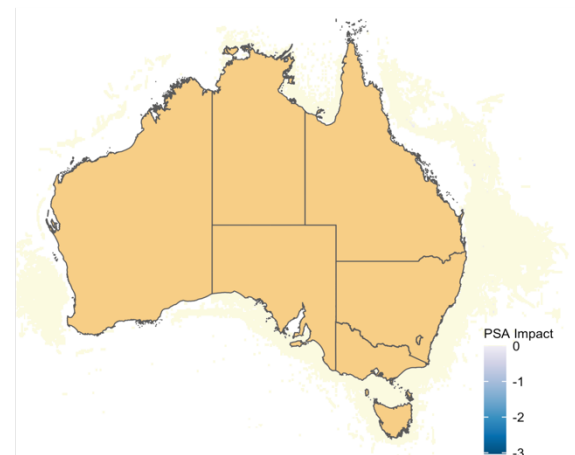
Sphyrna lewini



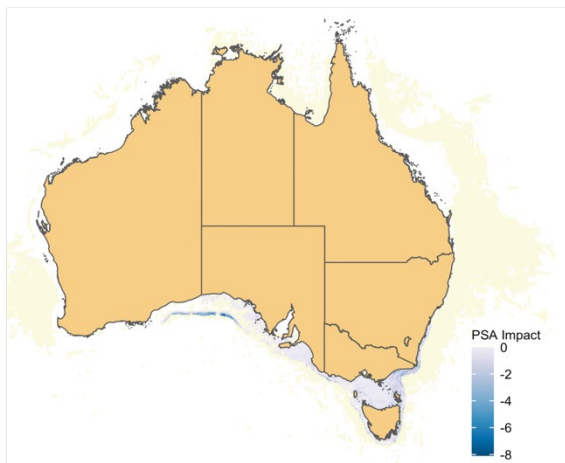
Sphyrna mokarran



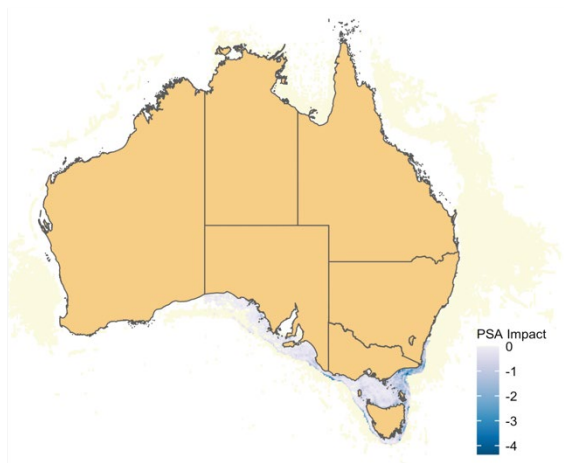
Sphyrna zygaena



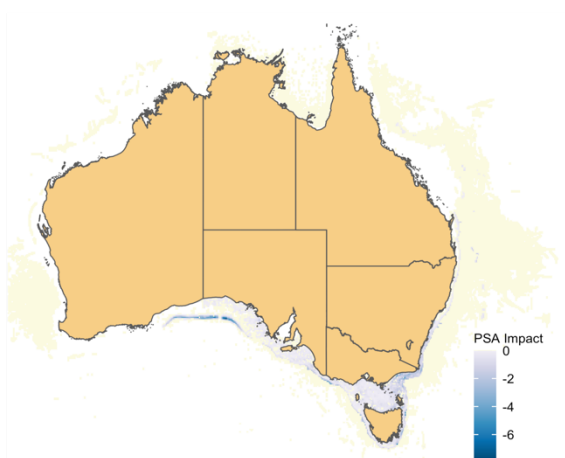
Spiniraja whitleyi



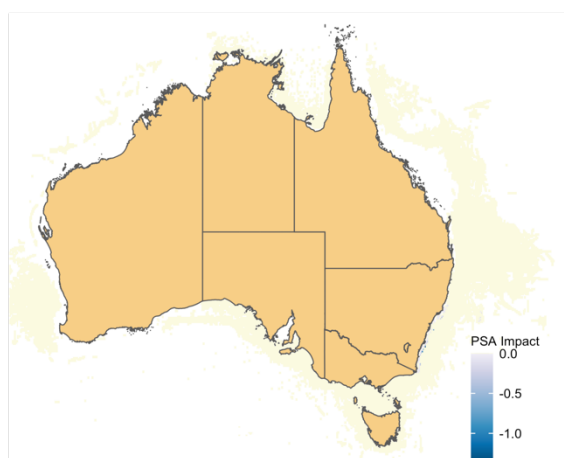
Squalus acanthias



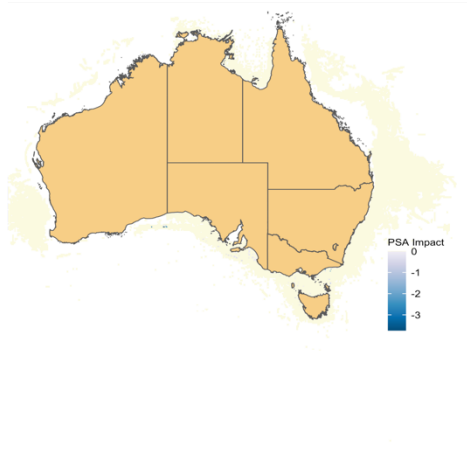
Squalus megalops



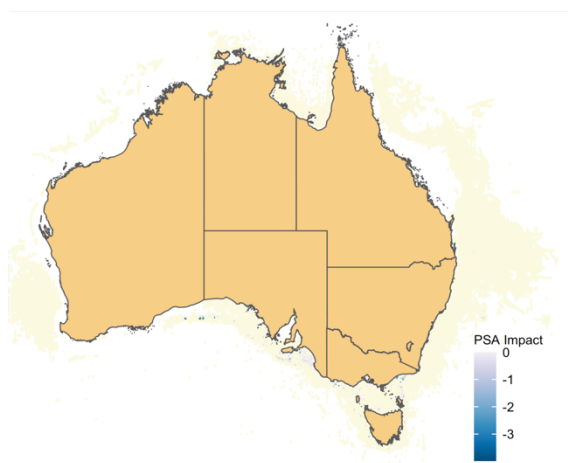
Squatina australis



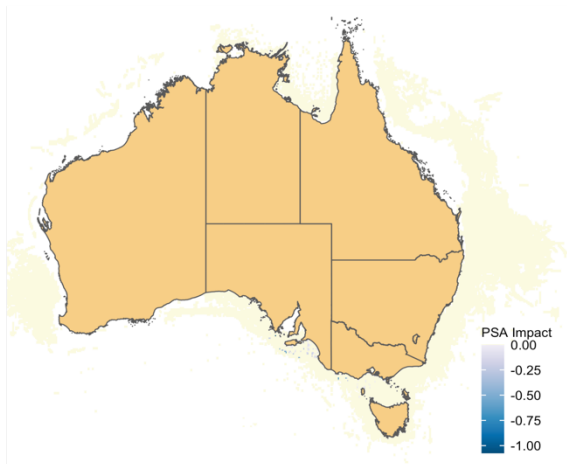
Stigmatopora argus



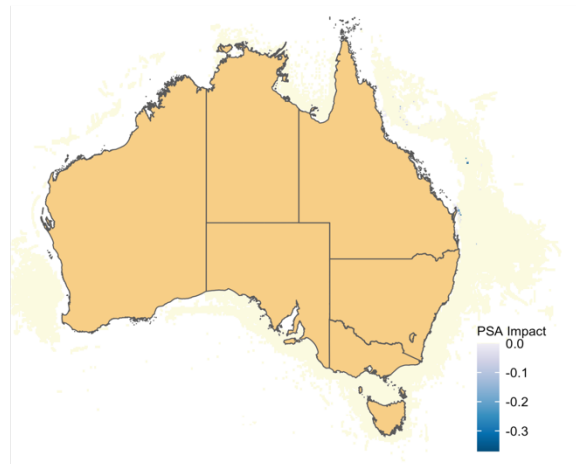
Stigmatopora nigra



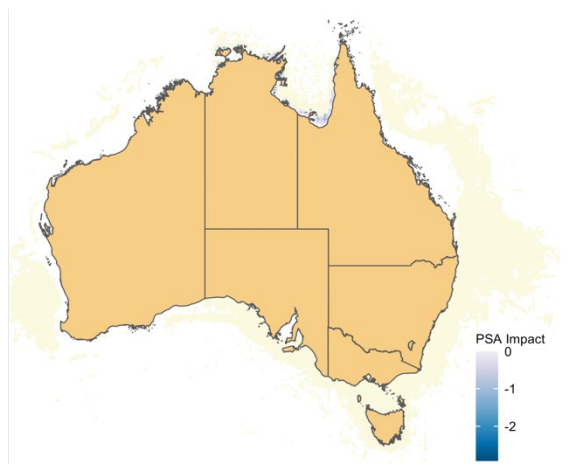
Stipecampus cristatus



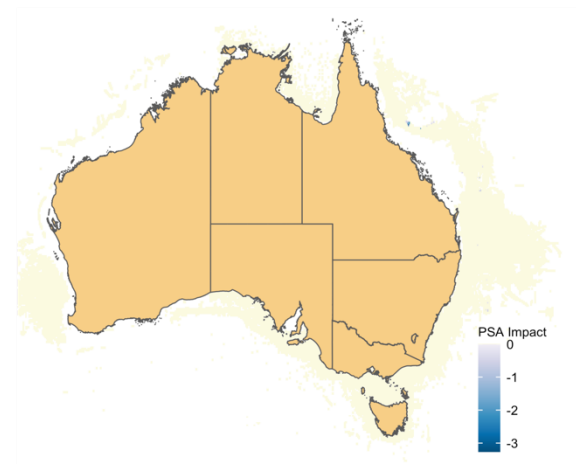
Symphorus nematophorus



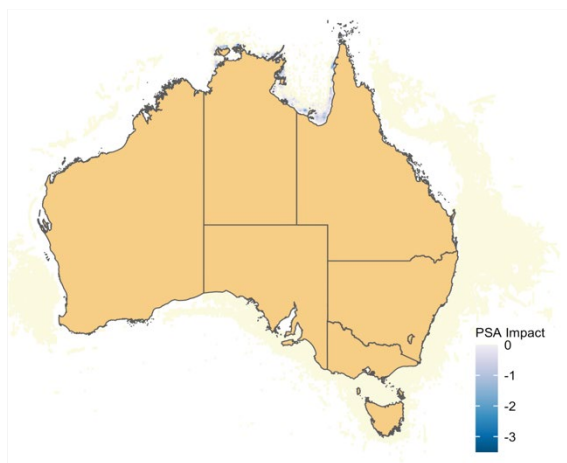
Synanceia verrucosa



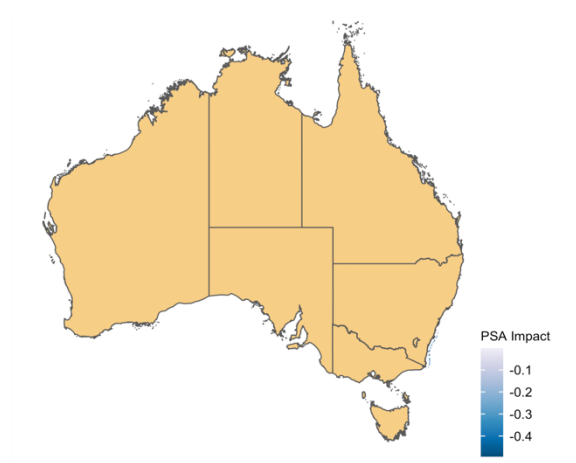
Syngnathoides biaculeatus



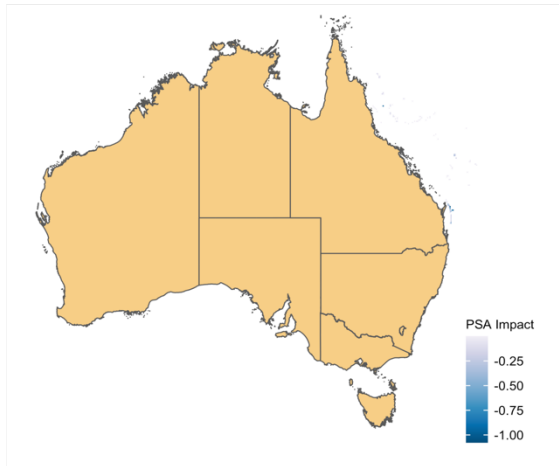
Taeniurops meyeri



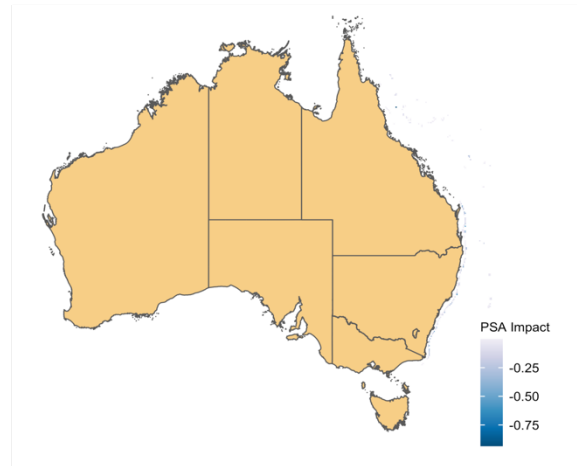
Taractes asper



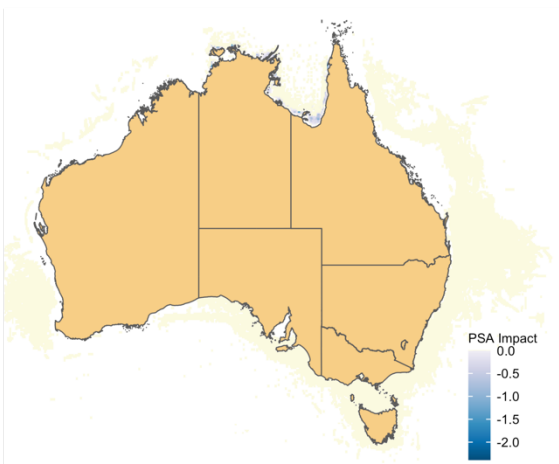
Taractichthys steindachneri



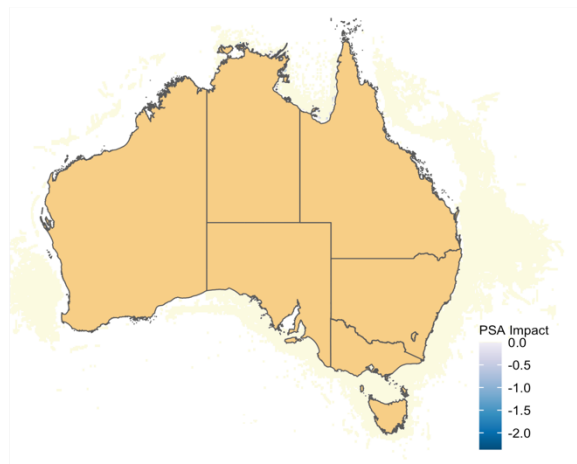
Tetrapturus angustirostris



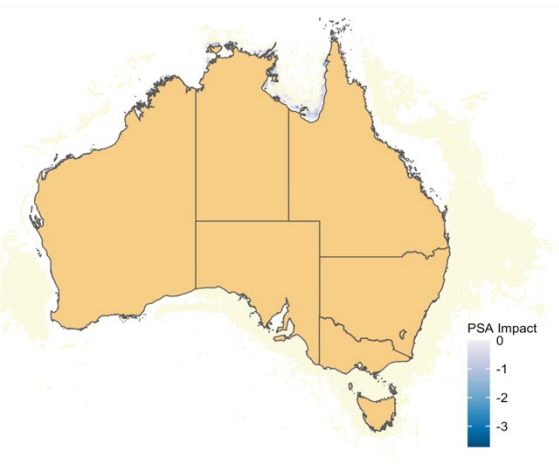
Thalassoma lunare



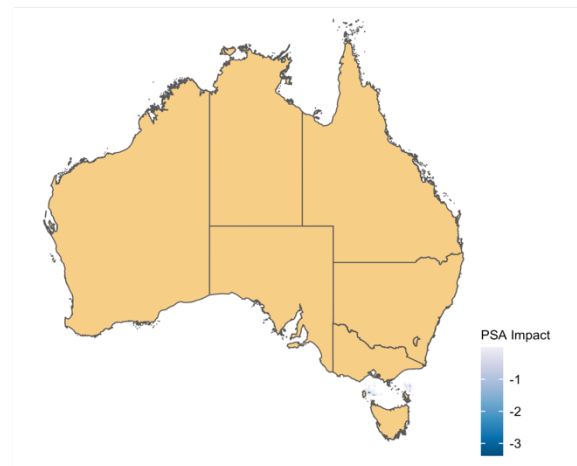
Thalassoma purpureum



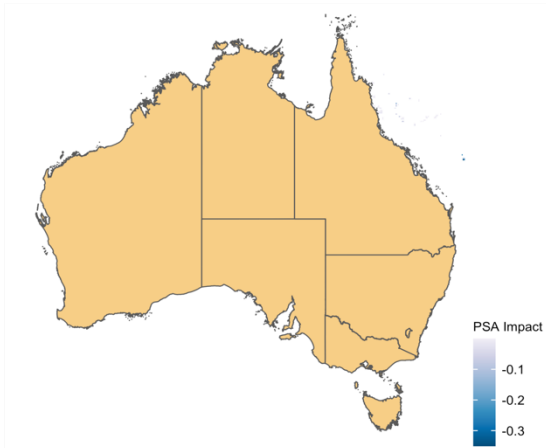
Thalassoma quinquevittatum



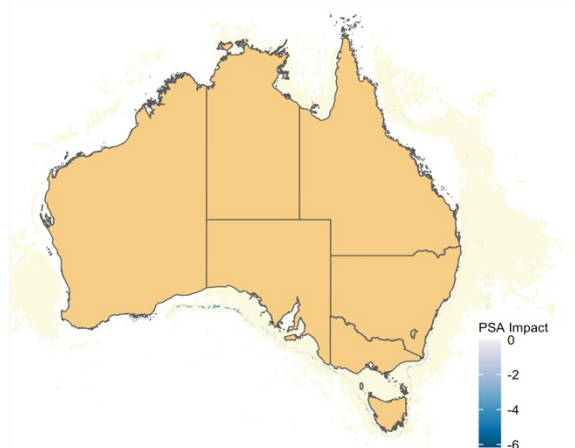
Thamnaconus degeni



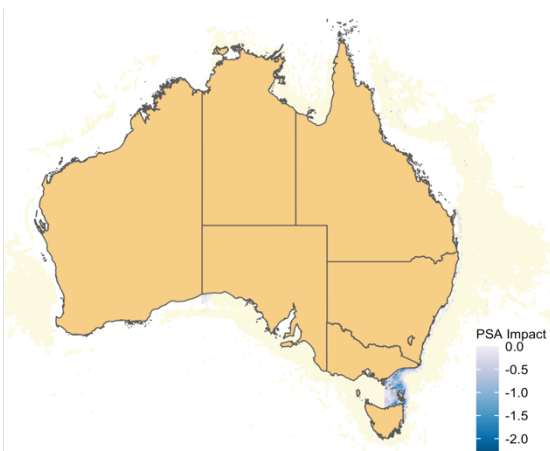
Thryssa setirostris



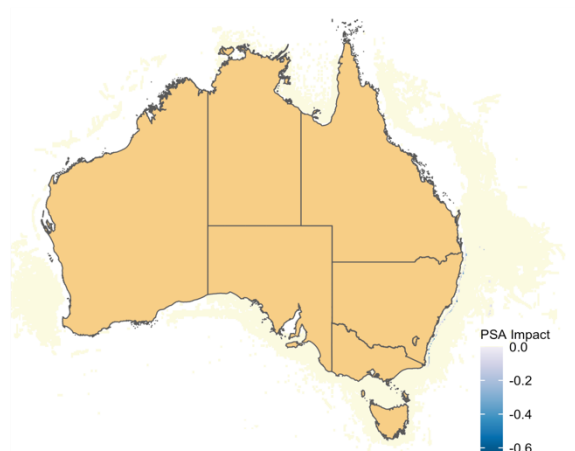
Thunnus alalunga



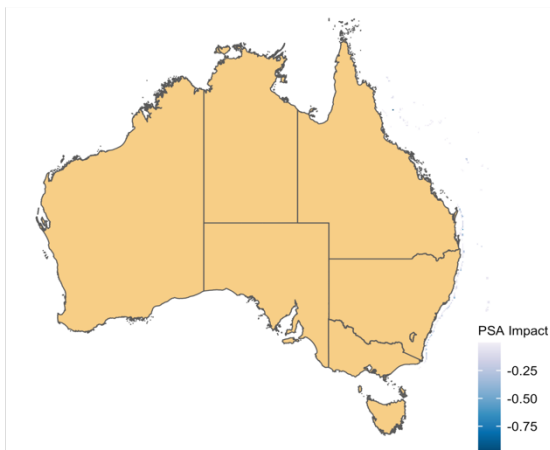
Thunnus albacares



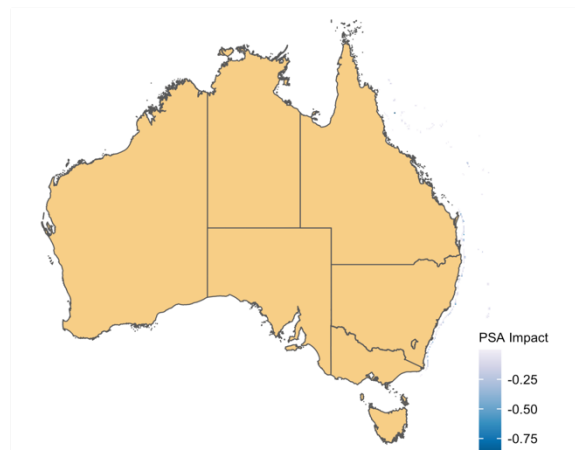
Thunnus maccoyii



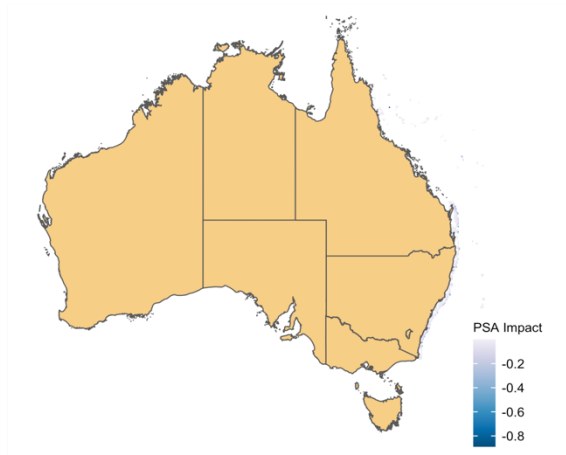
Thunnus obesus



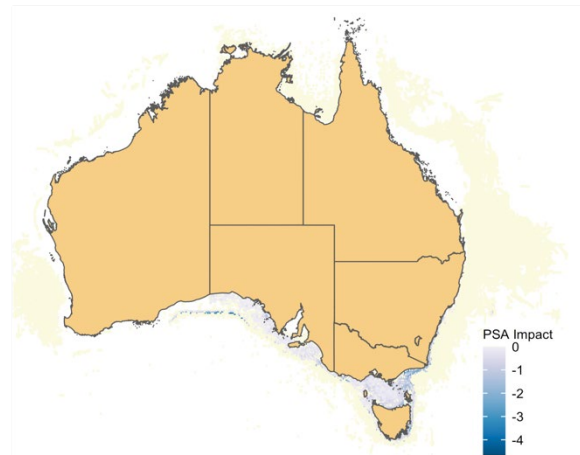
Thunnus orientalis



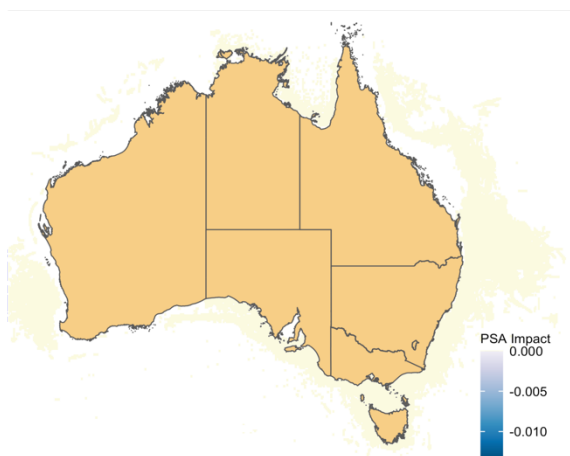
Thunnus tonggol



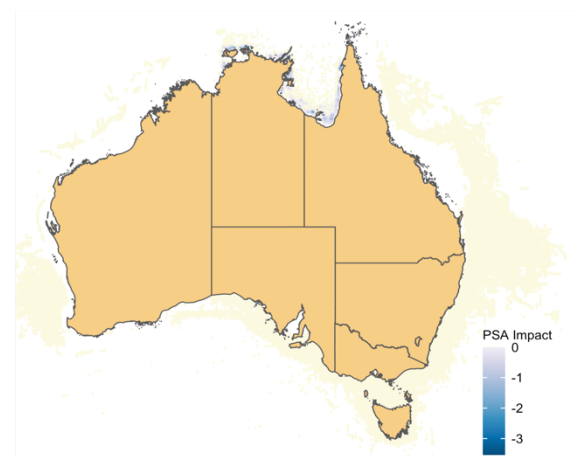
Thyrsites atun



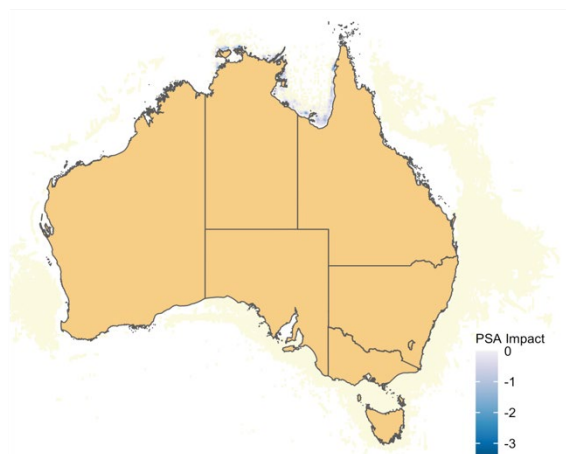
Tilodon sexfasciatus



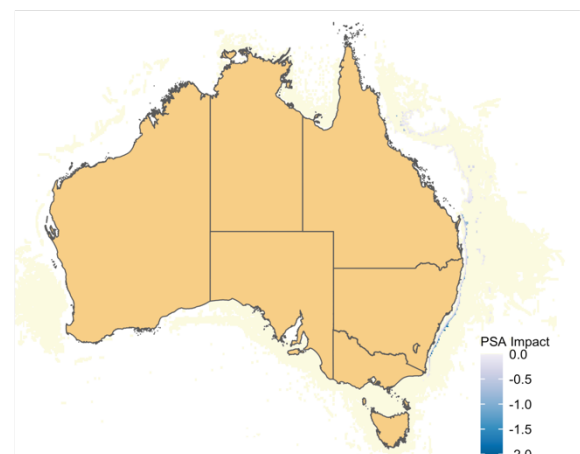
Trachinotus baillonii



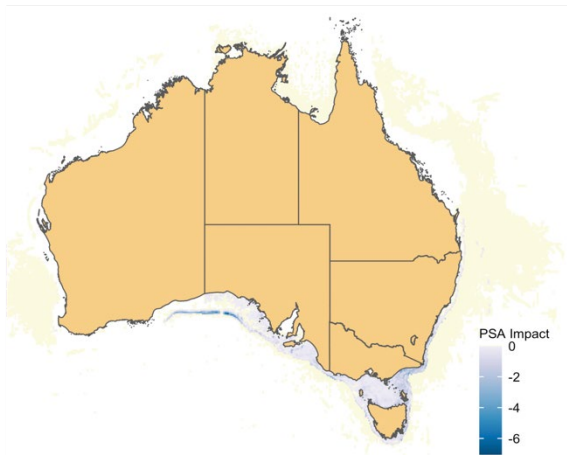
Trachinotus blochii



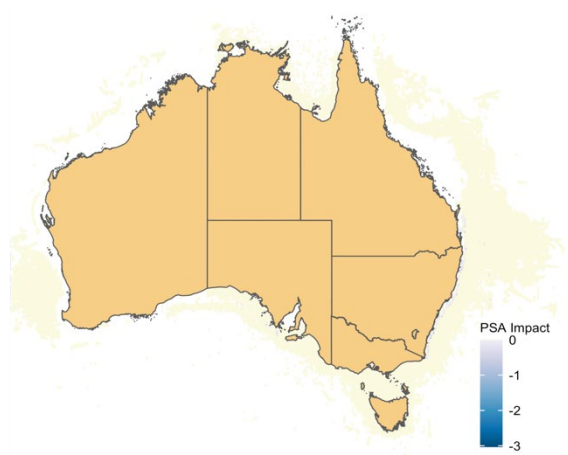
Trachipterus arawatae



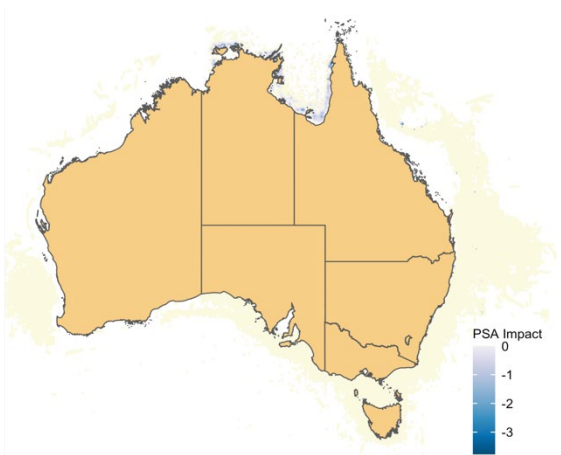
Trachurus declivis



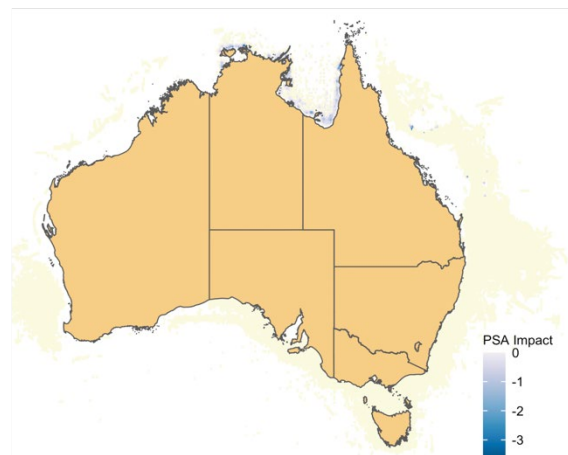
Trachurus novaezelandiae



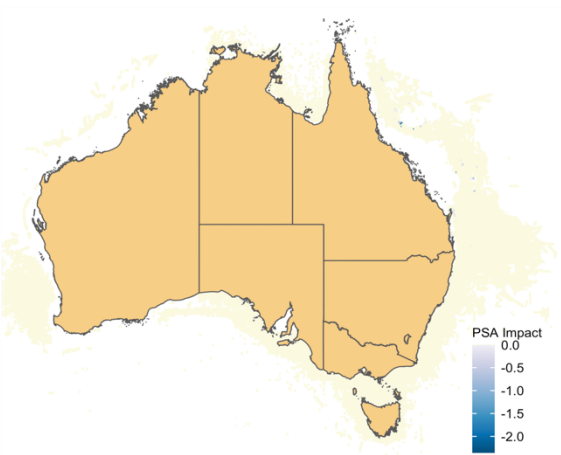
Trachyrhamphus bicoarctatus



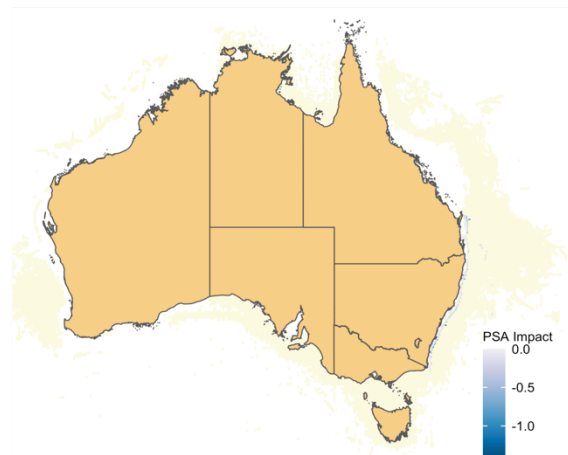
Trachyrhamphus longirostris



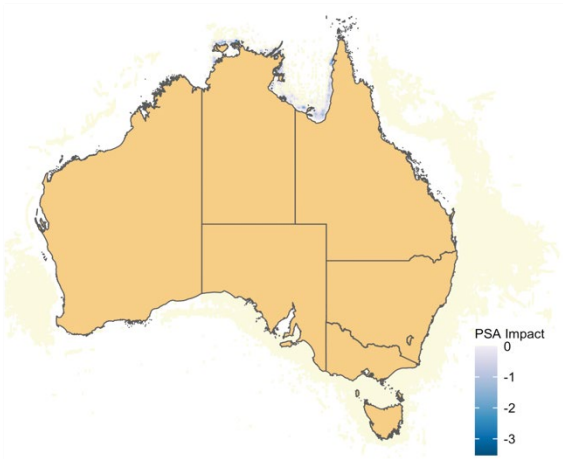
Triaenodon obesus



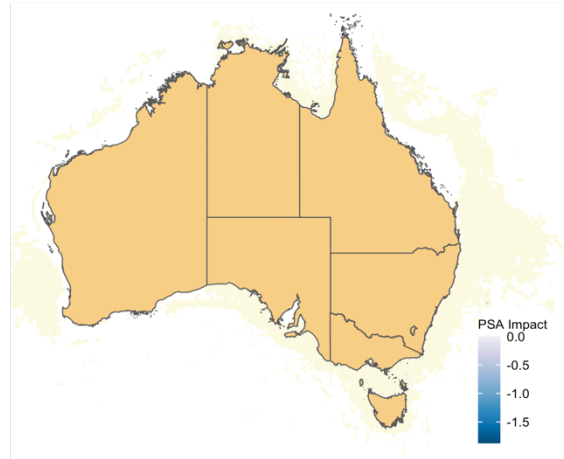
Trichiurus lepturus



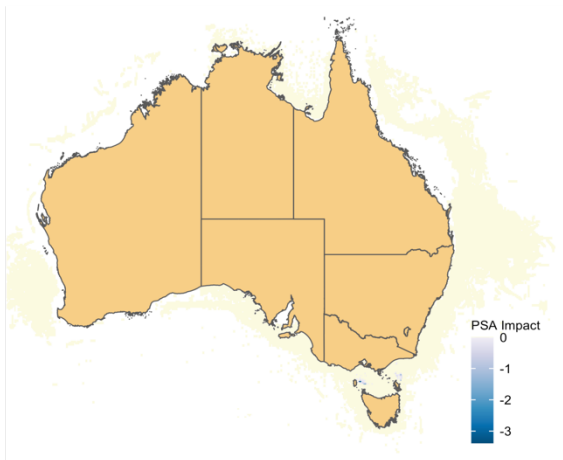
Upeneus tragula



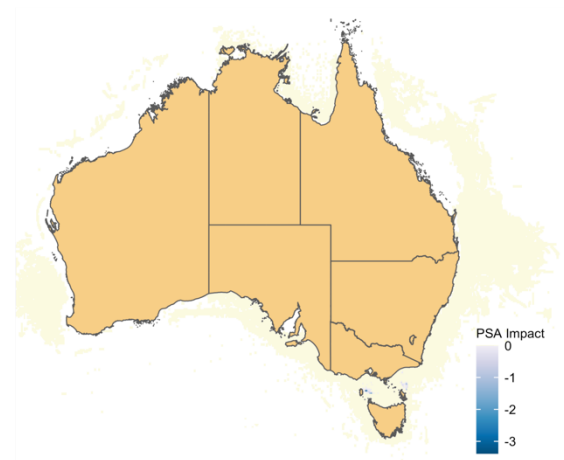
Urocampus carinirostris



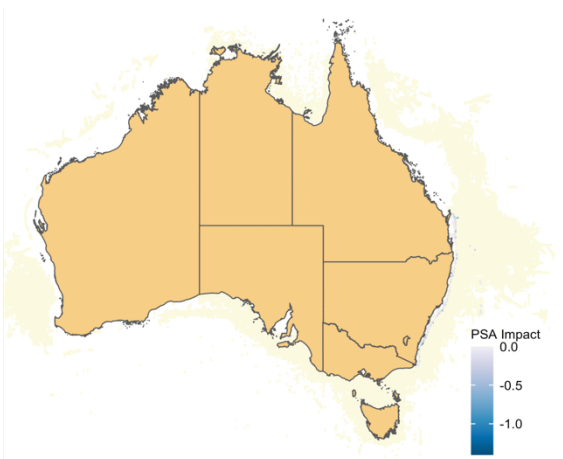
Urolophus cruciatus



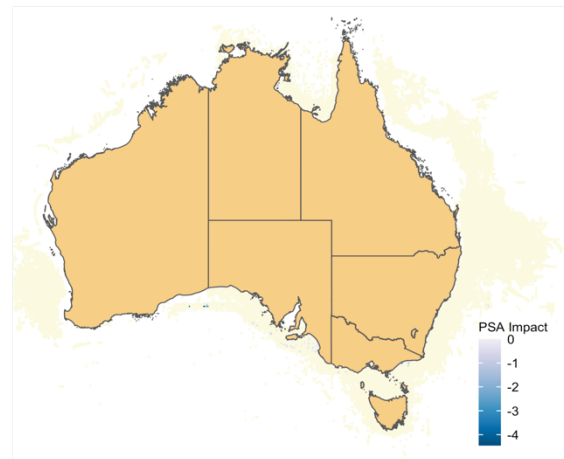
Urolophus paucimaculatus



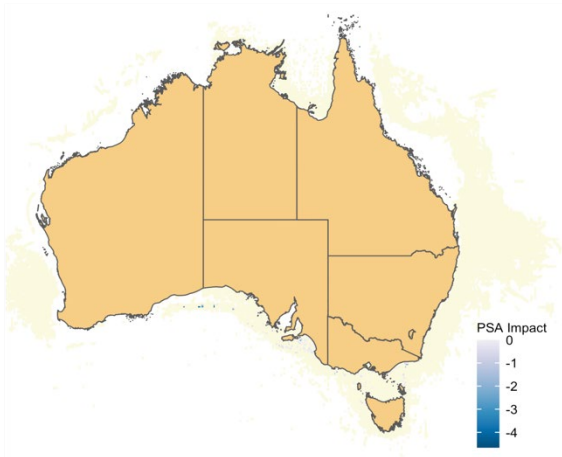
Urolophus viridis



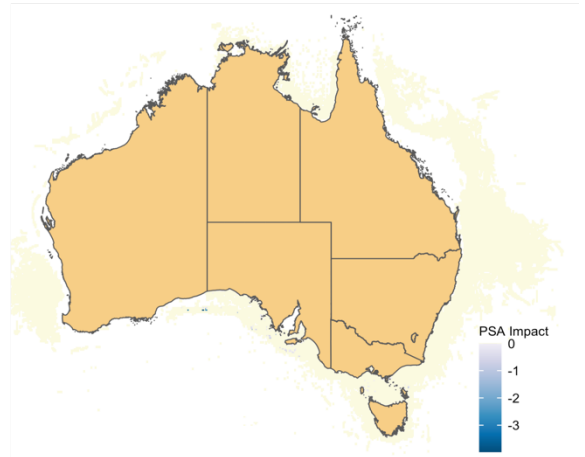
Vanacampus margaritifer



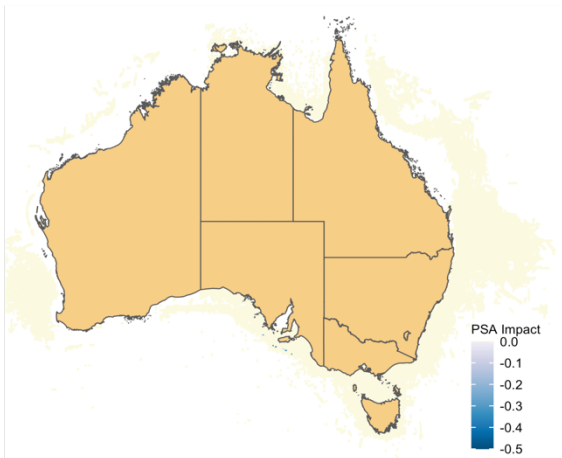
Vanacampus phillipi



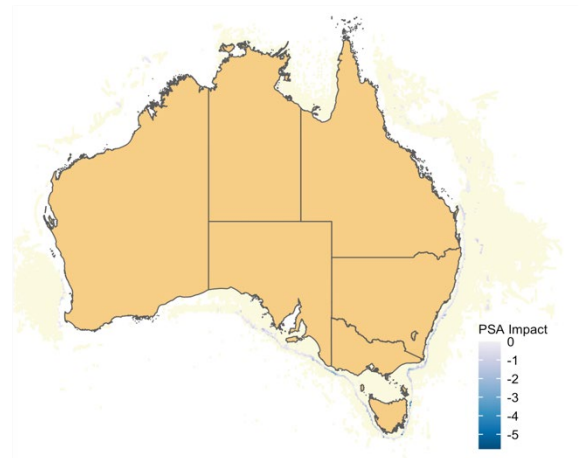
Vanacampus poecilolaemus



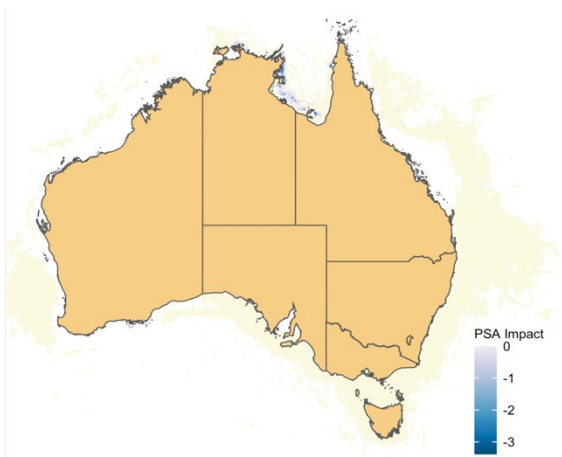
Vanacampus vercoi



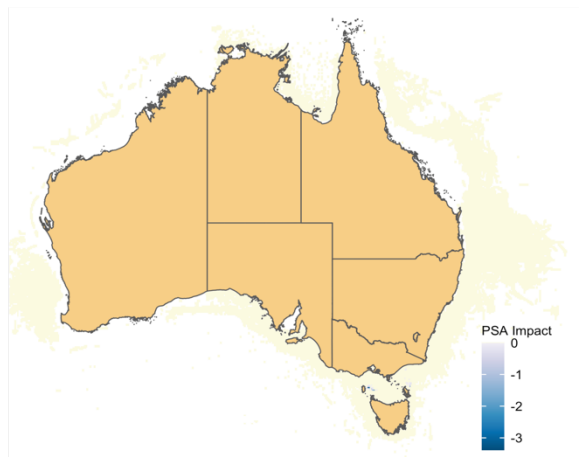
Xiphias gladius



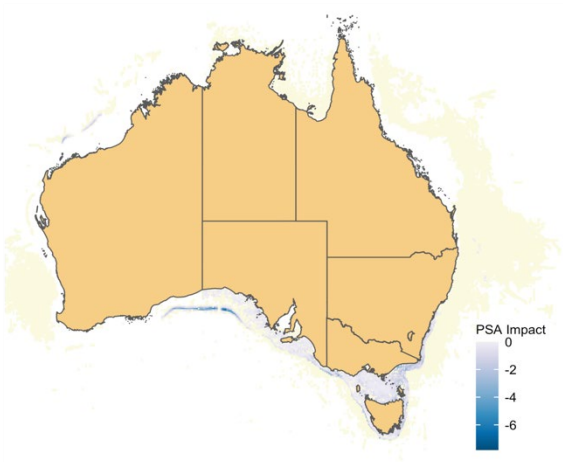
Xiphocheilus typus



Zebrias scalaris



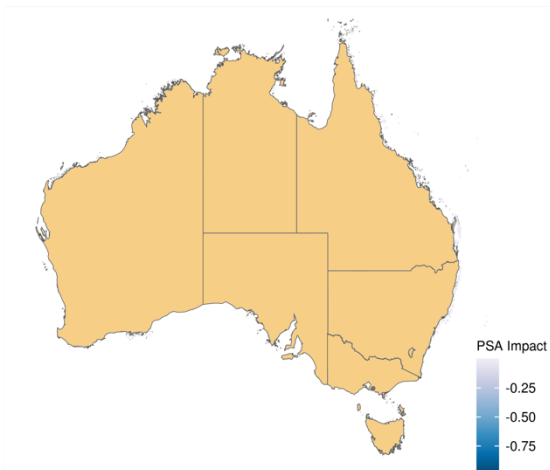
Zenopsis nebulosa



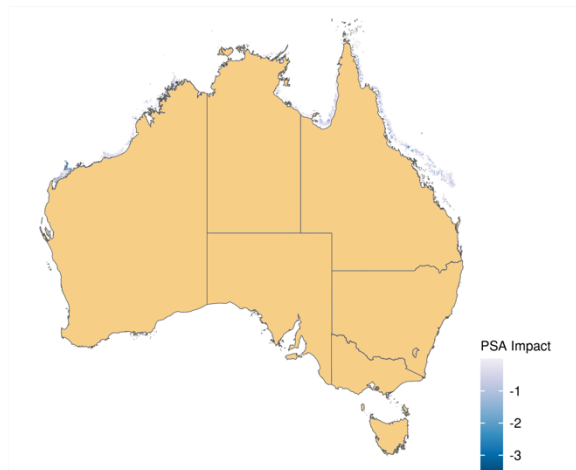
All Fisheries

In this case, where there has been no historical effort the cell is blanked on the map (even if the species is present and could show an effect should effort redistribute to that point) so only non-zero effects are shown.

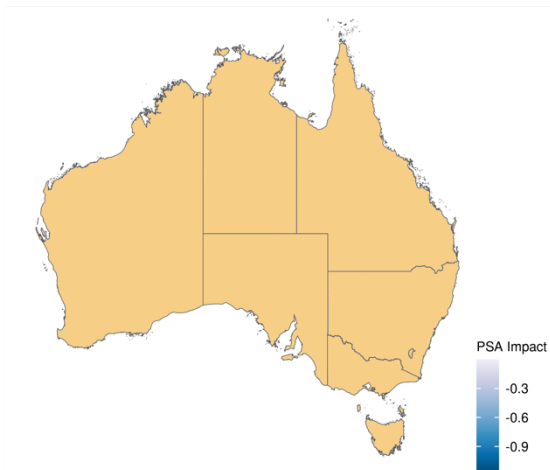
Abalistes stellaris



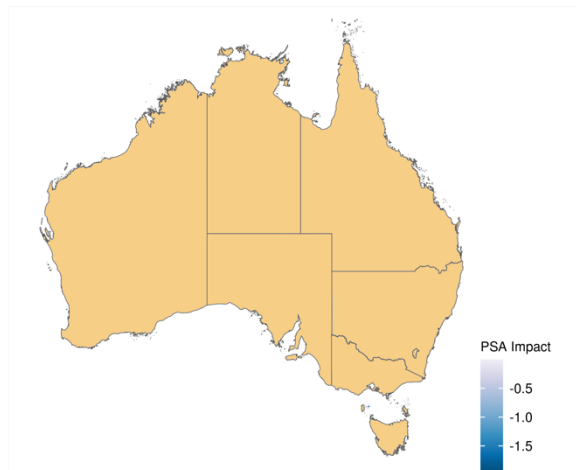
Acalyptophis peronii



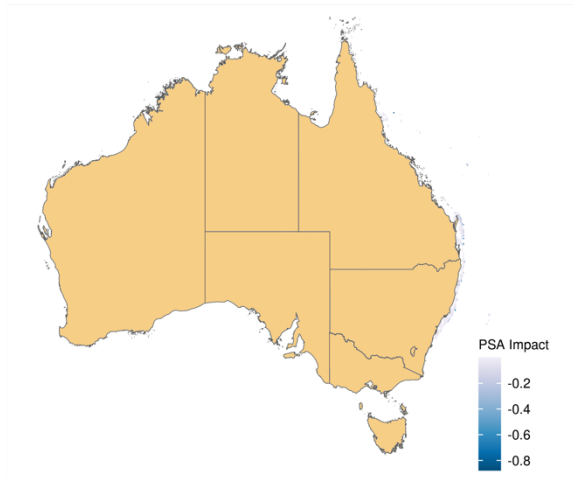
Acanthaluteres spilomelanurus



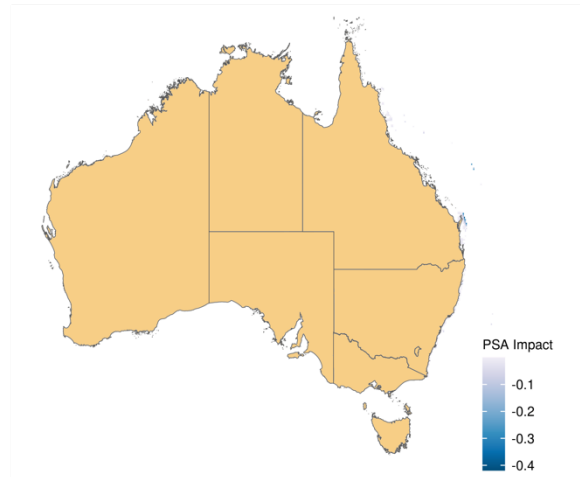
Acanthaluteres vittiger



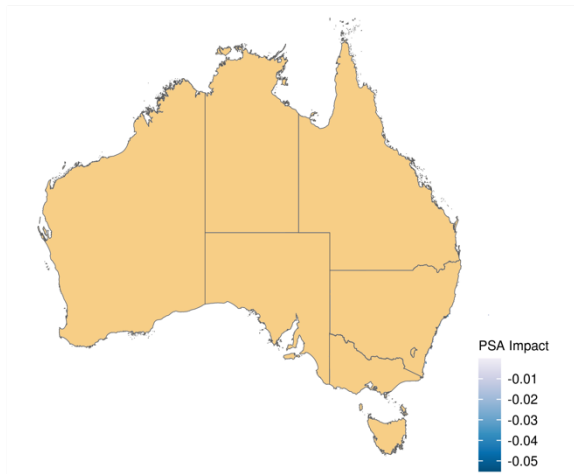
Acanthocybium solandri



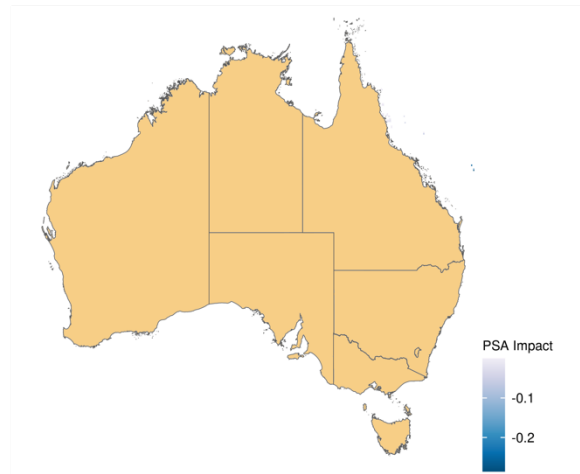
Acanthopagrus australis



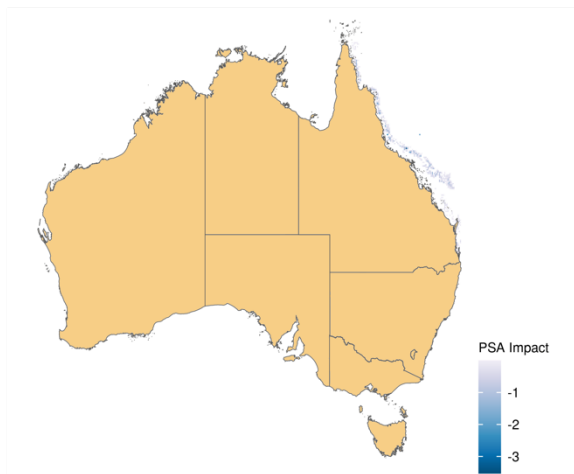
Acanthopagrus butcheri



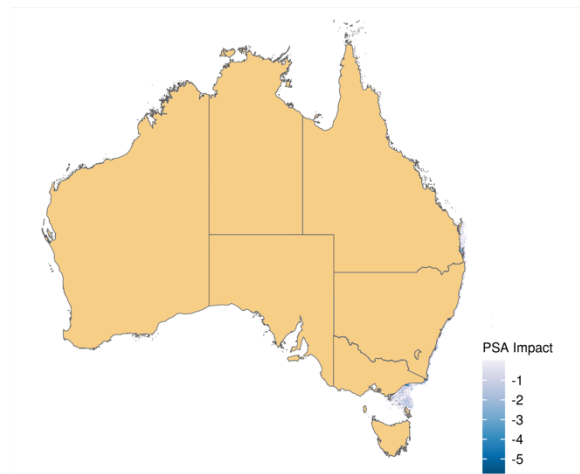
Acanthopagrus pacificus



Acentronura breviperula



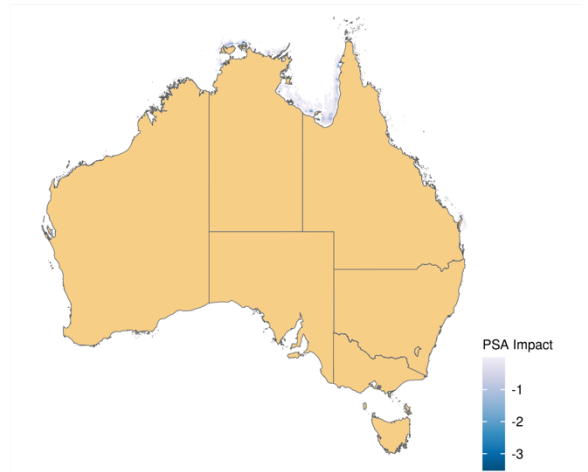
Achoerodus viridis



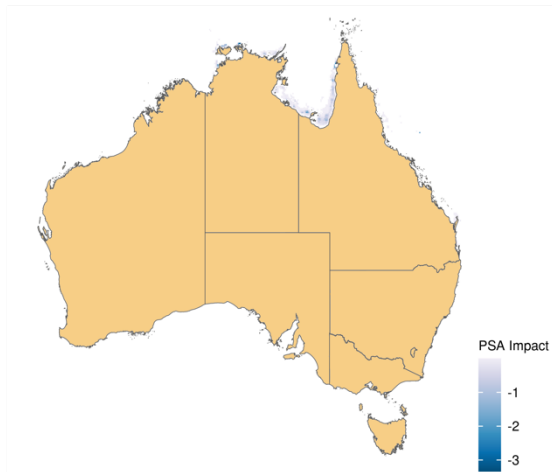
Aetapcus maculatus



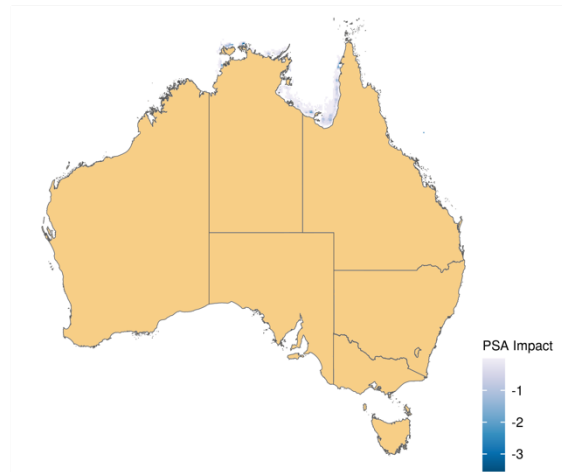
Aipysurus duboisii



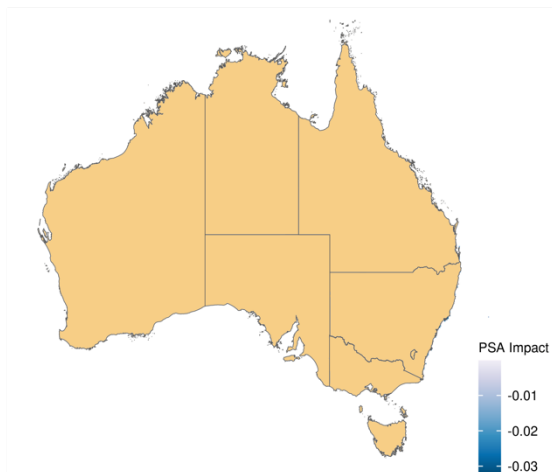
Aipysurus laevis



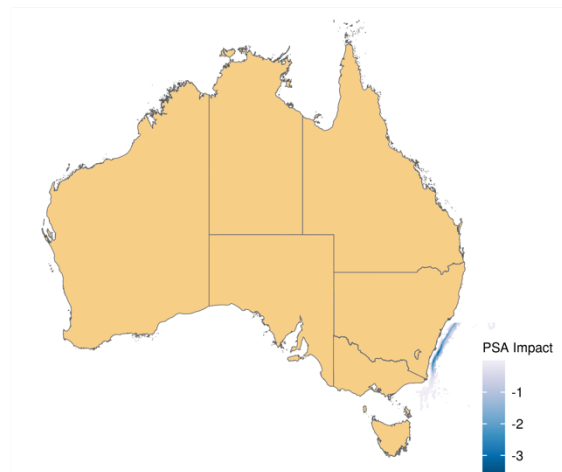
Aipysurus mosaicus



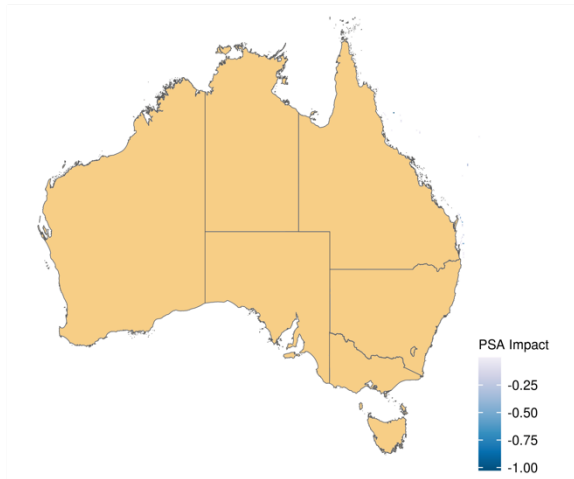
Alabes parvulus



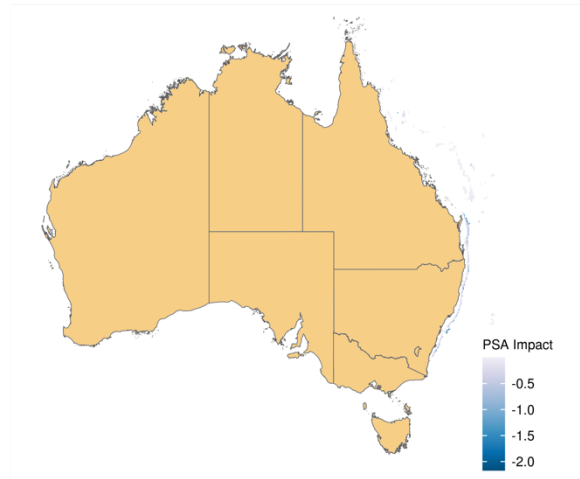
Alepisaurus ferox



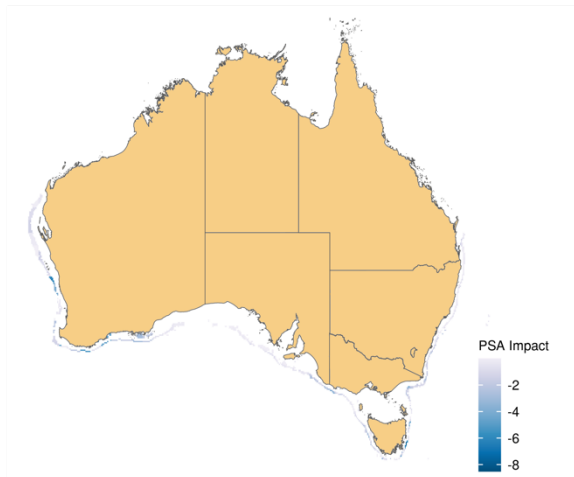
Alopias pelagicus



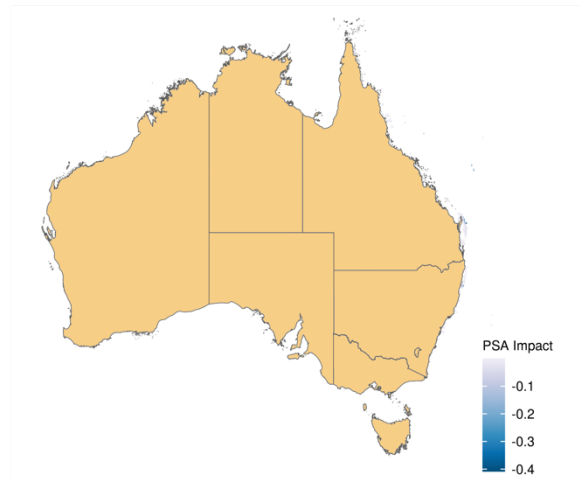
Alopias superciliosus



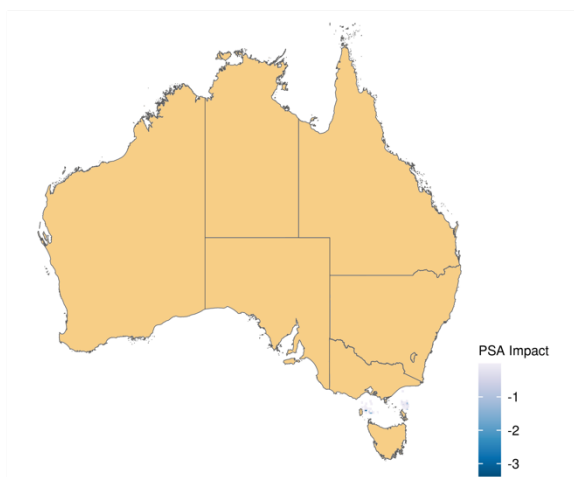
Alopias vulpinus



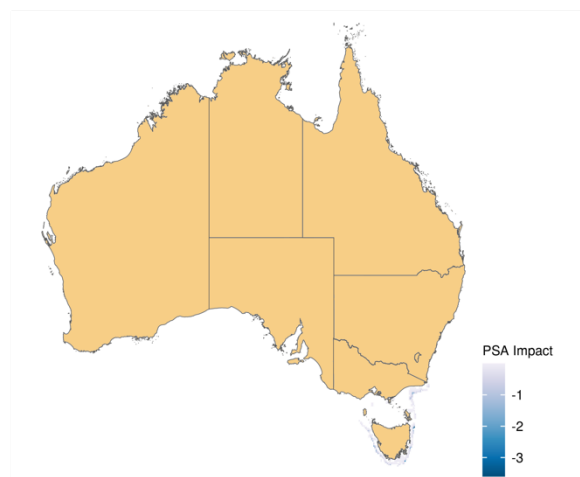
Aluterus scriptus



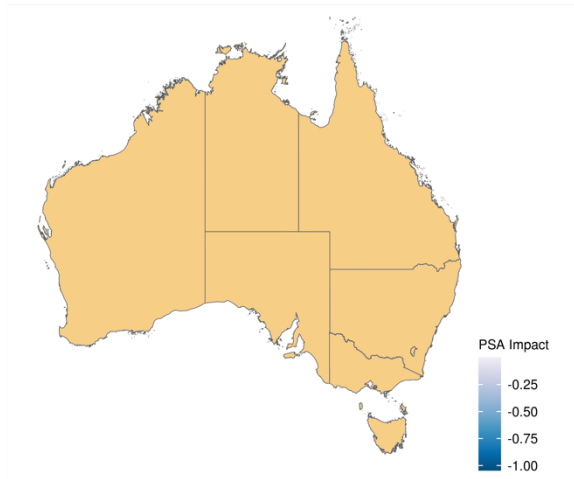
Ammotretis lituratus



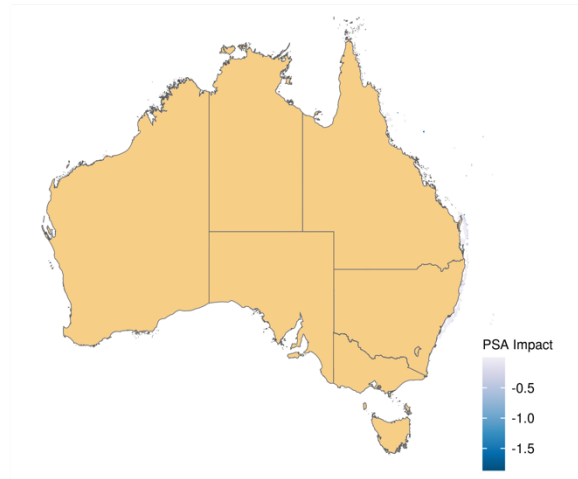
Anguilla reinhardtii



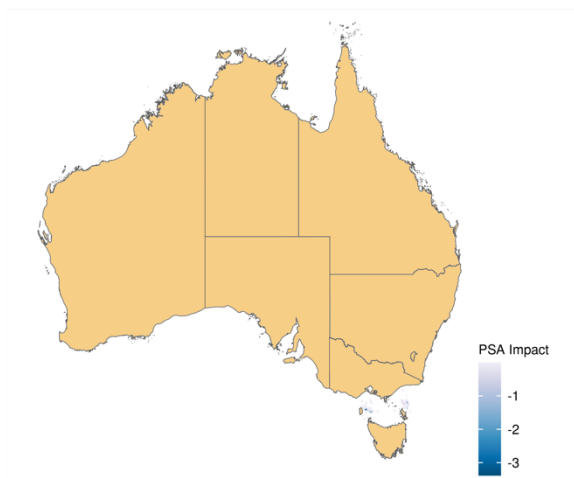
Aphareus rutilans



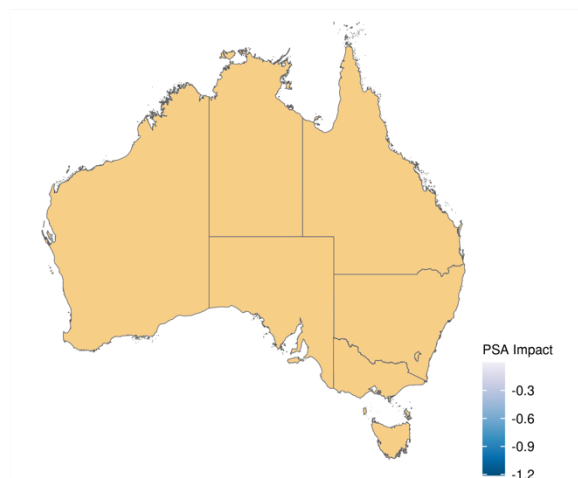
Aprion virescens



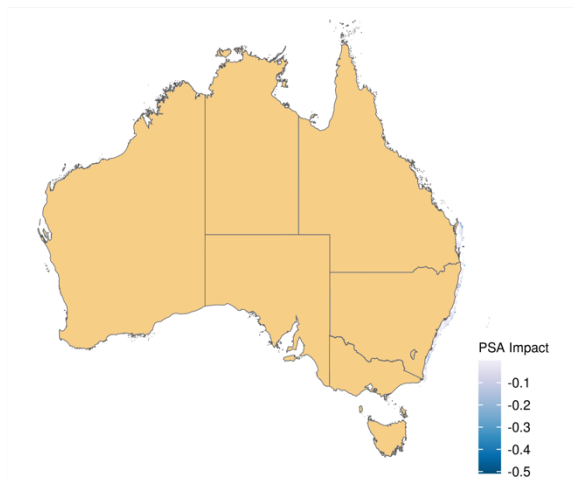
Aracana aurita



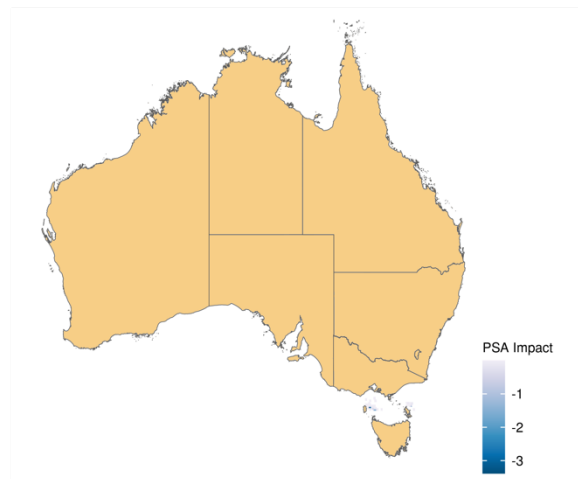
Aracana ornata



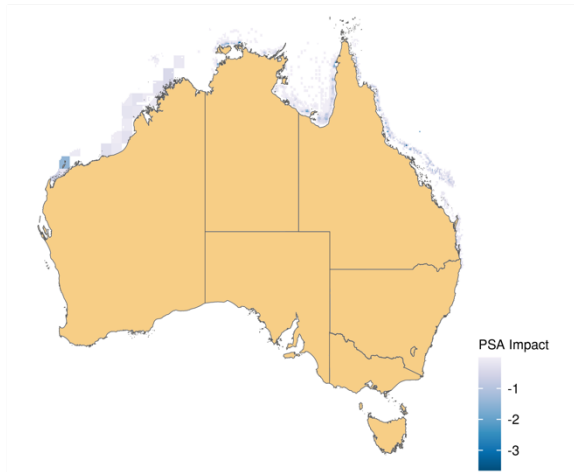
Argyrosomus japonicus



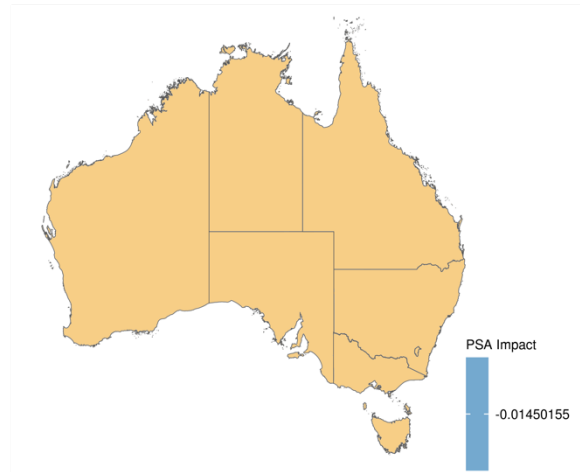
Arnoglossus muelleri



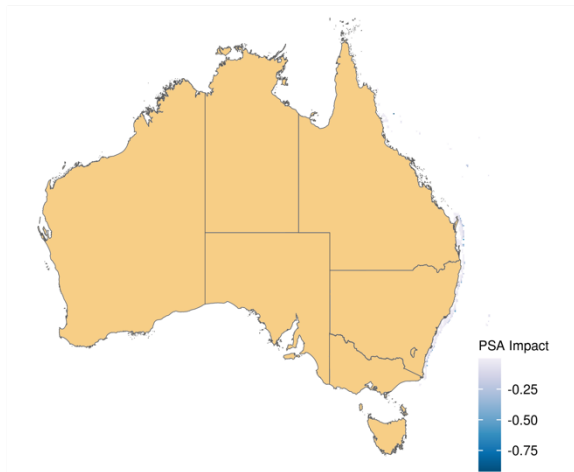
Astrotia stokesii



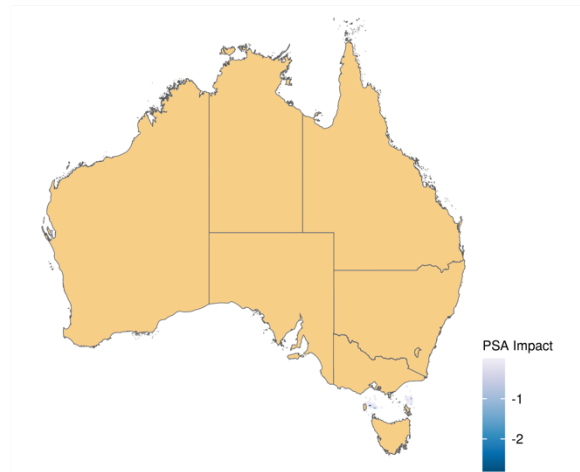
Aulohalaelurus labiosus



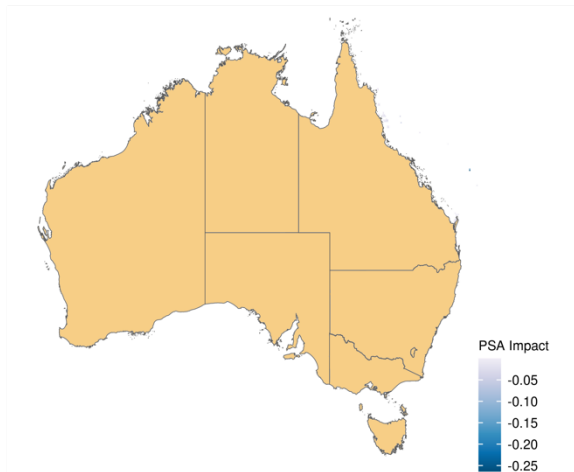
Auxis thazard



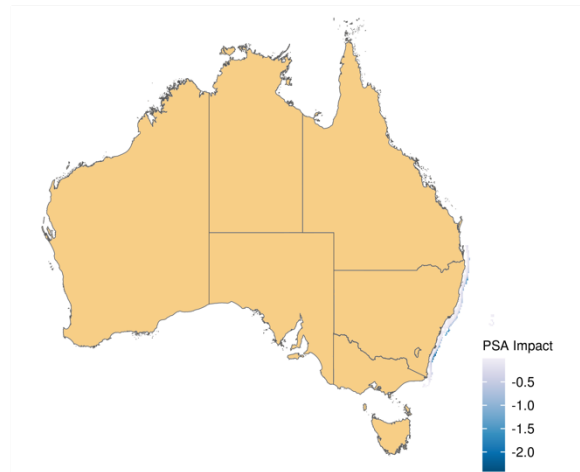
Bathytoshia brevicaudata



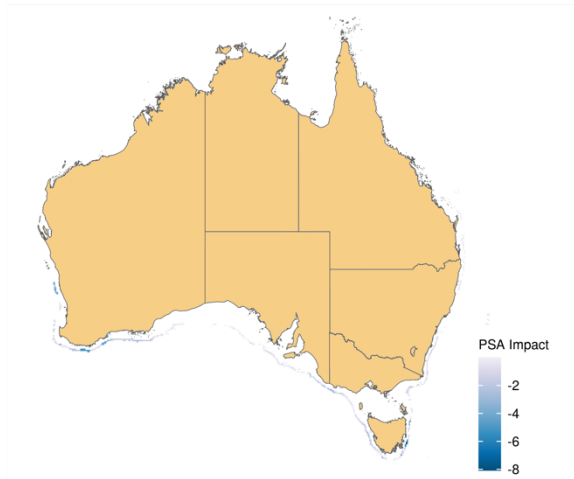
Belonepterygion fasciolatum



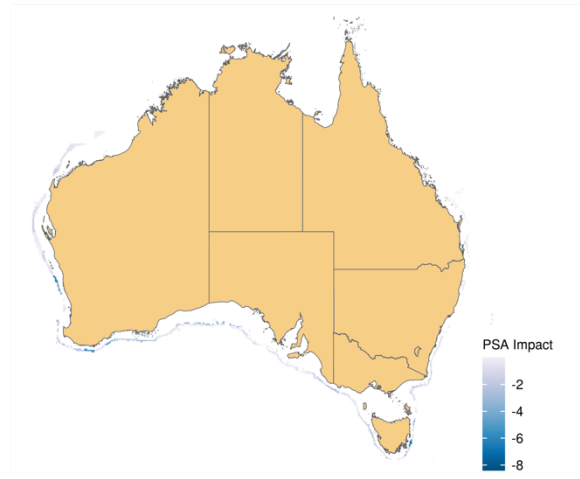
Benthodesmus elongatus



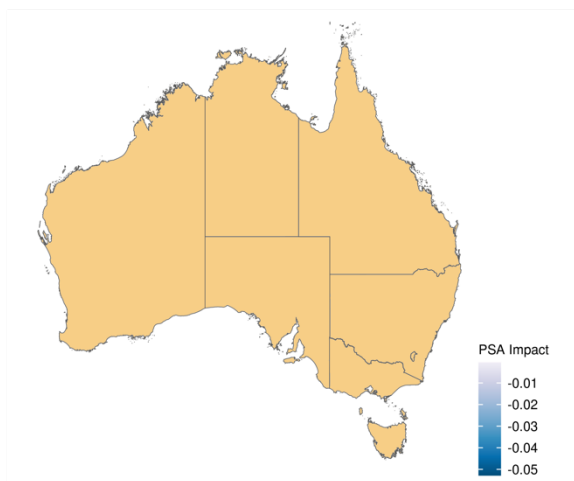
Beryx decadactylus



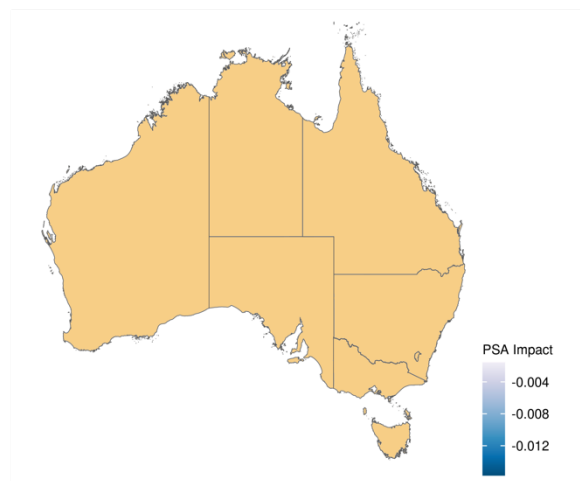
Beryx splendens



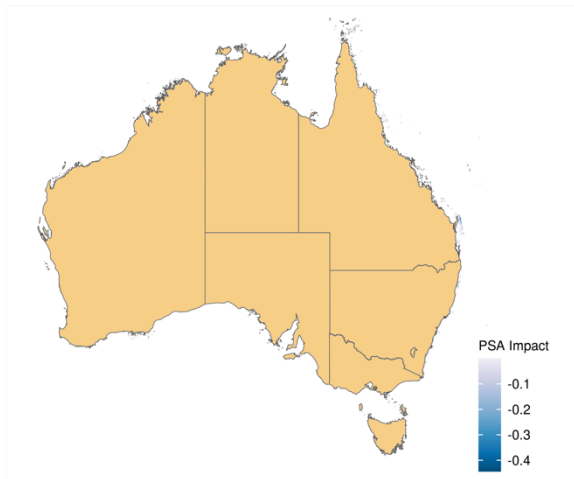
Brachaelurus waddi



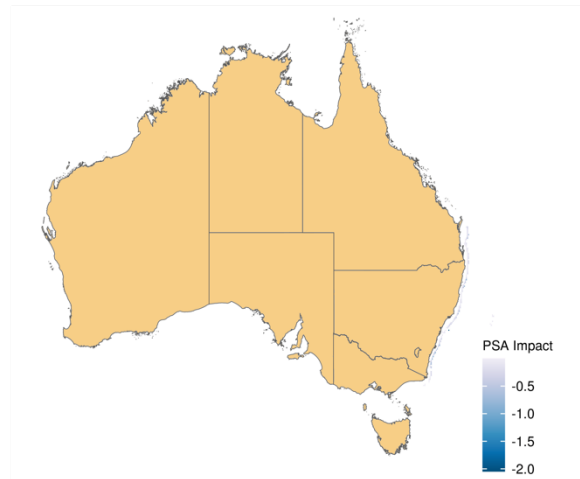
Brachynectes fasciatus



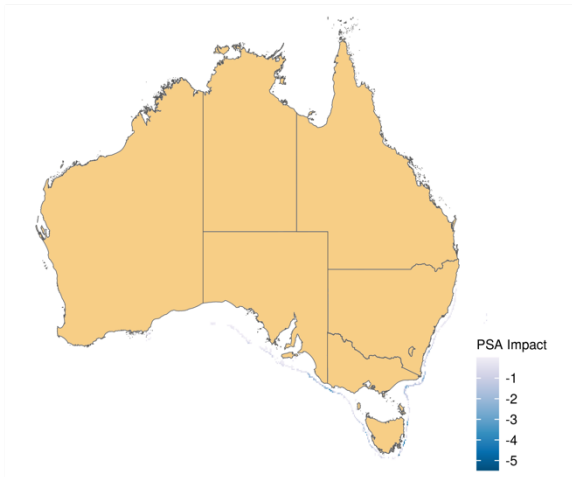
Brachypterois serrulifer



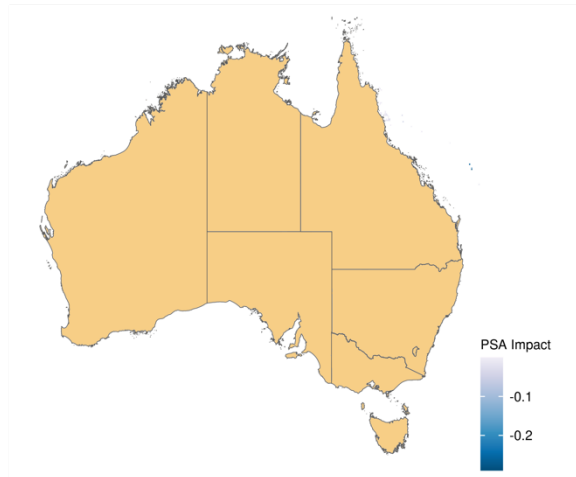
Brama australis



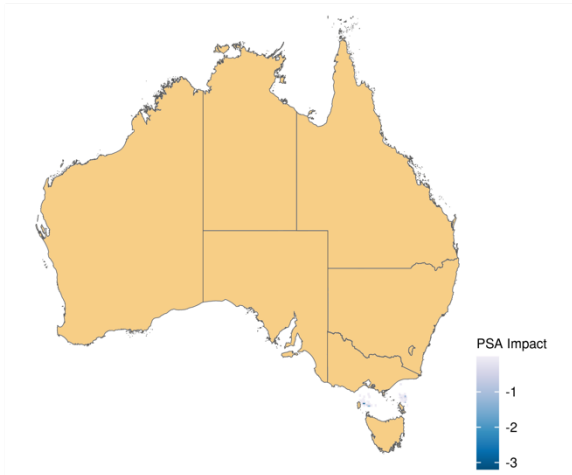
Brama brama



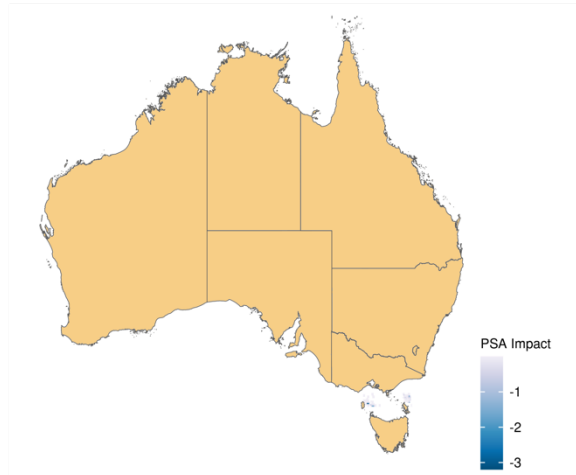
Bryaninops amplus



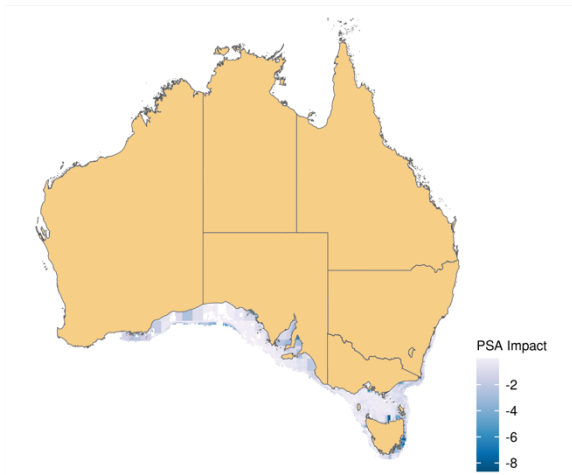
Caesioperca lepidoptera



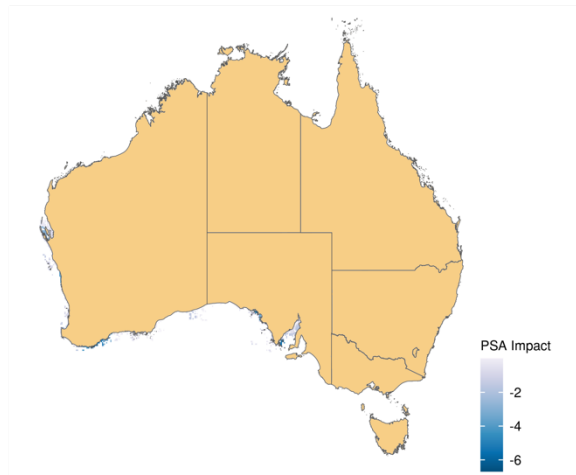
Caesioperca rasor



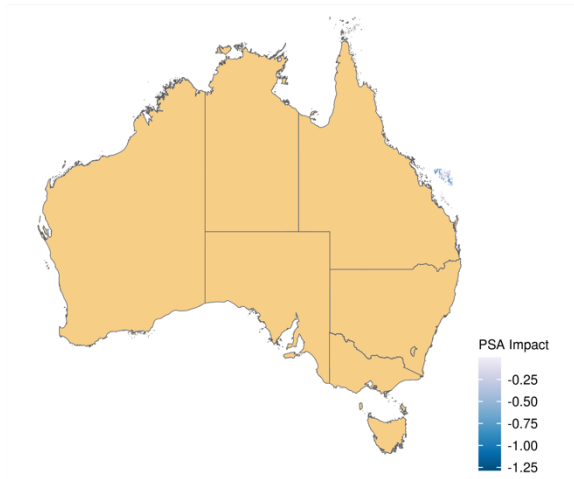
Callorhinchus milii



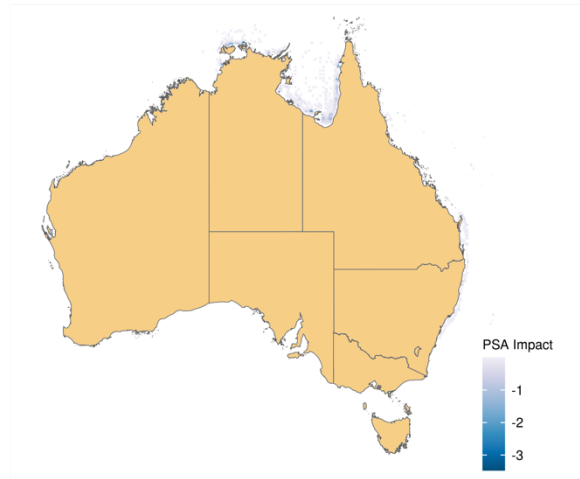
Campichthys galei



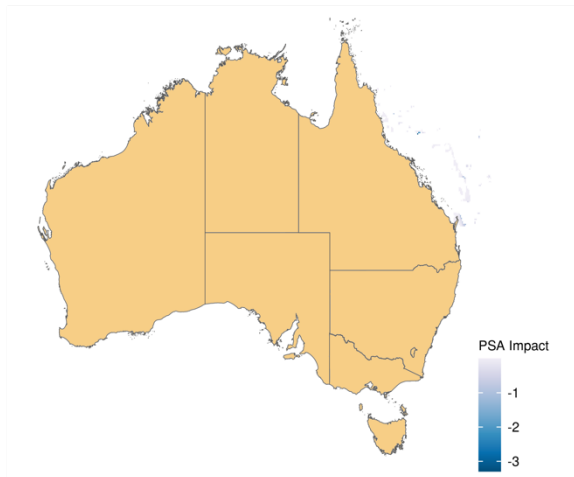
Campichthys tryoni



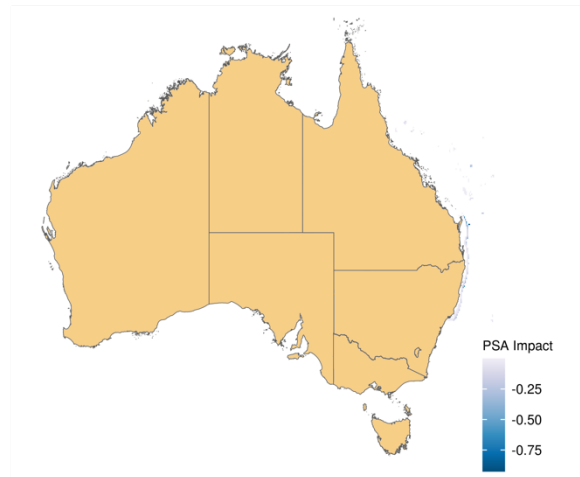
Caranx sexfasciatus



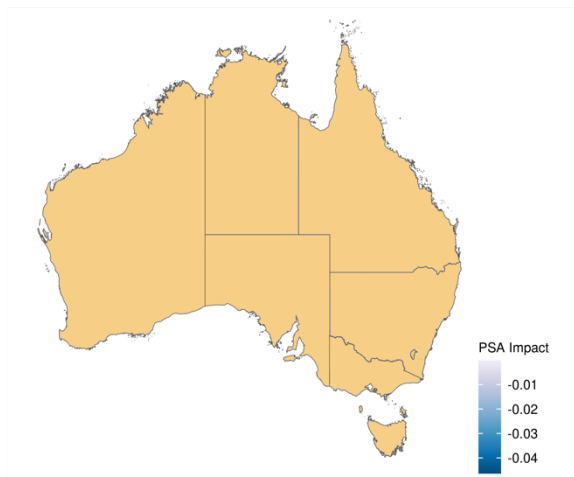
Carcharhinus albimarginatus



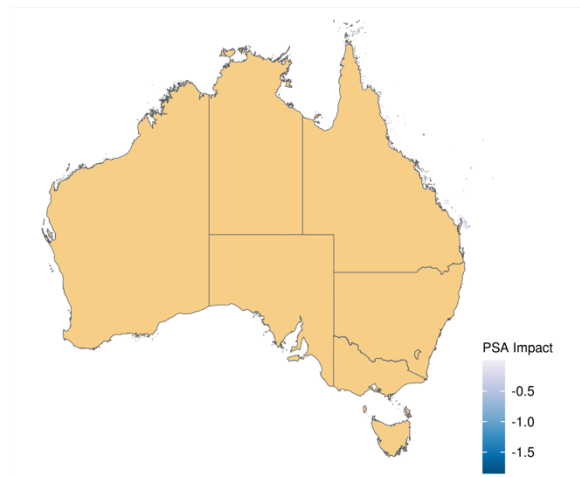
Carcharhinus altimus



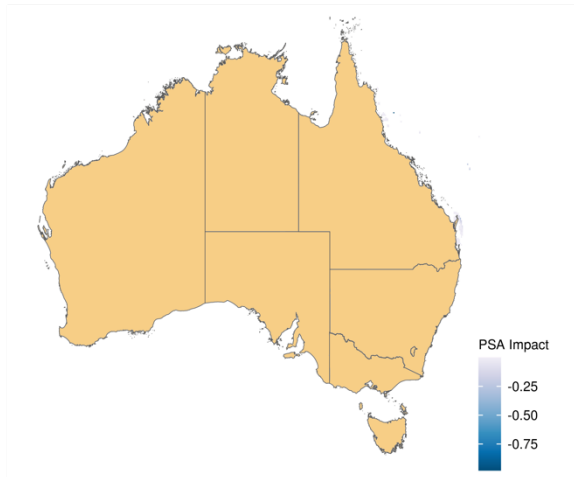
Carcharhinus amblyrhynchoides



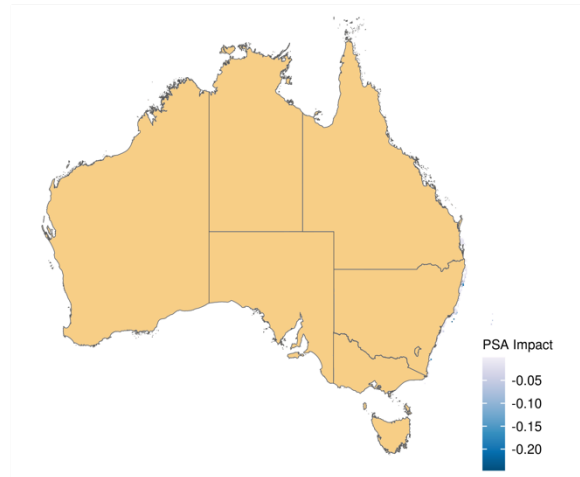
Carcharhinus amblyrhynchos



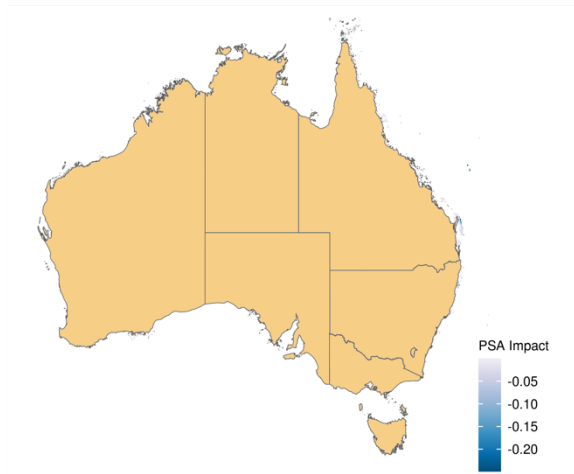
Carcharhinus amboinensis



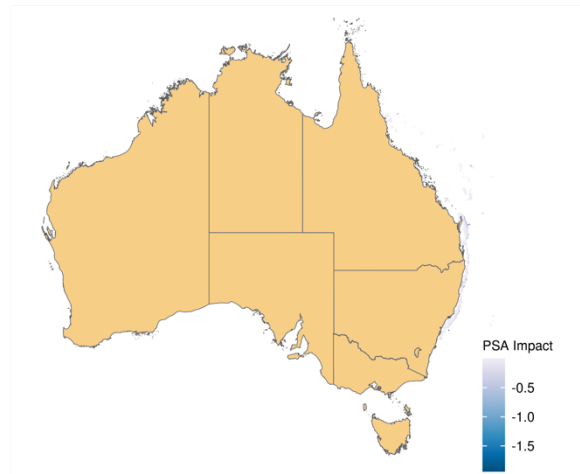
Carcharhinus brachyurus



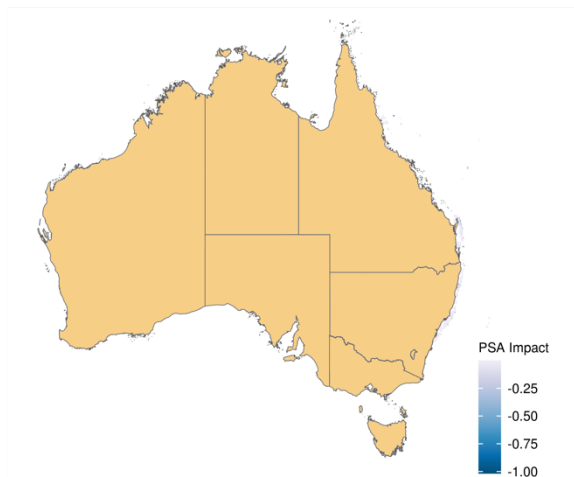
Carcharhinus brevipinna



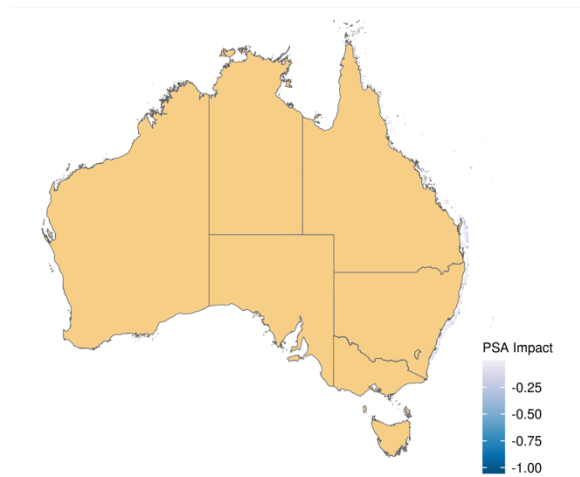
Carcharhinus falciformis



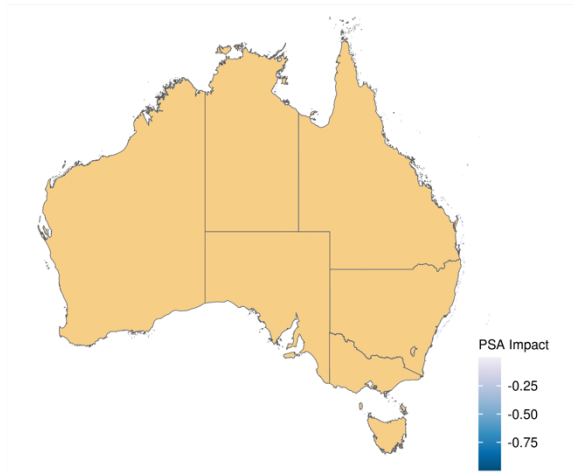
Carcharhinus leucas



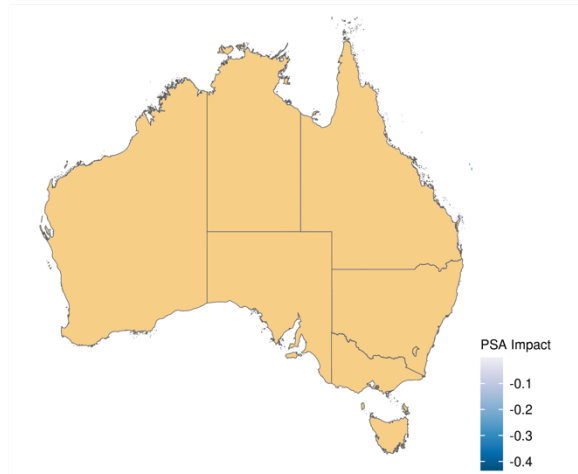
Carcharhinus limbatus



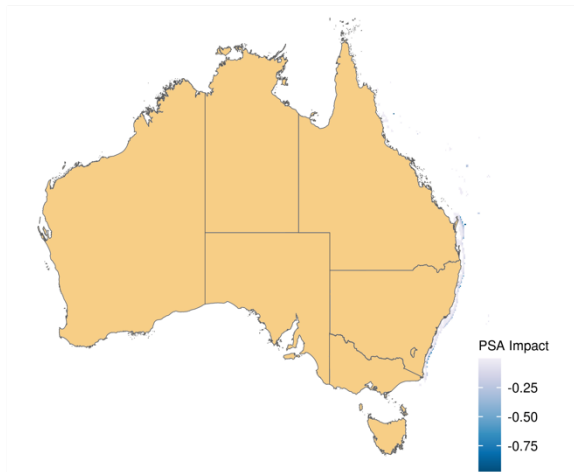
Carcharhinus longimanus



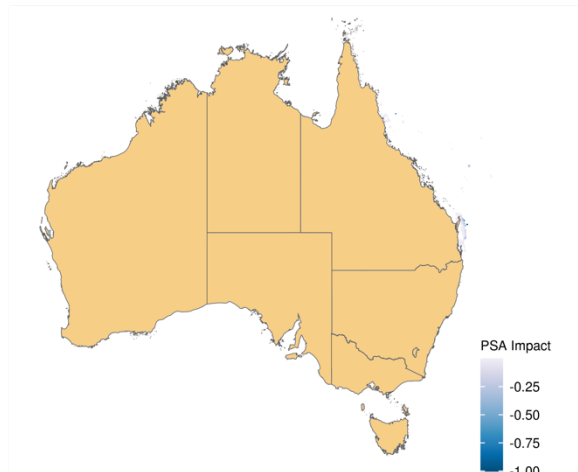
Carcharhinus melanopterus



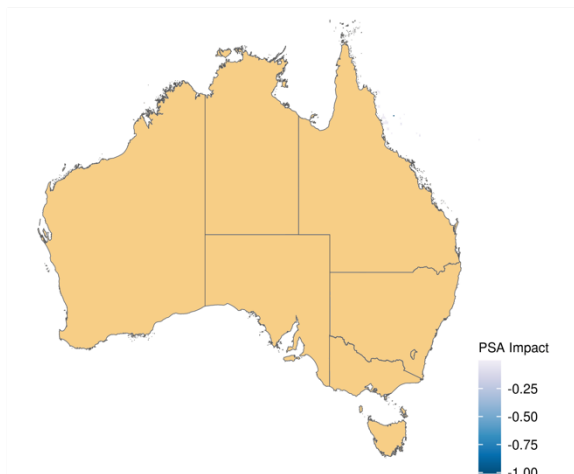
Carcharhinus obscurus



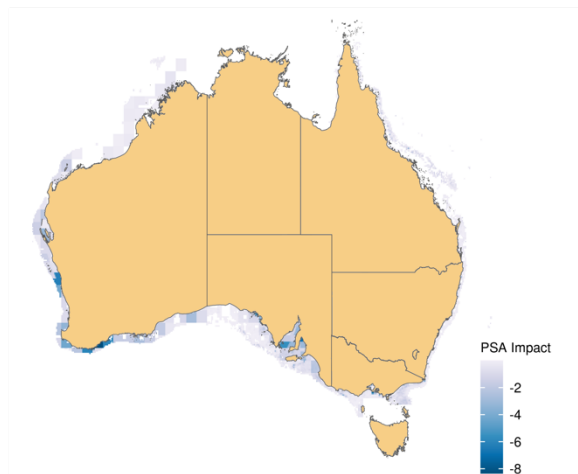
Carcharhinus plumbeus



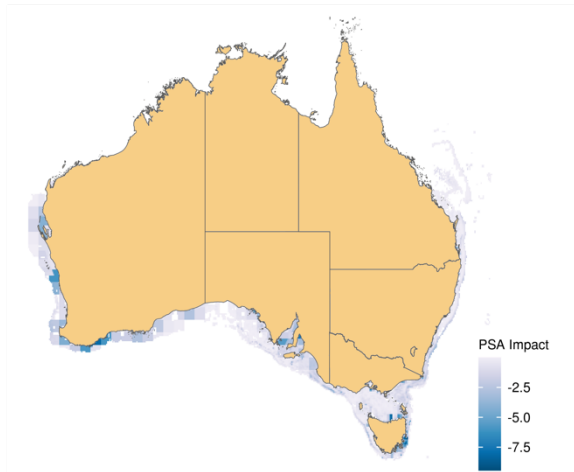
Carcharhinus tilstoni



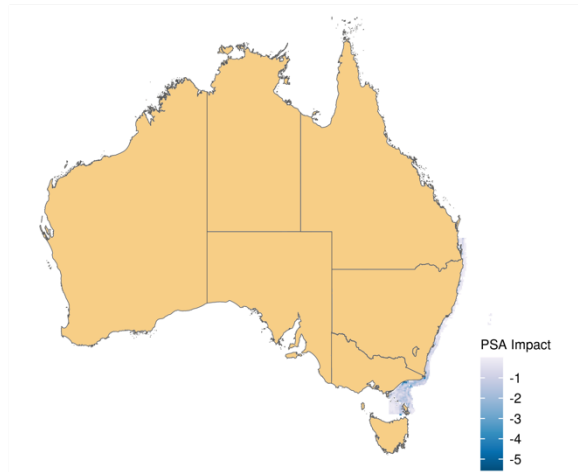
Carcharias taurus



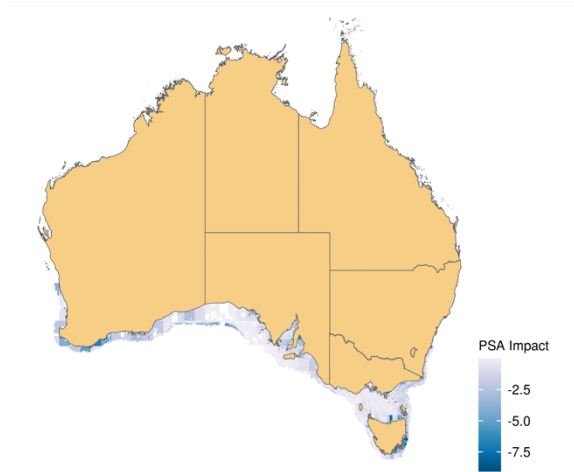
Carcharodon carcharias



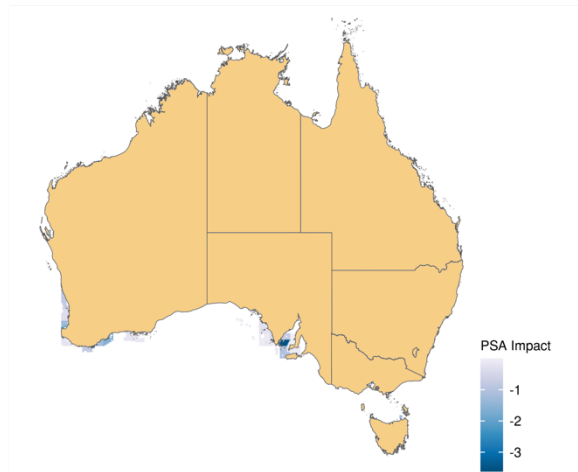
Centroberyx affinis



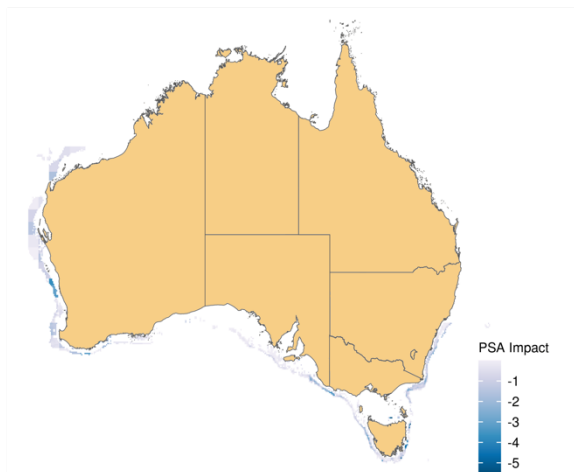
Centroberyx gerrardi



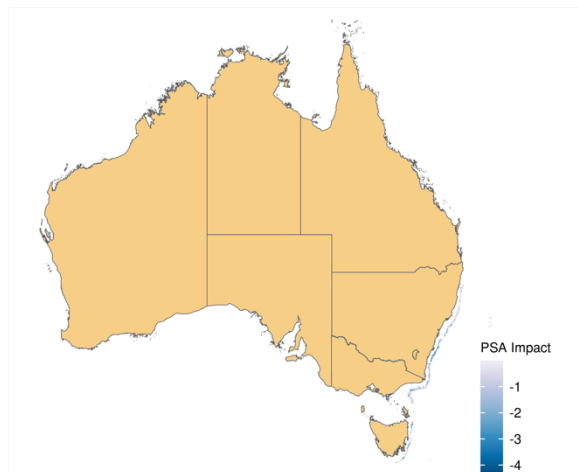
Centroberyx lineatus



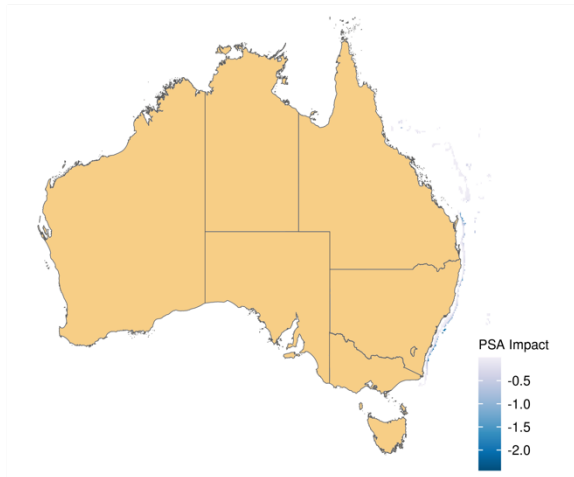
Centrolophus niger



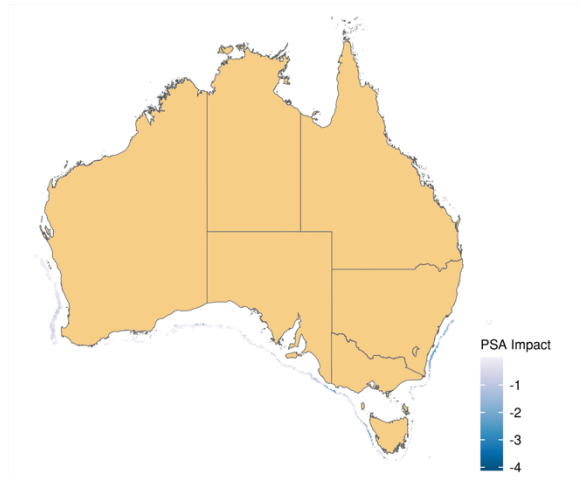
Centrophorus harrissoni



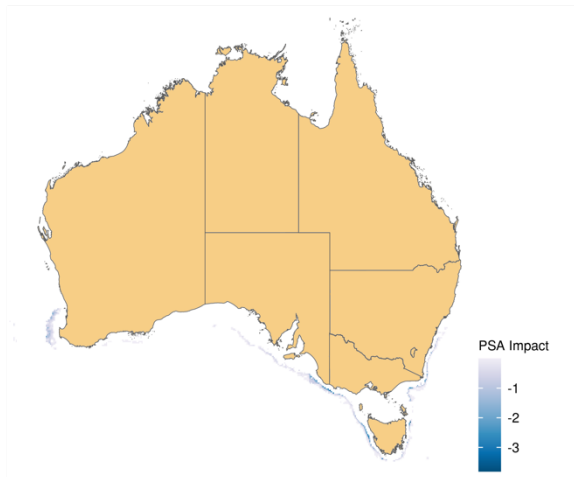
Centrophorus moluccensis



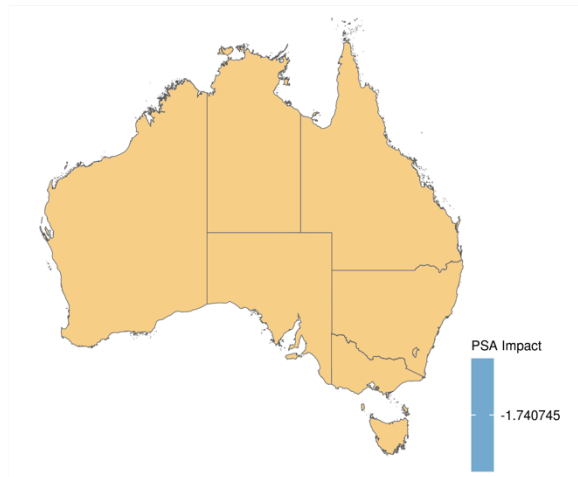
Centroscymnus owstonii



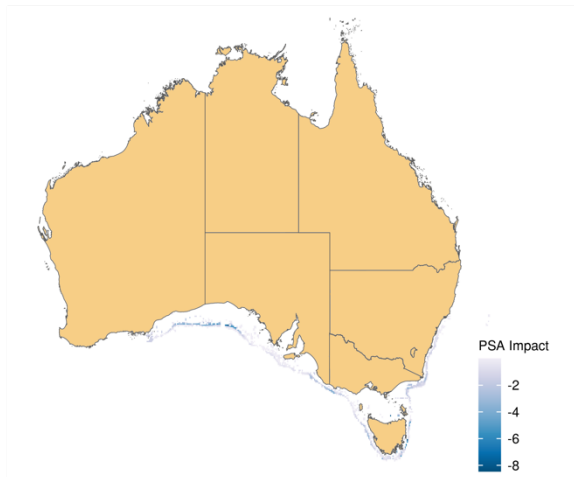
Centroselachus crepidater



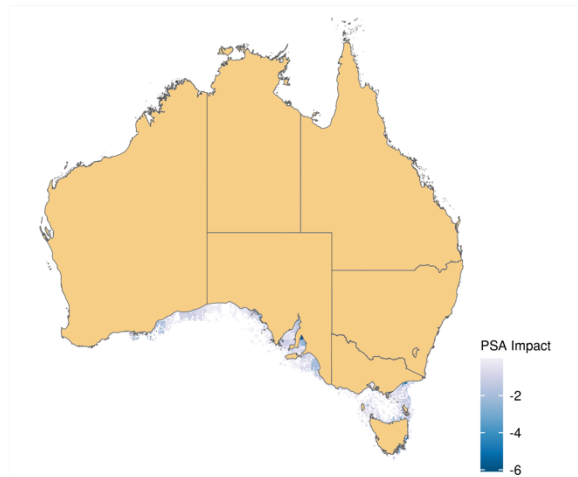
Cephalopholis cyanostigma



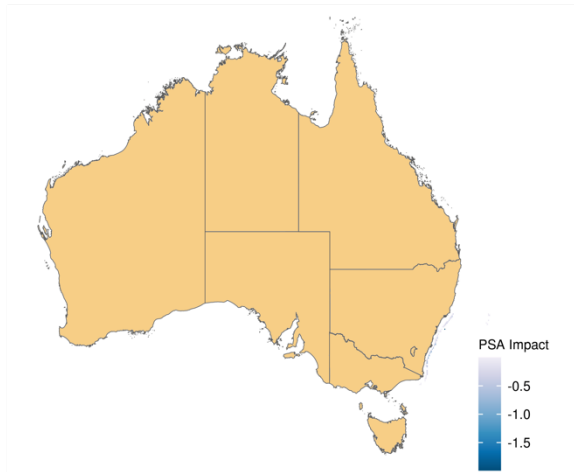
Cephaloscyllium albipinnum



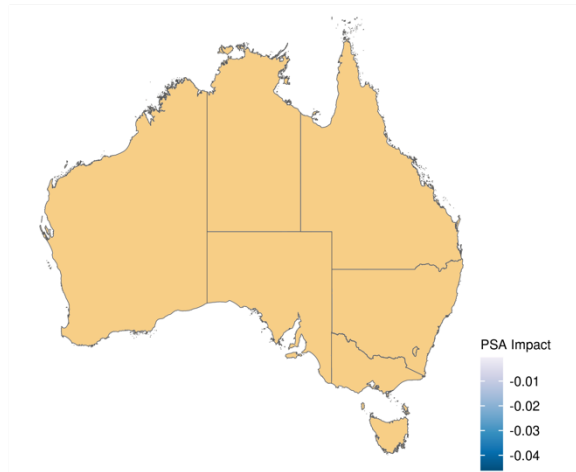
Cephaloscyllium laticeps



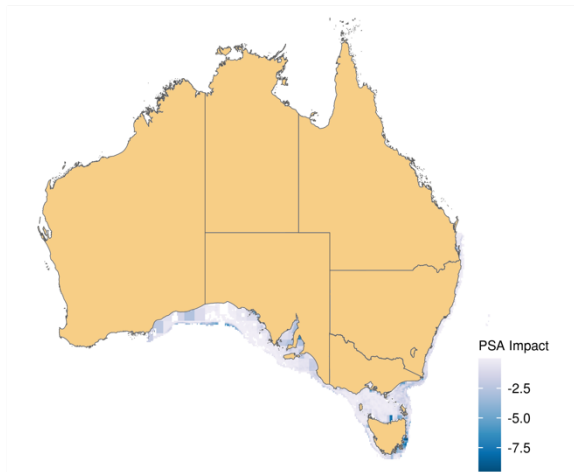
Cetorhinus maximus



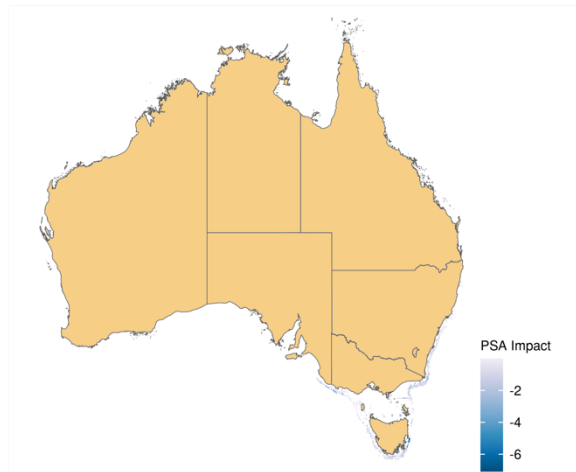
Cheilinus trilobatus



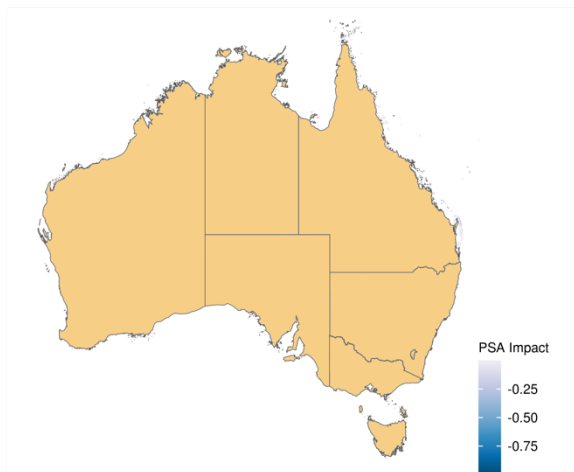
Chelidonichthys kumu



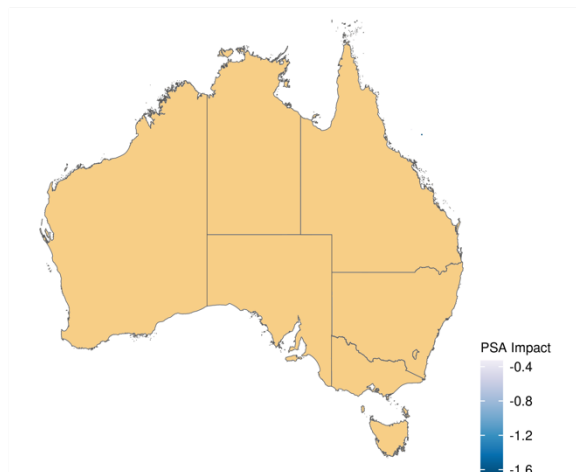
Chimaera ogilbyi



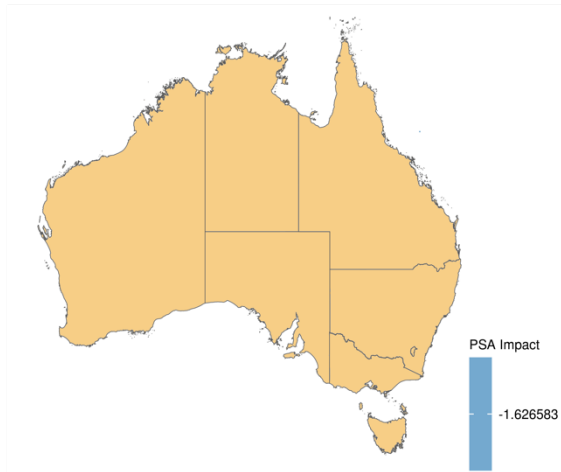
Chirocentrus dorab



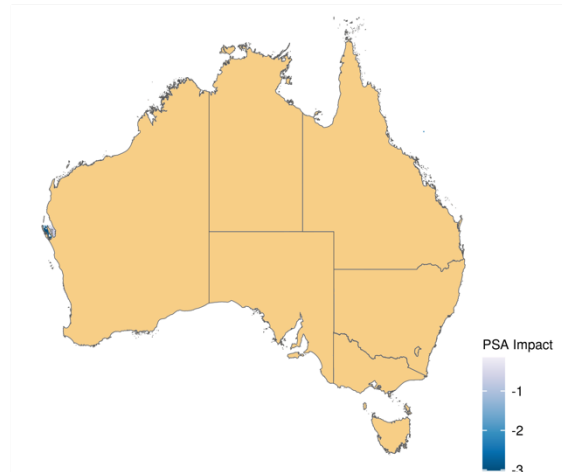
Choeroichthys brachysoma



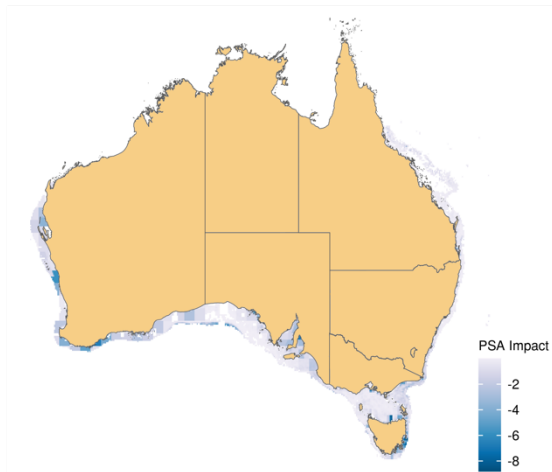
Choeroichthys sculptus



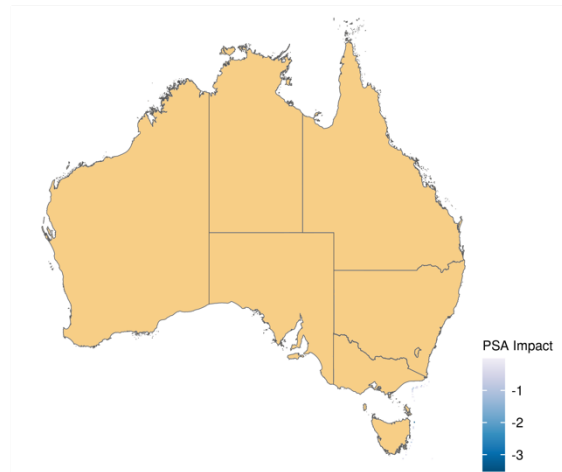
Choeroichthys suillus



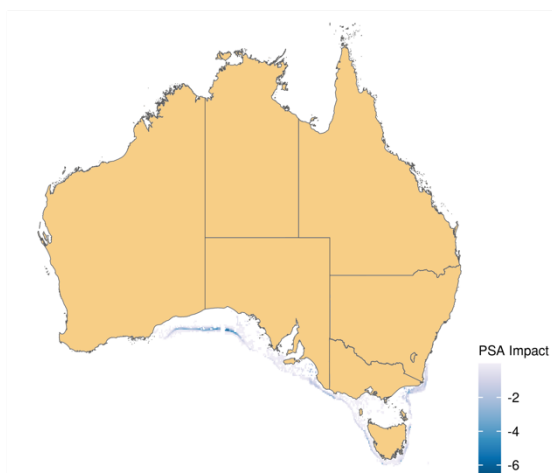
Chrysophrys auratus



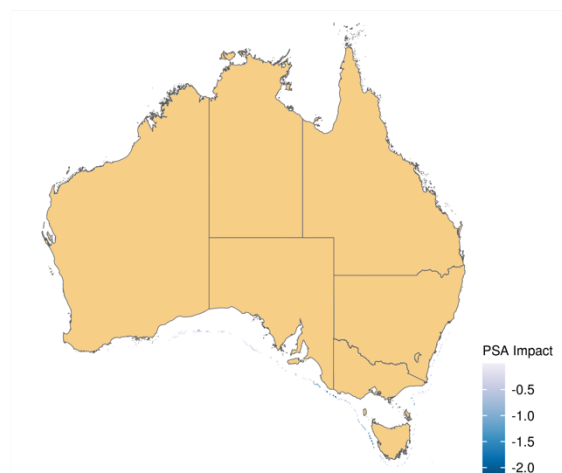
Cirrhitigaleus barbifer



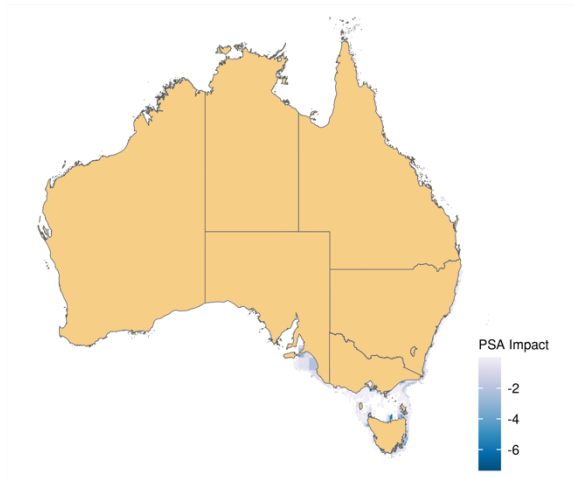
Coelorinchus australis



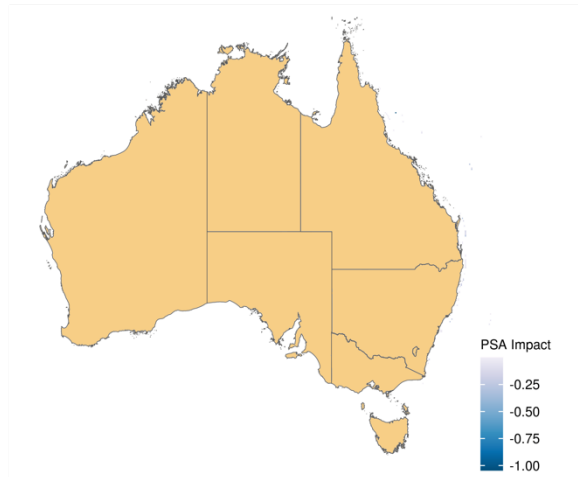
Coelorinchus fasciatus



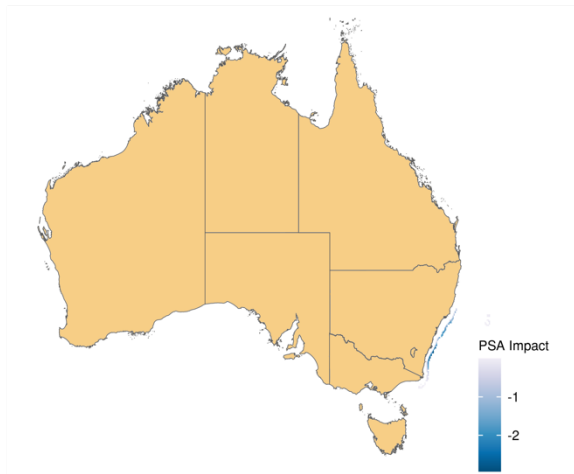
Conger verreauxi



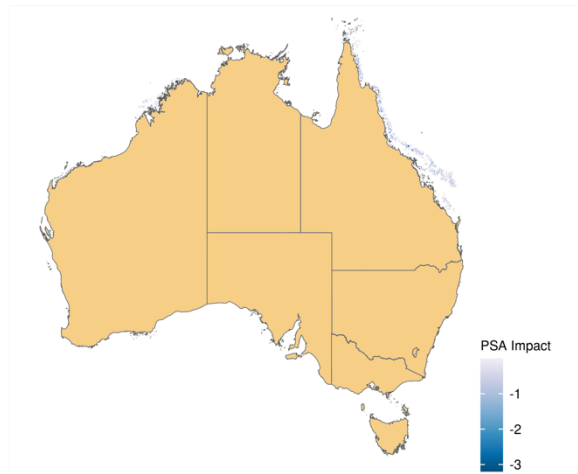
Coryphaena hippurus



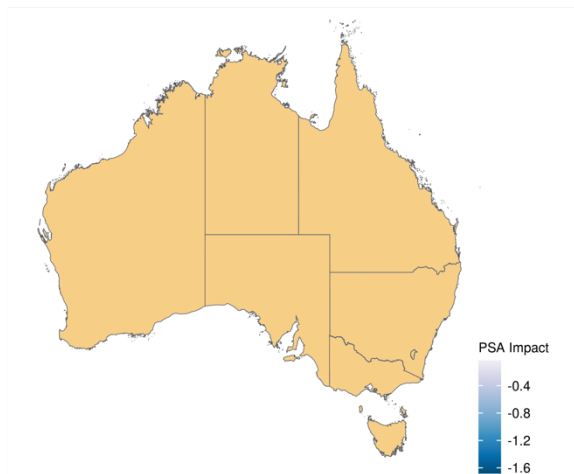
Coryphaenoides subserrulatus



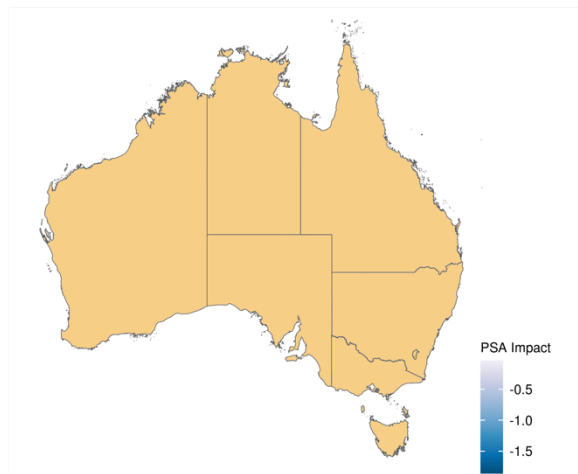
Corythoichthys amplexus



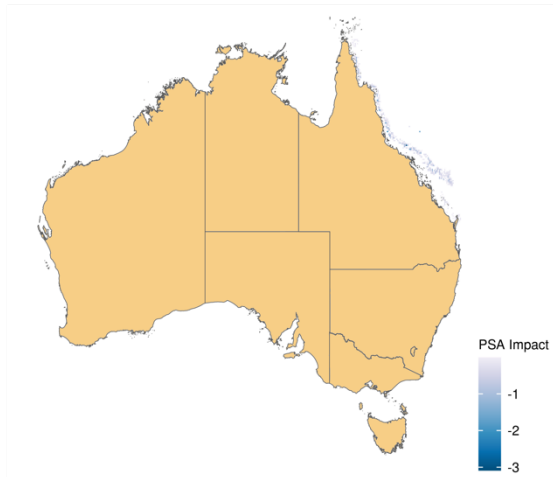
Corythoichthys conspicillatus



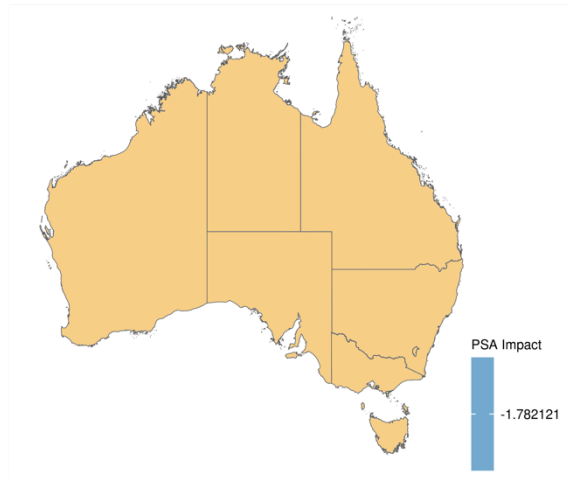
Corythoichthys intestinalis



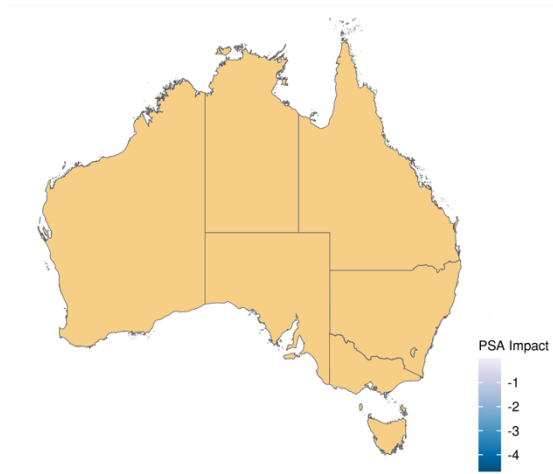
Corythoichthys ocellatus



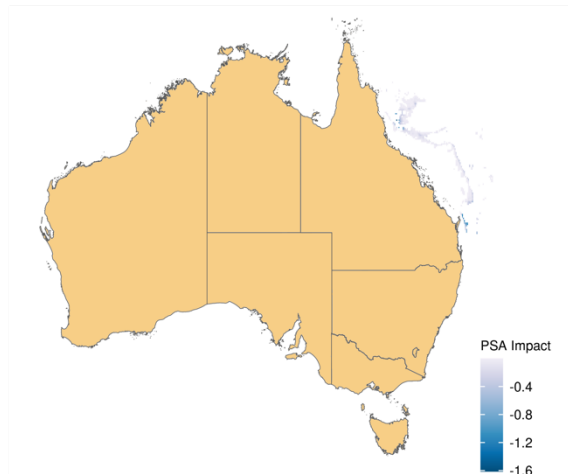
Corythoichthys schultzi



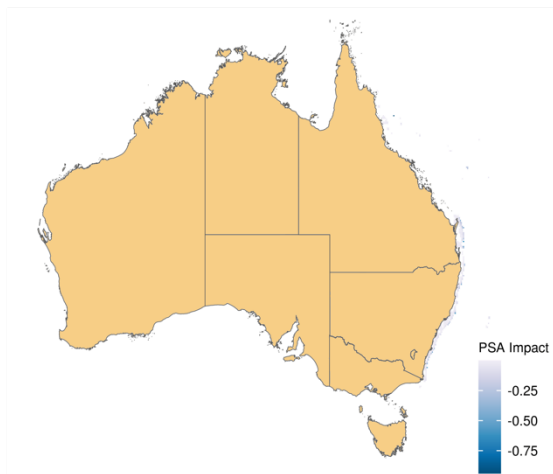
Cosmocampus howensis



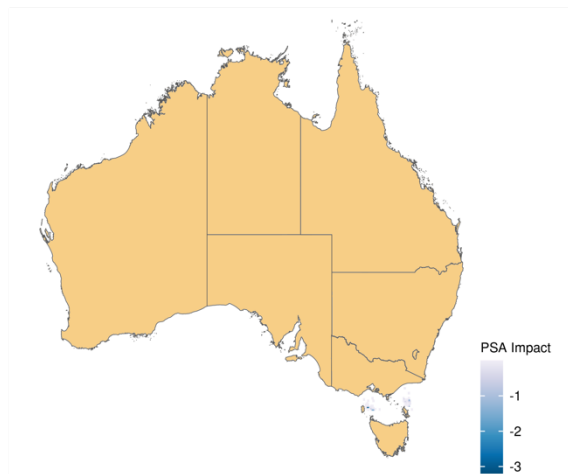
Cubiceps capensis



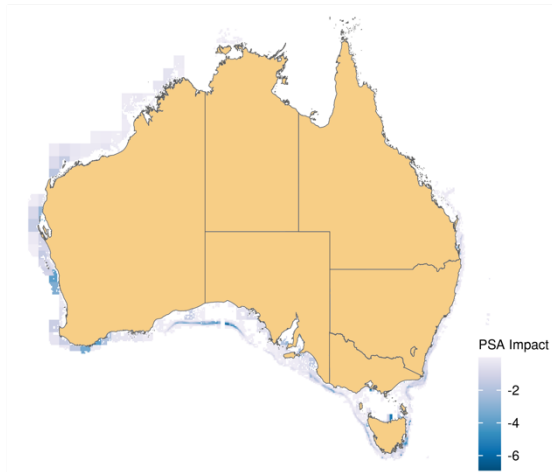
Cybiosarda elegans



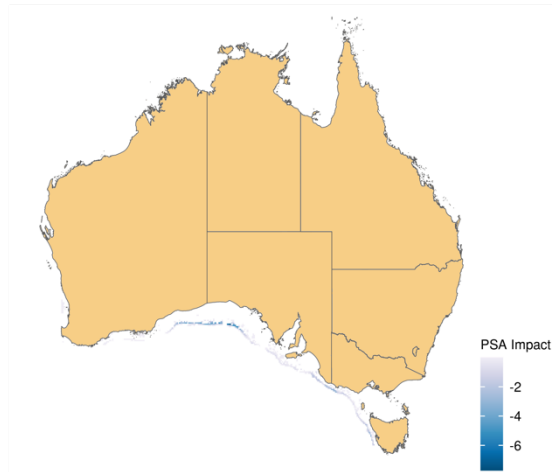
Cyttus australis



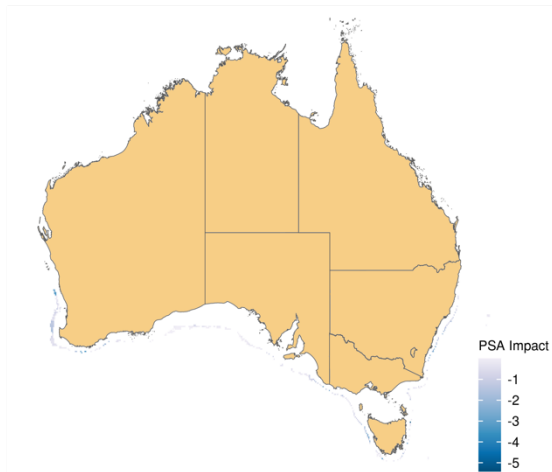
Dalatias licha



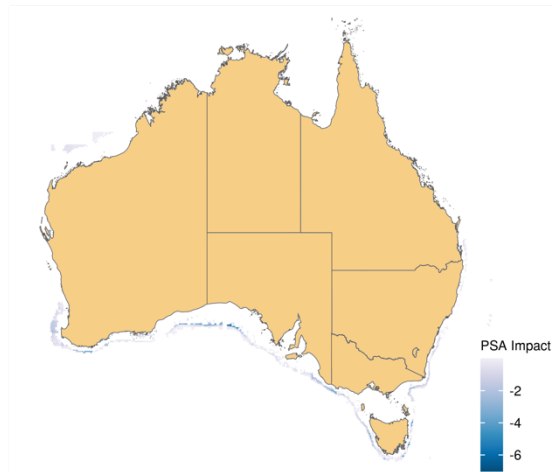
Dannevigia tusca



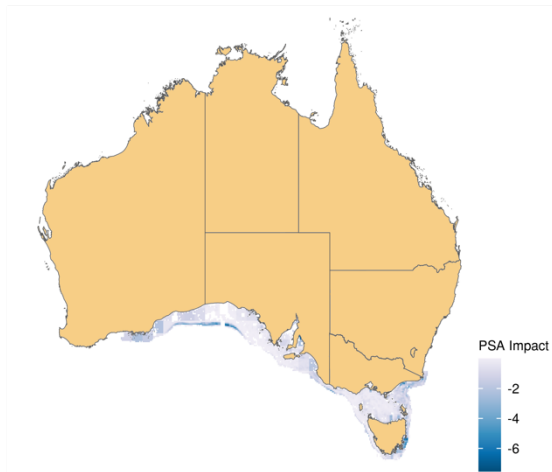
Deania calceus



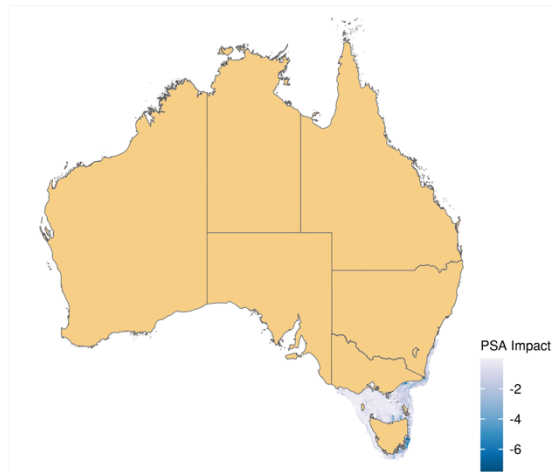
Deania quadrispinosa



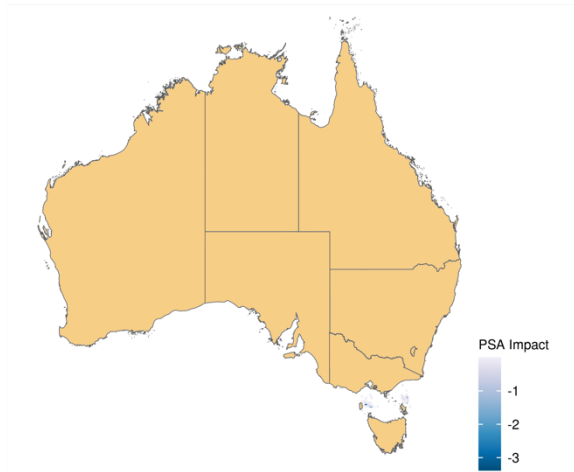
Dentiraja cerva



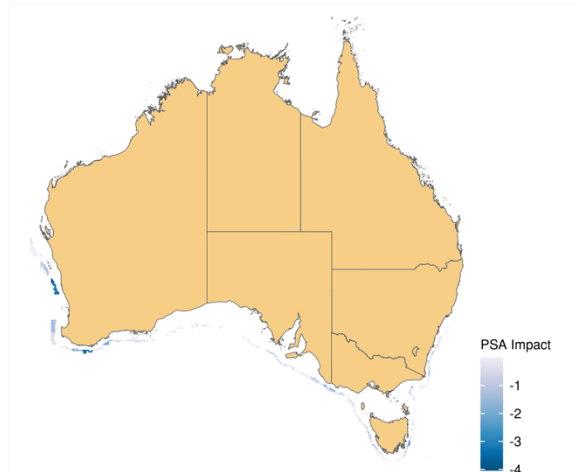
Dentiraja confusus



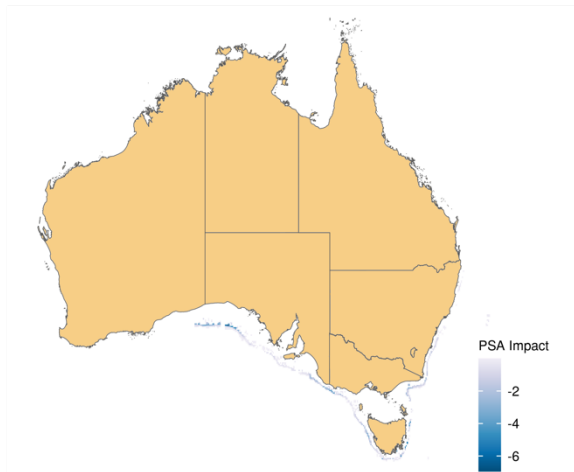
Dentiraja lemprieri



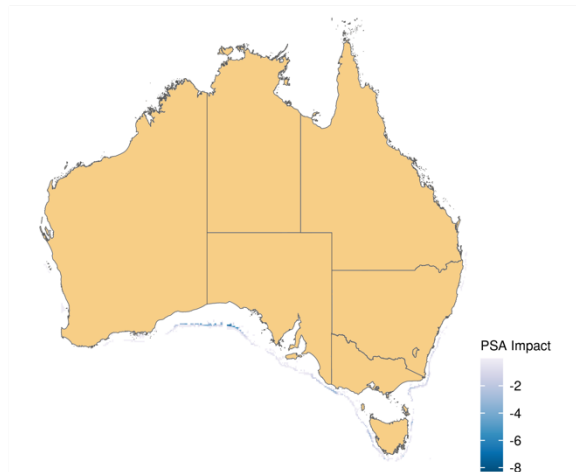
Diastobranthus capensis



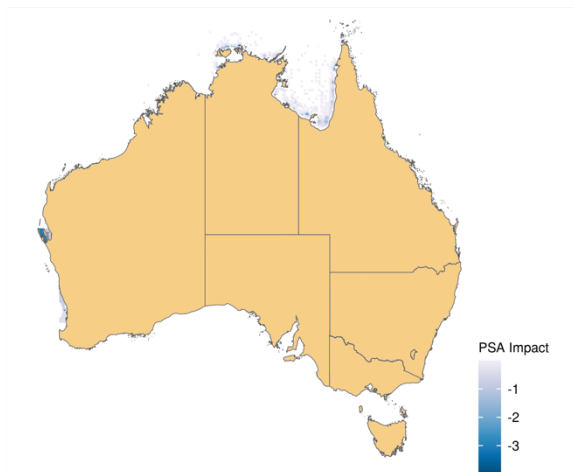
Dipturus canutus



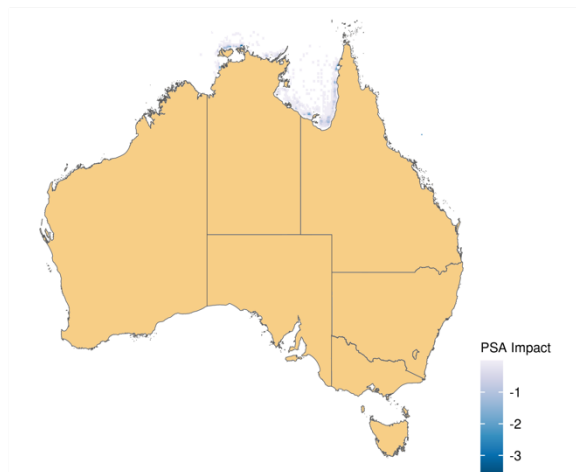
Dipturus gudgeri



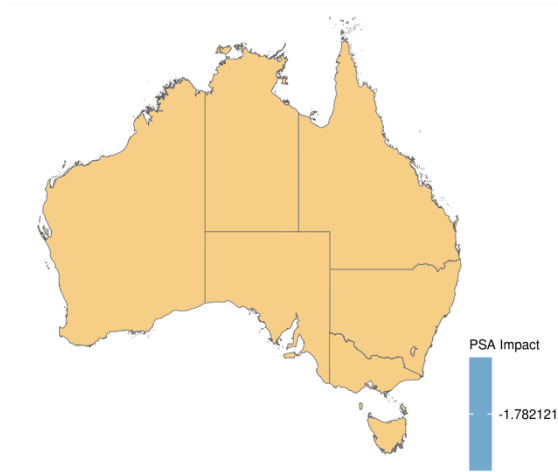
Disteira kingii



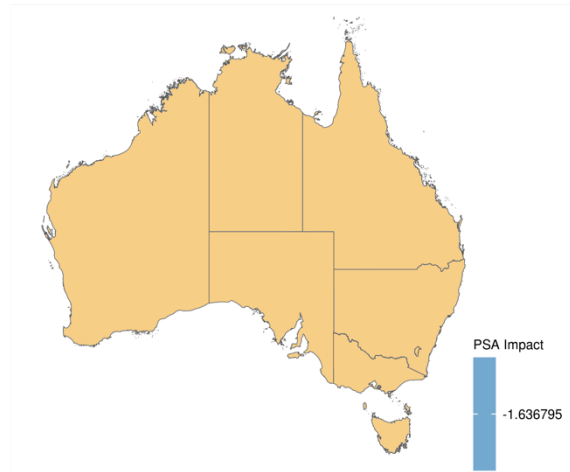
Disteira major



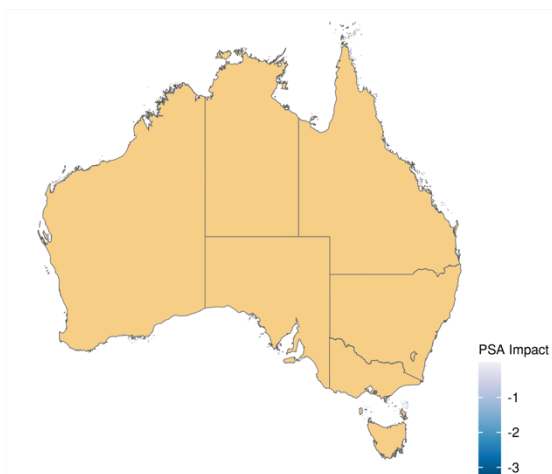
Doryrhamphus excisus



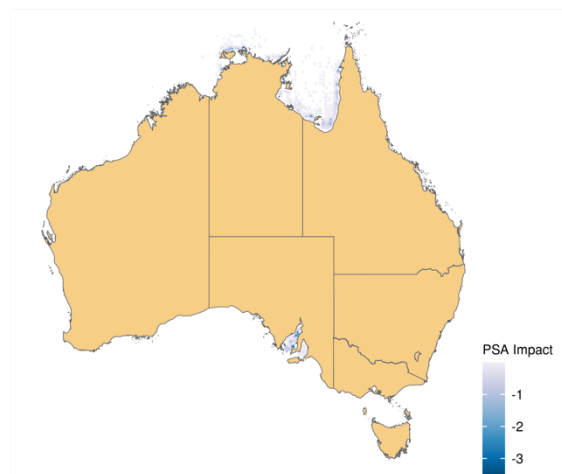
Doryrhamphus negrosensis



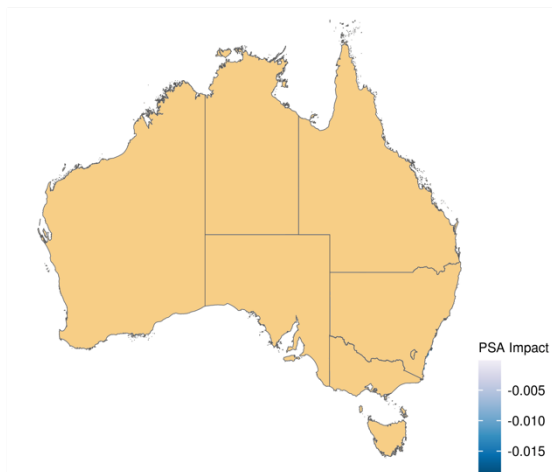
Dotalabrus aurantiacus



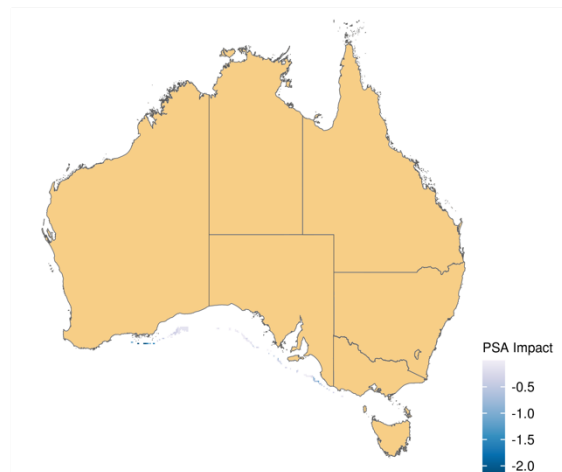
Echeneis naucrates



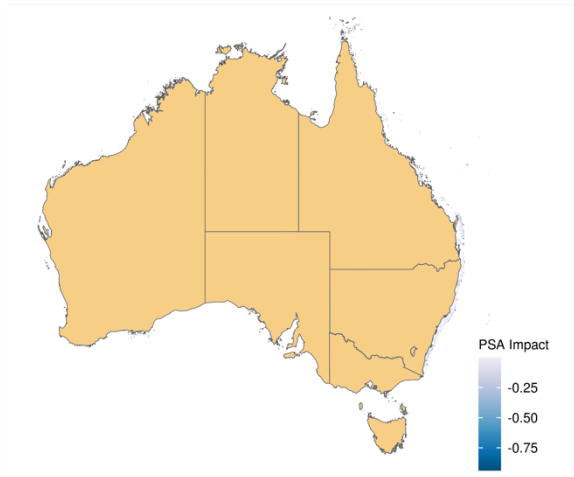
Echinophryne crassispina



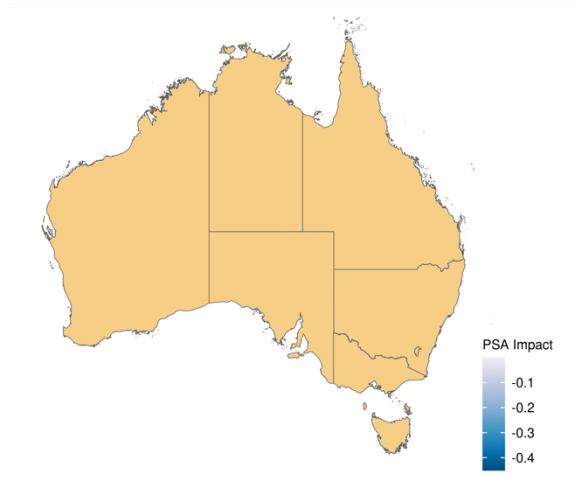
Echinorhinus brucus



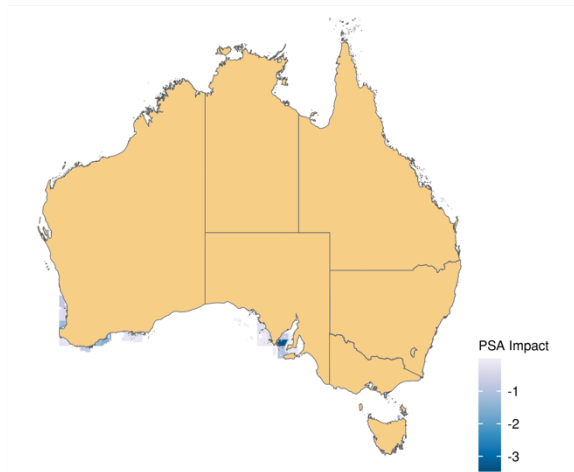
Elagatis bipinnulata



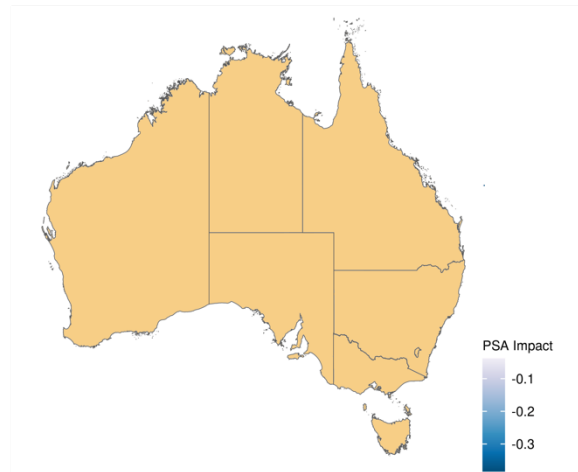
Elops hawaiiensis



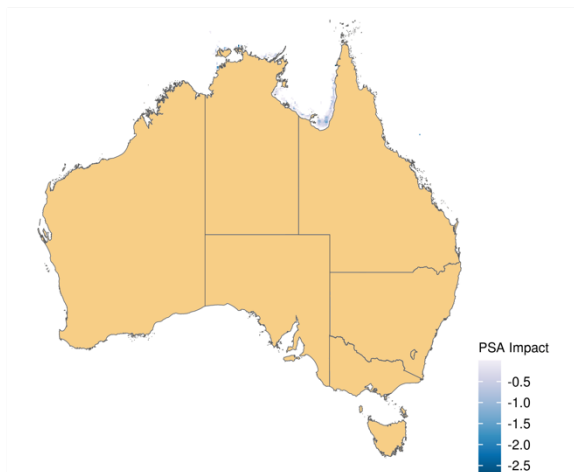
Emmelichthys nitidus



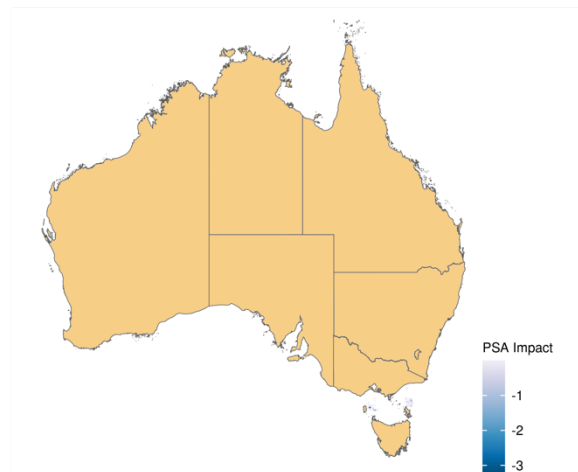
Emydocephalus annulatus



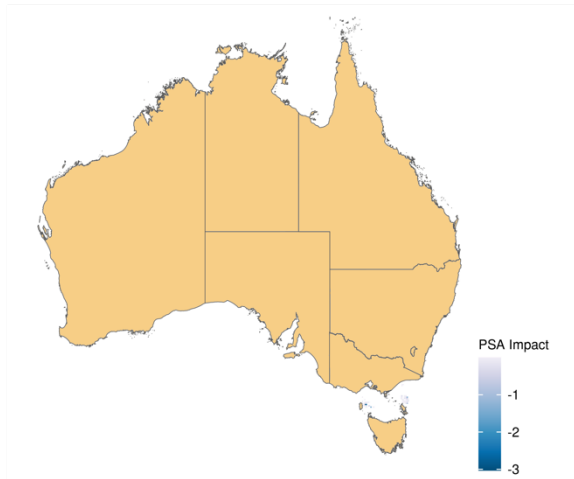
Enhydrina schistosa



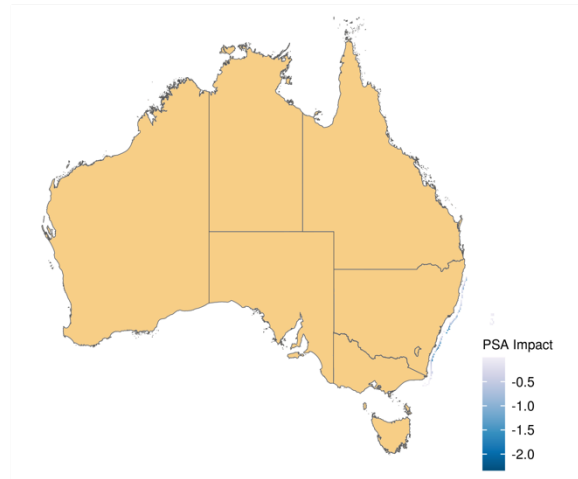
Enigmapercis reducta



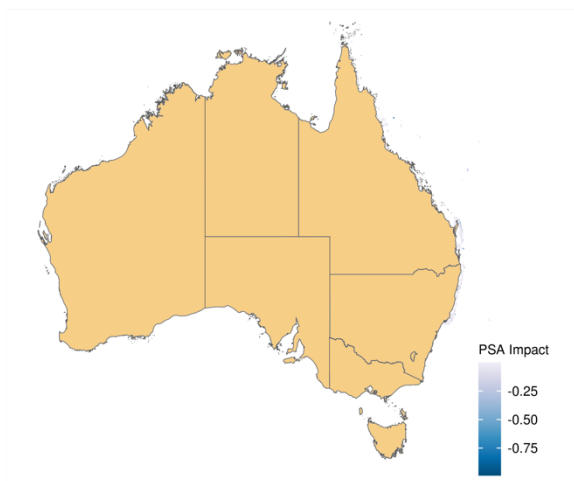
Eocallionymus papilio



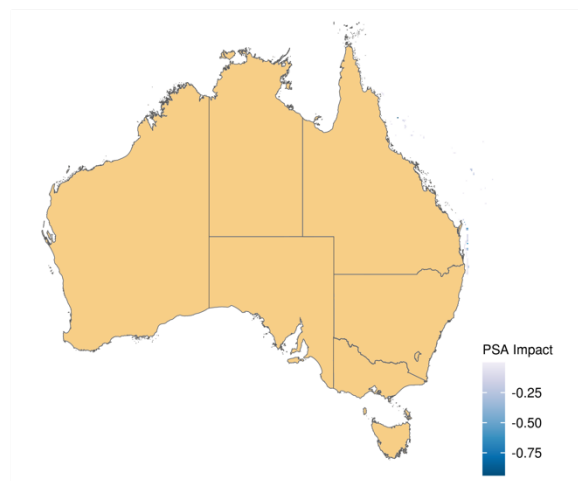
Epigonus denticulatus



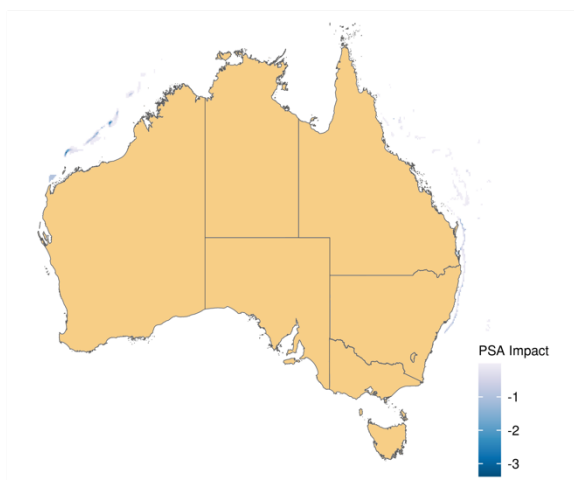
Epinephelus malabaricus



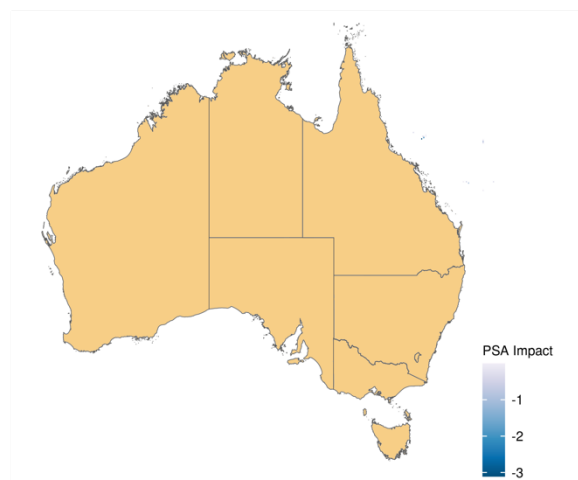
Epinephelus morrhua



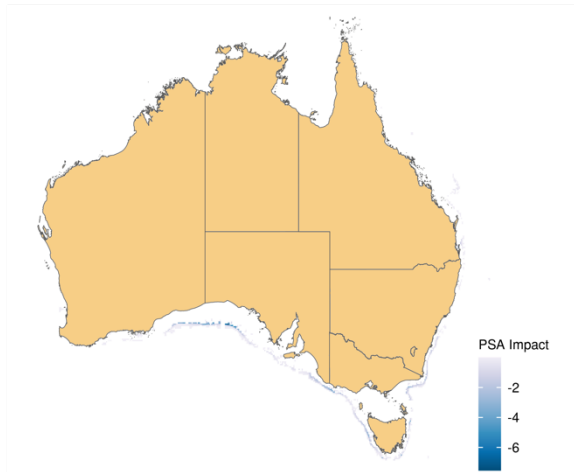
Etelis carbunculus



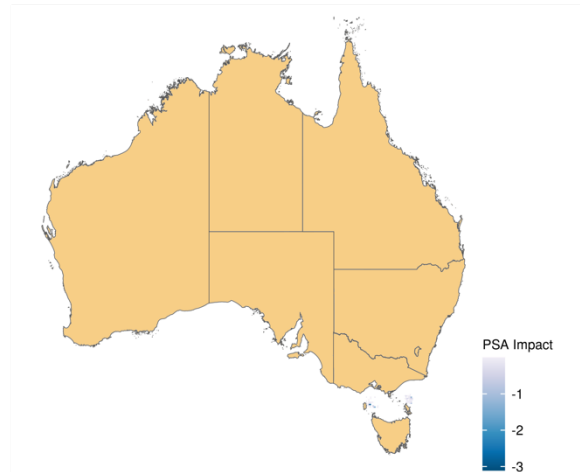
Etelis coruscans



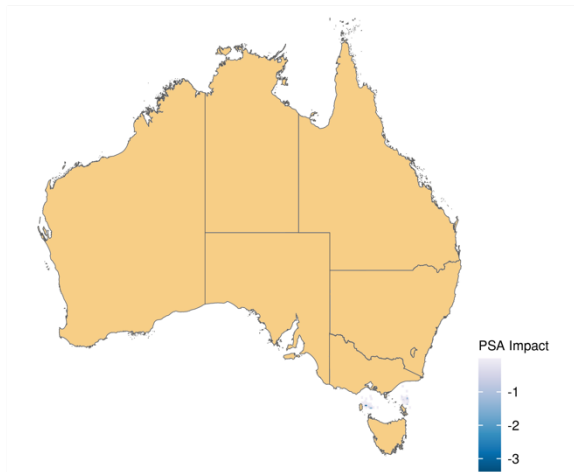
Etmopterus lucifer



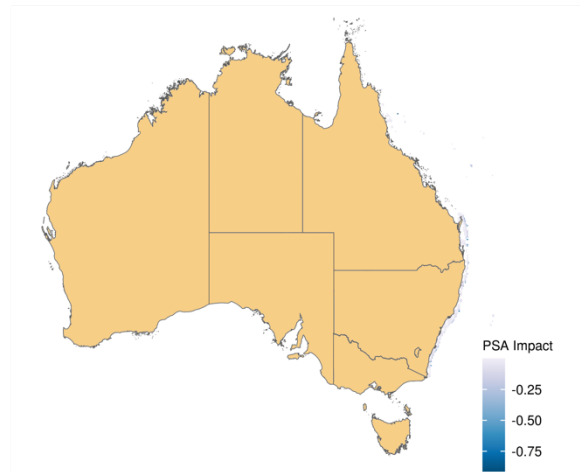
Eubalichthys gunnii



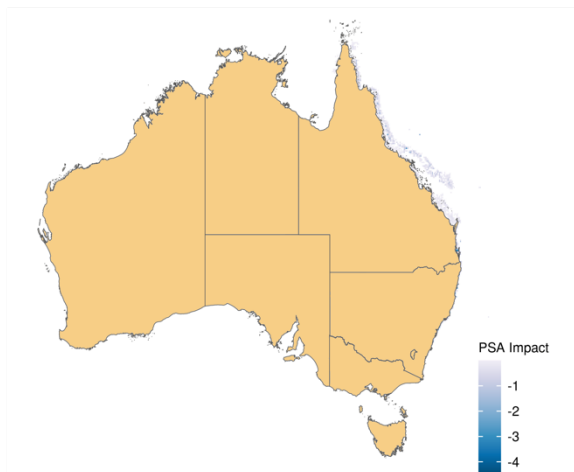
Eubalichthys mosaicus



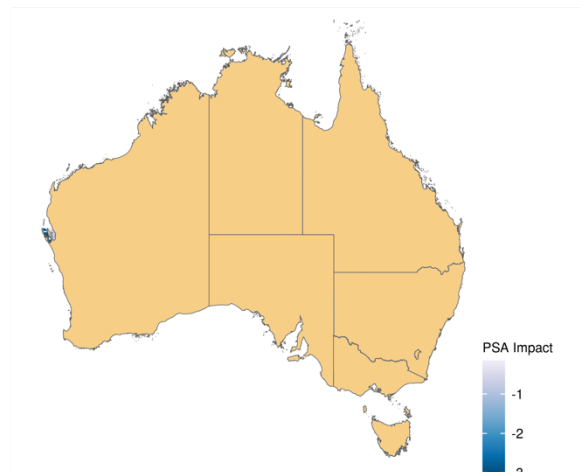
Euthynnus affinis



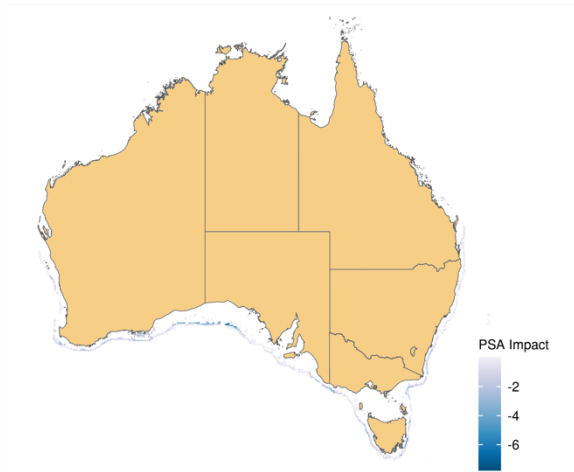
Festucalex cinctus



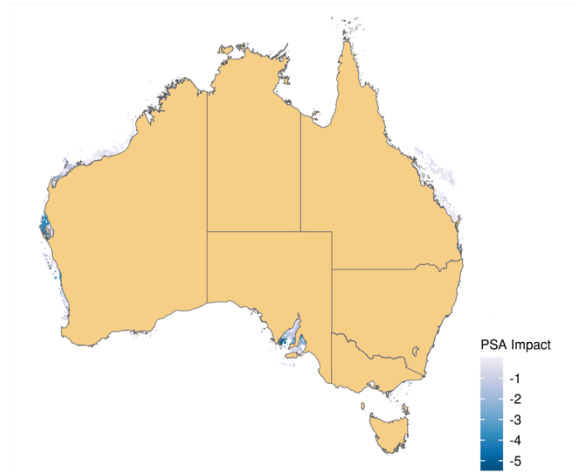
Festucalex scalaris



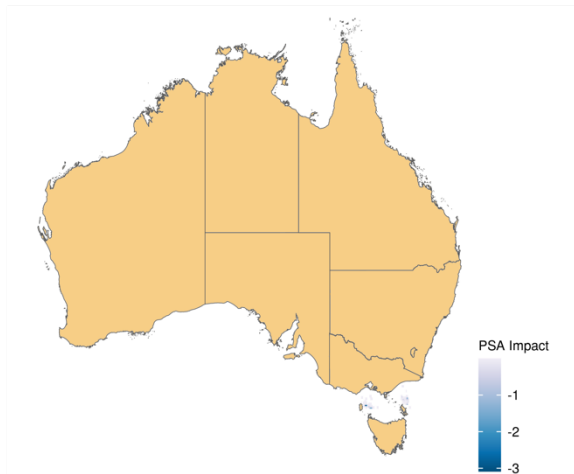
Figaro boardmani



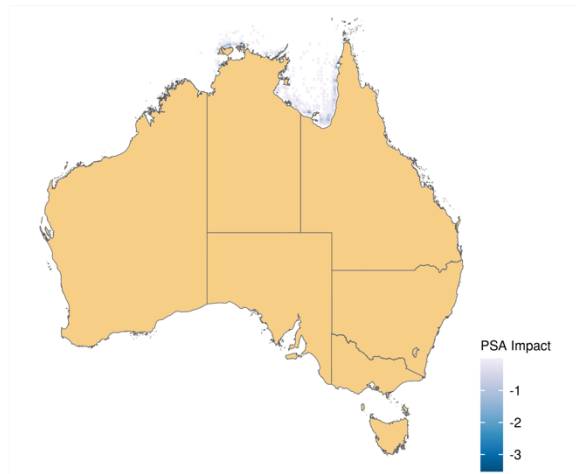
Filicampus tigris



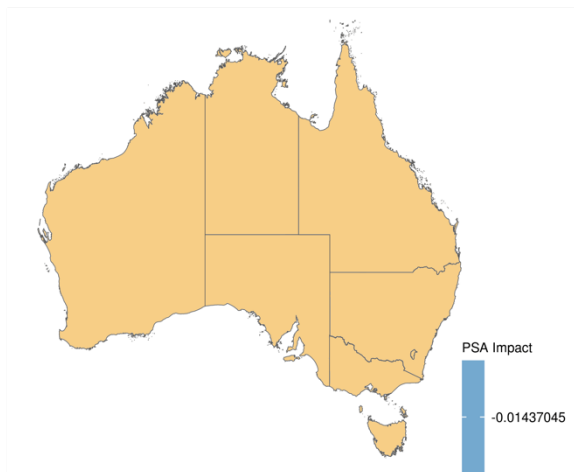
Foetorepus calauropomus



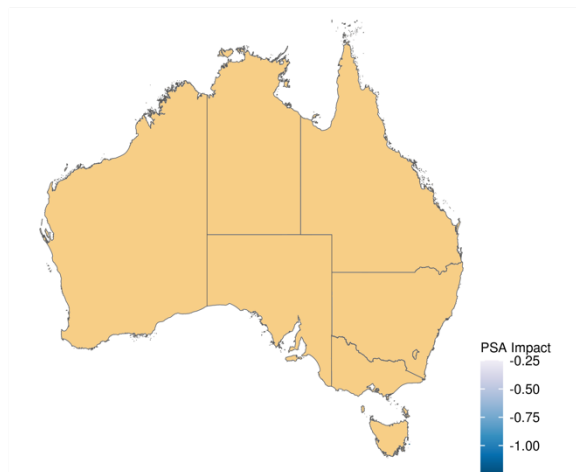
Forcipiger flavissimus



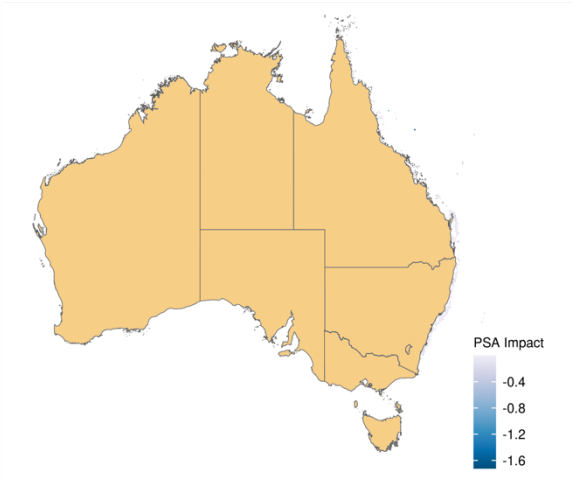
Furgaleus macki



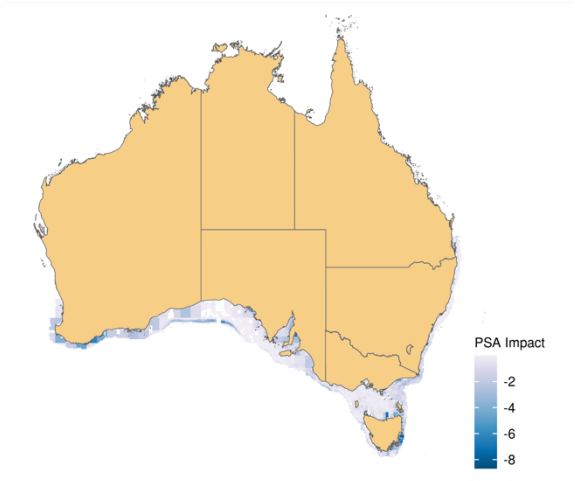
Gaidropsarus novaezealandiae



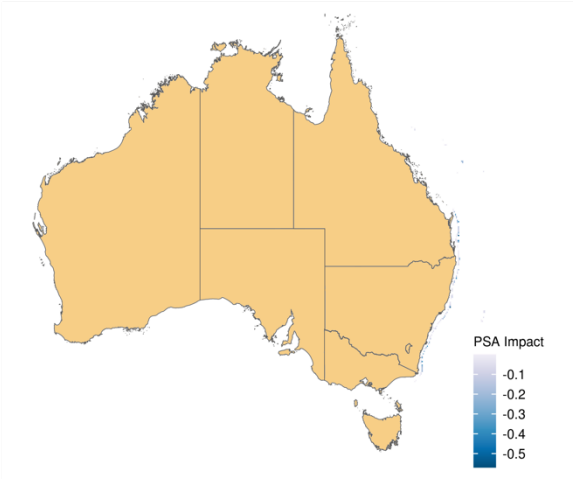
Galeocerdo cuvier



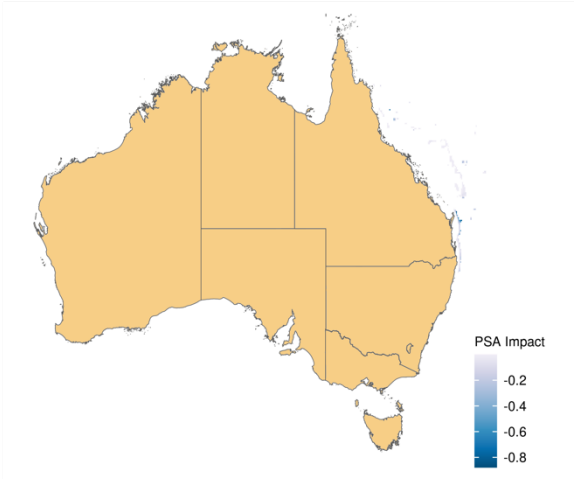
Galeorhinus galeus



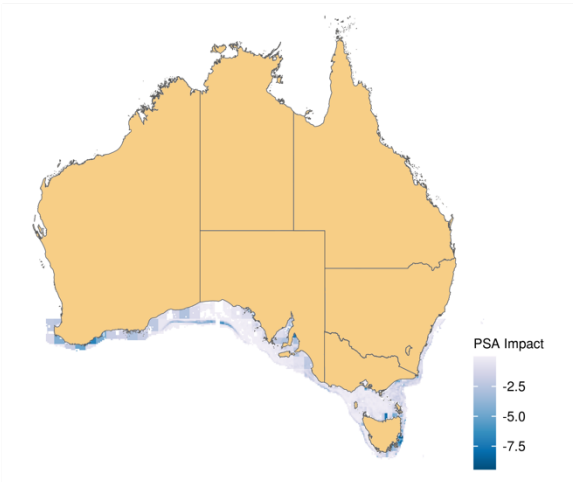
Gasterochisma melampus



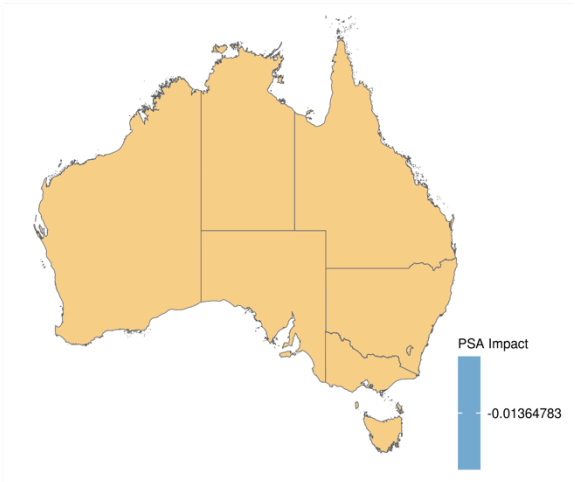
Gempylus serpens



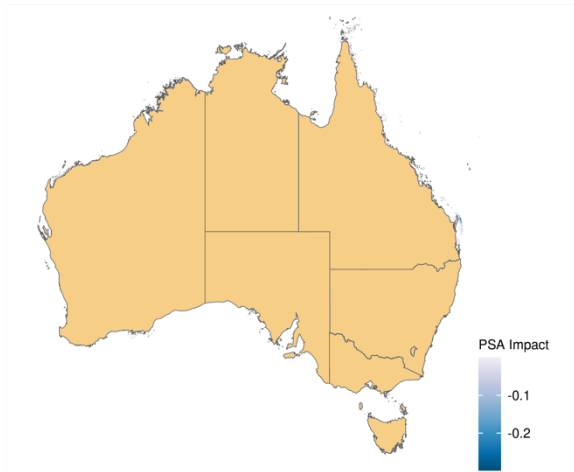
Genypterus blacodes



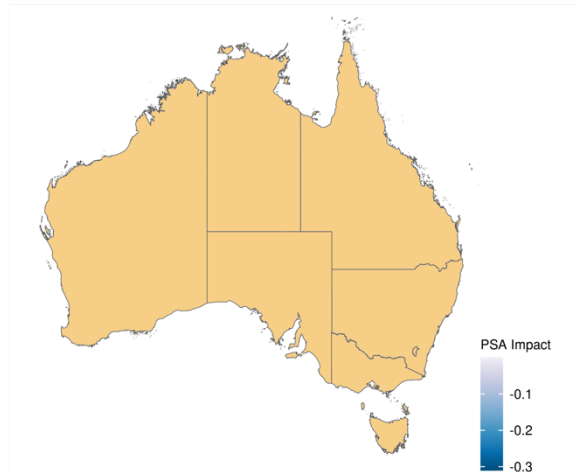
Geotria australis



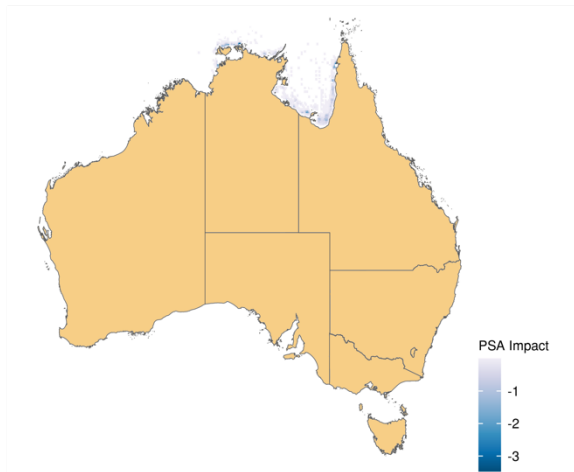
Gerres filamentosus



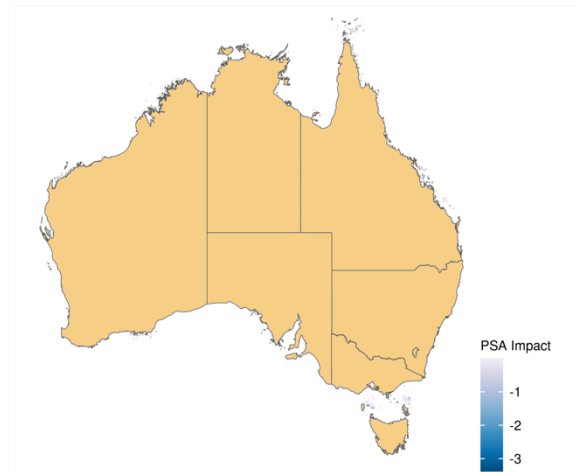
Gerres oblongus



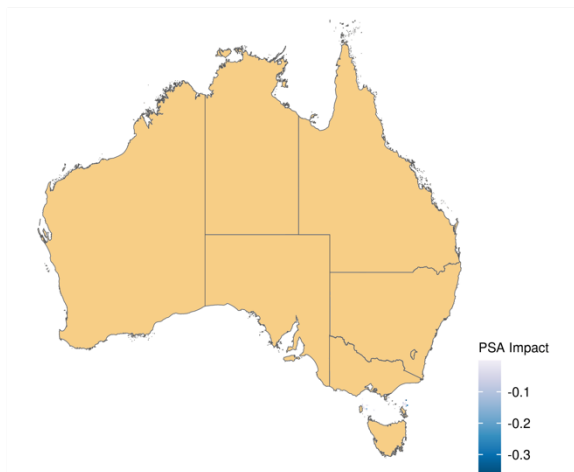
Gnathanodon speciosus



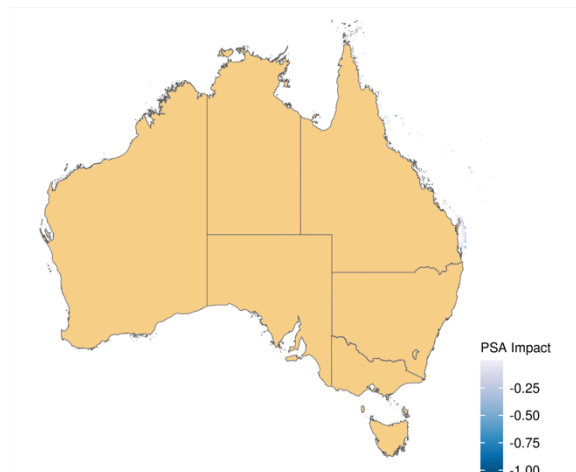
Gonorynchus greyi



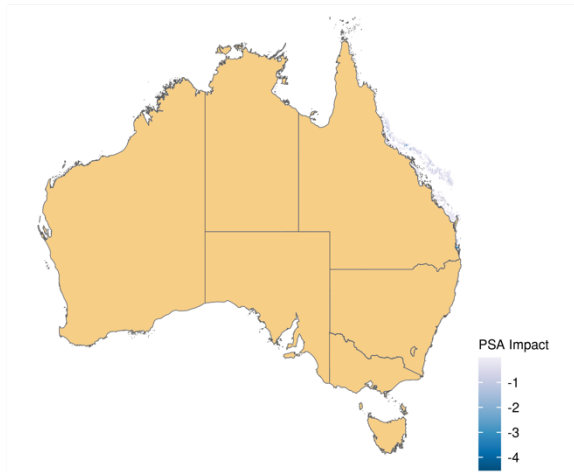
Gymnapistes marmoratus



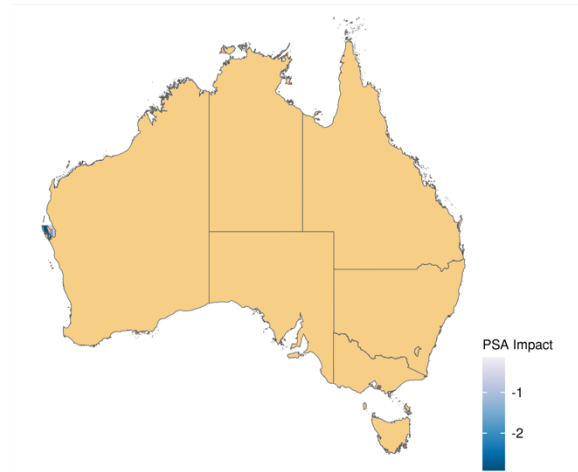
Gymnosarda unicolor



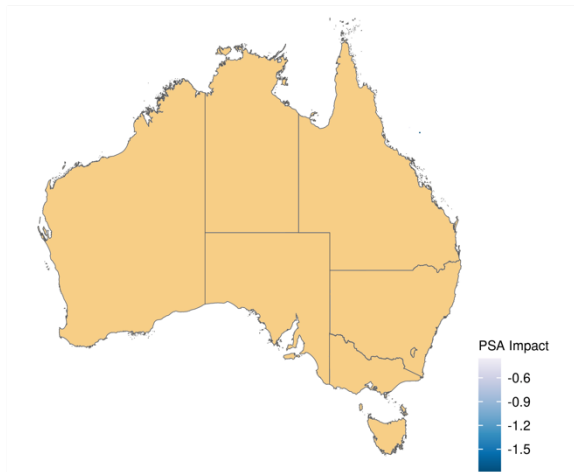
Halicampus boothae



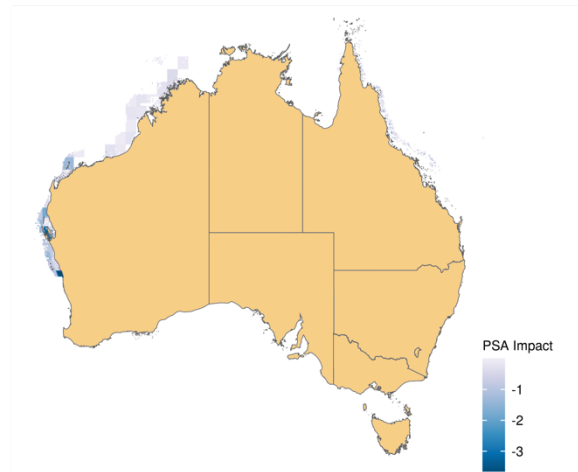
Halicampus brocki



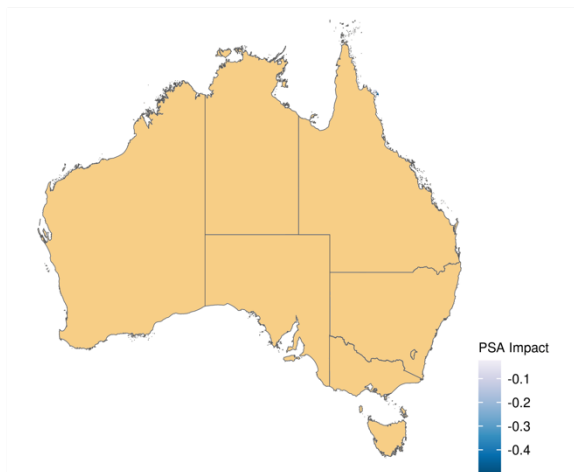
Halicampus dunckeri



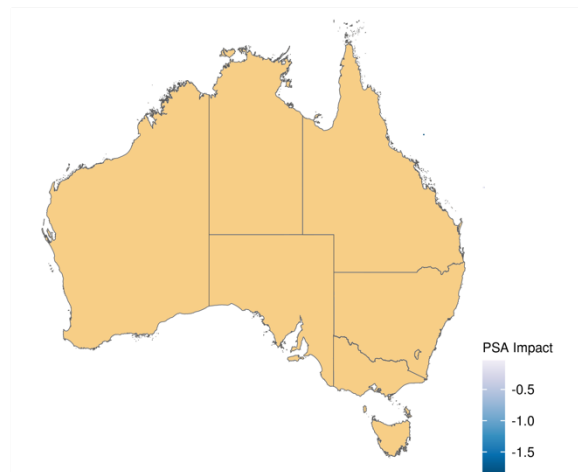
Halicampus grayi



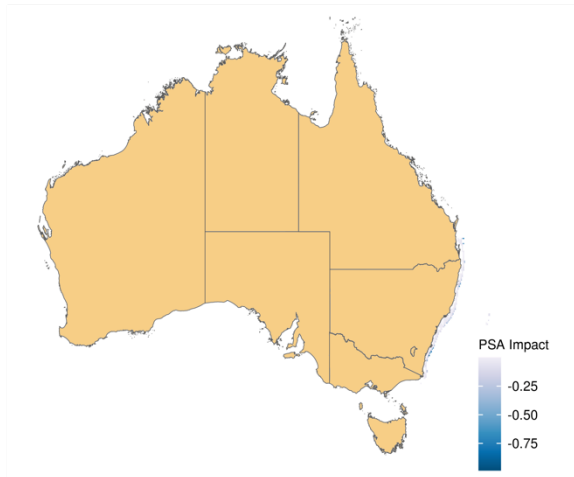
Halicampus macrorhynchus



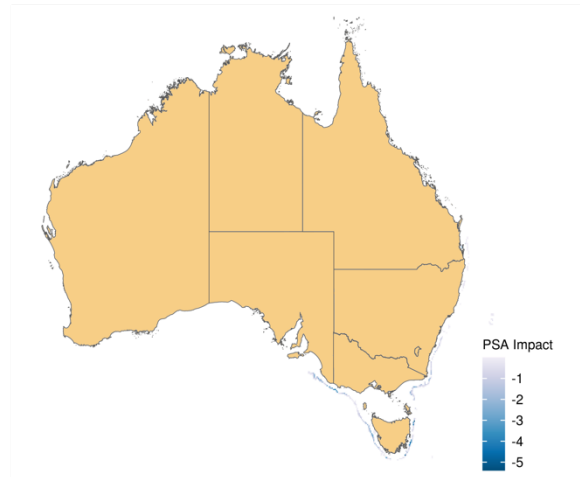
Halicampus spinirostris



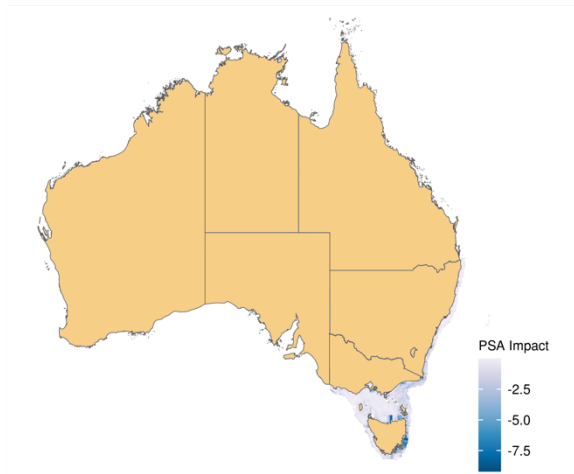
Halieutaea brevicauda



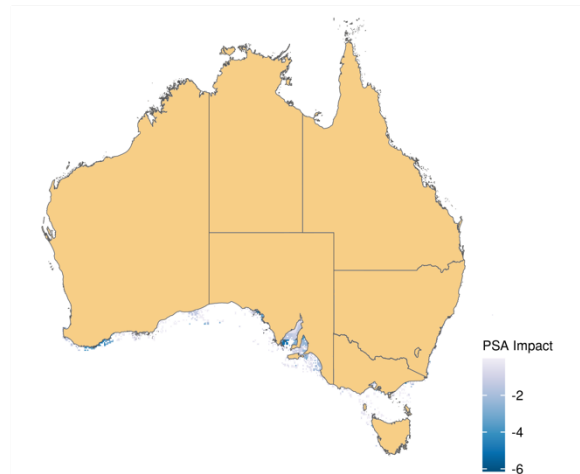
Helicolenus barathri



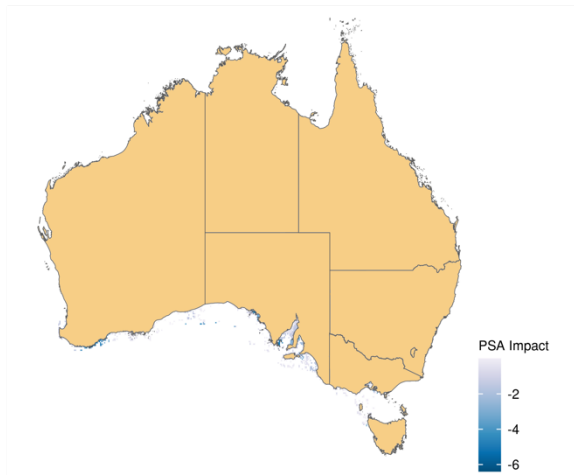
Helicolenus percoides



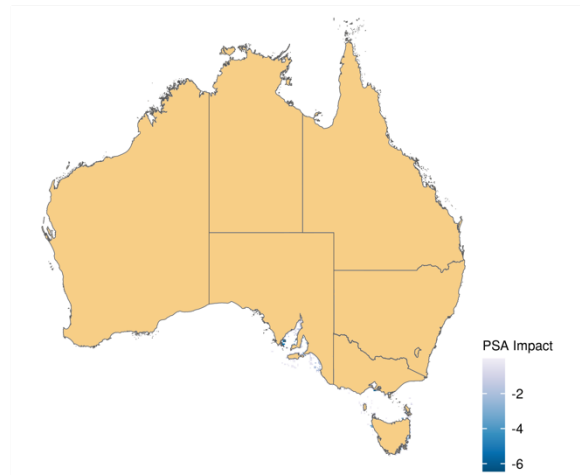
Heraldia nocturna



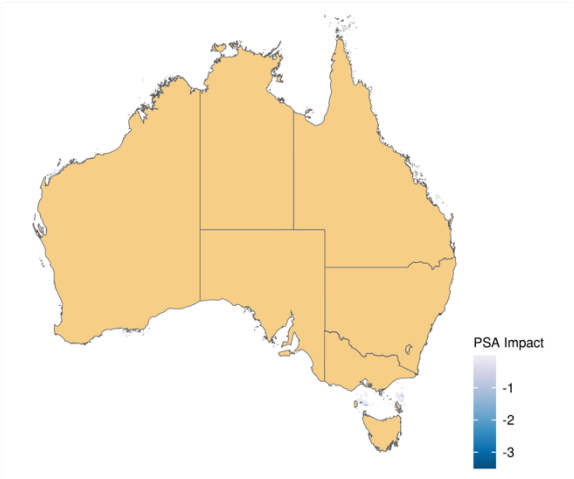
Heraldia sp. 1 [in Kuiter, 2000]



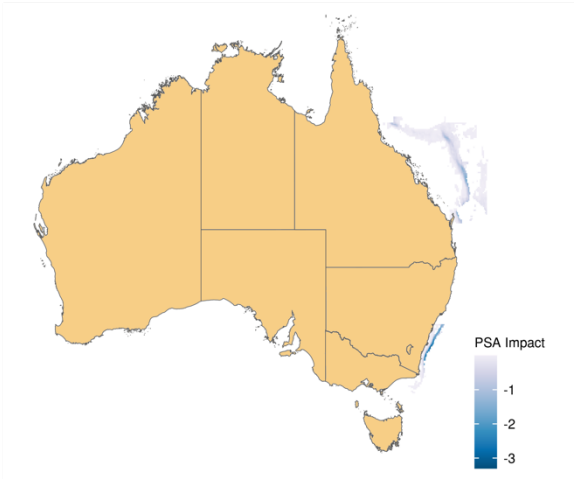
Heteroclinus perspicillatus



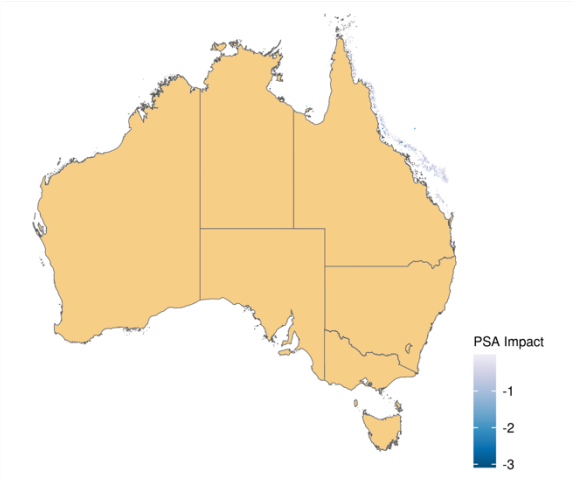
Heterodontus portusjacksoni



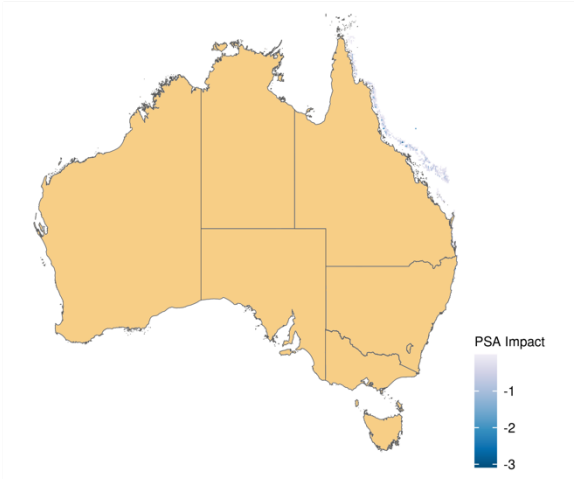
Hexanchus griseus



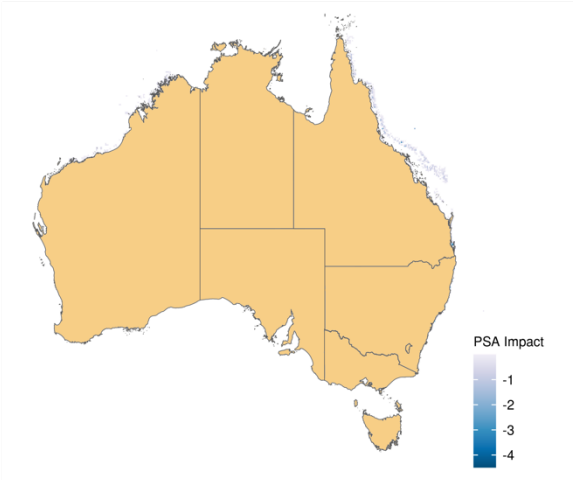
Hippichthys cyanospilos



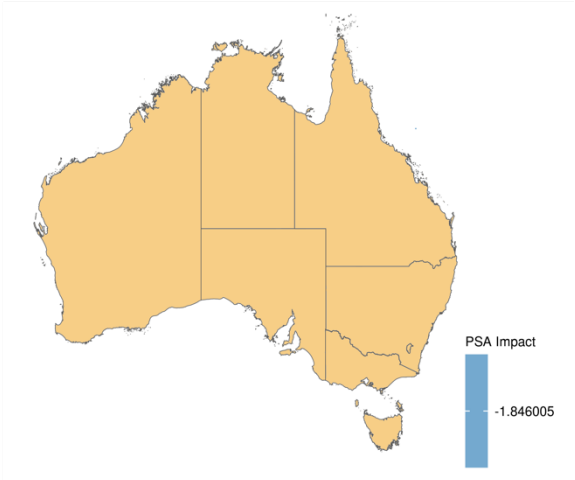
Hippichthys heptagonus



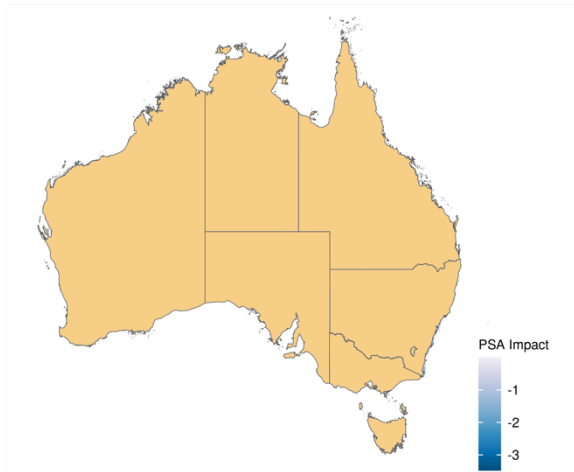
Hippichthys penicillus



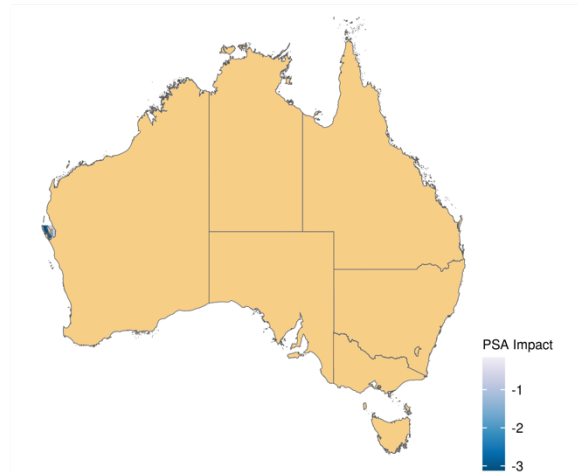
Hippichthys spicifer



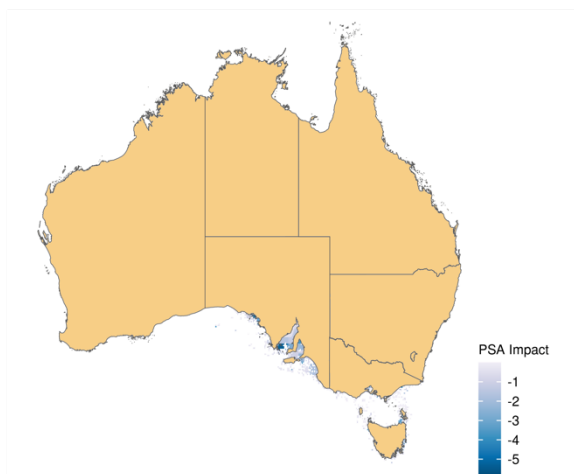
Hippocampus abdominalis



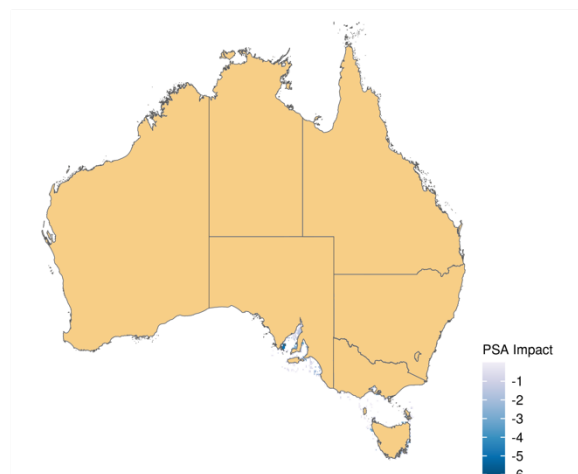
Hippocampus angustus



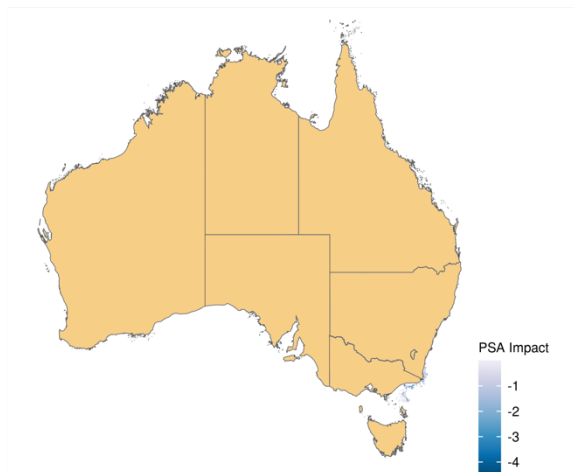
Hippocampus bleekeri



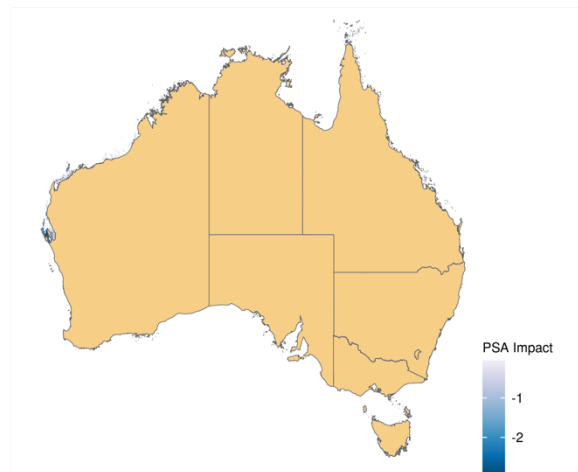
Hippocampus breviceps



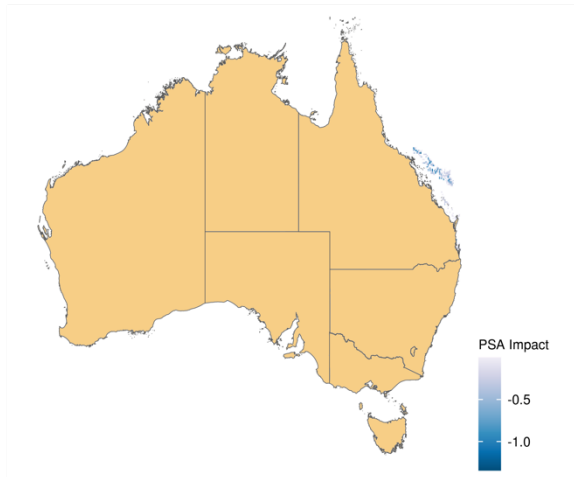
Hippocampus minotaur



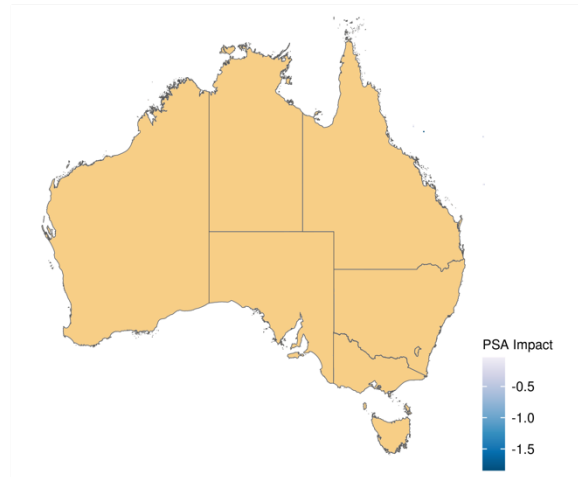
Hippocampus planifrons



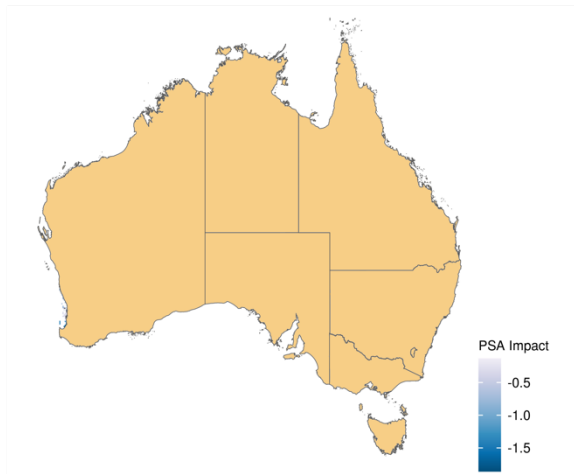
Hippocampus procerus



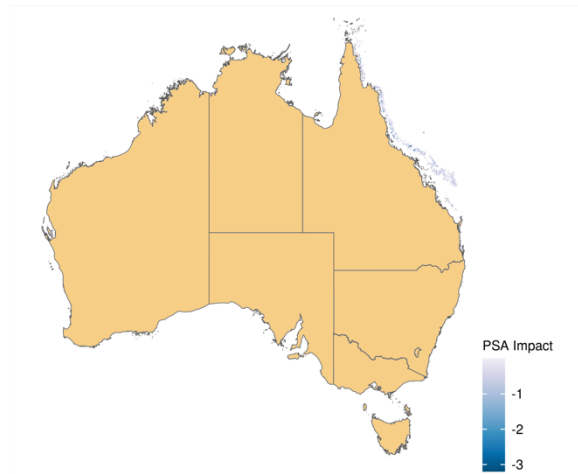
Hippocampus spinosissimus



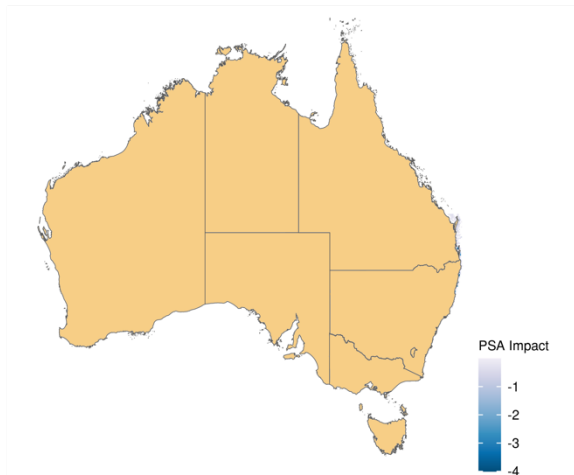
Hippocampus subelongatus



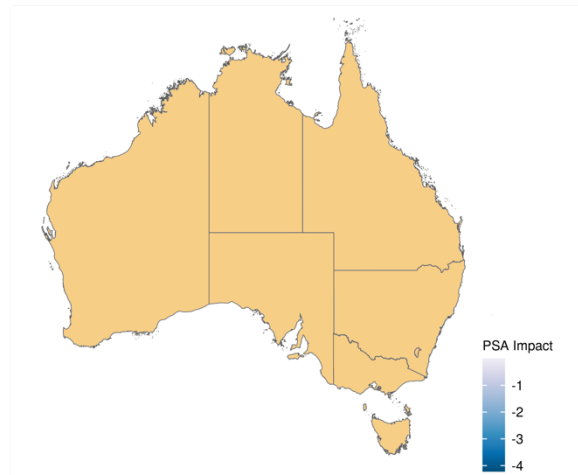
Hippocampus taeniopterus



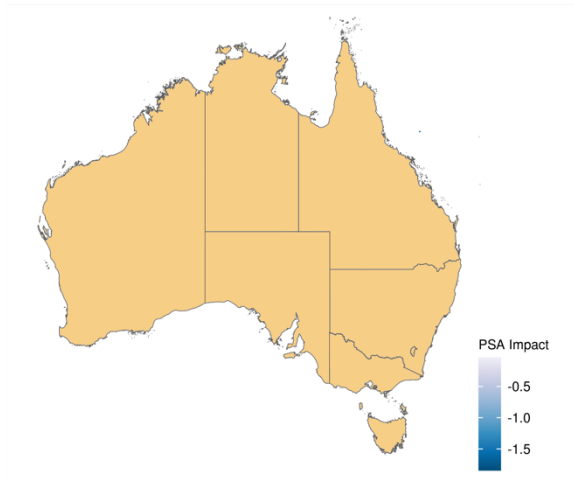
Hippocampus tristis



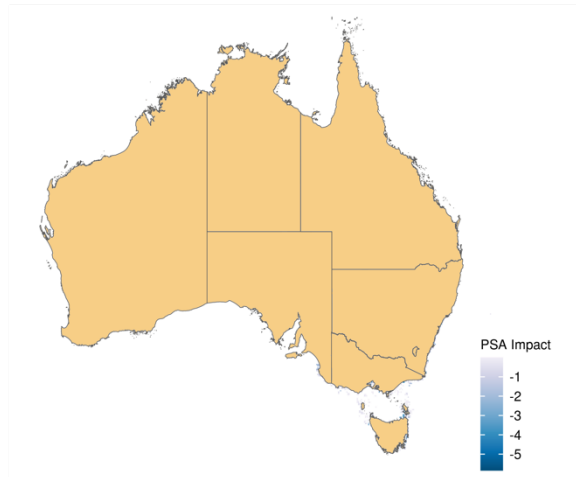
Hippocampus whitei



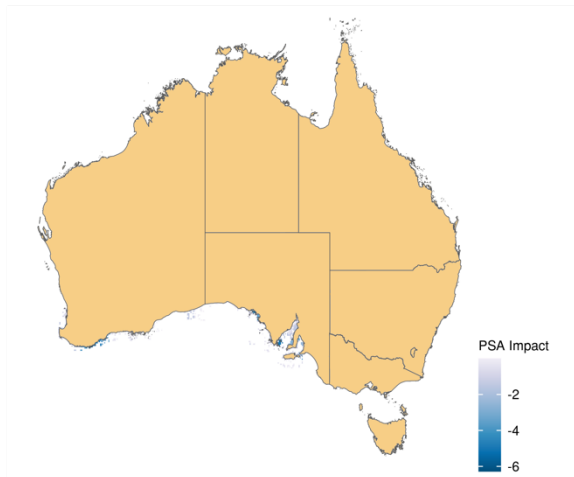
Hippocampus zebra



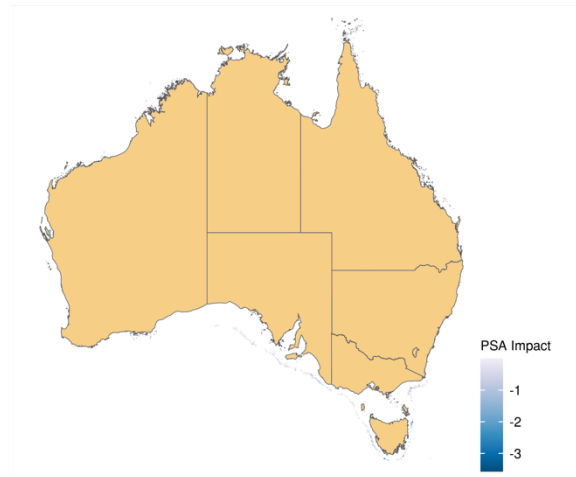
Histiogamphelus briggsii



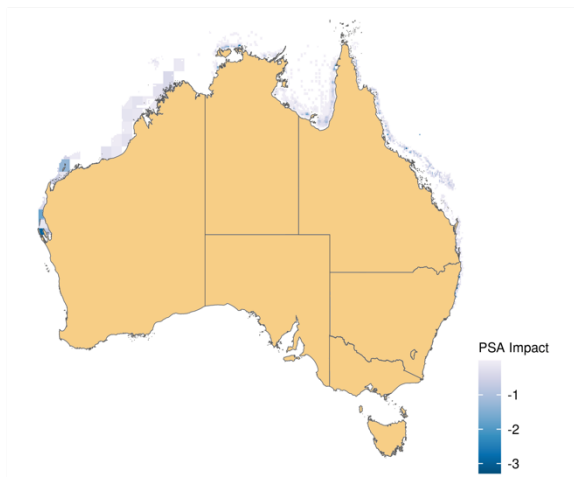
Histiogamphelus cristatus



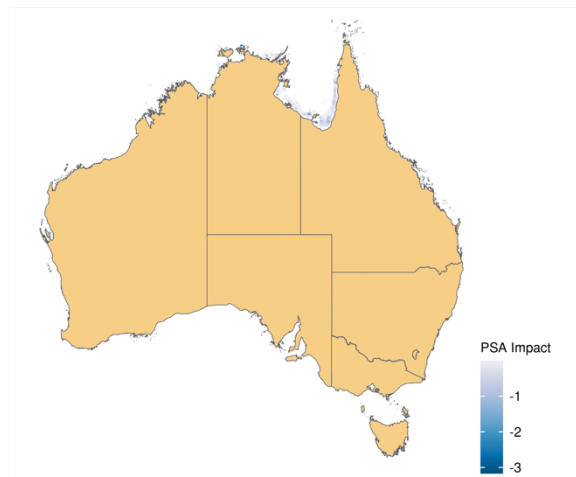
Hydrolagus lemures



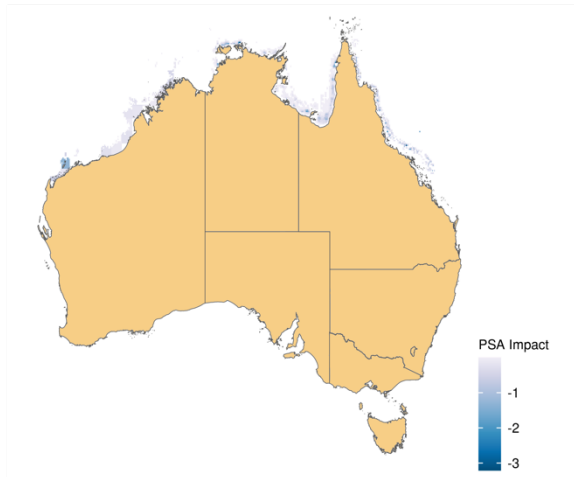
Hydrophis elegans



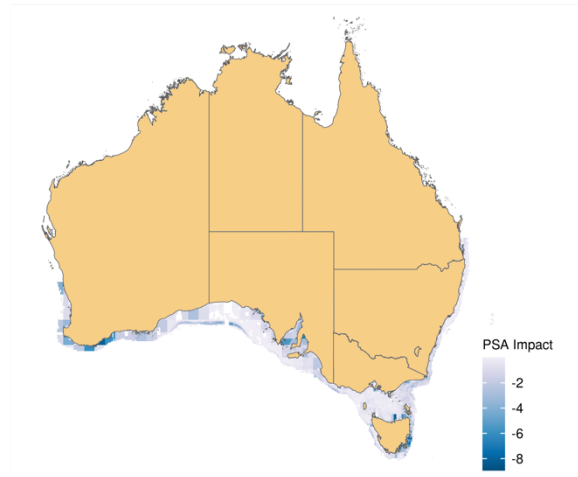
Hydrophis mcdowelli



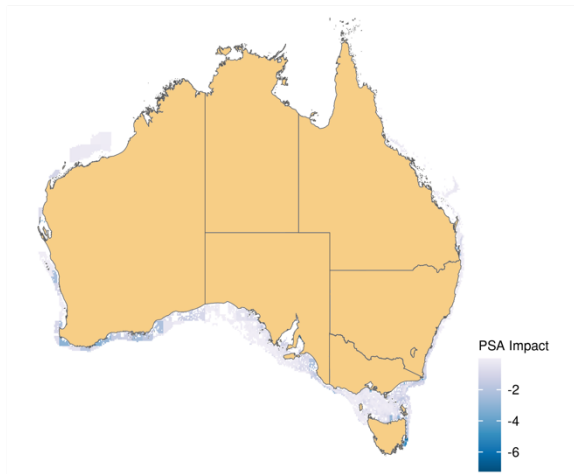
Hydrophis ornatus



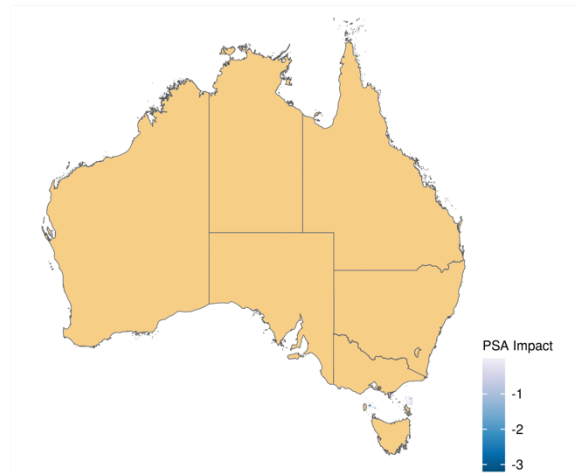
Hyperoglyphe antarctica



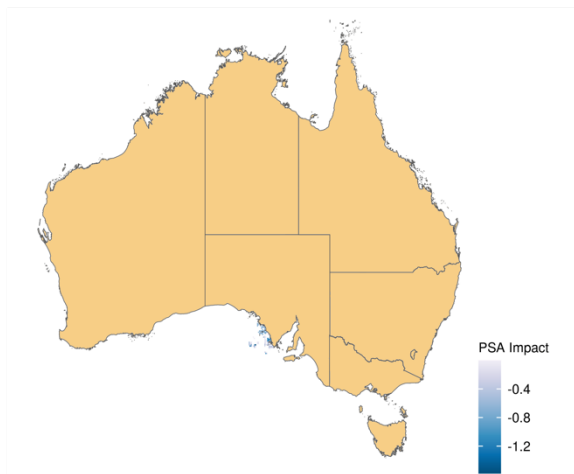
Hypogaleus hyugaensis



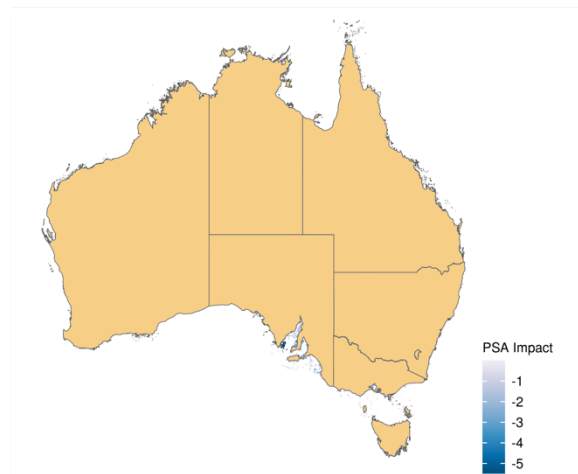
Hypoplectrodes maccullochi



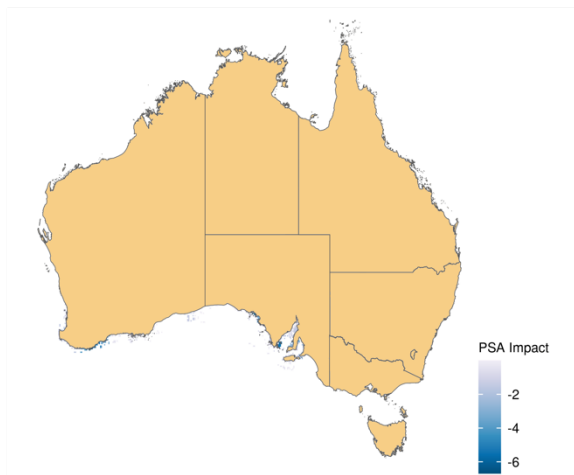
Hypselognathus horridus



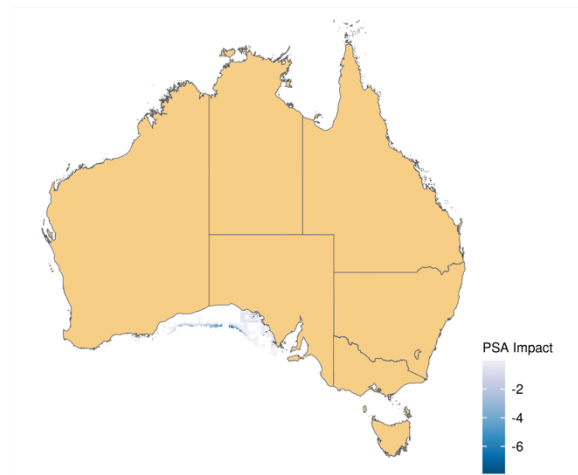
Hypselognathus rostratus



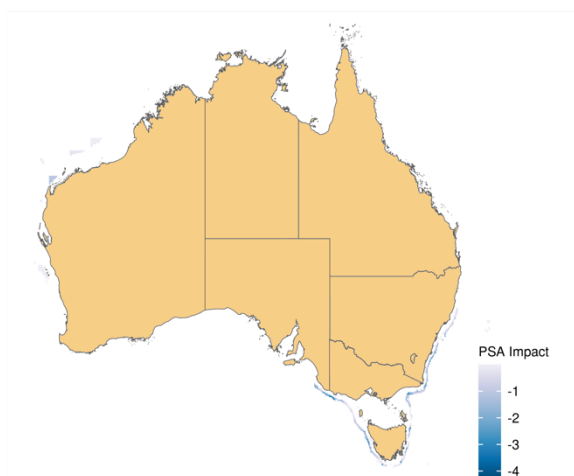
Idiotropiscis australe



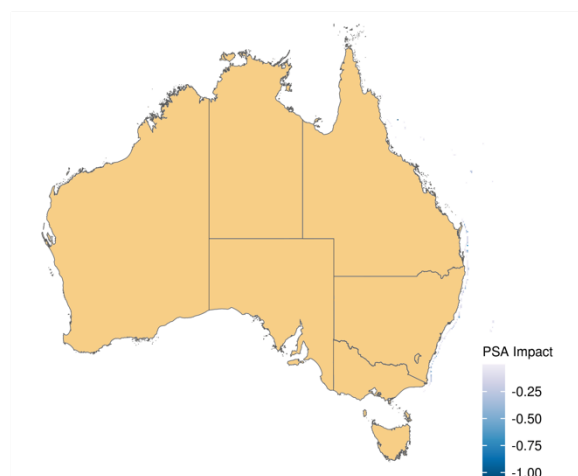
Irolita waitii



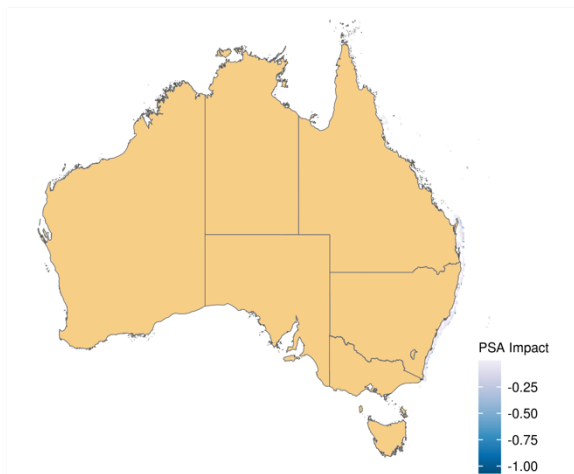
Isistius brasiliensis



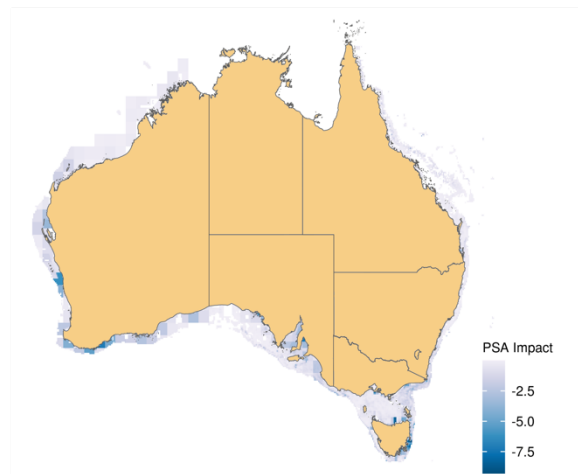
Istiompax indica



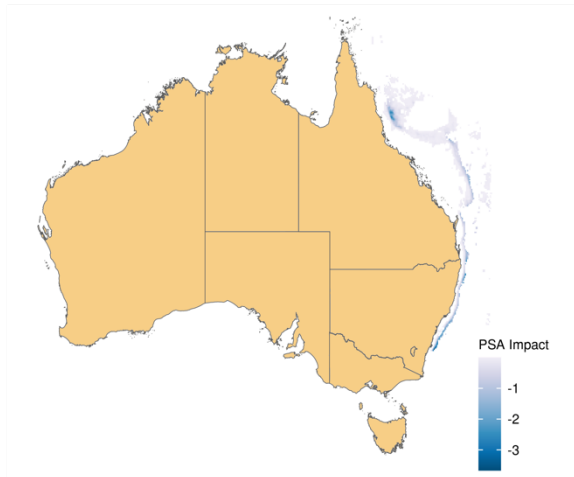
Istiophorus platypterus



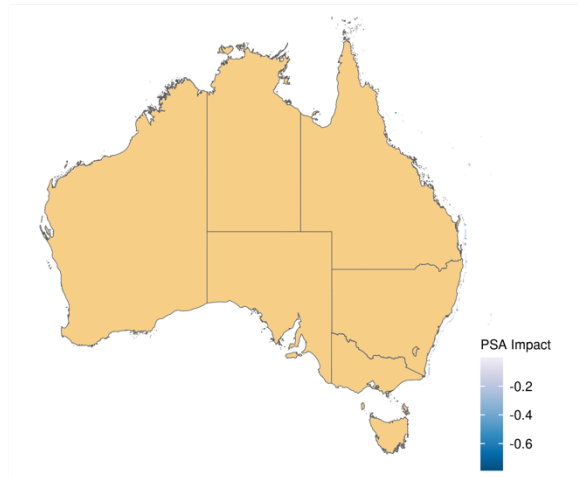
Isurus oxyrinchus



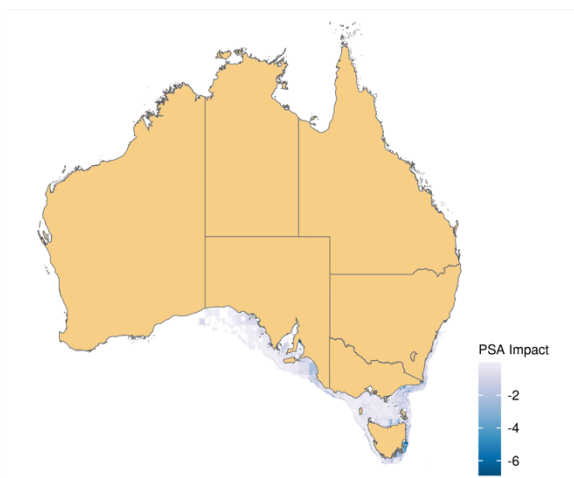
Isurus paucus



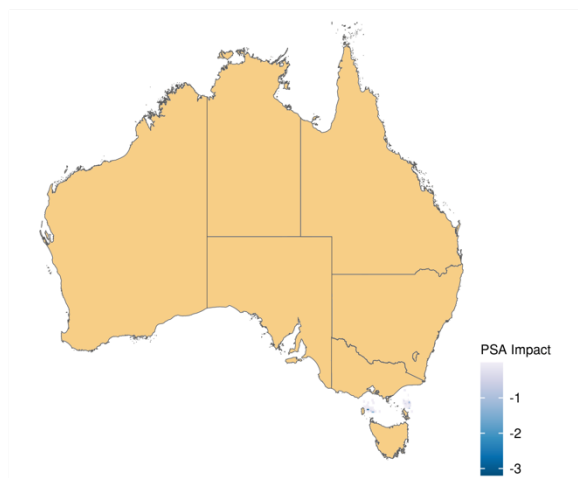
Kajikia audax



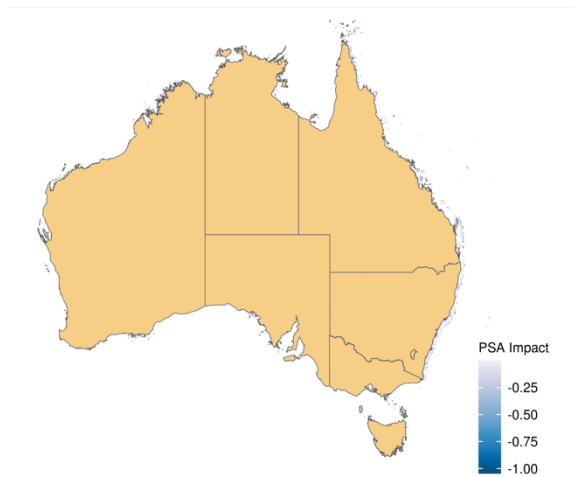
Kathetostoma canaster



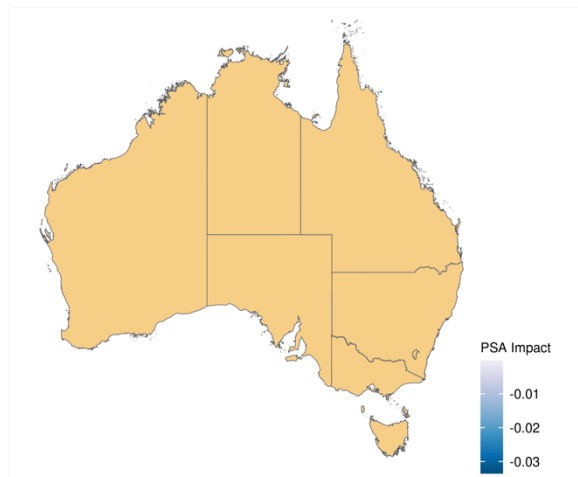
Kathetostoma laeve



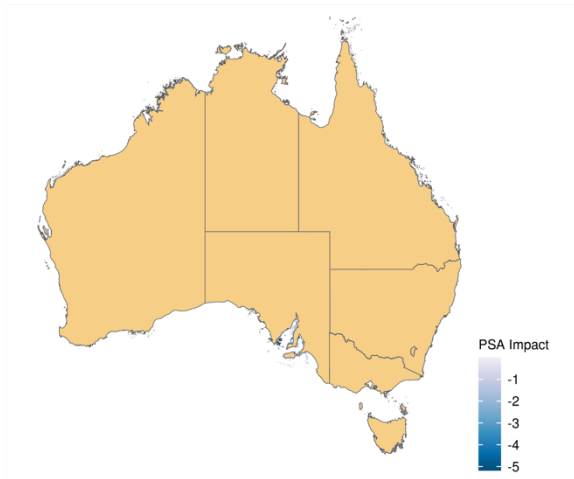
Katsuwonos pelamis



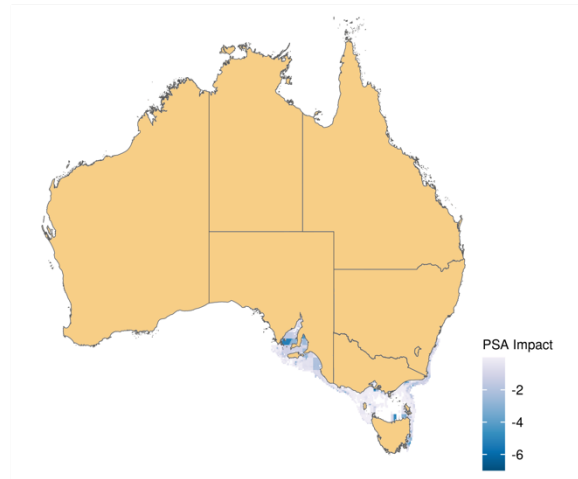
Kaupichthys diodontus



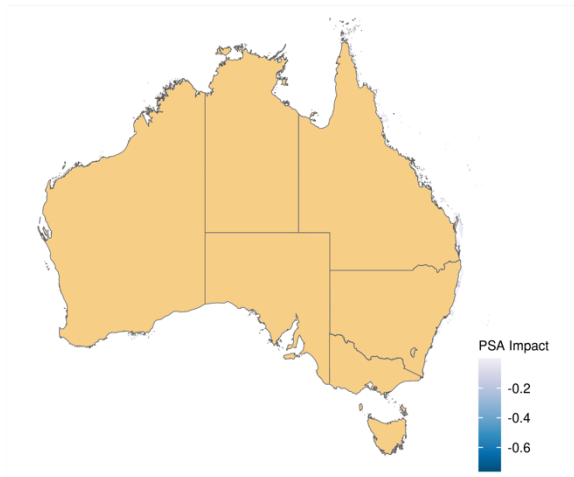
Kaupus costatus



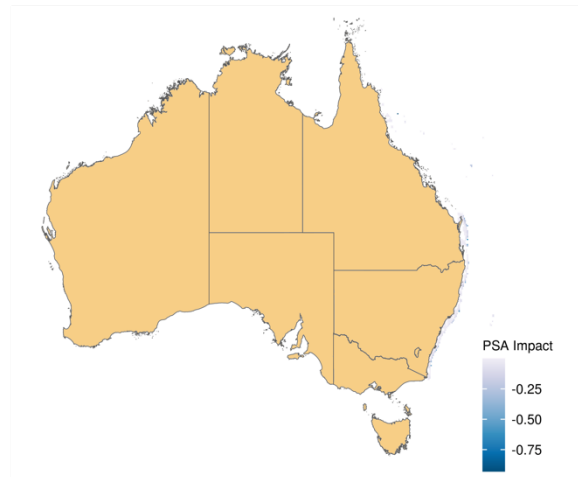
Kimblaeus bassensis



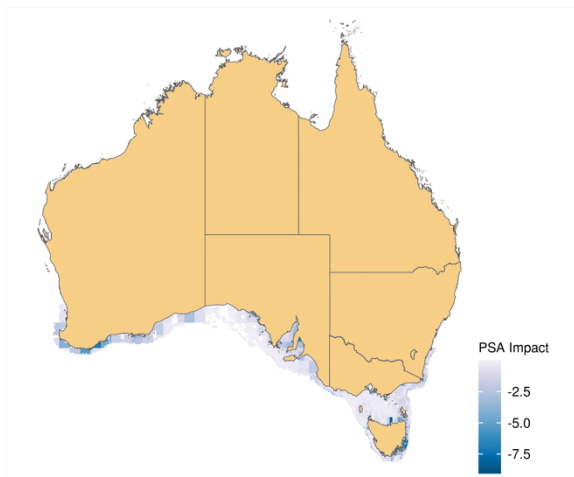
Lactoria cornuta



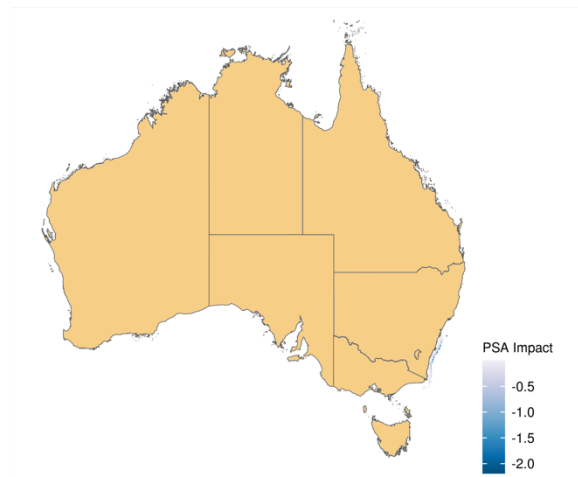
Lagocephalus lagocephalus



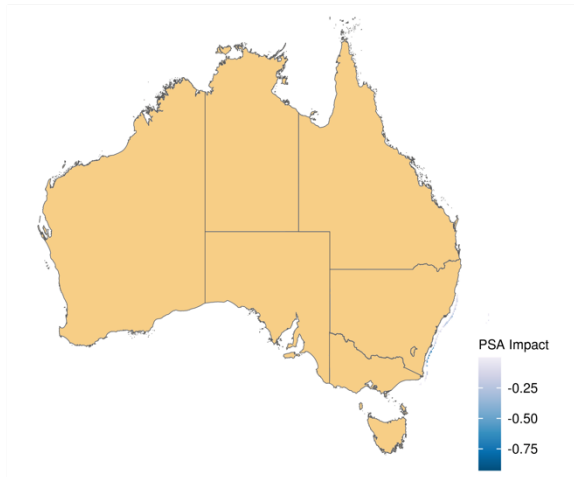
Lamna nasus



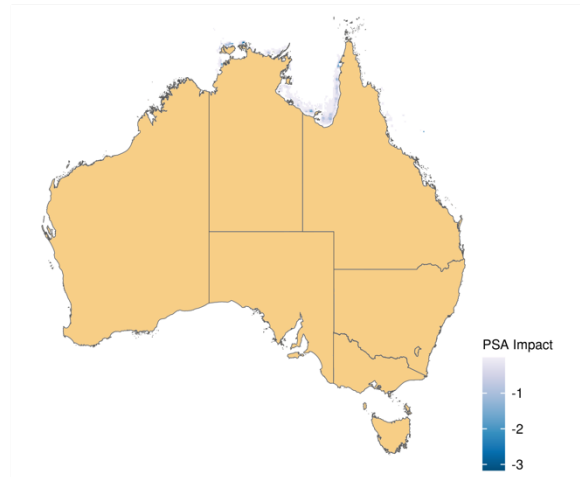
Lampanyctodes hectoris



Lampris guttatus



Lapemis curtis



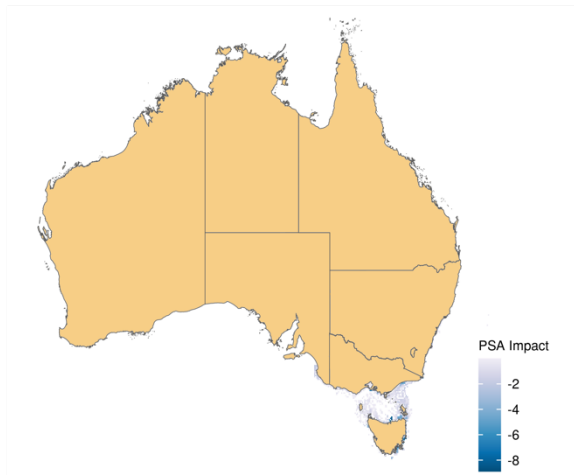
Laticauda colubrina



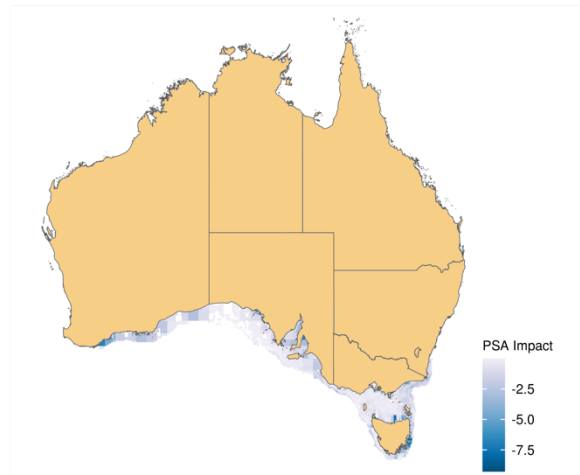
Laticauda laticaudata



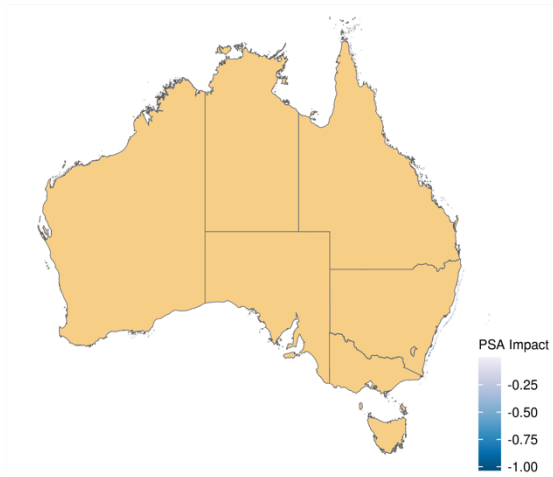
Latridopsis forsteri



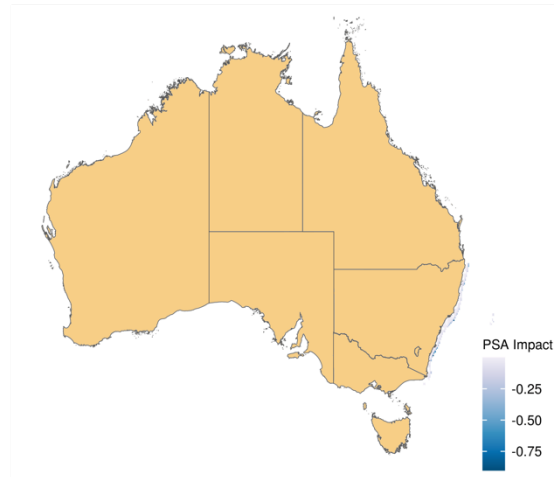
Latris lineata



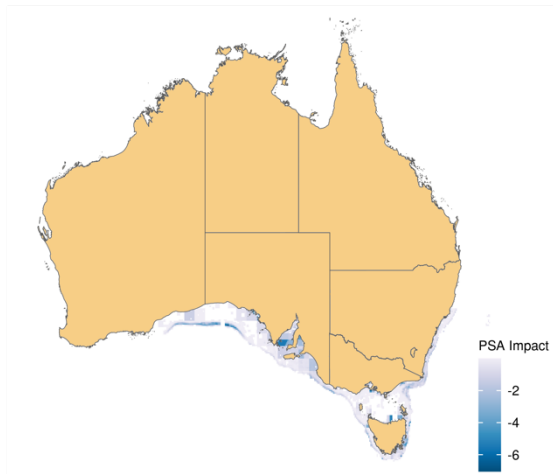
Lepidocybium flavobrunneum



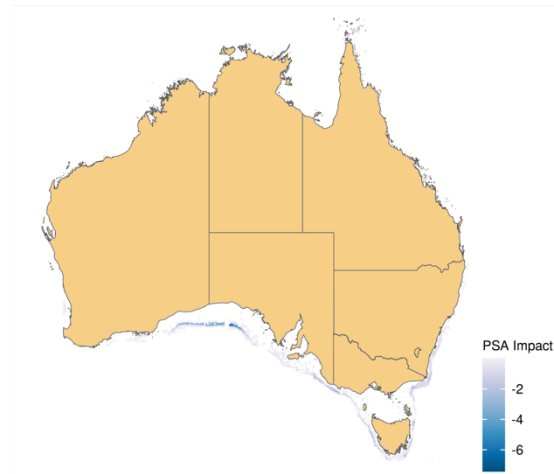
Lepidoperca pulchella



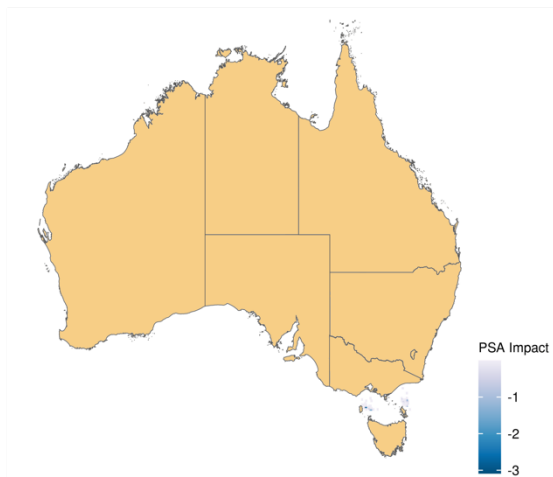
Lepidopus caudatus



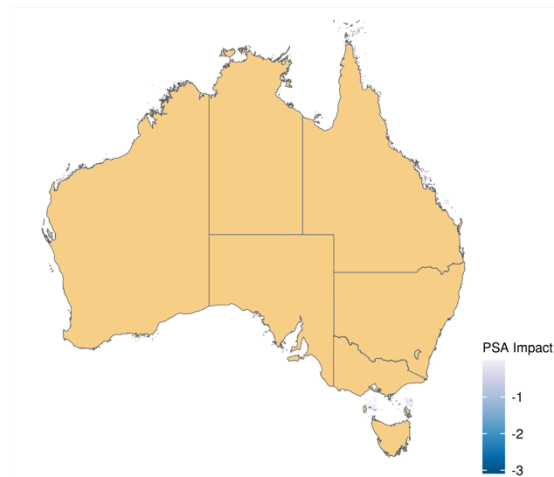
Lepidorhynchus denticulatus



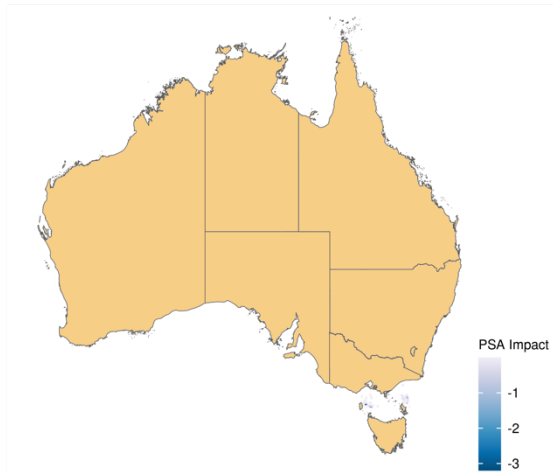
Lepidotrigla modesta



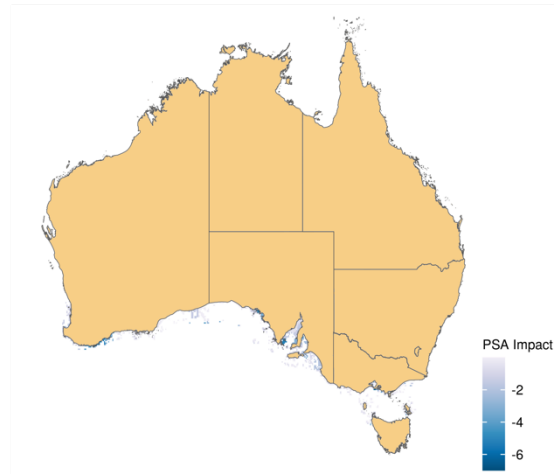
Lepidotrigla papilio



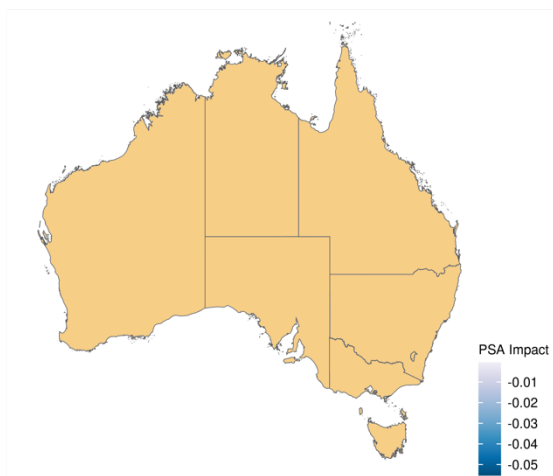
Lepidotrigla vanessa



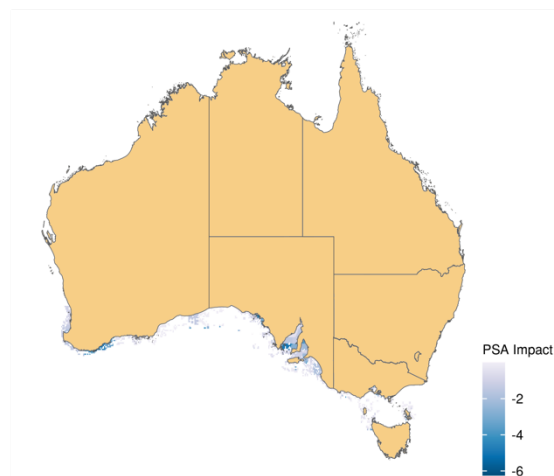
Leptoichthys fistularius



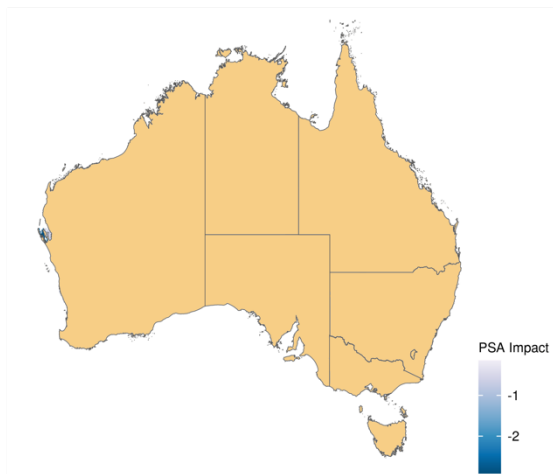
Lethrinus miniatus



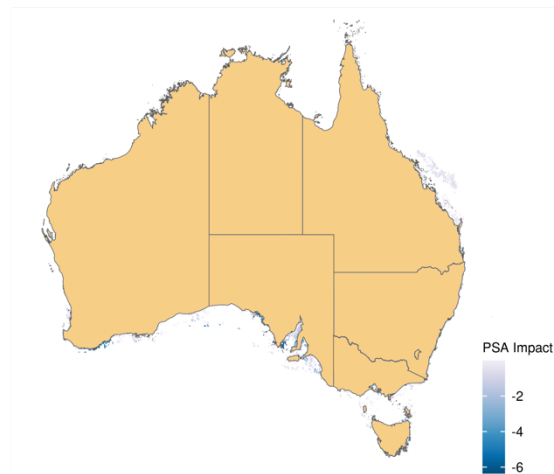
Lissocampus caudalis



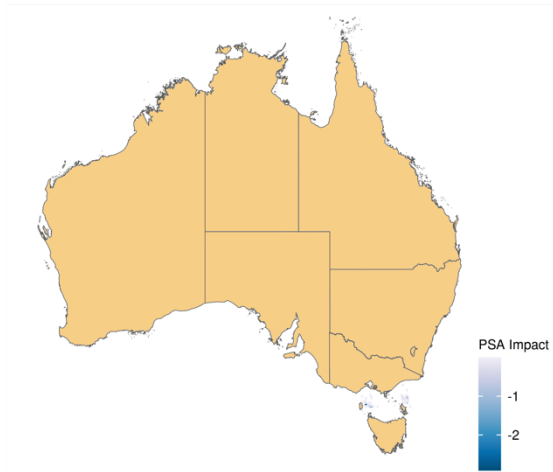
Lissocampus fatiloquus



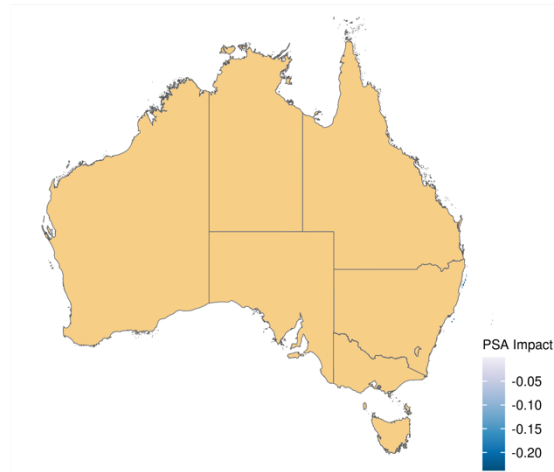
Lissocampus runa



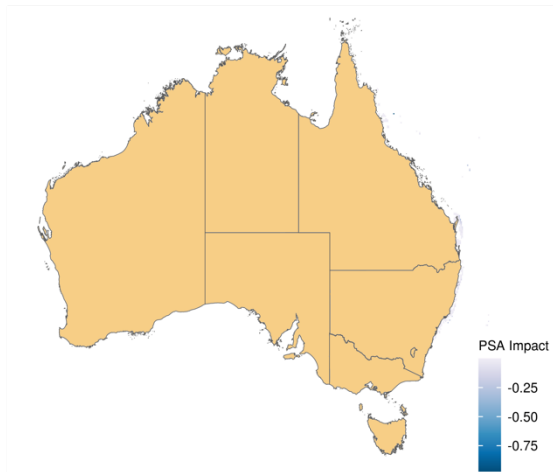
Lophonectes gallus



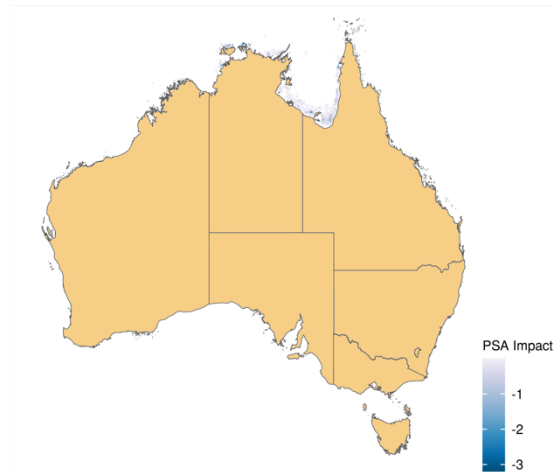
Lophotus lacepede



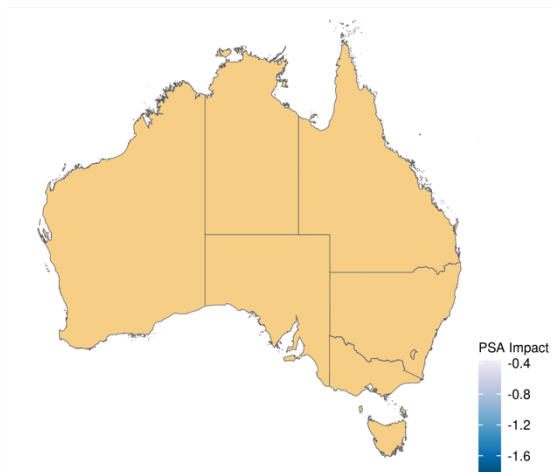
Lutjanus argentimaculatus



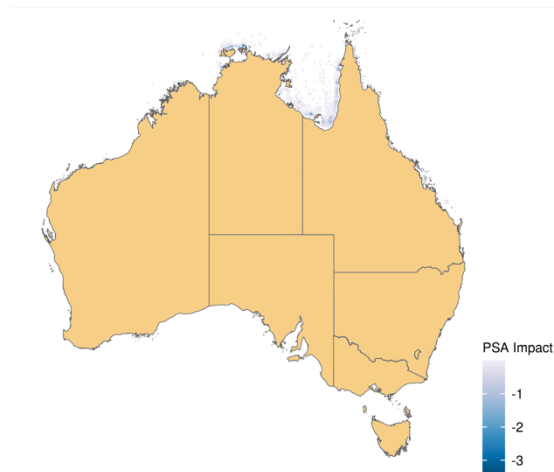
Lutjanus fulviflamma



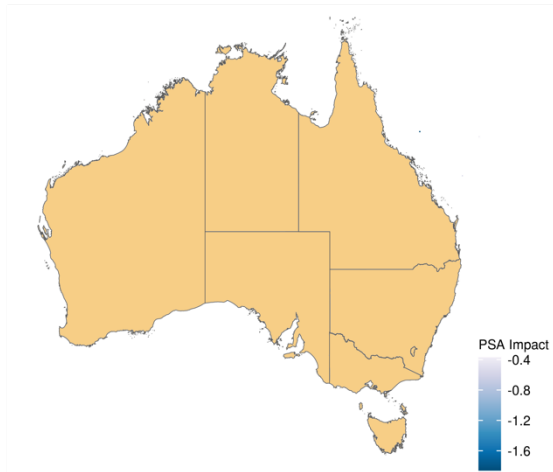
Lutjanus malabaricus



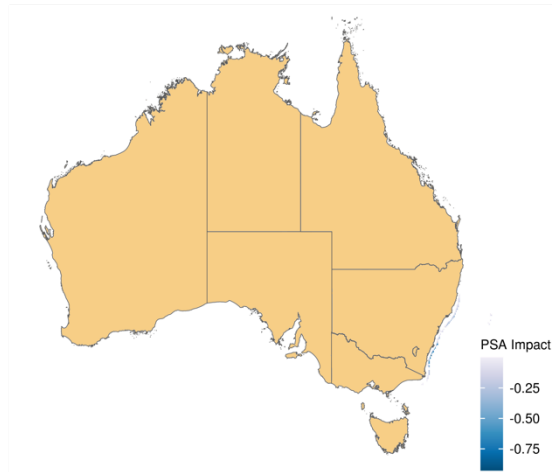
Lutjanus russellii



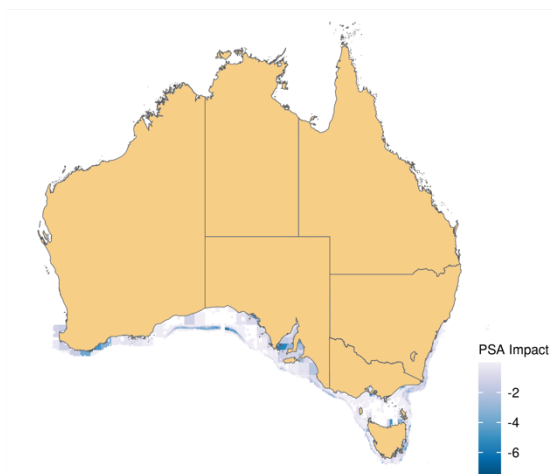
Lutjanus sebae



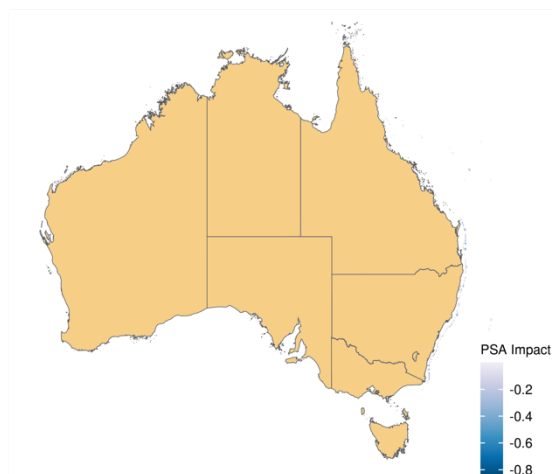
Luvarus imperialis



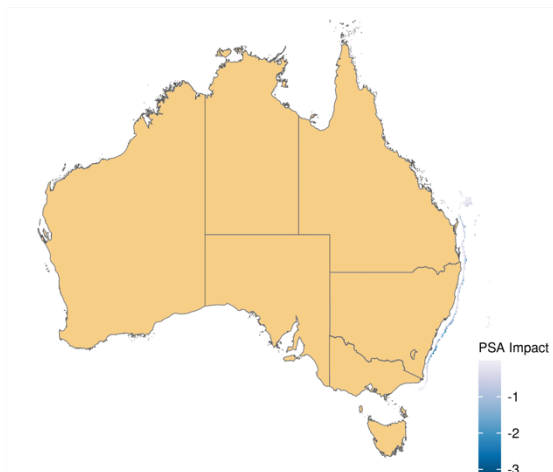
Macruronus novaezelandiae



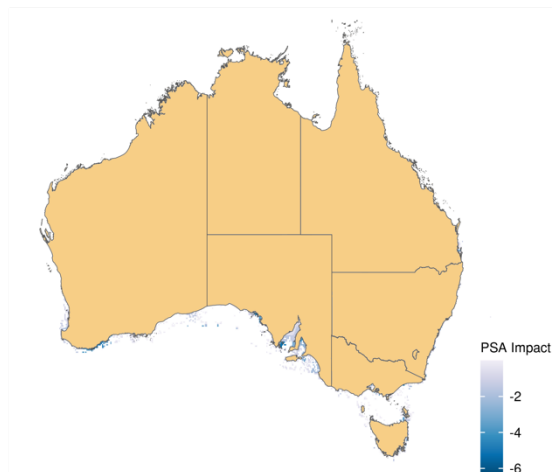
Makaira nigricans



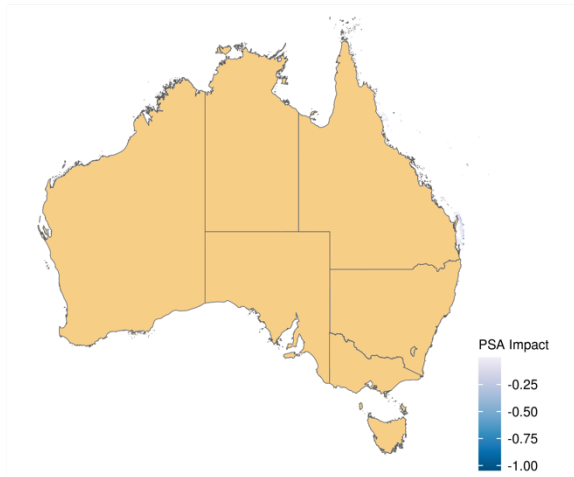
Malacocephalus laevis



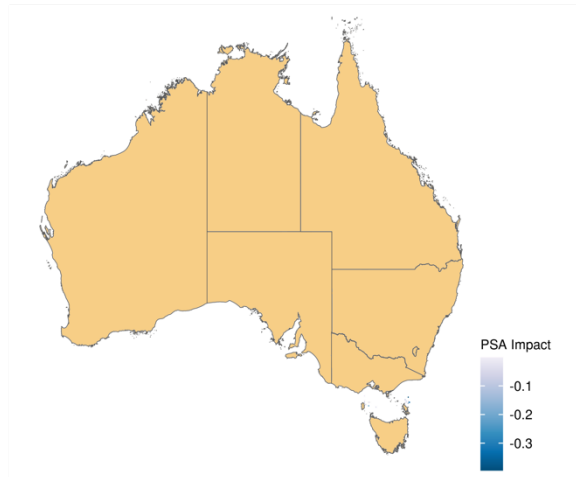
Maroubra perserrata



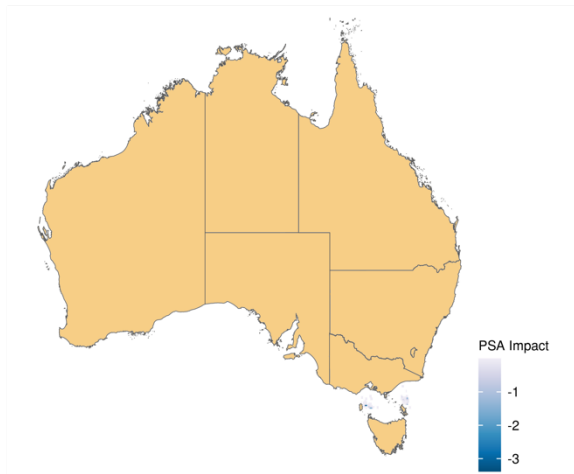
Mene maculata



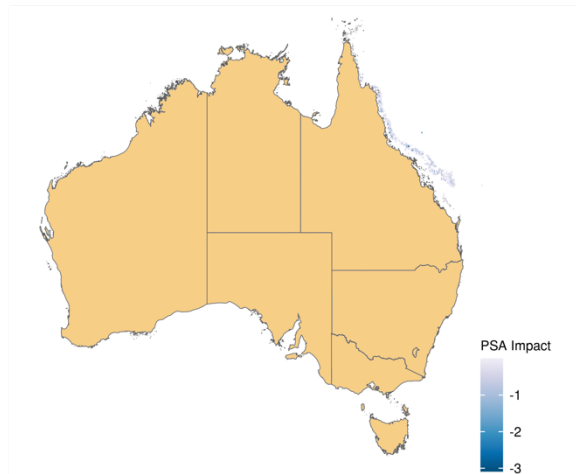
Meuschenia australis



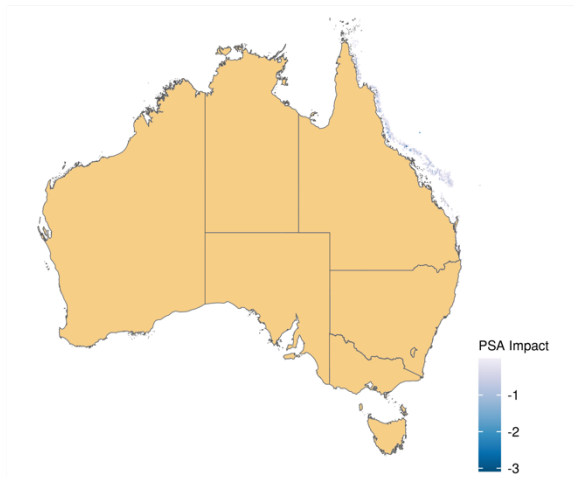
Meuschenia scaber



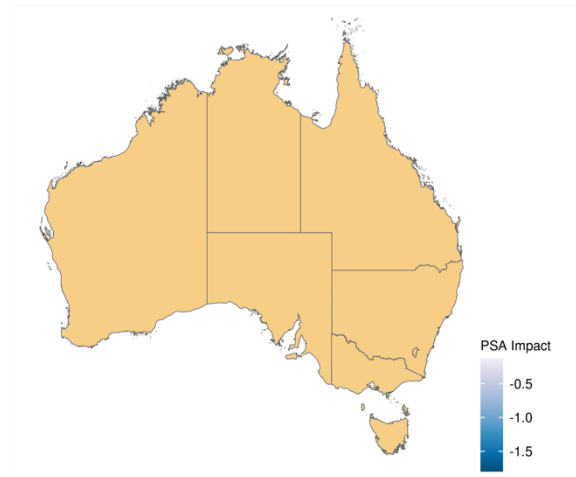
Micrognathus andersonii



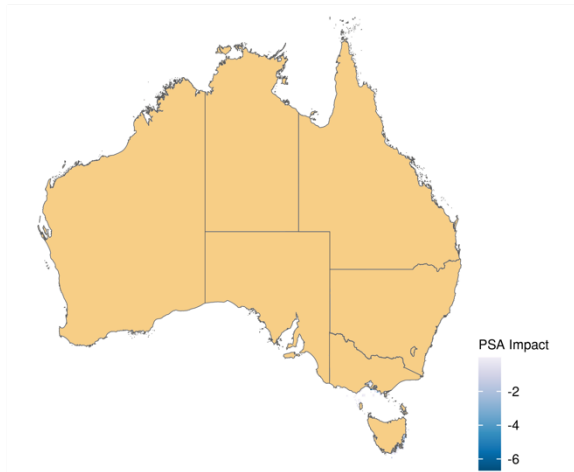
Micrognathus pygmaeus



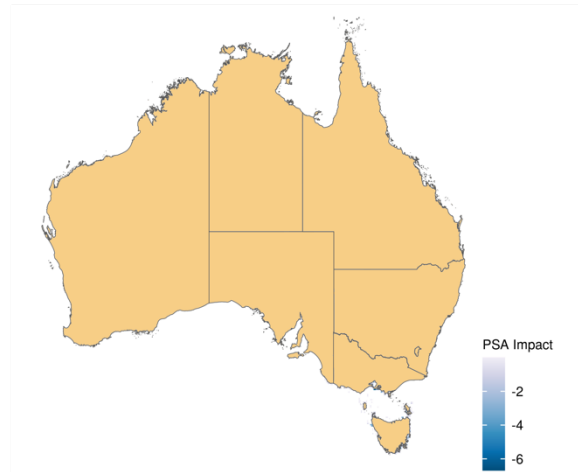
Mitotichthys meraculus



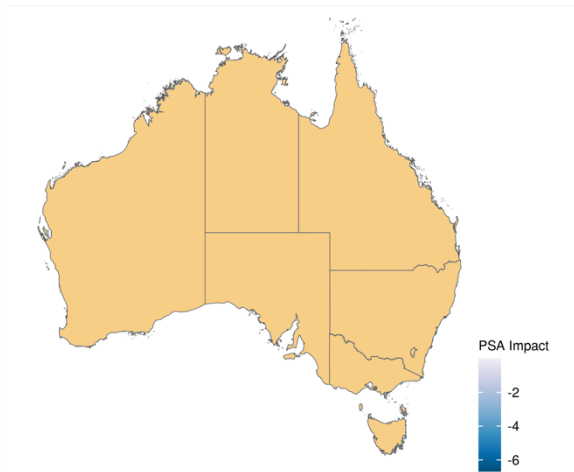
Mitotichthys mollisoni



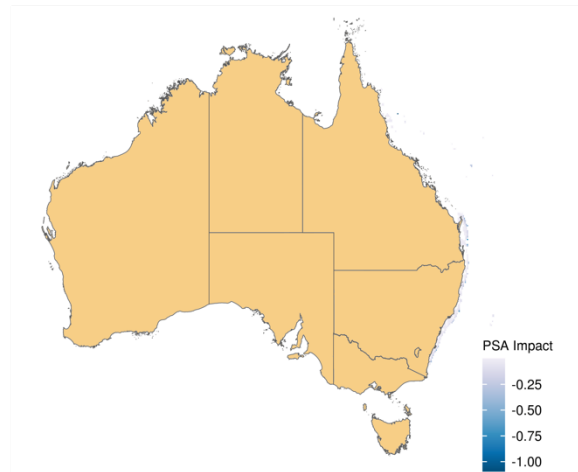
Mitotichthys semistriatus



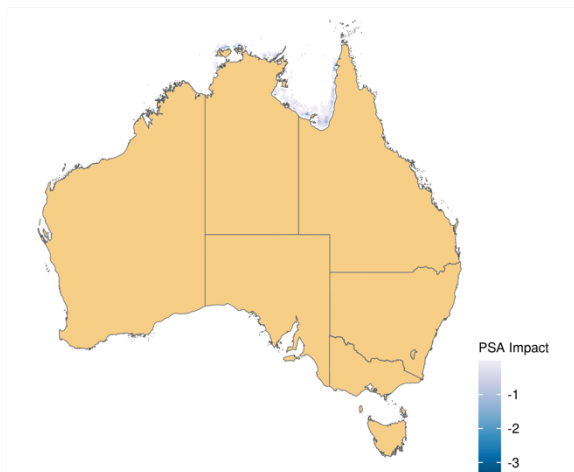
Mitotichthys tuckeri



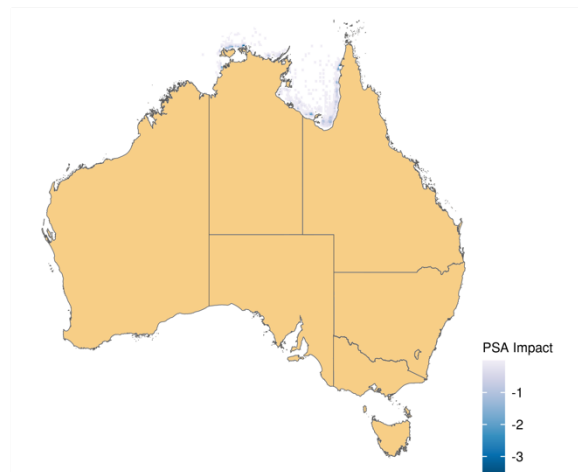
Mobula birostris



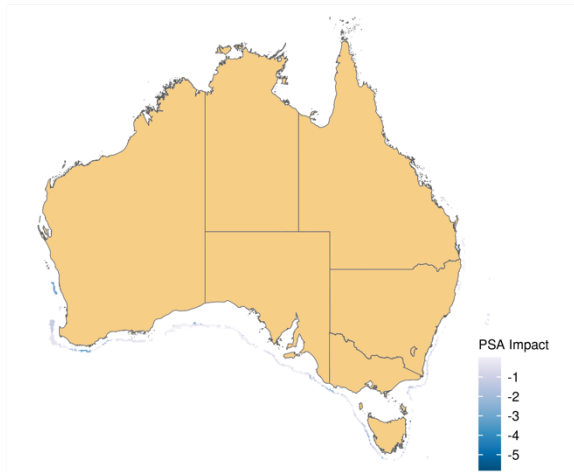
Monacanthus chinensis



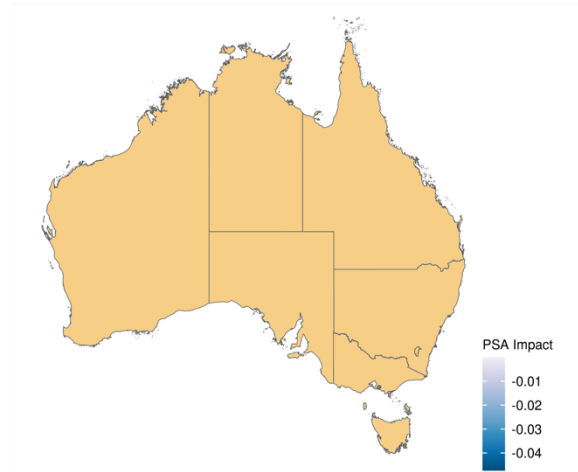
Monotaxis grandoculis



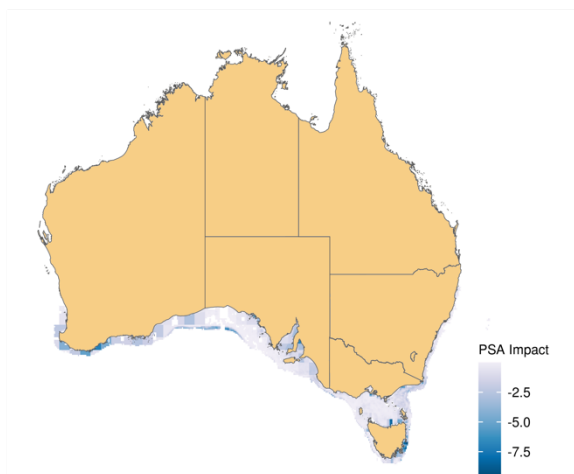
Mora moro



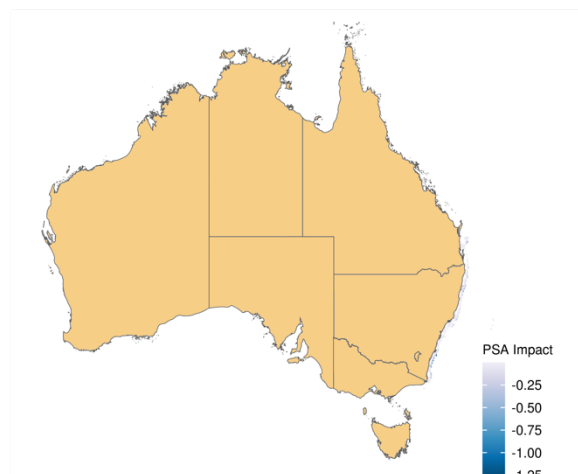
Mordacia mordax



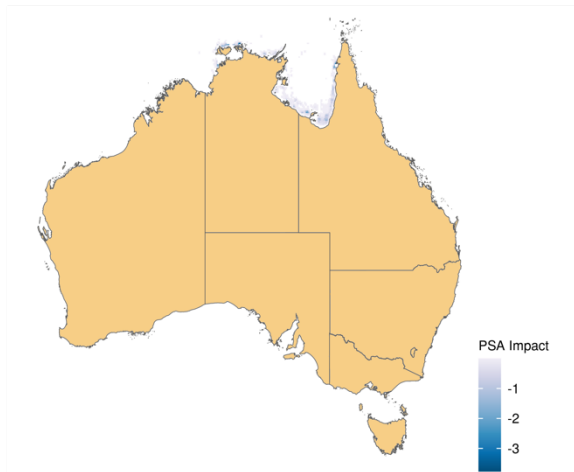
Mustelus antarcticus



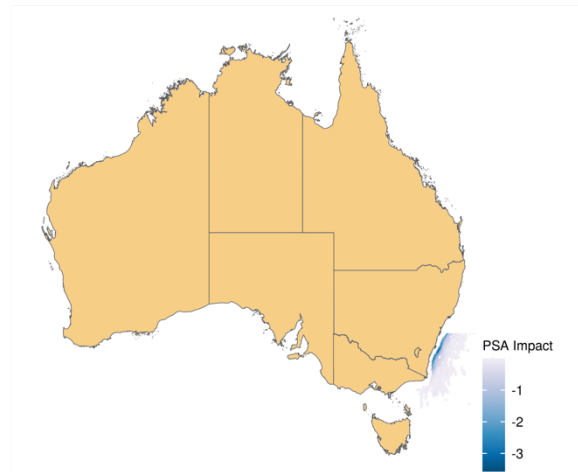
Myliobatis tenuicaudatus



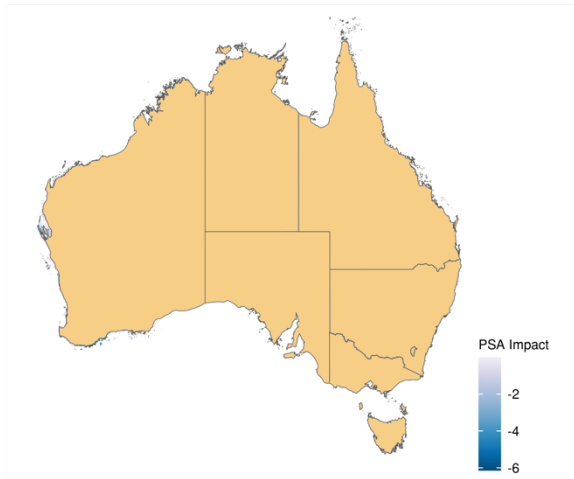
Myripristis murdjan



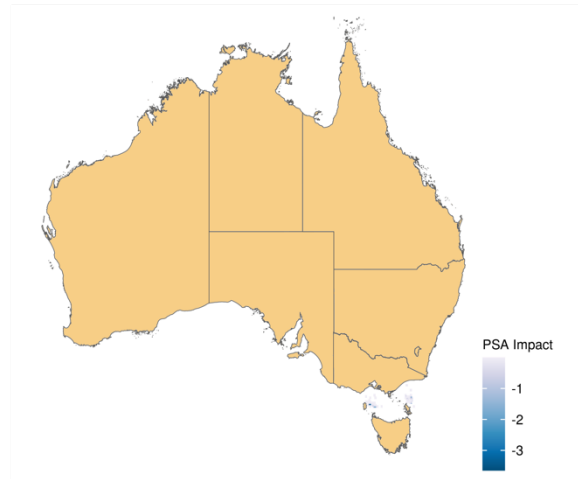
Nannobranchium achirus



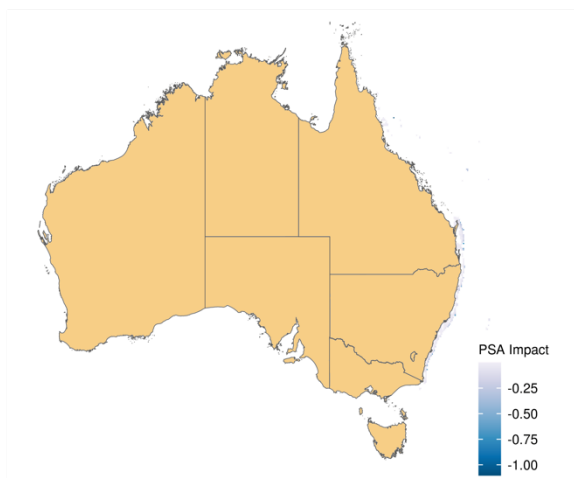
Nannocampus subosseus



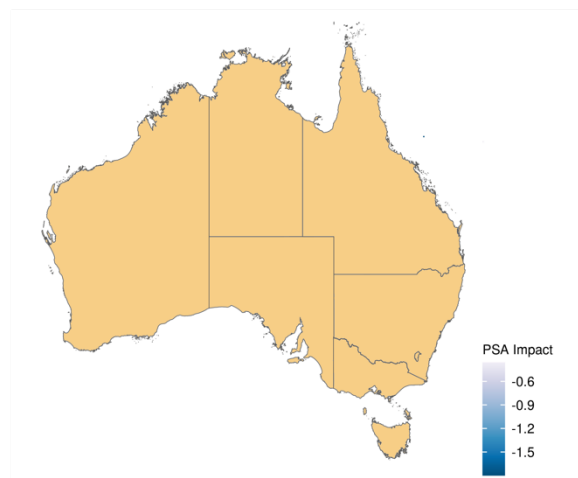
Narcine tasmaniensis



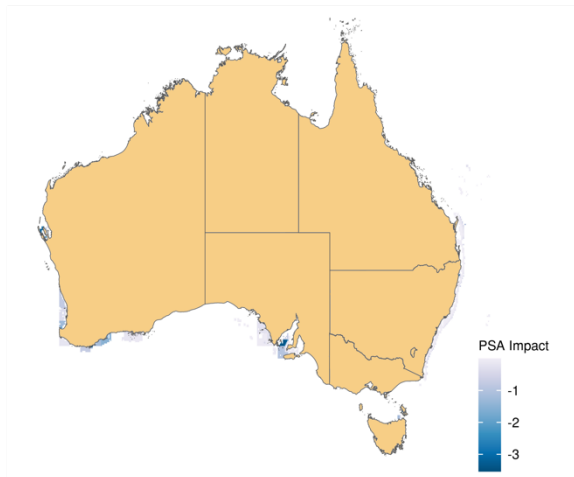
Naucrates ductor



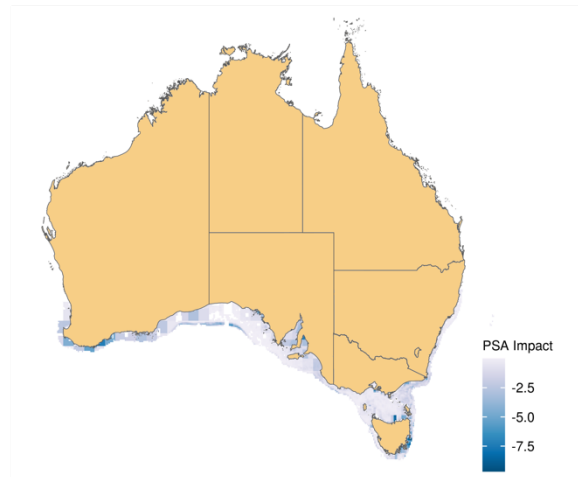
Nebrius ferrugineus



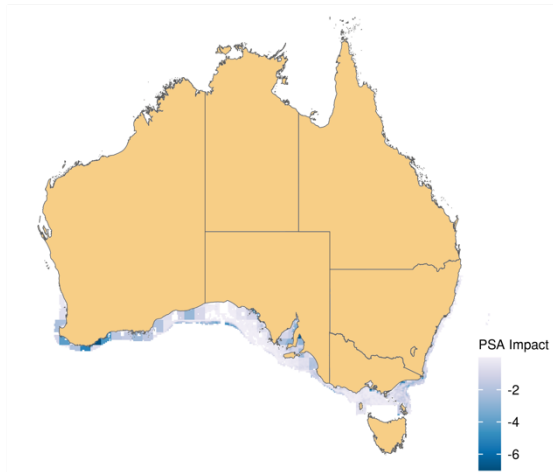
Nelusetta ayraud



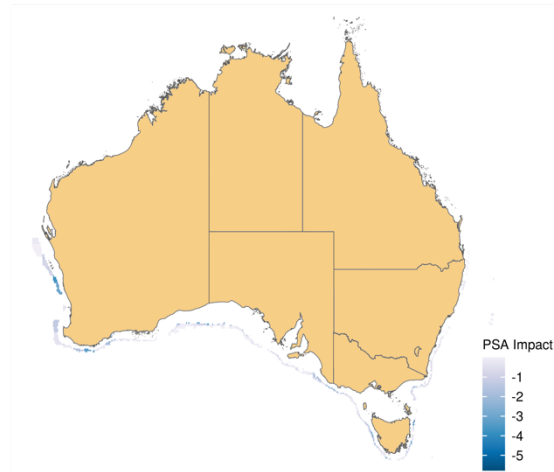
Nemadactylus macropterus



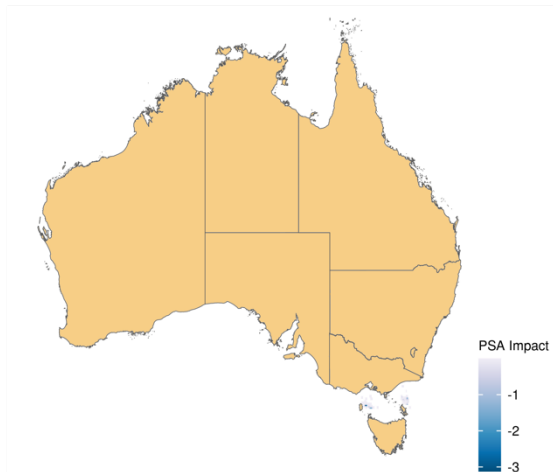
Nemadactylus valenciennesi



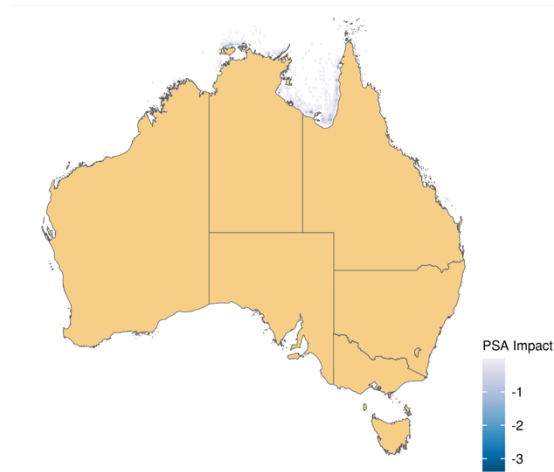
Neocyttus rhomboidalis



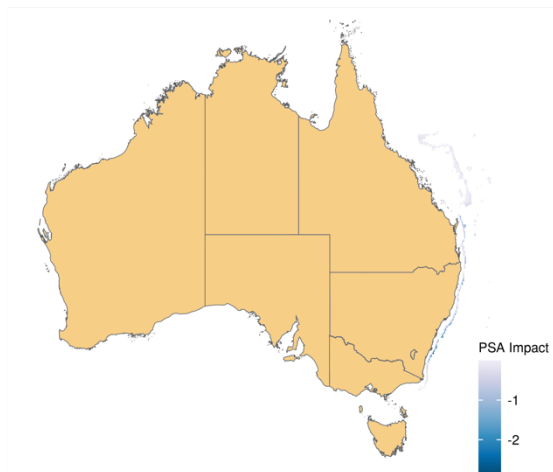
Neosebastes scorpaenoides



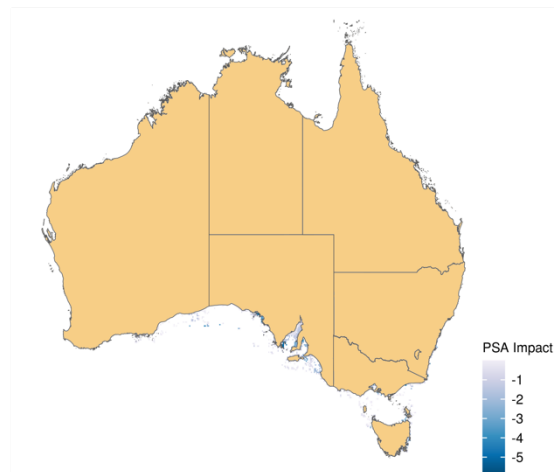
Neotrygon australiae



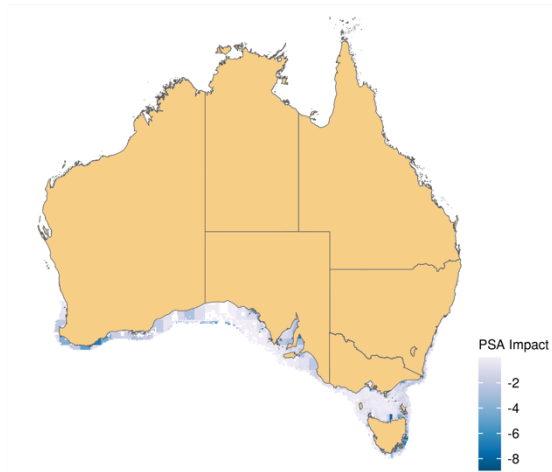
Nesiarchus nasutus



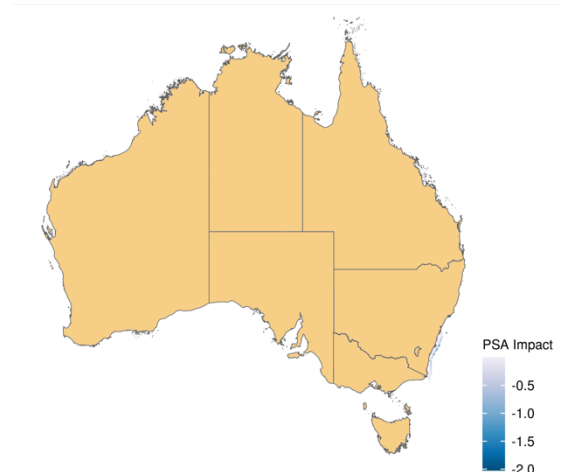
Notiocampus ruber



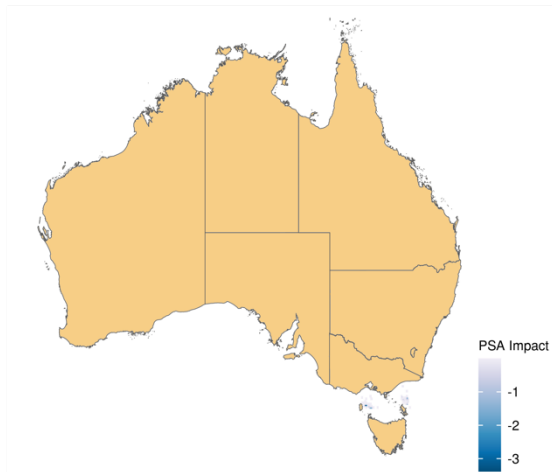
Notorynchus cepedianus



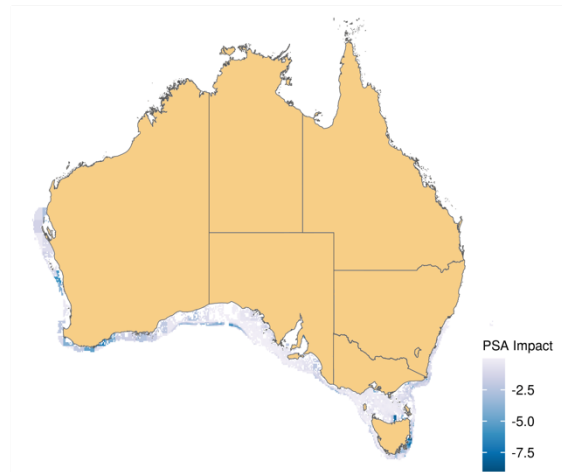
Odontaspis ferox



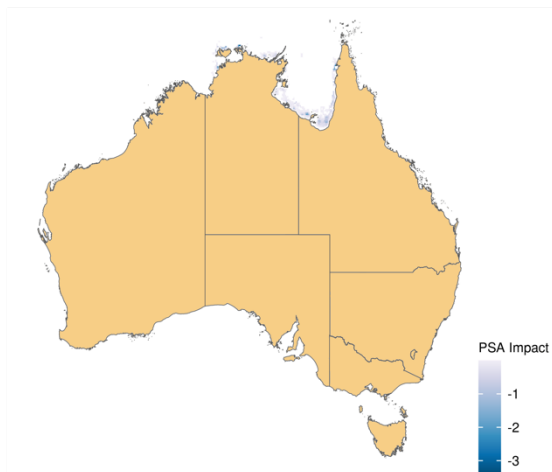
Ophisurus serpens



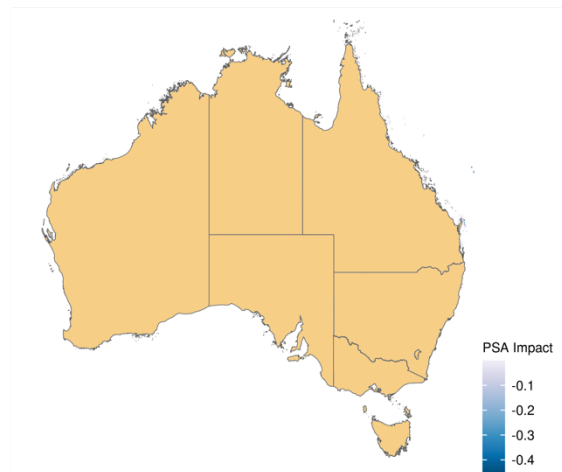
Oplegnathus woodwardi



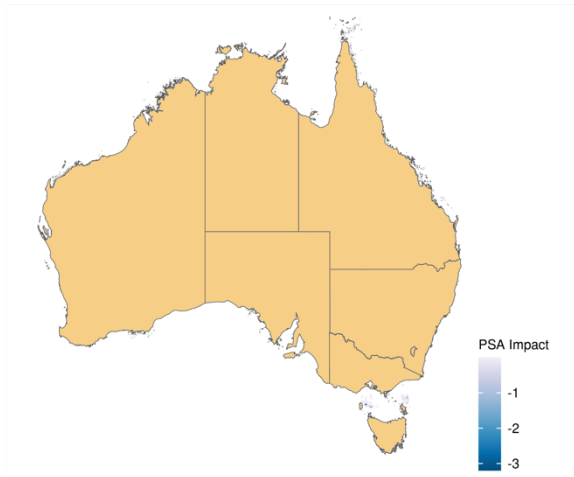
Ostracion meleagris



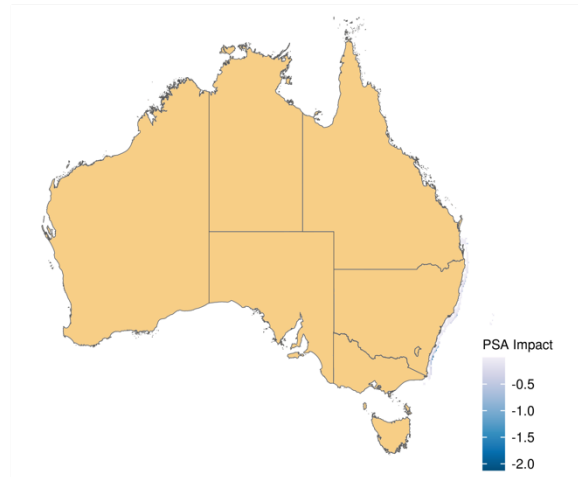
Parastromateus niger



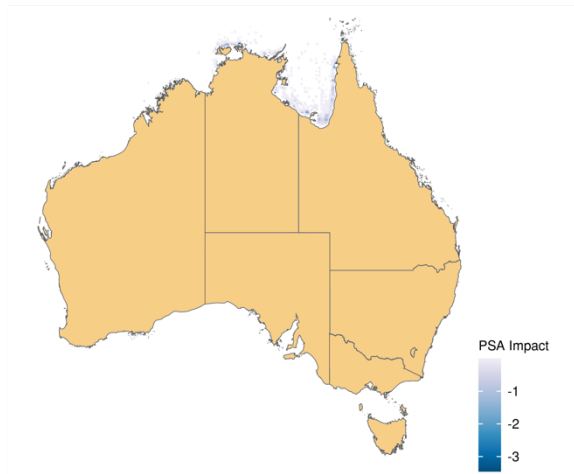
Parequula melbournensis



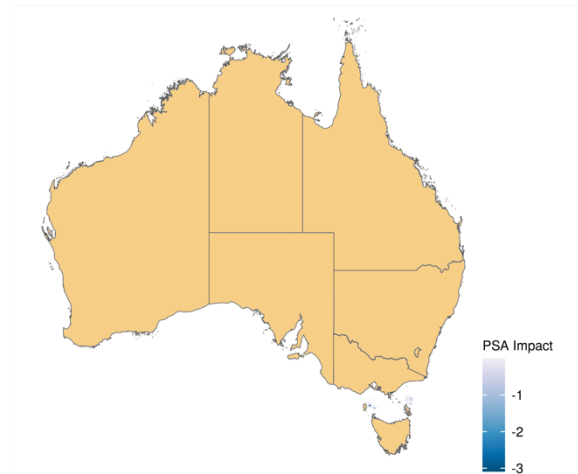
Paristiopterus labiosus



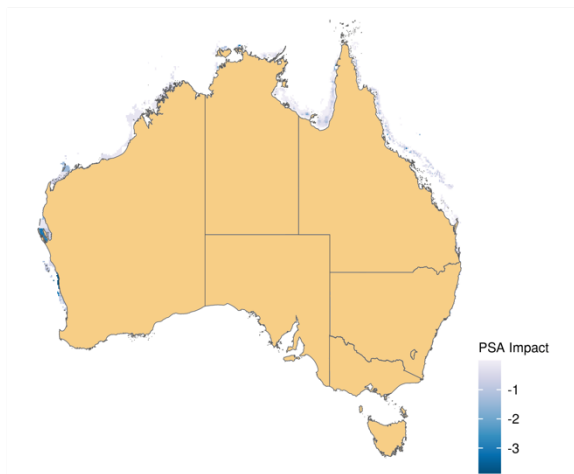
Parupeneus indicus



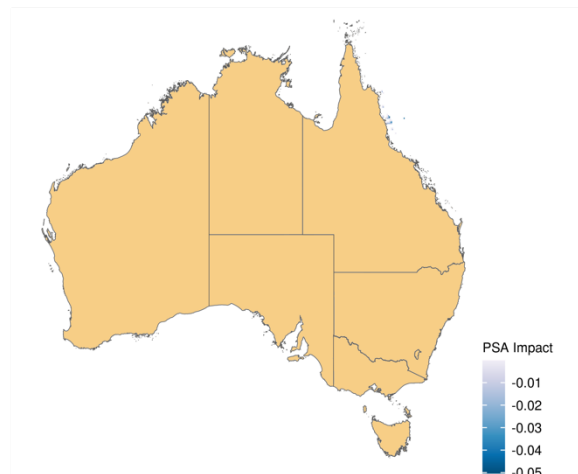
Pegasus lancifer



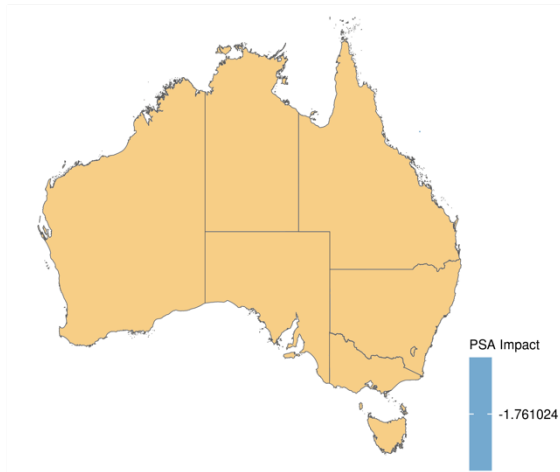
Pelamis platurus



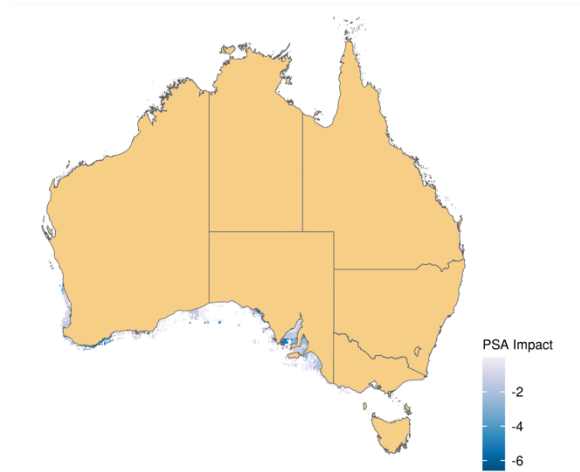
Pellona ditchela



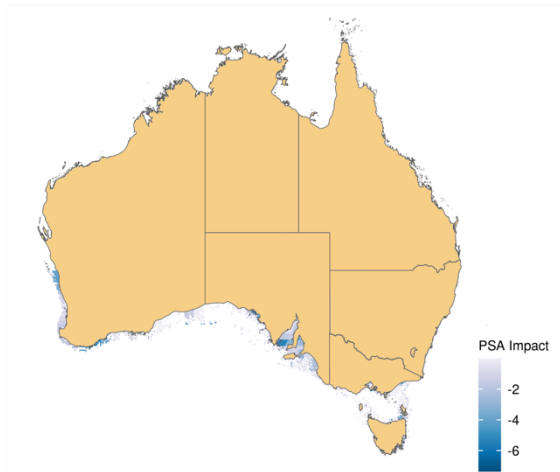
Phoxocampus diacanthus



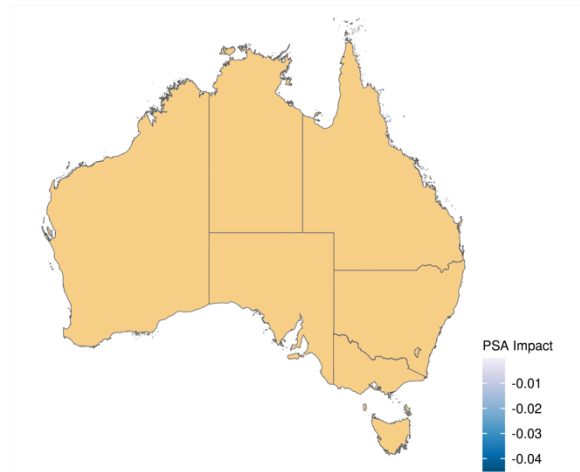
Phycodurus eques



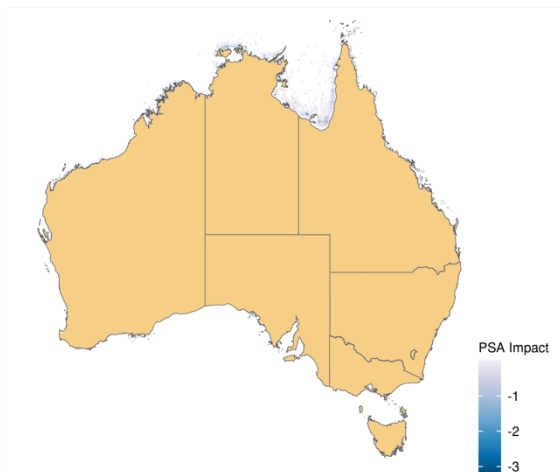
Phyllopteryx taeniolatus



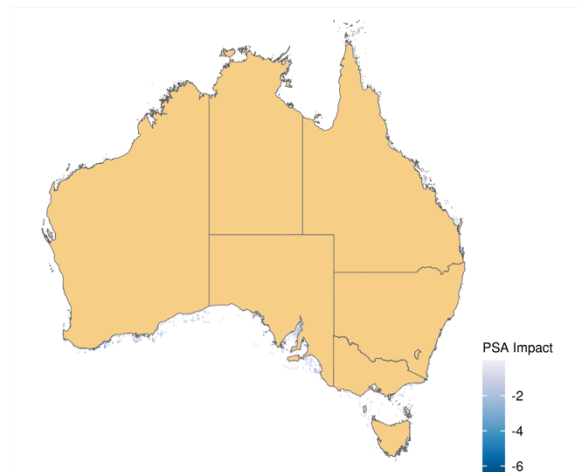
Platax orbicularis



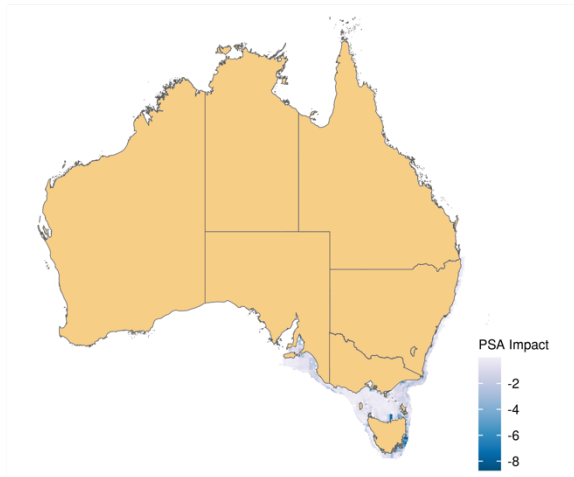
Platax teira



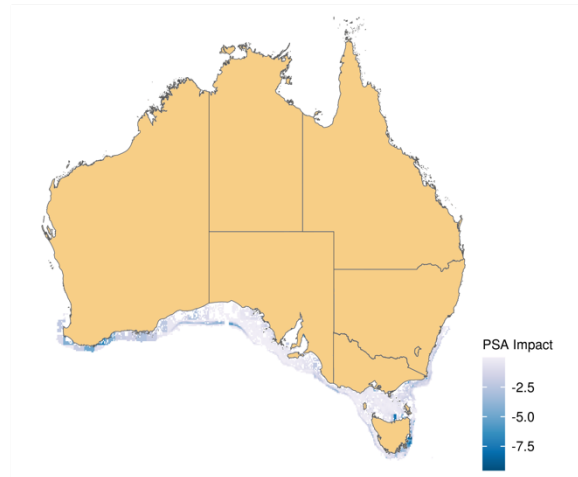
Platycephalus laevigatus



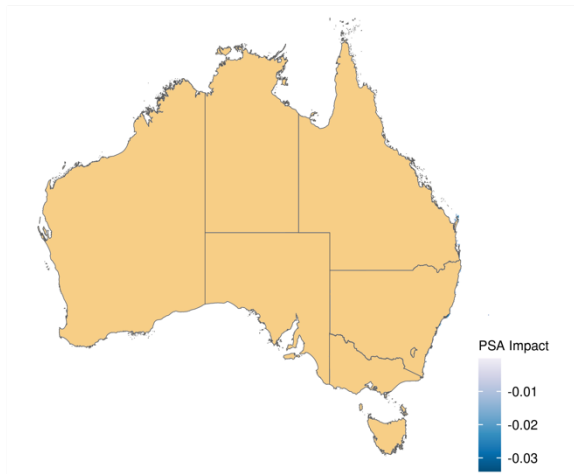
Platycephalus richardsoni



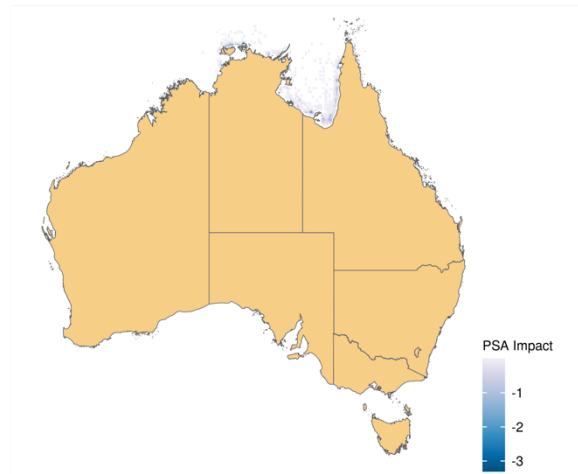
Polyprion oxygeneios



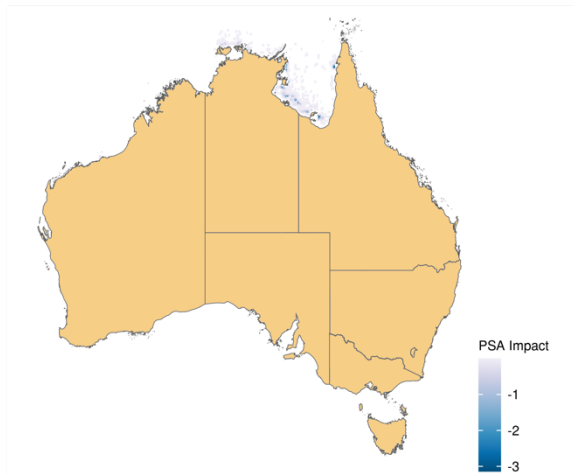
Pomatomus saltatrix



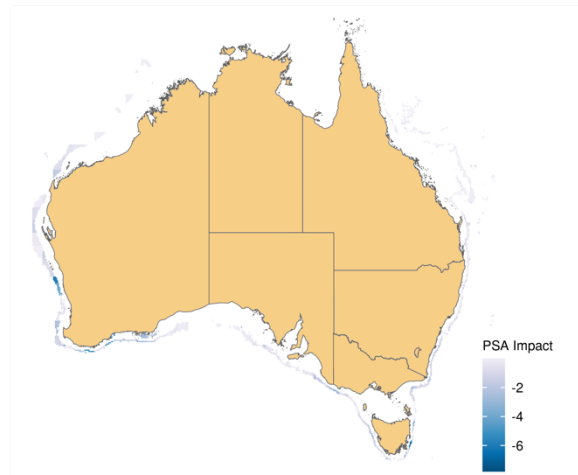
Priacanthus hamrur



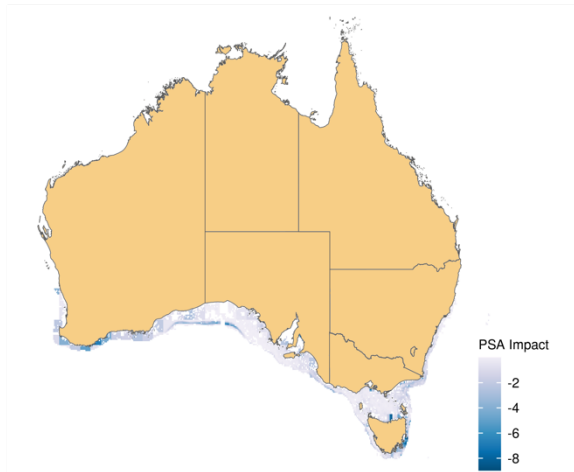
Priacanthus macracanthus



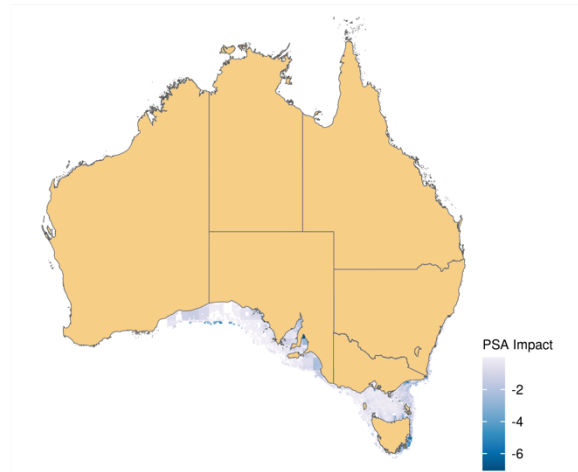
Prionace glauca



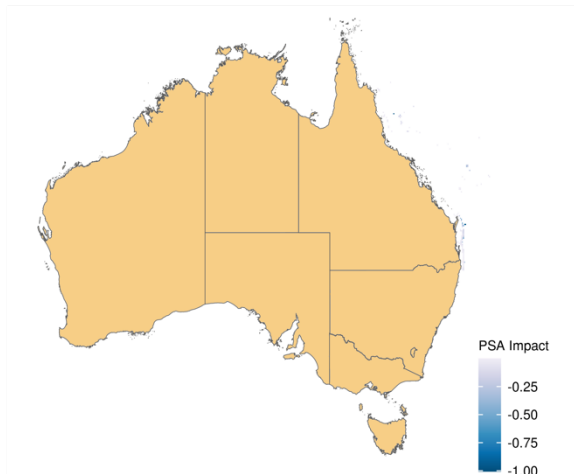
Pristiophorus cirratus



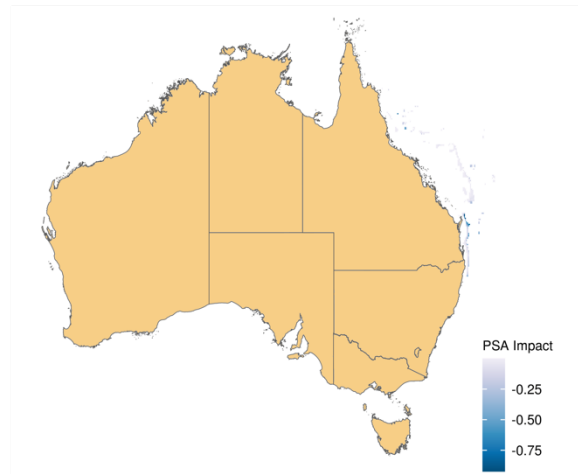
Pristiophorus nudipinnis



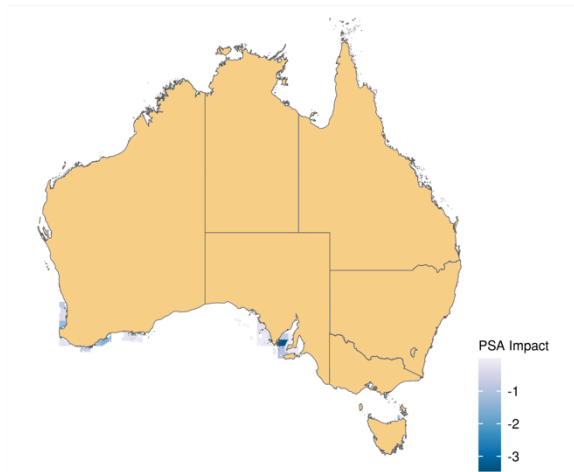
Pristipomoides filamentosus



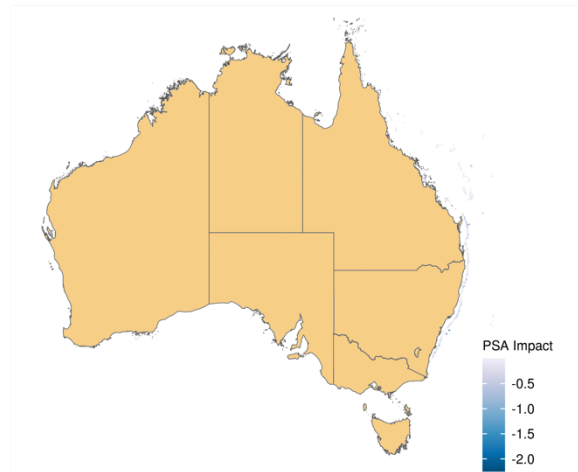
Promethichthys prometheus



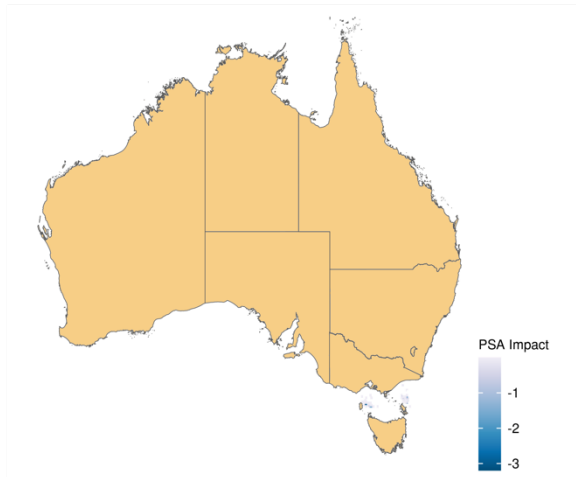
Pseudocaranx georgianus



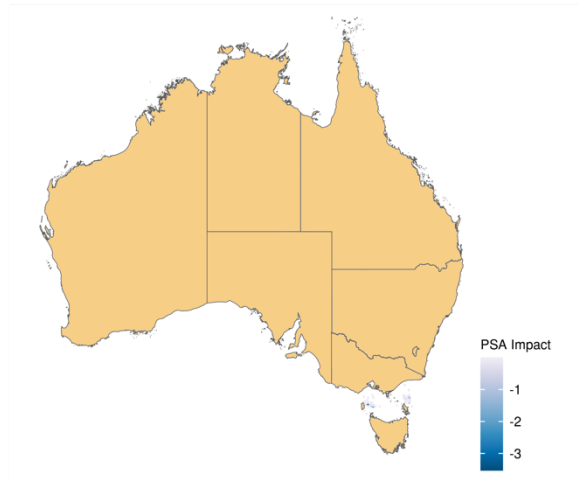
Pseudocarcharias kamoharai



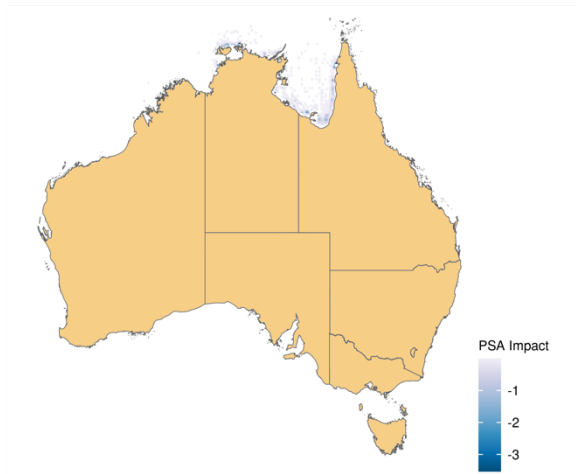
Pseudolabrus rubicundus



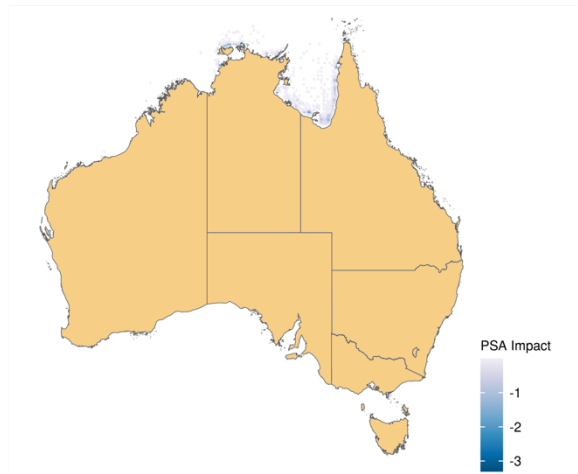
Pseudophycis barbata



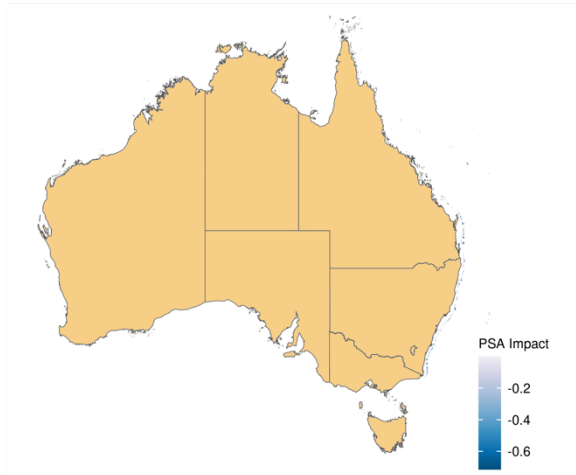
Pterois russellii



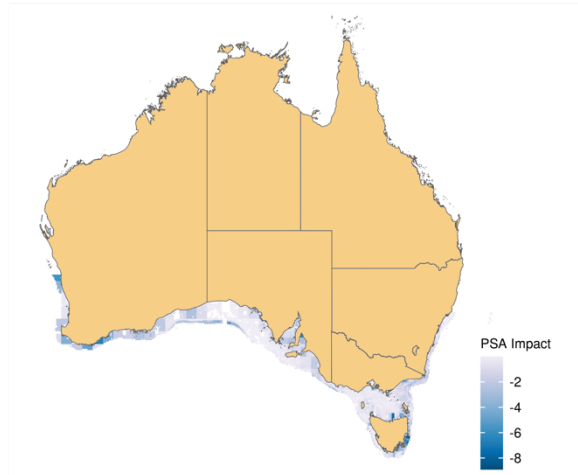
Pterois volitans



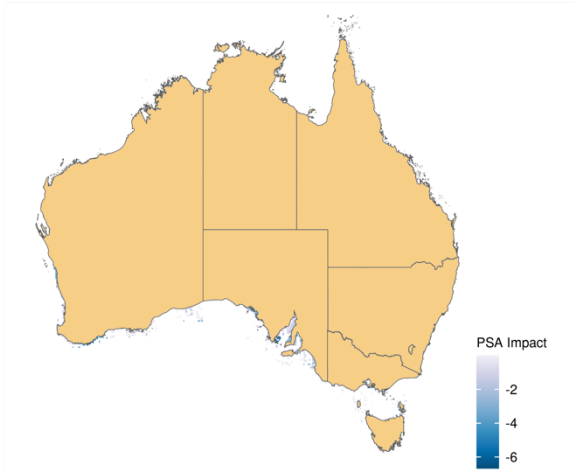
Pteroplatytrygon violacea



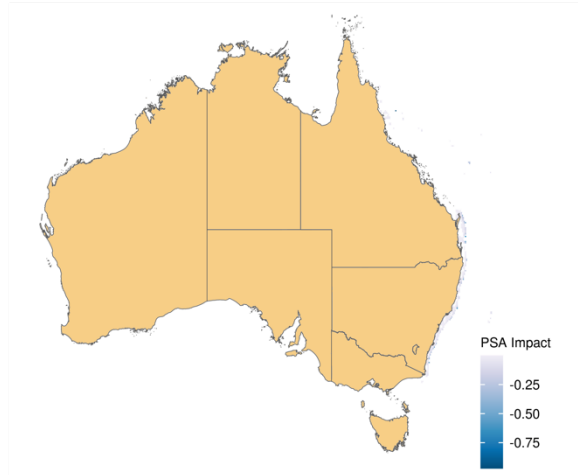
Pterygotrigla polyommata



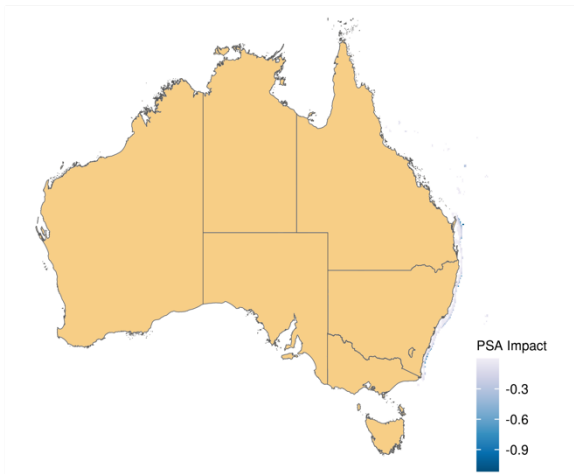
Pugnaso curtirostris



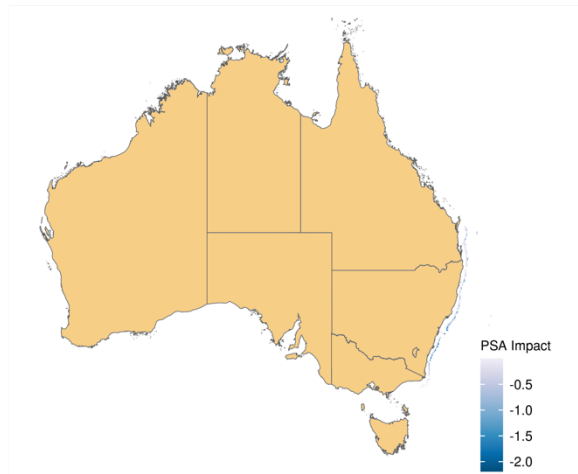
Rachycentron canadum



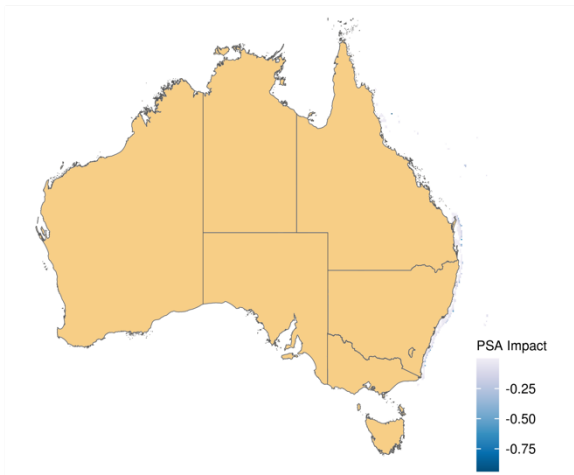
Ratabulus diversidens



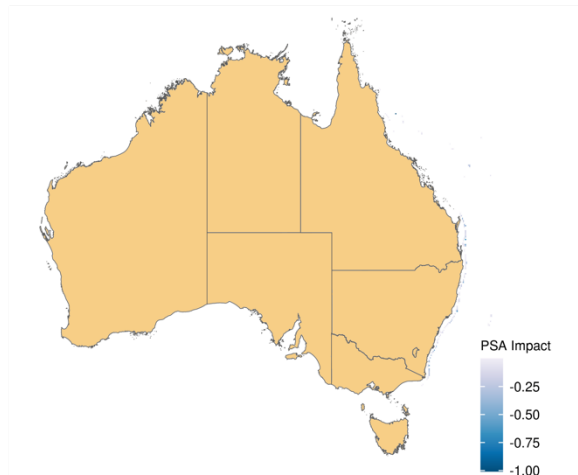
Regalecus glesne



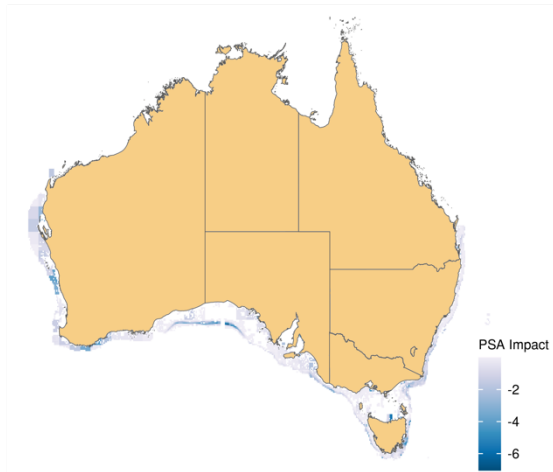
Remora brachyptera



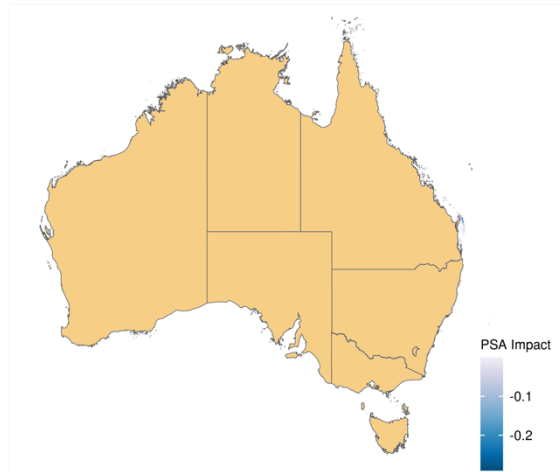
Remora remora



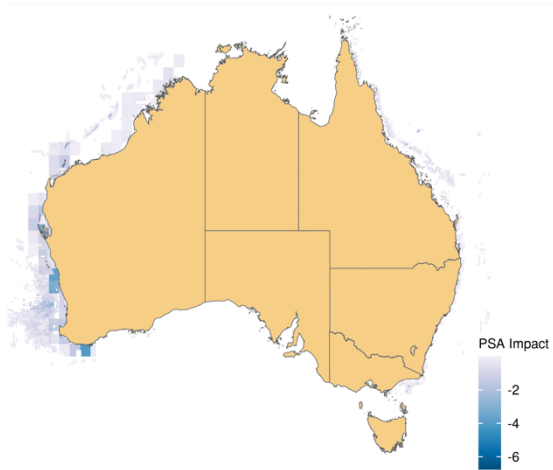
Rexea solandri



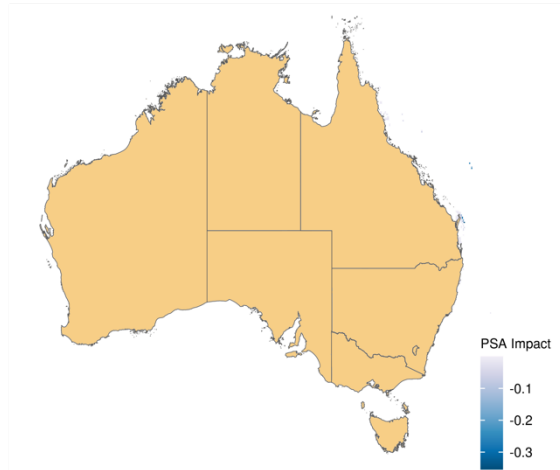
Rhabdosargus sarba



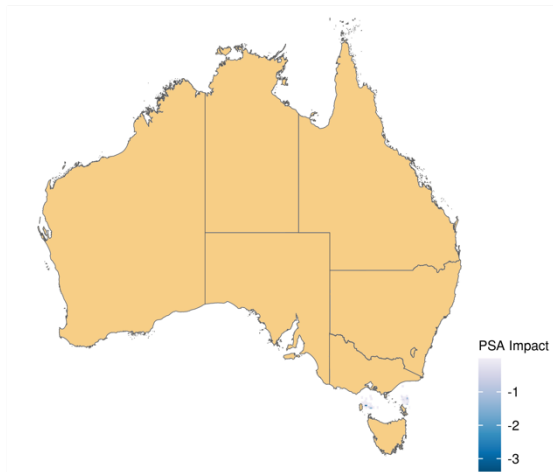
Rhincodon typus



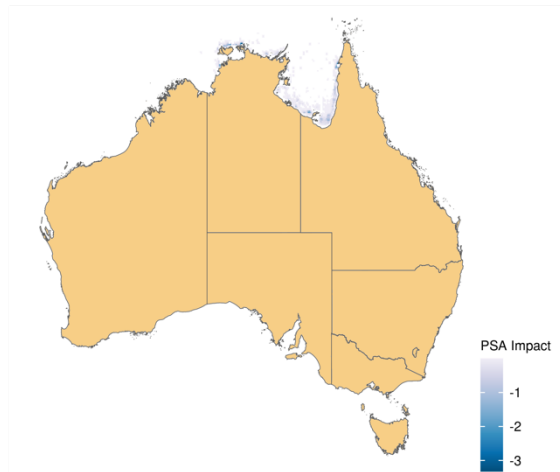
Rhinoptera neglecta



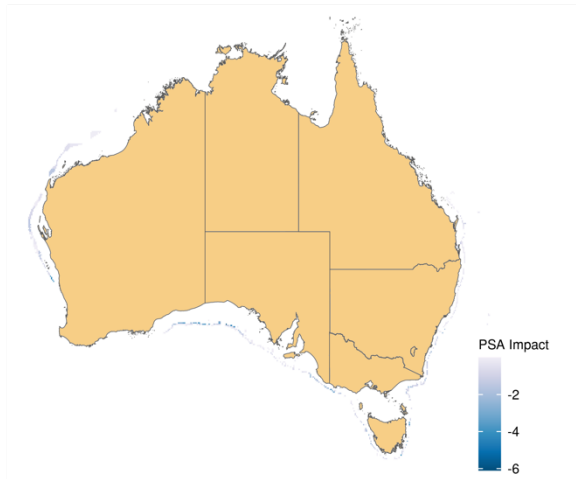
Rhombosolea tapirina



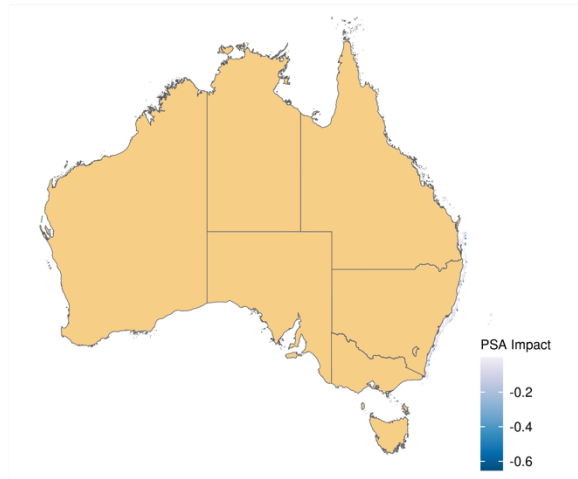
Rhynchobatus australiae



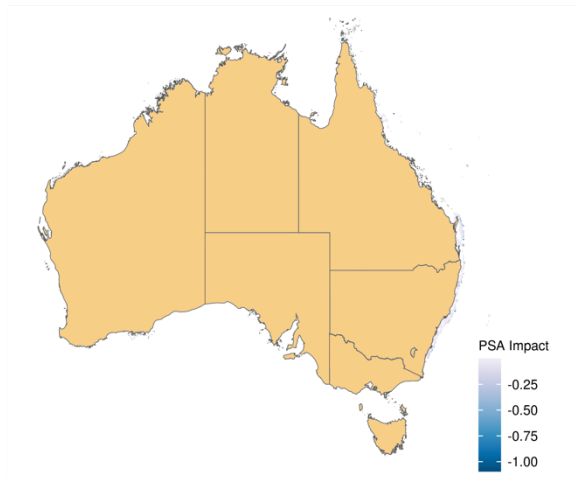
Ruvettus pretiosus



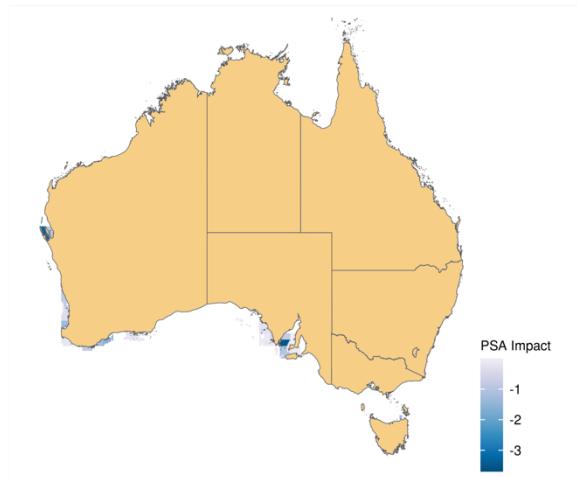
Sarda australis



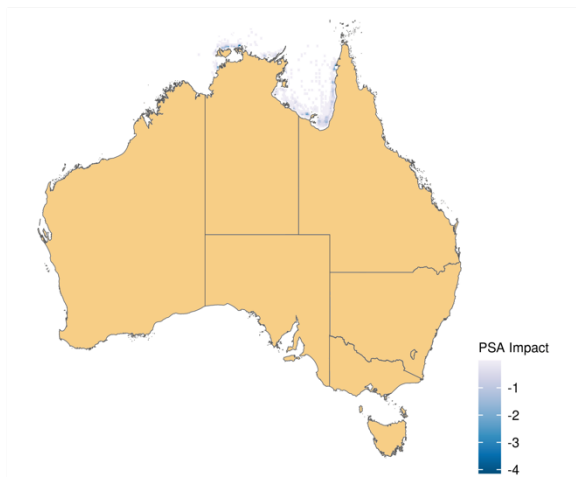
Sardinella gibbosa



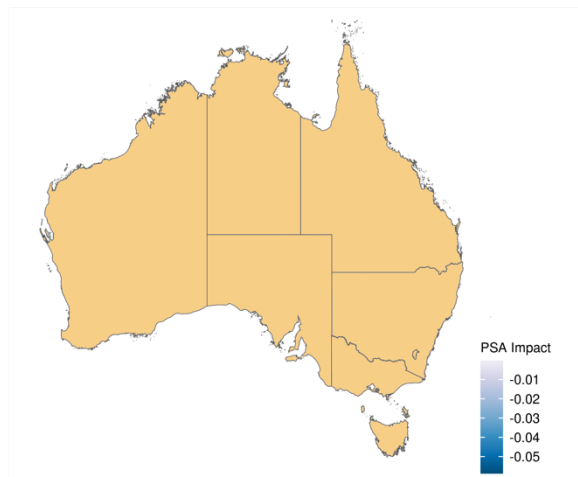
Sardinops sagax



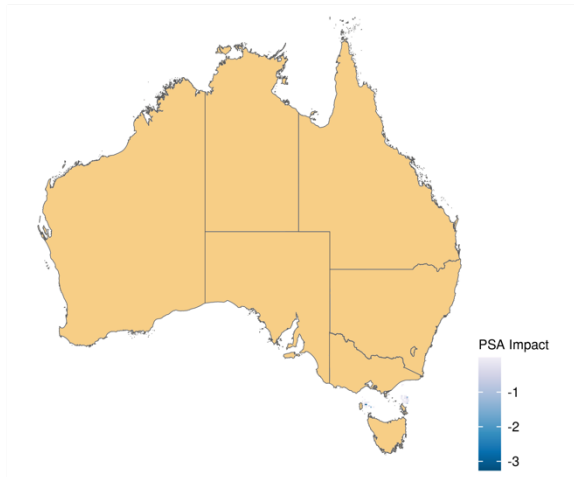
Sargocentron rubrum



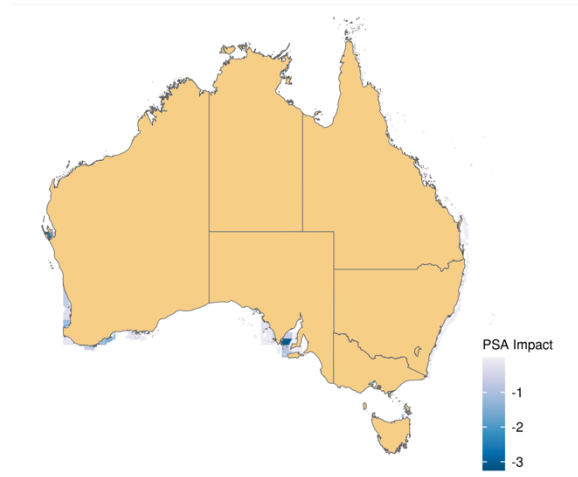
Scobinichthys granulatus



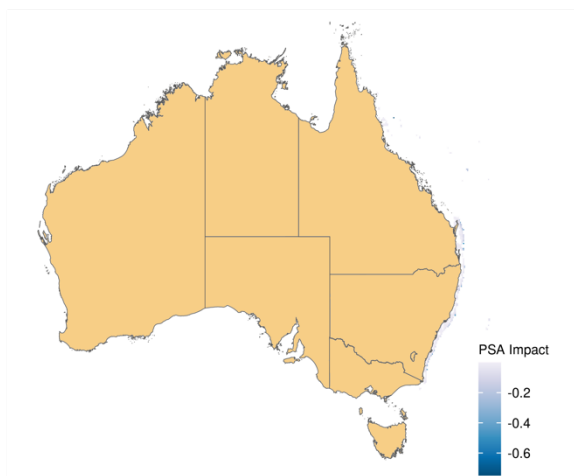
Scolecenchelys australis



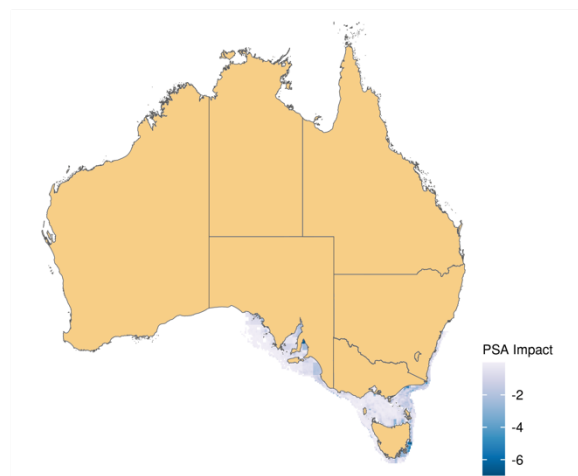
Scomber australasicus



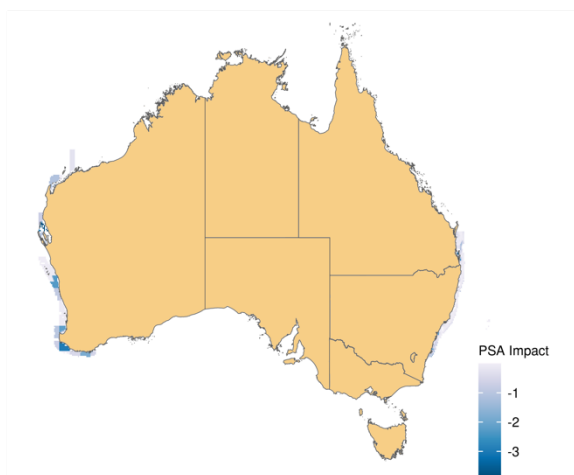
Scomberomorus commerson



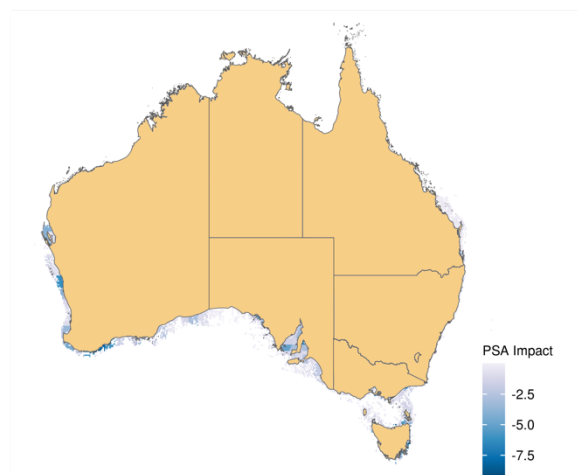
Scorpaena papillosa



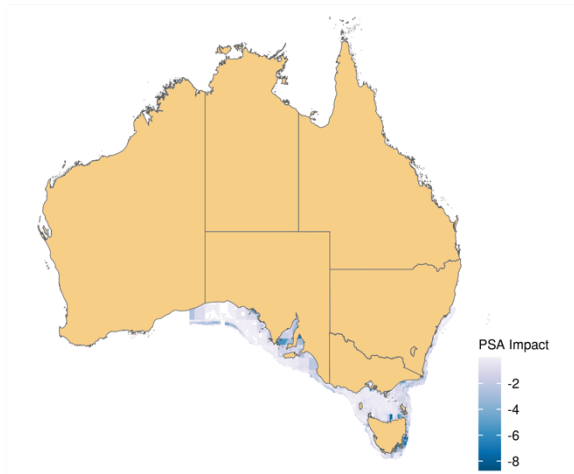
Seriola dumerilli



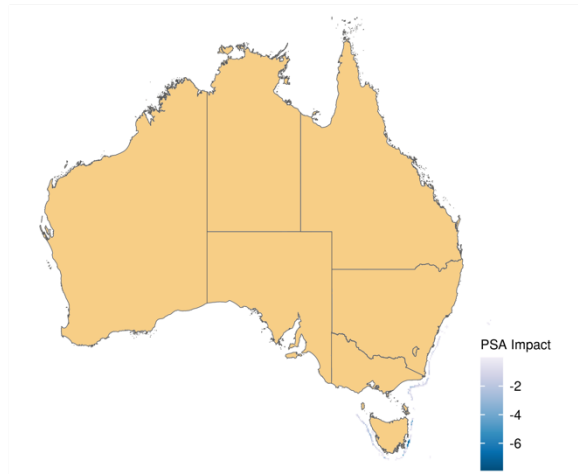
Seriola lalandi



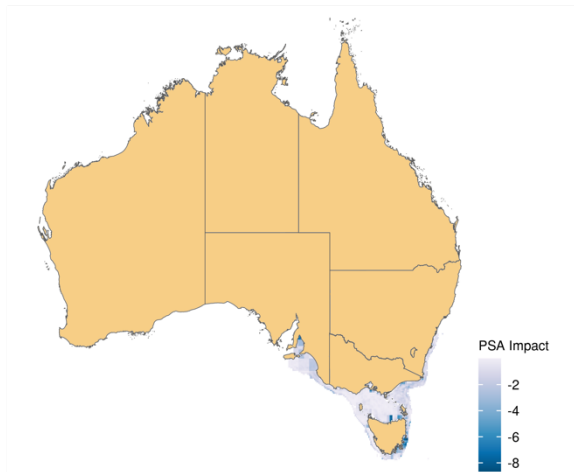
Seriolella brama



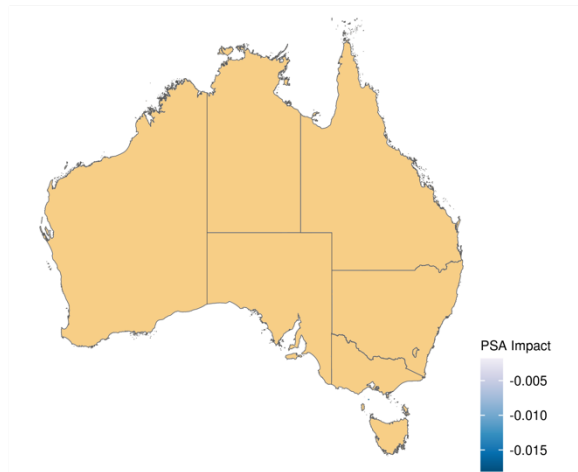
Seriolella caerulea



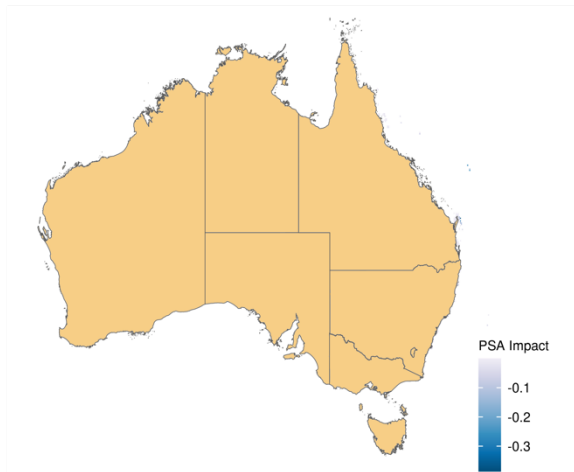
Seriolella punctata



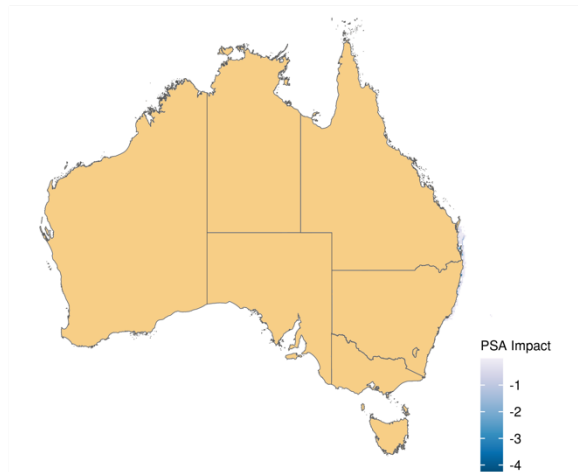
Sillago bassensis



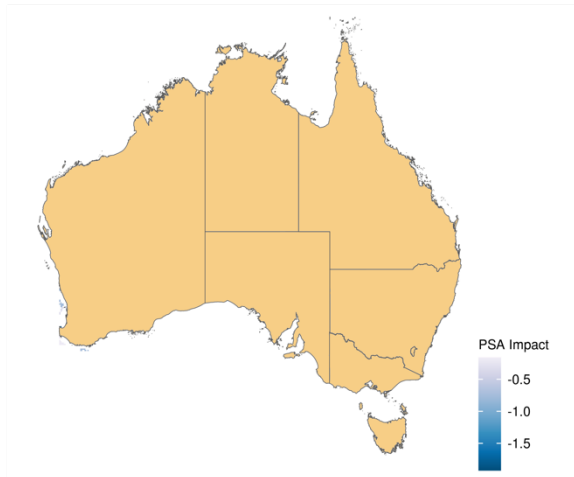
Sillago ciliata



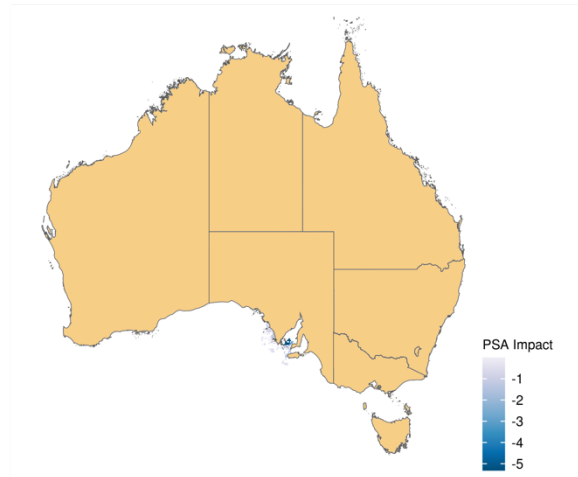
Solegnathus dunckeri



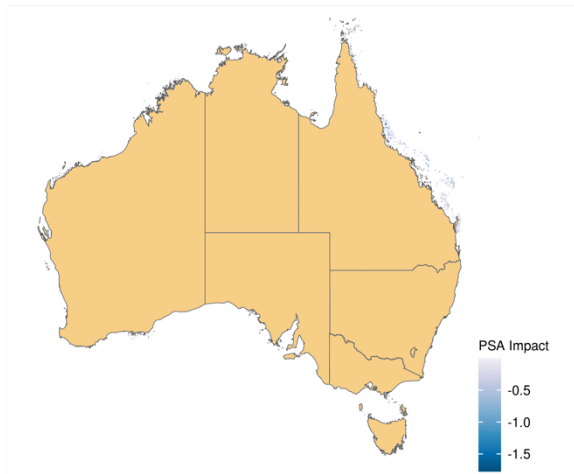
Solegnathus guentheri



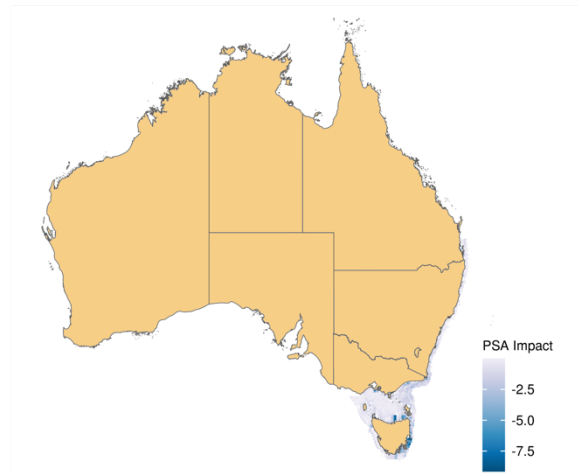
Solegnathus robustus



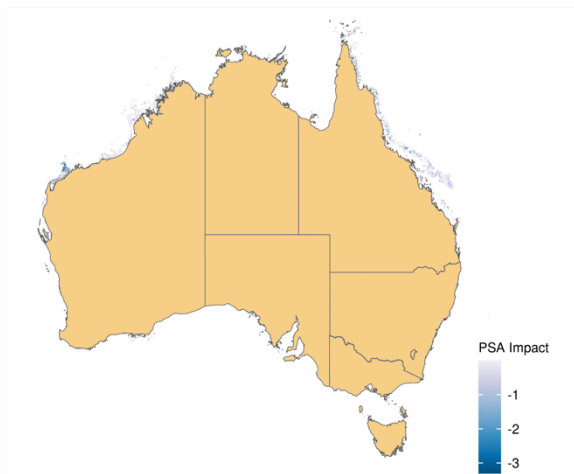
Solegnathus sp. 1 [in Kuiter, 2000]



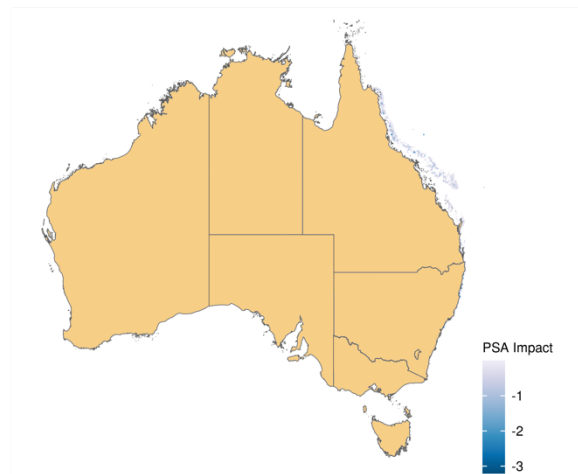
Solegnathus spinosissimus



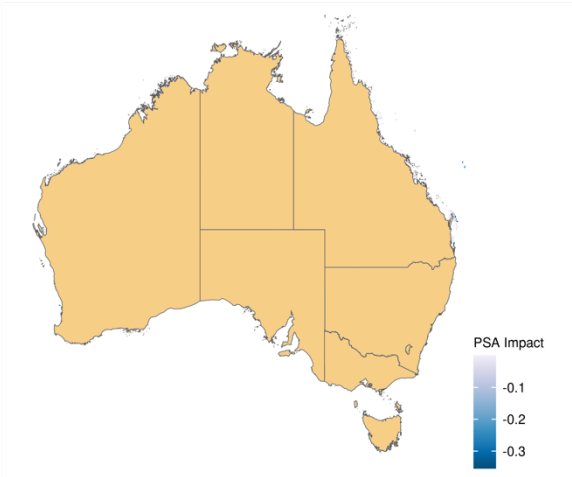
Solenostomus cyanopterus



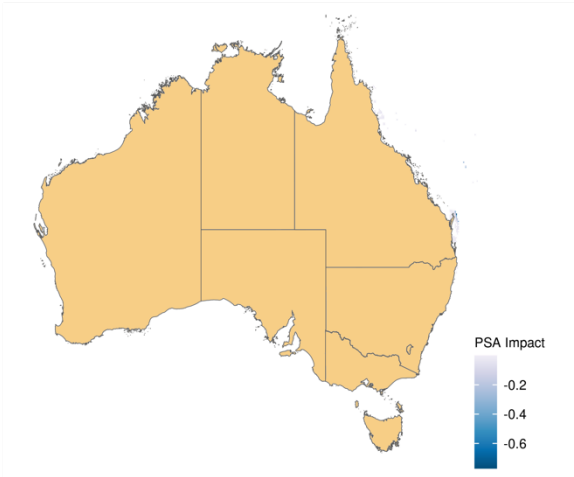
Solenostomus paradoxus



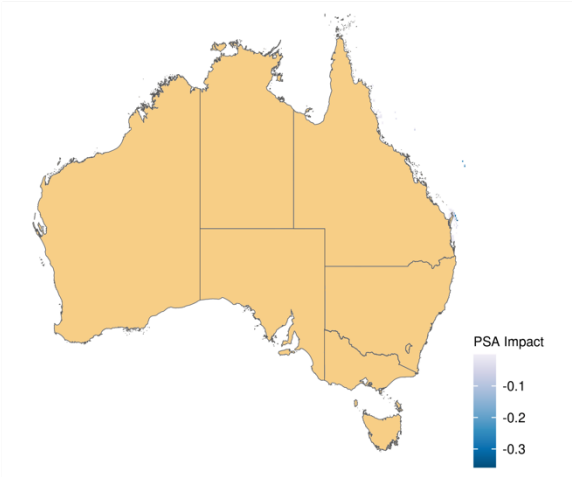
Sphyraena barracuda



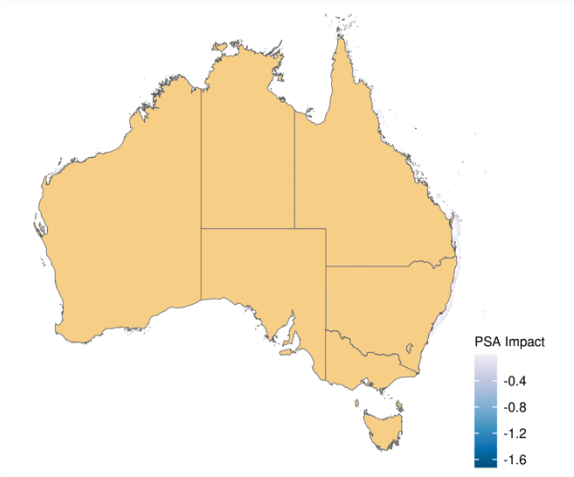
Sphyraena jello



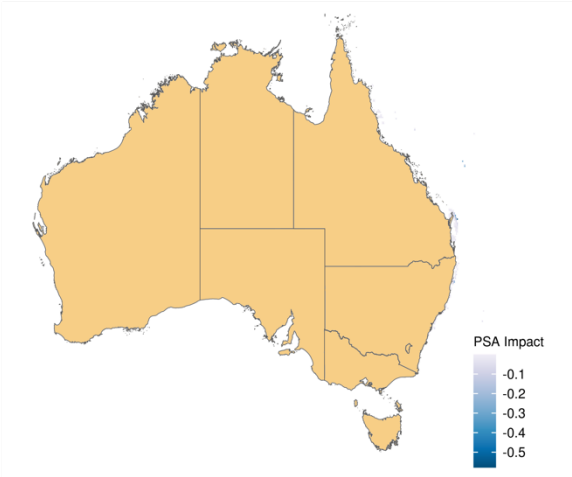
Sphyraena qenie



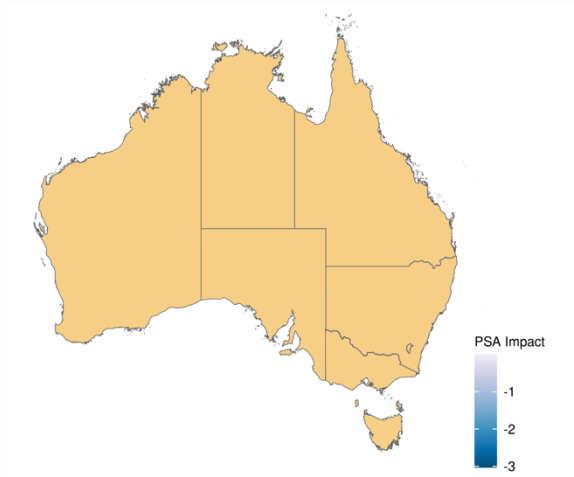
Sphyrna lewini



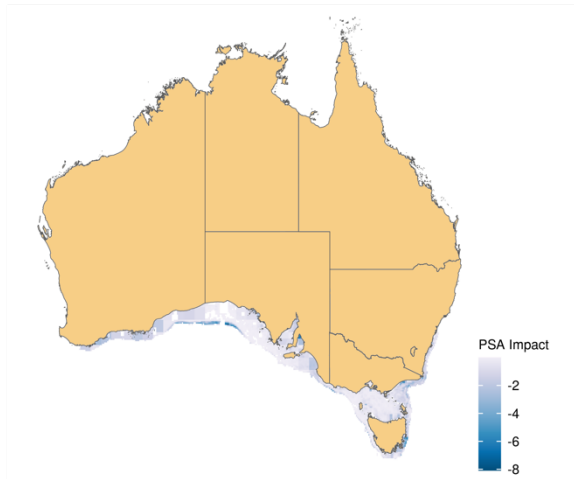
Sphyrna mokarran



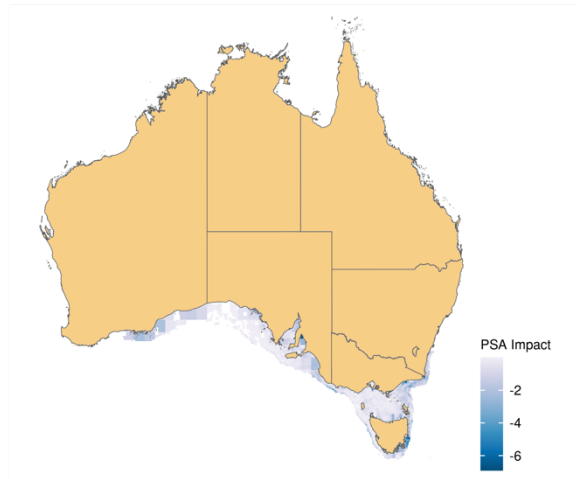
Sphyrna zygaena



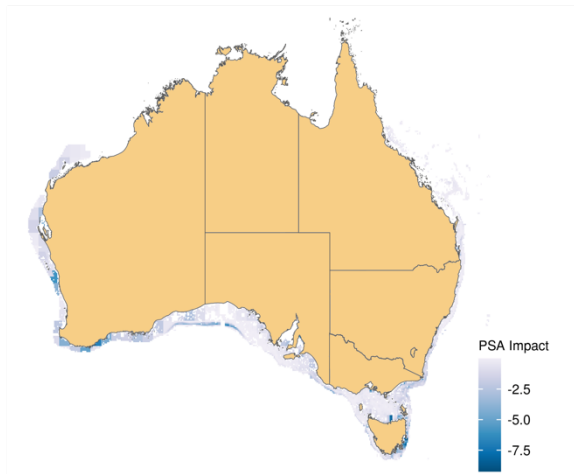
Spiniraja whitleyi



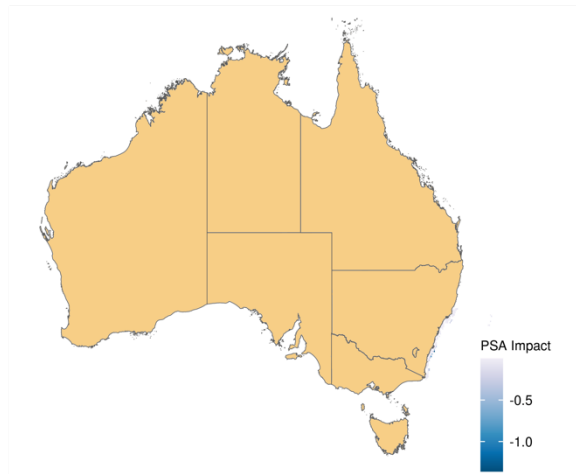
Squalus acanthias



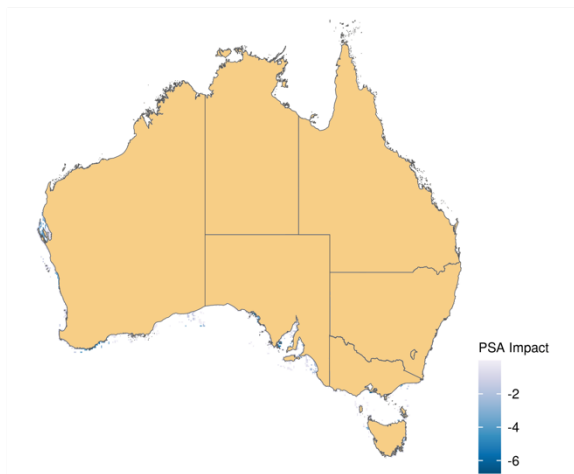
Squalus megalops



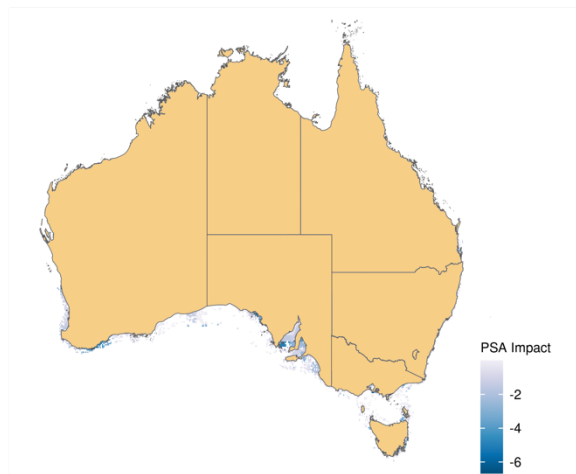
Squatina australis



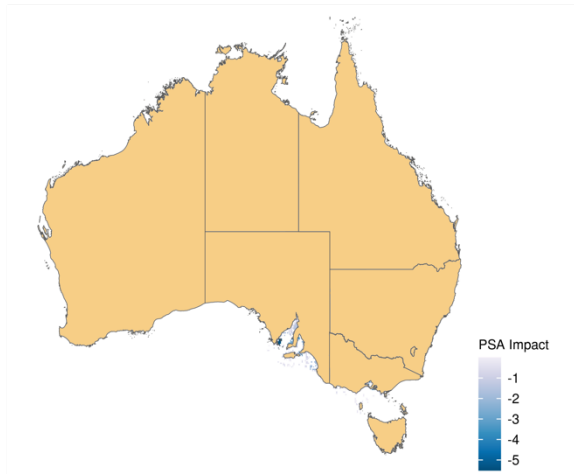
Stigmatopora argus



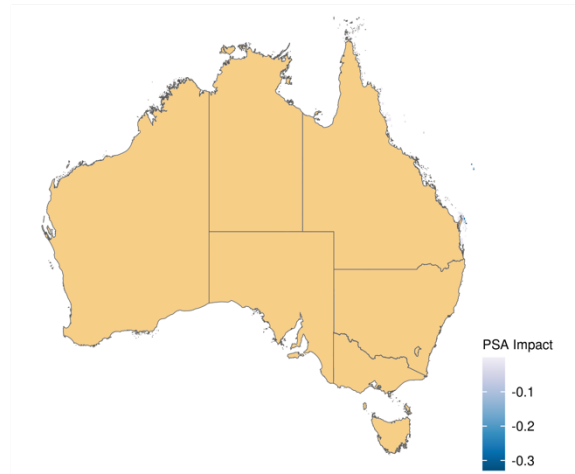
Stigmatopora nigra



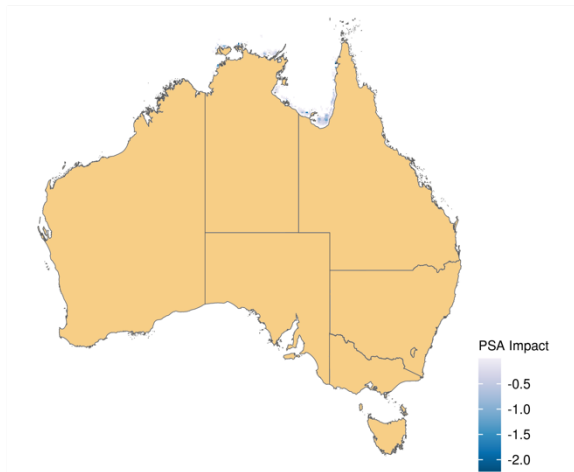
Stipeampus cristatus



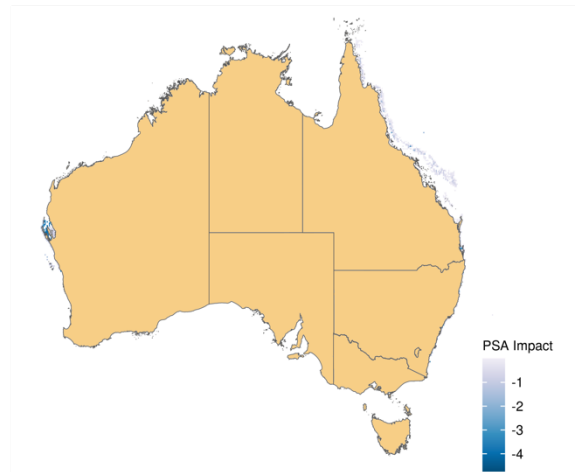
Symphorus nematophorus



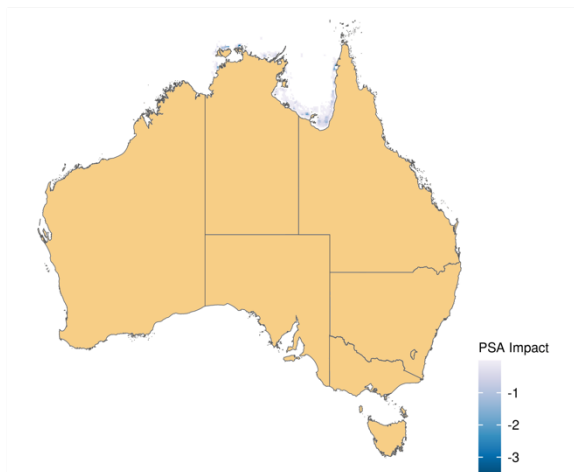
Synanceia verrucosa



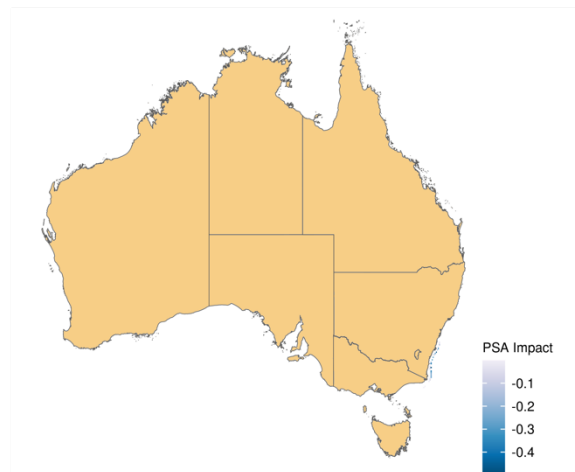
Syngnathoides biaculeatus



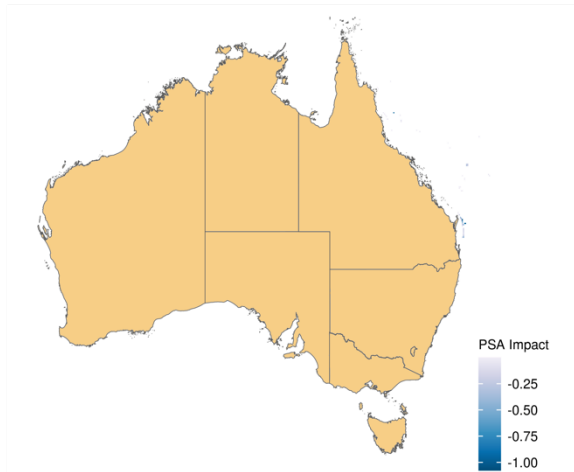
Taeniurops meyeri



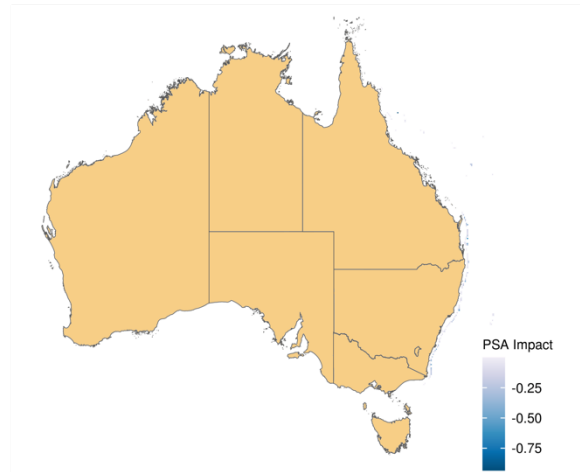
Taractes asper



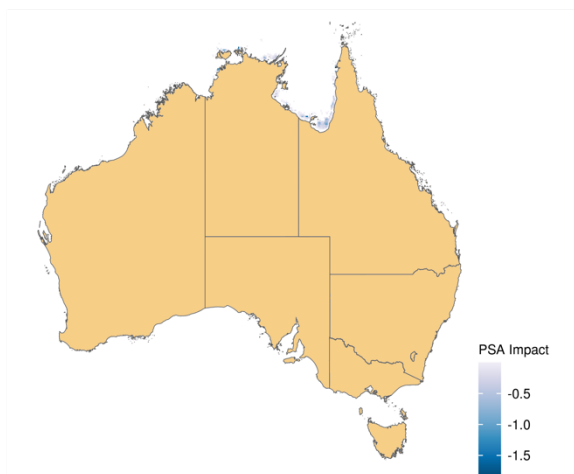
Taractichthys steindachneri



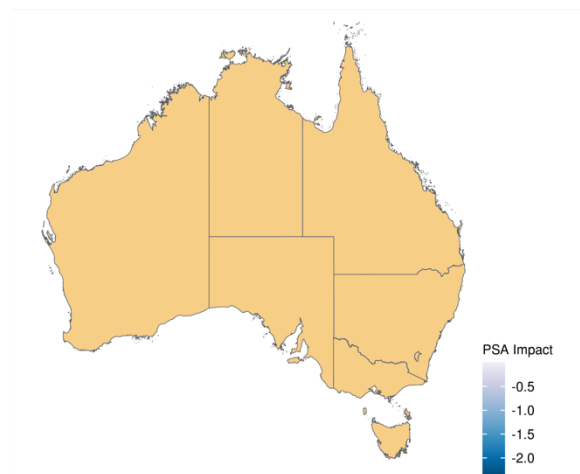
Tetrapturus angustirostris



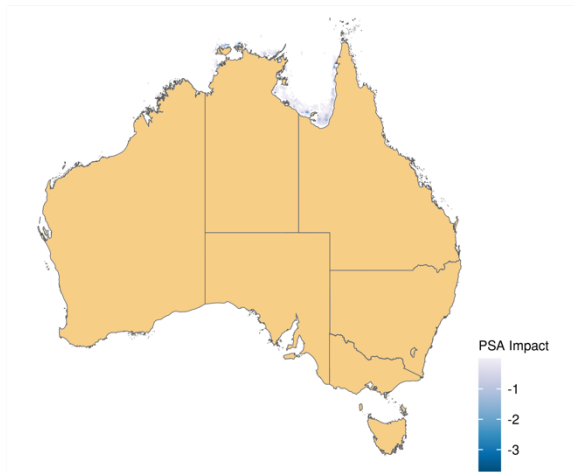
Thalassoma lunare



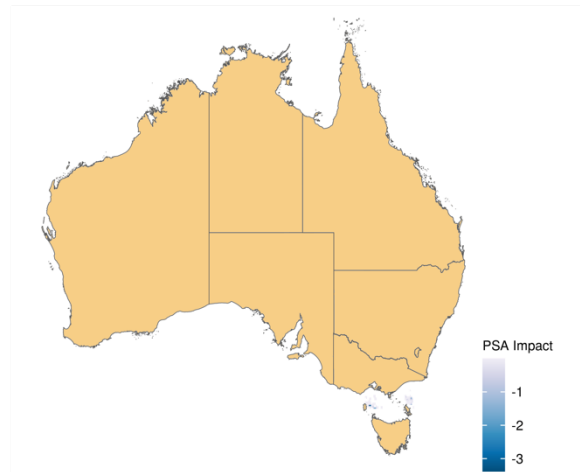
Thalassoma purpureum



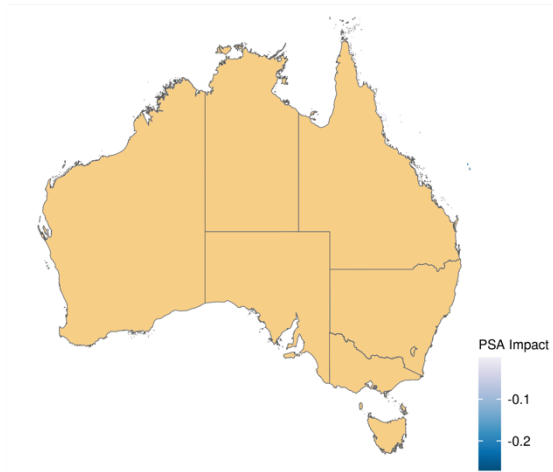
Thalassoma quinquevittatum



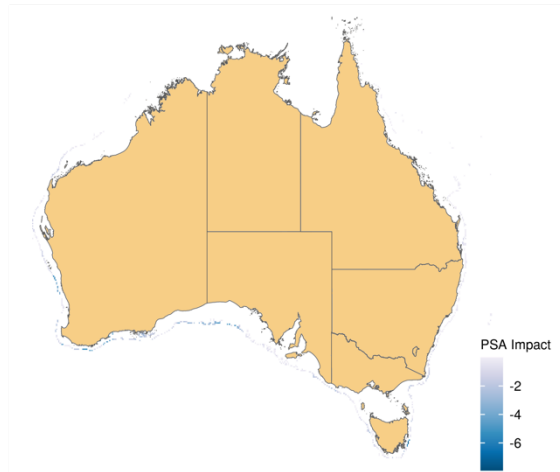
Thamnaconus degeni



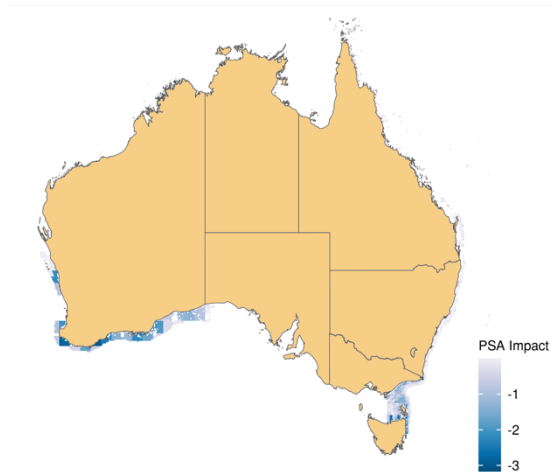
Thryssa setirostris



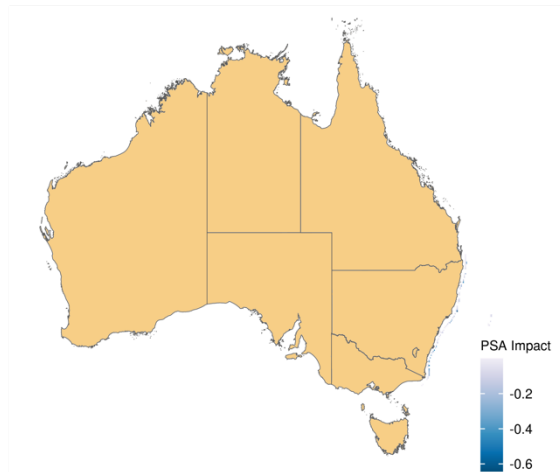
Thunnus alalunga



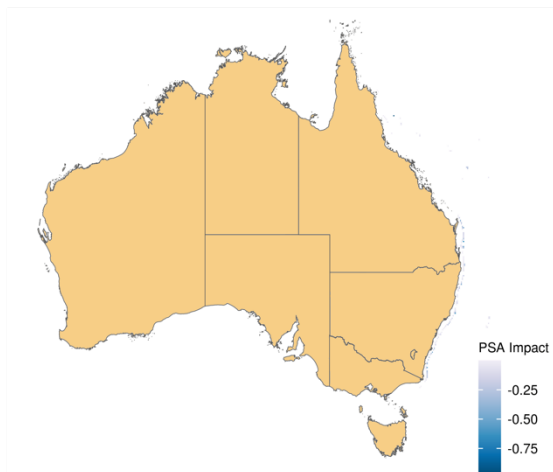
Thunnus albacares



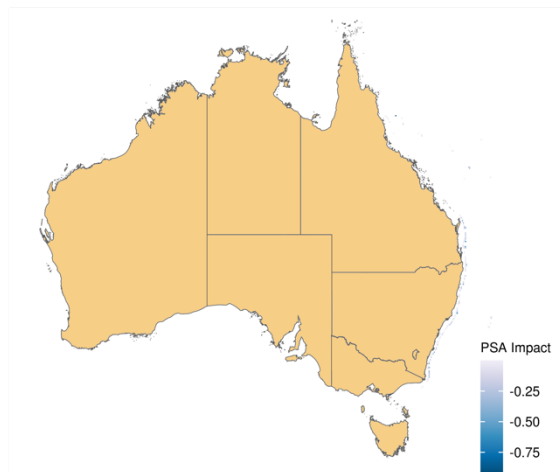
Thunnus maccoyii



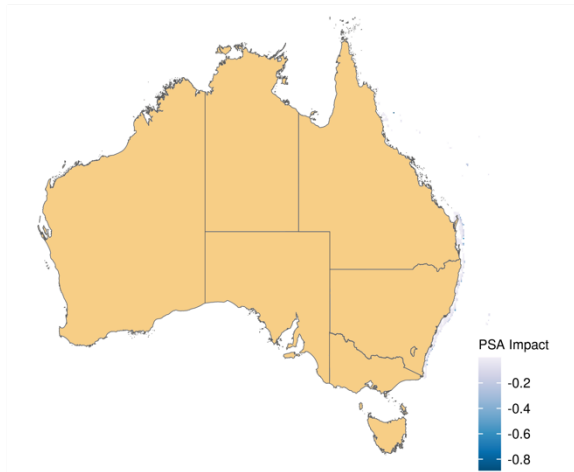
Thunnus obesus



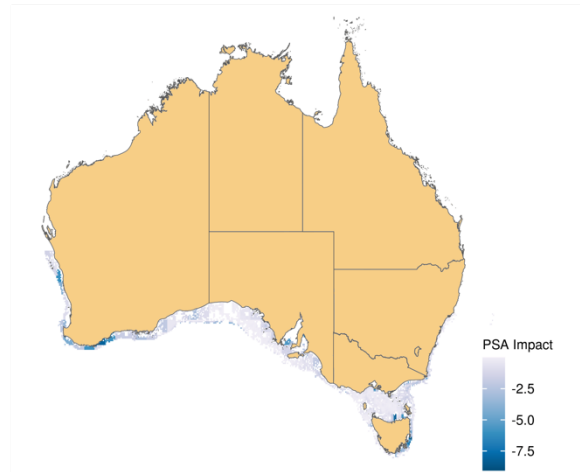
Thunnus orientalis



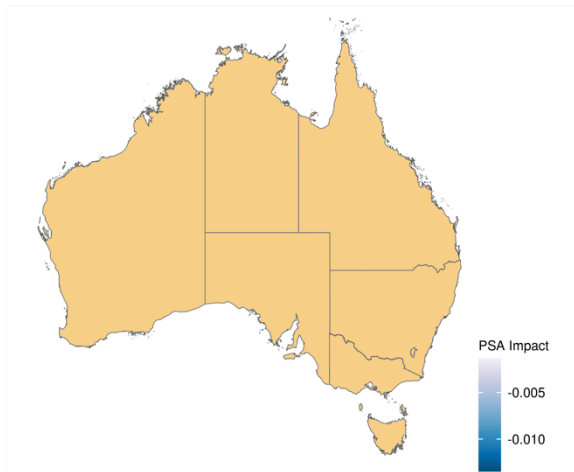
Thunnus tonggol



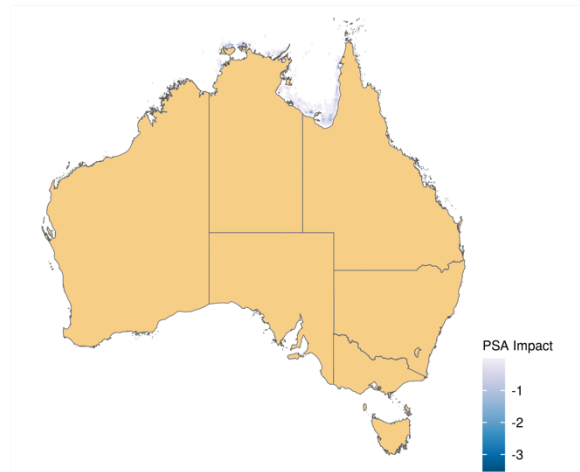
Thyrsites atun



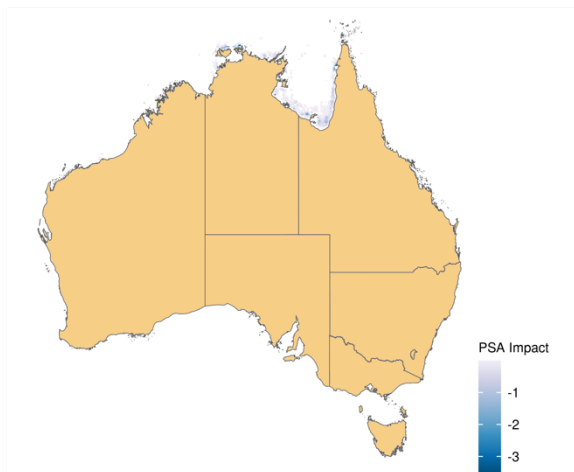
Tilodon sexfasciatus



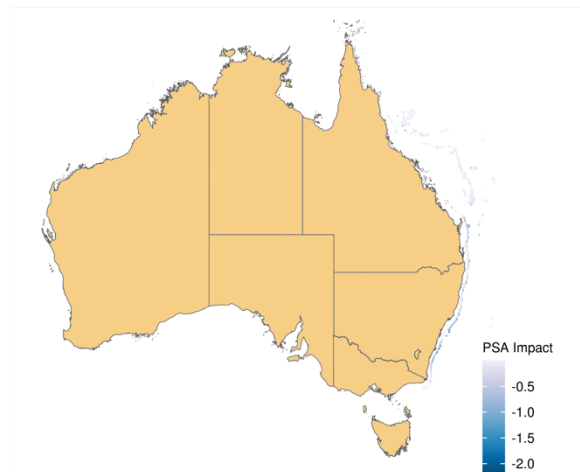
Trachinotus baillonii



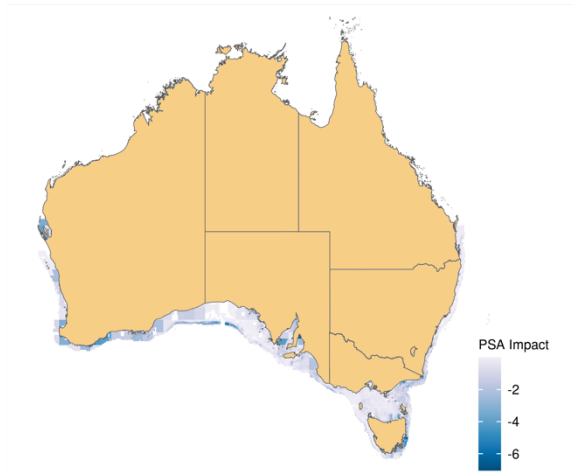
Trachinotus blochii



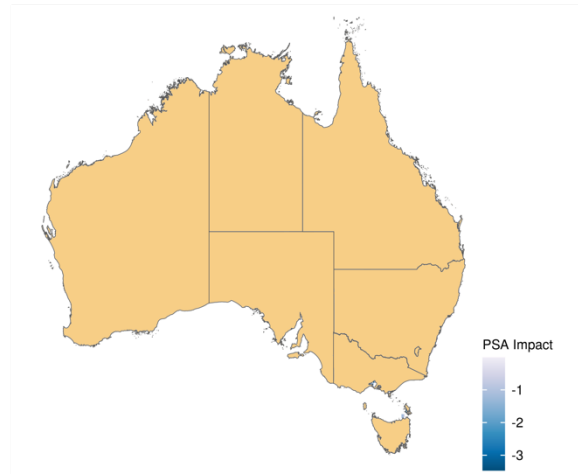
Trachipterus arawatae



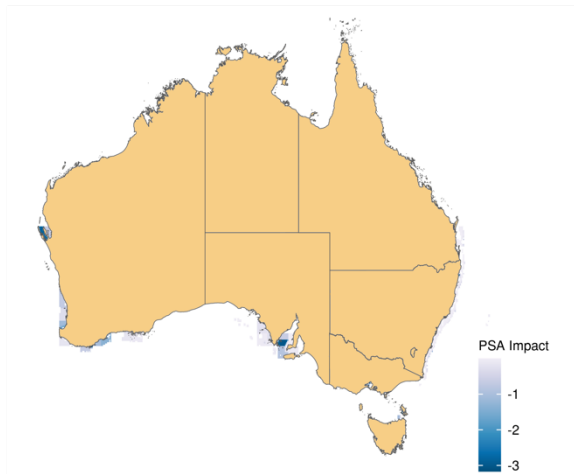
Trachurus declivis



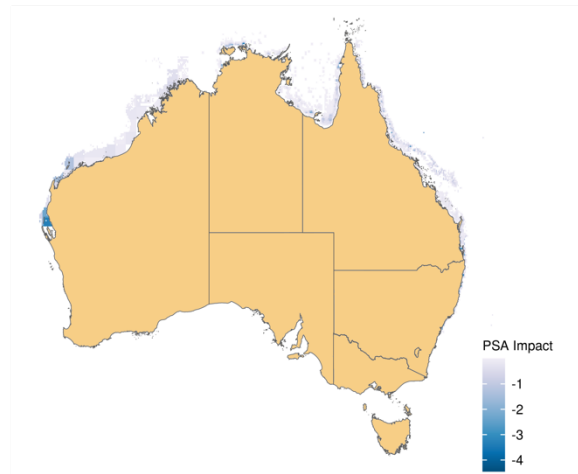
Trachurus murphyi



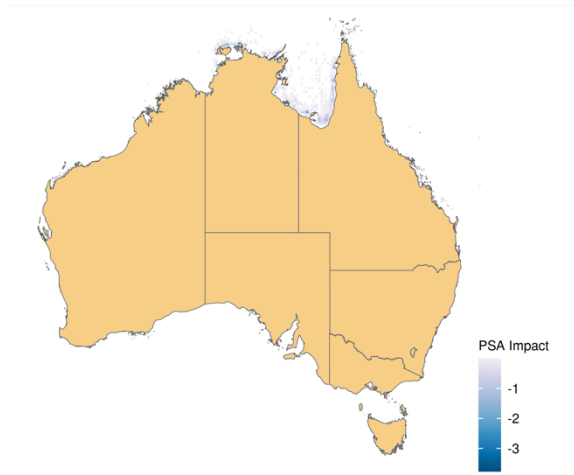
Trachurus novaezelandiae



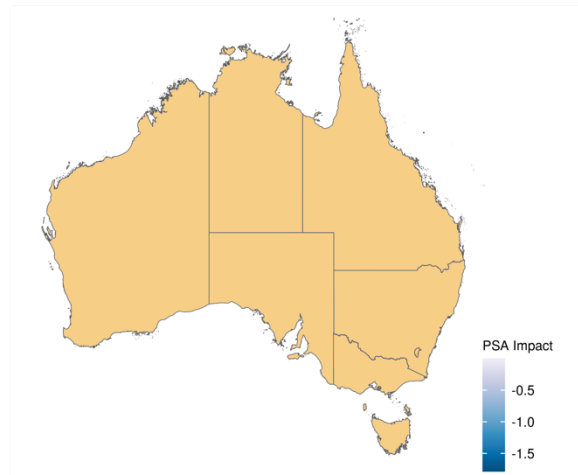
Trachyrhamphus bicoarctatus



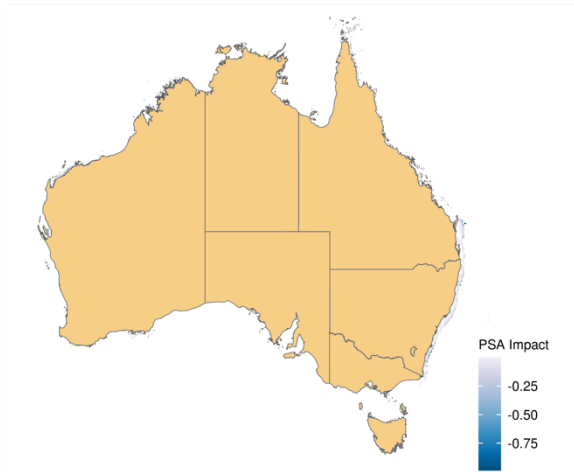
Trachyrhamphus longirostris



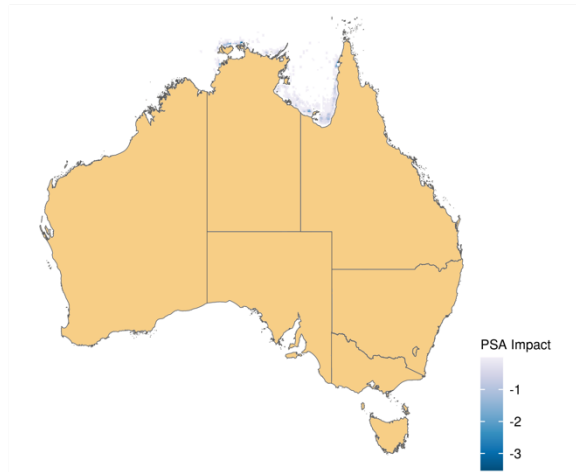
Triaenodon obesus



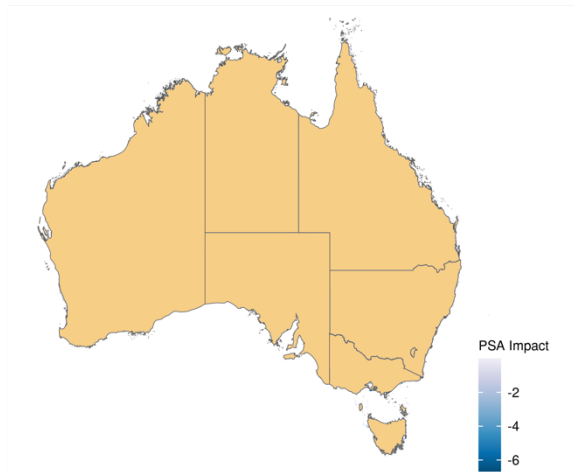
Trichiurus lepturus



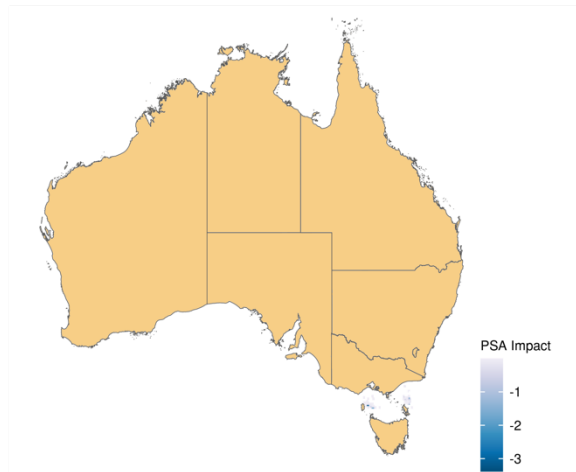
Upeneus tragula



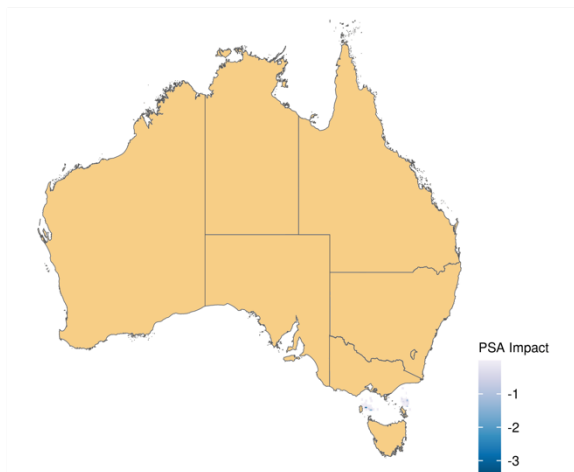
Urocampus carinirostris



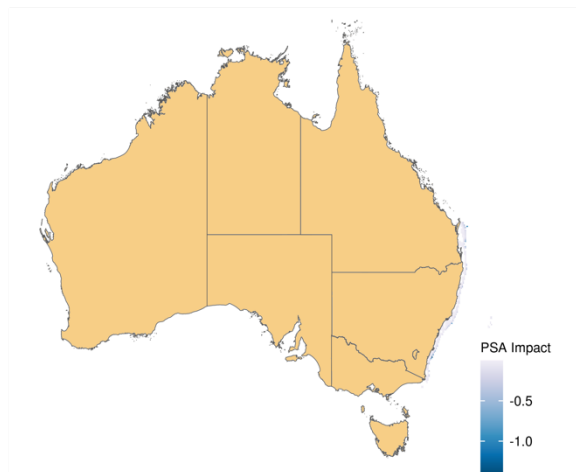
Urolophus cruciatus



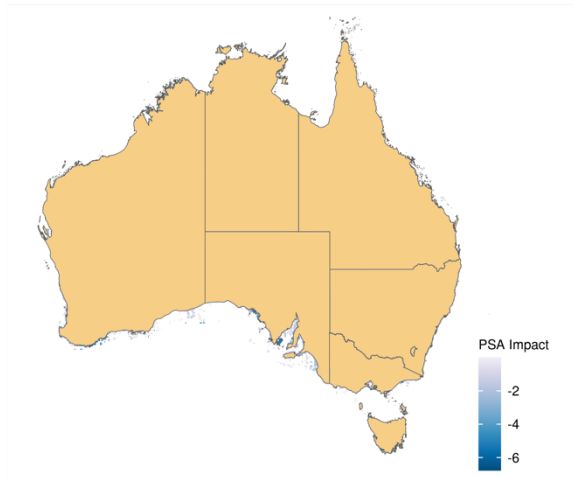
Urolophus paucimaculatus



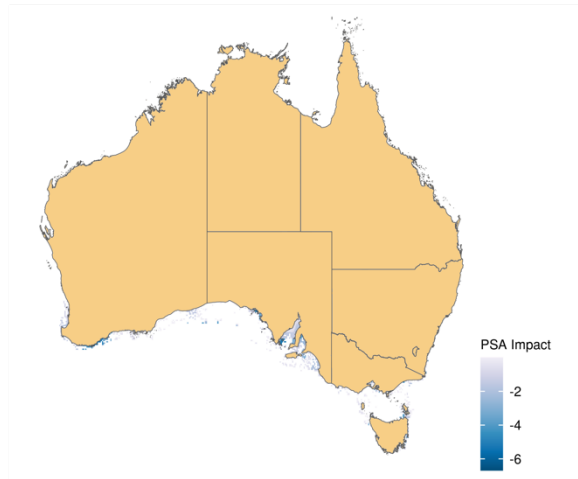
Urolophus viridis



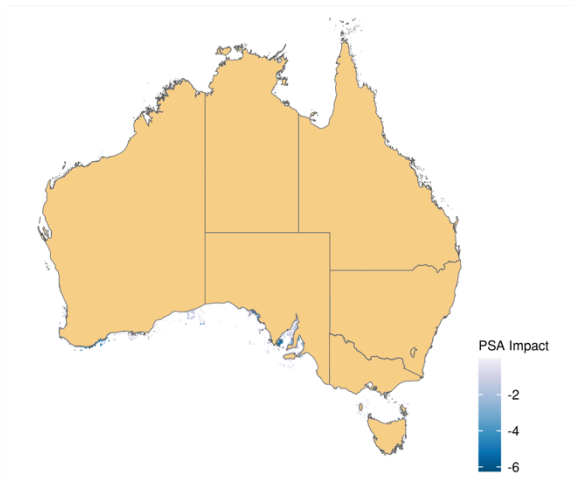
Vanacampus margaritifer



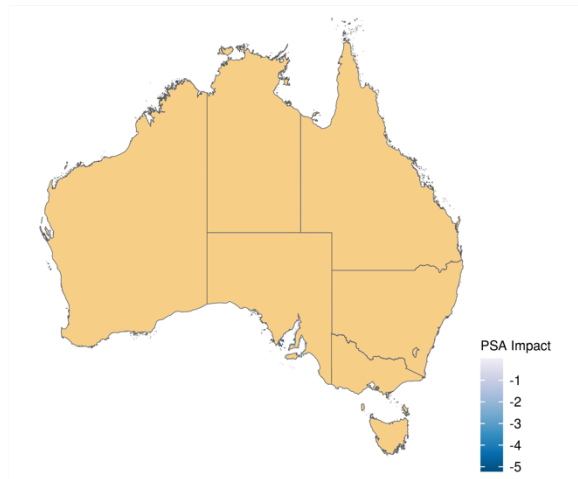
Vanacampus phillipi



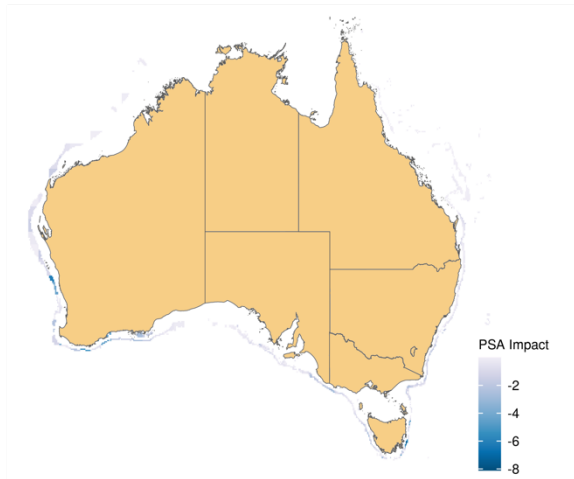
Vanacampus poecilolaemus



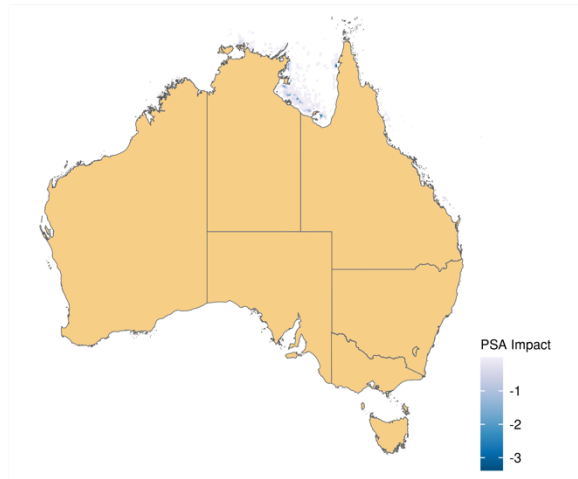
Vanacampus vercoi



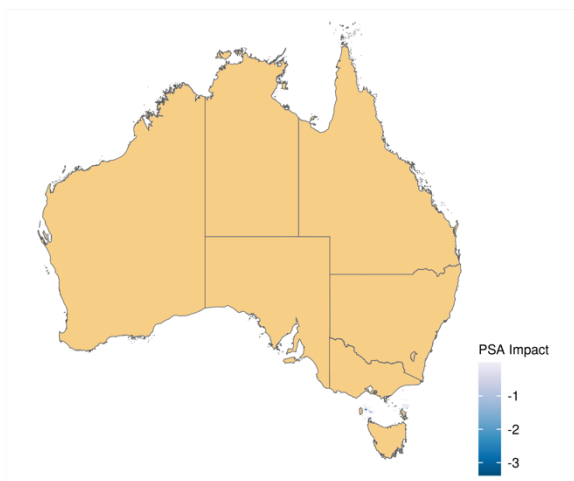
Xiphias gladius



Xiphocheilus typus



Zebrias scalaris



Zenopsis nebulosa

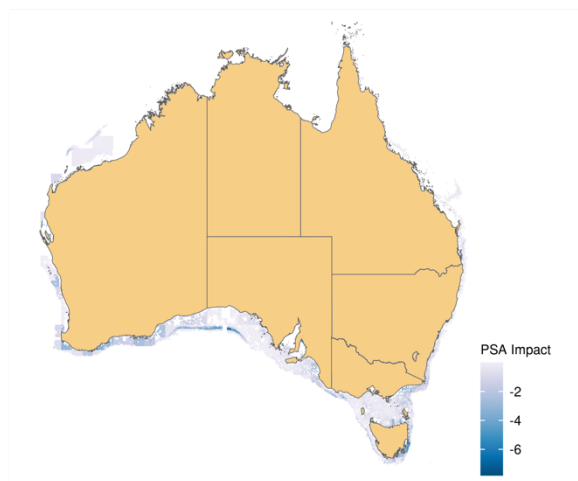


Table S 1: Summary of peak and mean Stage I “Sum of Pressures Analysis” Cumulative Scores (C Score), with no zoning effects and only Commonwealth fisheries included. ERA PSA and cumulative eSAFE scores are also given for comparative purposes. Those in grey have peak C Scores stronger than -5. For reference peak C Scores for all fisheries are shown in brackets where these values differ to the score when only Commonwealth fisheries are included.

Species Latin Name	Peak C Score	Mean C Score	PSA	Cumulative eSAFE
<i>Cephaloscyllium albiguttatum</i>	-8.38	-0.03		Extreme
<i>Dipturus gauder</i>	-8.29	-0.02		
<i>Spiniraja whitleyi</i>	-8.09	-0.06		Low
<i>Mustelus antarcticus</i>	-8.09 (-9.1)	-0.07		Low
<i>Irolita waitii</i>	-7.9	-0.01		
<i>Zenopsis nebulosa</i>	-7.81	-0.07		Extreme
<i>Figaro boardmani</i>	-7.78	-0.03	Low	Low
<i>Notorynchus cepedianus</i>	-7.72 (-8.72)	-0.05		Low
<i>Squalus megalops</i>	-7.72 (-9.32)	-0.07	Medium	Extreme
<i>Chelidonichthys kumu</i>	-7.72	-0.07		Low
<i>Genypterus blacodes</i>	-7.72 (-9.72)	-0.08	Medium	Extreme
<i>Dannevigia tusca</i>	-7.72	-0.02		
<i>Pristiophorus cirratus</i>	-7.63 (-8.47)	-0.06		Extreme
<i>Dentiraja cerva</i>	-7.55	-0.06		Extreme
<i>Macruronus novaezelandiae</i>	-7.54	-0.04		Extreme
<i>Etmopterus lucifer</i>	-7.54	-0.02		
<i>Lepidorhynchus denticulatus</i>	-7.43	-0.03		
<i>Oplegnathus woodwardi</i>	-7.37 (-9.38)	-0.05		Low
<i>Centroberyx gerrardi</i>	-7.35 (-9.35)	-0.06		Low
<i>Galeorhinus galeus</i>	-7.28 (-8.28)	-0.07	High	Extreme
<i>Nemadactylus macropterus</i>	-7.13 (-9.33)	-0.07	Low	Extreme
<i>Chrysophrys auratus</i>	-7.13 (-8.33)	-0.06	Low	Low
<i>Rexea solandri</i>	-7.06	-0.04	Medium	Low
<i>Polyprion oxygeneios</i>	-7.05 (-9.5)	-0.07	Medium	Extreme
<i>Trachurus declivis</i>	-7.05	-0.07	Medium	Low
<i>Lepidopus caudatus</i>	-7.05	-0.04	Medium	Low
<i>Deania quadrispinosa</i>	-7.03	-0.03		
<i>Dipturus canutus</i>	-6.95	-0.02		Extreme
<i>Dalatias licha</i>	-6.92	-0.04		
<i>Coelorhynchus australis</i>	-6.68	-0.03		Medium
<i>Callorhynchus milii</i>	-6.59 (-8.59)	-0.05		Low
<i>Pterygotrigla polyommata</i>	-6.57 (-8.35)	-0.07	Low	Low
<i>Hyperoglyphe antarctica</i>	-6.57 (-8.57)	-0.07	Medium	Low
<i>Pristiophorus nudipinnis</i>	-6.34	-0.05		Low
<i>Beryx splendens</i>	-6.24 (-8.24)	-0.02		High
<i>Isurus oxyrinchus</i>	-6.19 (-9.49)	-0.07	High	High
<i>Beryx decadactylus</i>	-6.16 (-8.16)	-0.01		
<i>Thunnus alalunga</i>	-6.16 (-7.76)	-0.01	Medium	Low
<i>Carcharodon carcharias</i>	-6.12 (-7.99)	-0.08	High	Low
<i>Ruvettus pretiosus</i>	-6.1	-0.01	Medium	Low
<i>Seriola punctata</i>	-5.82 (-8.26)	-0.05	Low	Low
<i>Mora moro</i>	-5.81	-0.01		
<i>Xiphias gladius</i>	-5.79 (-8.09)	-0.02	Medium	Low
<i>Neocyttus rhomboidalis</i>	-5.78	-0.01		Extreme
<i>Seriola brama</i>	-5.68 (-8.34)	-0.06	Low	Low
<i>Nemadactylus valenciennesi</i>	-5.68 (-6.84)	-0.05		High
<i>Alopias vulpinus</i>	-5.65 (-8.2)	-0.02	Medium	Low
<i>Seriola caerulea</i>	-5.56 (-7.87)	-0.01		
<i>Centrolophus niger</i>	-5.52	-0.02	Medium	Low
<i>Lamna nasus</i>	-5.51 (-9.51)	-0.05	High	Low
<i>Brama brama</i>	-5.48	-0.01	Low	Low
<i>Phycodurus eques</i>	-5.47	-0.004		Low
<i>Deania calceus</i>	-5.42	-0.01	High	Extreme
<i>Helicolenus barathri</i>	-5.4	-0.01		Extreme
<i>Latris lineata</i>	-5.36 (-9.36)	-0.05		Medium
<i>Solegnathus spinosissimus</i>	-5.35 (-9.35)	-0.04		Low
<i>Prionace glauca</i>	-5.23 (-7.82)	-0.02	High	Medium
<i>Helicolenus percoides</i>	-5.08 (-9.52)	-0.05	Low	Low
<i>Platycephalus richardsoni</i>	-5.01 (-8.4)	-0.05		Low
<i>Heraldia</i> sp. 1 [in Kuitert, 2000]	-4.85 (-6.17)	-0.002		Low
<i>Phyllopteryx taeniolatus</i>	-4.8 (-7.6)	-0.01		Low
<i>Lissocampus runa</i>	-4.79 (-6.18)	-0.004		Low
<i>Thyrssites atun</i>	-4.68 (-9.46)	-0.04	Medium	Low
<i>Vanacampus phillipi</i>	-4.66 (-6.46)	-0.003		Low
<i>Vanacampus margaritifer</i>	-4.45 (-6.45)	-0.003		Low
<i>Squalus acanthias</i>	-4.36 (-6.6)	-0.05		Low

Species Latin Name	Peak C Score	Mean C Score	PSA	Cumulative eSAFE
<i>Centrophorus harrissoni</i>	-4.33	-0.01	Medium	Low
<i>Lissocampus caudalis</i>	-4.27	-0.004		Low
<i>Pugnaso curtirostris</i>	-4.27 (-6.43)	-0.002		Low
<i>Isistius brasiliensis</i>	-4.24	-0.02	Medium	Low
<i>Leptoichthys fistularius</i>	-4.24 (-6.49)	-0.003		Low
<i>Notiocampus ruber</i>	-4.22 (-5.81)	-0.004		Low
<i>Sargocentron rubrum</i>	-4.14	-0.01		
<i>Centroscymnus owstonii</i>	-4.12	-0.01	Medium	Low
<i>Dentiraja confusus</i>	-4.12 (-7.6)	-0.04		Medium
<i>Kathetostoma canaster</i>	-4.1 (-6.6)	-0.05		Low
<i>Scorpaena papillosa</i>	-4.04 (-6.37)	-0.05		Low
<i>Maroubra perserrata</i>	-4.03 (-6.13)	-0.004		Low
<i>Chimaera ogilbyi</i>	-4 (-6.42)	-0.01		
<i>Stigmatopora nigra</i>	-3.98 (-6.4)	-0.01		Low
<i>Vanacampus poecilolaemus</i>	-3.98 (-6.14)	-0.001		
<i>Disteira kingii</i>	-3.98	-0.01		
<i>Latridopsis forsteri</i>	-3.91 (-8.41)	-0.02		Low
<i>Seriola lalandi</i>	-3.91 (-9.45)	-0.02	Medium	Low
<i>Centroselachus crepidater</i>	-3.82	-0.01		
<i>Myripristis murdjan</i>	-3.77	-0.01		
<i>Trachyrhamphus bicoarctatus</i>	-3.77 (-4.42)	-0.01		
<i>Trachyrhamphus longirostris</i>	-3.77	-0.01		
<i>Hippocampus bleekeri</i>	-3.76 (-5.76)	-0.003		Low
<i>Stigmatopora argus</i>	-3.74 (-6.3)	-0.003		Low
<i>Thalassoma quinquevittatum</i>	-3.72	-0.01		
<i>Isurus paucus</i>	-3.67	-0.02	High	Low
<i>Cephaloscyllium laticeps</i>	-3.66 (-6.1)	-0.02		Low
<i>Astrotia stokesii</i>	-3.65	-0.01		
<i>Rhincodon typus</i>	-3.65 (-6.16)	-0.04		
<i>Narcine tasmaniensis</i>	-3.65	-0.001		Low
<i>Centroberyx affinis</i>	-3.65 (-5.45)	-0.02		Extreme
<i>Heraldia nocturna</i>	-3.61 (-6.08)	-0.004		Low
<i>Anguilla reinhardtii</i>	-3.61	-0.003		
<i>Disteira major</i>	-3.57	-0.01		
<i>Nannobranchium achirus</i>	-3.57	-0.27	Low	Low
<i>Alepisaurus ferox</i>	-3.57	-0.58	Medium	Low
<i>Hydrolagus lemures</i>	-3.57	-0.003		
<i>Carcharias taurus</i>	-3.57 (-8.2)	-0.02	High	Low
<i>Kimbleus bassensis</i>	-3.56 (-6.56)	-0.02		Low
<i>Aipysurus duboisii</i>	-3.56	-0.01	High	
<i>Aipysurus mosaicus</i>	-3.55	-0.01		
<i>Pseudophycis barbata</i>	-3.53	-0.001		Low
<i>Solenostomus cyanopterus</i>	-3.53	-0.001		
<i>Solenostomus paradoxus</i>	-3.53	-0.001		
<i>Choeroichthys suillus</i>	-3.53	-0.001		
<i>Corythoichthys intestinalis</i>	-3.53	-0.001		
<i>Solegnathus dunckeri</i>	-3.53 (-4.19)	-0.0003		
<i>Pterois russelii</i>	-3.53	-0.01		
<i>Echeneis naucrates</i>	-3.53	-0.01		
<i>Trachinotus bailloni</i>	-3.53	-0.01		
<i>Trachinotus blochii</i>	-3.53	-0.01		
<i>Monotaxis grandoculis</i>	-3.53	-0.01		
<i>Upeneus tragula</i>	-3.53	-0.01		
<i>Forcipiger flavissimus</i>	-3.53	-0.01		
<i>Laticauda colubrina</i>	-3.53	-0.001		
<i>Sardinops sagax</i>	-3.53	-0.0004		Low
<i>Cirrhitigaleus barbifer</i>	-3.52	-0.47		
<i>Enhydrina schistosa</i>	-3.52	-0.01		
<i>Conger verreauxi</i>	-3.52 (-7.752)	-0.01		Low
<i>Heterodontus portusjacksoni</i>	-3.51	-0.001		Extreme
<i>Taeniurops meyeri</i>	-3.51	-0.01		
<i>Halicampus spinirostris</i>	-3.51	-0.001		
<i>Hippichthys cyanospilos</i>	-3.51	-0.001		
<i>Hippichthys spicifer</i>	-3.51	-0.001		
<i>Hippocampus zebra</i>	-3.51	-0.001		
<i>Micrognathus andersonii</i>	-3.51	-0.001		
<i>Hippocampus spinosissimus</i>	-3.51	-0.001		
<i>Carcharhinus albimarginatus</i>	-3.48	-0.003	High	Low
<i>Gnathanodon speciosus</i>	-3.48	-0.01		
<i>Caranx sexfasciatus</i>	-3.48	-0.01	Low	Low
<i>Etelis coruscans</i>	-3.48	-0.001		

Species Latin Name	Peak C Score	Mean C Score	PSA	Cumulative eSAFE
<i>Lutjanus malabaricus</i>	-3.48	-0.001		
<i>Parupeneus indicus</i>	-3.46	-0.01		
<i>Laticauda laticaudata</i>	-3.46	-0.001		
<i>Acalyptophis peronii</i>	-3.46	-0.003		
<i>Pelamis platurus</i>	-3.43 (-3.83)	-0.01	High	
<i>Nebrius ferrugineus</i>	-3.42	-0.001		
<i>Lutjanus russellii</i>	-3.4	-0.01		
<i>Dentiraja lemprieri</i>	-3.39	-0.001		Low
<i>Urolophus cruciatus</i>	-3.39	-0.001		Low
<i>Urolophus paucimaculatus</i>	-3.39	-0.001		Low
<i>Ophisurus serpens</i>	-3.39	-0.15		
<i>Gonorynchus greyi</i>	-3.39	-0.001		Extreme
<i>Arnoglossus muelleri</i>	-3.39	-0.15		
<i>Rhombosolea tapirina</i>	-3.39	-0.16		Low
<i>Ammotretis lituratus</i>	-3.39	-0.17		
<i>Zebrias scalaris</i>	-3.39	-0.001		Low
<i>Eubalichthys mosaicus</i>	-3.39	-0.001		Low
<i>Meuschenia scaber</i>	-3.39	-0.001		Low
<i>Thamnaconus degeni</i>	-3.39	-0.17		Low
<i>Aracana aurita</i>	-3.39	-0.001		Extreme
<i>Neotrygon australiae</i>	-3.39	-0.01		
<i>Halicampus dunckeri</i>	-3.39	-0.001		
<i>Etelis carbunculus</i>	-3.39	-0.01	Medium	Low
<i>Nelusetta ayraud</i>	-3.39	-0.002	Low	Low
<i>Ostracion meleagris</i>	-3.39	-0.01		
<i>Xiphocheilus typus</i>	-3.39	-0.01	Low	
<i>Mitotichthys tuckeri</i>	-3.38 (-6.38)	-0.001		
<i>Histiogamphelus cristatus</i>	-3.36 (-6.1)	-0.001		
<i>Aipysurus laevis</i>	-3.34	-0.01	High	
<i>Rhynchobatus australiae</i>	-3.33	-0.01		
<i>Monacanthus chinensis</i>	-3.33	-0.01		
<i>Pterois volitans</i>	-3.31	-0.01		
<i>Priacanthus hamrur</i>	-3.31	-0.01		
<i>Hexanchus griseus</i>	-3.31	-0.02	Medium	Low
<i>Scolecenchelys australis</i>	-3.27	-0.22		
<i>Syngnathoides biaculeatus</i>	-3.27 (-4.8)	-0.001		
<i>Hippichthys heptagonus</i>	-3.27	-0.001		
<i>Hippichthys penicillus</i>	-3.27 (-4.27)	-0.001		
<i>Micrognathus pygmaeus</i>	-3.27	-0.001		
<i>Diastobranchius capensis</i>	-3.25 (-4.05)	-0.01		
<i>Dotalabrus aurantiacus</i>	-3.23	-0.22		
<i>Enigmaperca reducta</i>	-3.23	-0.21		
<i>Hippocampus tristis</i>	-3.23 (-4.04)	-0.0002		
<i>Festucalex cinctus</i>	-3.23 (-4.23)	-0.001		
<i>Hydrophis ornatus</i>	-3.21	-0.01		
<i>Cyttus australis</i>	-3.2	-0.0007		Low
<i>Lepidotrigla vanessa</i>	-3.2	-0.001		Low
<i>Caesioperca lepidoptera</i>	-3.2	-0.001		Low
<i>Caesioperca rasor</i>	-3.2	-0.001		Low
<i>Hypoplectrodes maccullochi</i>	-3.2	-0.21		
<i>Parequula melbournensis</i>	-3.2	-0.001		Low
<i>Pseudolabrus rubicundus</i>	-3.2	-0.001		
<i>Kathetostoma laevis</i>	-3.2	-0.001		Low
<i>Corythoichthys conspicillatus</i>	-3.2	-0.001		
<i>Lutjanus fulviflamma</i>	-3.2	-0.01		
<i>Platax teira</i>	-3.2	-0.01		
<i>Hydrophis mcdowelli</i>	-3.17	-0.01		
<i>Lapemis curtis</i>	-3.17	-0.01	Medium	
<i>Solegnathus</i> sp. 1 [in Kuiter, 2000]	-3.15	-0.001		
<i>Hydrophis elegans</i>	-3.15	-0.01		
<i>Priacanthus macracanthus</i>	-3.14	-0.01		
<i>Neosebastes scorpaenoides</i>	-3.13	-0.001		Extreme
<i>Choeroichthys brachysoma</i>	-3.13	-0.001		
<i>Malacocephalus laevis</i>	-3.11	-0.01	Low	Low
<i>Eubalichthys gunnii</i>	-3.11	-0.21		
<i>Doryrhamphus negrosensis</i>	-3.11	-0.001		
<i>Scomber australasicus</i>	-3.11	-0.001	Medium	Low
<i>Lepidotrigla papilio</i>	-3.09	-0.14		Low
<i>Lepidotrigla modesta</i>	-3.09	-0.001		Low
<i>Pegasus lancifer</i>	-3.09	-0.2		
<i>Foetorepus calauropomus</i>	-3.09	-0.001		Low

Species Latin Name	Peak C Score	Mean C Score	PSA	Cumulative eSAFE
<i>Hippocampus taeniopterus</i>	-3.09	-0.001		
<i>Corythoichthys ocellatus</i>	-3.09	-0.001		
<i>Eocallionymus papilio</i>	-3.03	-0.2		
<i>Sphyrna zygaena</i>	-3.03	-0.0003	High	Low
<i>Trachurus novaezelandiae</i>	-3.03	-0.001	Low	Low
<i>Hypogaleus hyugaensis</i>	-3.02 (-6.7)	-0.03		
<i>Coryphaenoides subserrulatus</i>	-2.95	-0.005	Low	Low
<i>Synanceia verrucosa</i> (unverified) [Soviet Fishery Data, 1998]	-2.92	-0.005		
<i>Lophonectes gallus</i>	-2.92	-0.001		Low
<i>Nesiarchus nasutus</i>	-2.85	-0.23	Low	Low
<i>Hypselognathus rostratus</i>	-2.83 (-5.3)	-0.001		Low
<i>Bathytoshia breviceudata</i>	-2.81	-0.001		Low
<i>Hippocampus minotaur</i>	-2.56 (-4.56)	-0.004		Low
<i>Filicampus tigris</i>	-2.54	-0.002		Low
<i>Aprion virescens</i>	-2.46	-0.002	Medium	Low
<i>Halicampus grayi</i>	-2.46 (-3.46)	-0.001		
<i>Acentronura breviperula</i>	-2.46 (-3.46)	-0.001		
<i>Corythoichthys amplexus</i>	-2.46 (-3.2)	-0.001		
<i>Lutjanus sebae</i>	-2.46	-0.001		
<i>Seriola dumerilli</i>	-2.45 (-3.85)	-0.003	Medium	Low
<i>Platycephalus laevigatus</i>	-2.45 (-6.25)	-0.01		
<i>Centrophorus moluccensis</i>	-2.44	-0.005	Medium	Low
<i>Carcharhinus amblyrhynchos</i>	-2.44	-0.001	High	Low
<i>Benthodesmus elongatus</i>	-2.42	-0.2	Low	Low
<i>Hippocampus abdominalis</i>	-2.4 (-3.4)	-0.002		Low
<i>Thalassoma lunare</i>	-2.39	-0.004		
<i>Thalassoma purpureum</i>	-2.37	-0.001		
<i>Triaenodon obesus</i>	-2.36	-0.001	High	Low
<i>Corythoichthys schultzi</i>	-2.36	-0.001		
<i>Doryrhamphus excisus</i>	-2.36	-0.001		
<i>Thunnus albacares</i>	-2.35 (-3.26)	-0.02	Medium	Low
<i>Epigonus denticulatus</i>	-2.34	-0.003	Medium	Low
<i>Phoxocampus diacanthus</i>	-2.33	-0.001		
<i>Cephalopholis cyanostigma</i>	-2.3	-0.001		
<i>Galeocерdo cuvier</i>	-2.27	-0.001	High	Low
<i>Sphyrna lewini</i>	-2.27	-0.002	High	Low
<i>Achoerodus viridis</i>	-2.26 (-5.43)	-0.01		
<i>Pseudocarcharias kamoharai</i>	-2.25	-0.002	Low	Low
<i>Cosmocampus howensis</i>	-2.2 (-4.47)	-0.001		
<i>Lampanyctodes hectoris</i>	-2.19	-0.22	Low	Low
<i>Trachipterus arawatae</i>	-2.19	-0.005	Medium	Extreme
<i>Regalecus glesne</i>	-2.19	-0.003	Medium	Extreme
<i>Alopias superciliosus</i>	-2.17	-0.004	High	Medium
<i>Coelorinchus fasciatus</i>	-2.17	-0.002		
<i>Choeroichthys sculptus</i>	-2.15	-0.001		
<i>Paristiopterus labiosus</i>	-2.13	-0.001	Medium	Low
<i>Brama australis</i>	-2.05	-0.19	Low	Low
<i>Odontaspis ferox</i>	-2.03	-0.001	Medium	Low
<i>Cetorhinus maximus</i>	-1.99	-0.001	High	Low
<i>Acanthaluteres vittiger</i>	-1.96	-0.13		Low
<i>Hippocampus whitei</i>	-1.96 (-4.15)	-0.0002		
<i>Carcharhinus falciformis</i>	-1.94	-0.002	Medium	Low
<i>Histiogamphelus briggsii</i>	-1.94 (-5.936)	-0.002		Low
<i>Urocampus carinirostris</i>	-1.87 (-6.46)	-0.001		
<i>Hippocampus breviceps</i>	-1.77 (-6.1)	-0.001		Low
<i>Cubiceps capensis</i>	-1.61	-0.08	High	Low
<i>Hypselognathus horridus</i>	-1.58	-0.0004		
<i>Trichiurus lepturus</i>	-1.41	-0.001	Low	Low
<i>Urolophus viridis</i>	-1.4	-0.001	Medium	Low
<i>Emydocephalus annulatus</i>	-1.39	-0.0001		
<i>Campichthys galei</i>	-1.38 (-6.38)	-0.0003		
<i>Squatina australis</i>	-1.36	-0.0004	High	Low
<i>Solegnathus robustus</i>	-1.34 (-5.19)	-0.001		
<i>Myliobatis tenuicaudatus</i>	-1.25	-0.001	High	Low
<i>Gaidropsarus novaezealandiae</i>	-1.25	-0.0001		
<i>Kaupus costatus</i>	-1.23 (-5.23)	-0.0004		
<i>Mitotichthys semistriatus</i>	-1.23 (-6.23)	-0.0004		
<i>Aracana ornata</i>	-1.21	-0.14		
<i>Acanthaluteres spilomelanurus</i>	-1.17	-0.14		
<i>Heteroclinus perspicillatus</i>	-1.12 (-6.12)	-0.001		

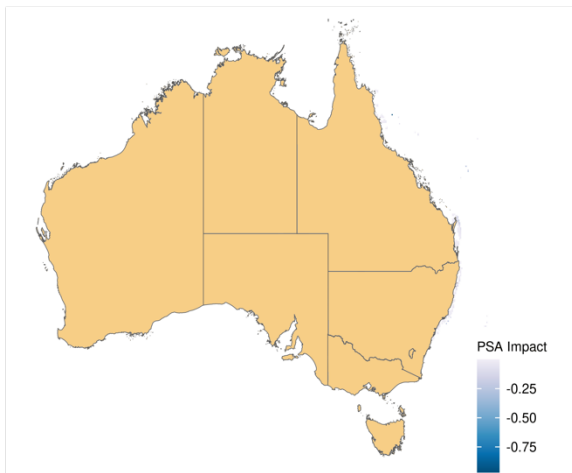
Species Latin Name	Peak C Score	Mean C Score	PSA	Cumulative eSAFE
<i>Ratabolus diversidens</i>	-1.12	-0.002	Low	Low
<i>Mitotichthys mollisoni</i>	-1.11 (-6.21)	-0.0003		Low
<i>Naucrates ductor</i>	-1.1	-0.05	Low	Low
<i>Mobula birostris</i>	-1.1	-0.001	Medium	Low
<i>Sardinella gibbosa</i>	-1.1	-0.05	Low	Low
<i>Taractichthys steindachneri</i>	-1.08	-0.12	Medium	Low
<i>Idiotropiscis australe</i>	-1.08 (-6.37)	-0.0004		
<i>Stipecampus cristatus</i>	-1.07 (-5.4)	-0.001		Low
<i>Istiophorus platypterus</i>	-1.07	-0.05	Medium	Low
<i>Carcharhinus limbatus</i>	-1.06	-0.05	Medium	Low
<i>Aphareus rutilans</i>	-1.05	-0.04	Medium	Low
<i>Istiompax indica</i>	-1.05	-0.11	Medium	Low
<i>Coryphaena hippurus</i>	-1.05	-0.0003	Medium	Low
<i>Mene maculata</i>	-1.05	-0.05	Medium	Low
<i>Katsuwonus pelamis</i>	-1.05	-0.001	Low	Low
<i>Lepidocybium flavobrunneum</i>	-1.03	-0.001	Low	Low
<i>Gymnosarda unicolor</i>	-1.03	-0.05	Medium	Low
<i>Alopias pelagicus</i>	-1.03	-0.08	High	Medium
<i>Carcharhinus leucas</i>	-1.02	-0.001	High	High
<i>Carcharhinus tilstoni</i>	-1.01	-0.03	Medium	Low
<i>Remora remora</i>	-1.01	-0.1	Medium	Extreme
<i>Pristipomoides filamentosus</i>	-1.01	-0.08	Low	Low
<i>Carcharhinus plumbeus</i>	-1	-0.0005	High	Medium
<i>Carcharhinus longimanus</i>	-1	-0.08	High	Medium
<i>Chirocentrus dorab</i>	-0.99	-0.03	Medium	Low
<i>Epinephelus malabaricus</i>	-0.99	-0.03	Low	Low
<i>Haliutaea brevicauda</i>	-0.99	-0.001	Low	Medium
<i>Carcharhinus amboinensis</i>	-0.98	-0.03	High	Low
<i>Lutjanus argentimaculatus</i>	-0.97	-0.0004	Medium	Low
<i>Rachycentron canadum</i>	-0.97	-0.04	Low	Low
<i>Carcharhinus obscurus</i>	-0.97	-0.002	High	Extreme
<i>Abalistes stellaris</i>	-0.97	-0.0004	Low	
<i>Thunnus obesus</i>	-0.96	-0.1	Medium	Low
<i>Cybiosarda elegans</i>	-0.94	-0.04	Low	Low
<i>Elagatis bipinnulata</i>	-0.94	-0.001	Medium	Low
<i>Epinephelus morrhua</i>	-0.94	-0.07	Low	Low
<i>Remora brachyptera</i>	-0.94	-0.04	Medium	Extreme
<i>Tetrapturus angustirostris</i>	-0.93	-0.09	Low	Low
<i>Lagocephalus lagocephalus</i>	-0.93	-0.001	Low	Low
<i>Lampris guttatus</i>	-0.93	-0.16	Medium	Low
<i>Luvarus imperialis</i>	-0.93	-0.18	Medium	Extreme
<i>Carcharhinus altimus</i>	-0.93	-0.001	Medium	Low
<i>Promethichthys prometheus</i>	-0.92	-0.07	Low	Low
<i>Thunnus orientalis</i>	-0.92	-0.09	Medium	Low
<i>Auxis thazard</i>	-0.92	-0.04	Low	Low
<i>Euthynnus affinis</i>	-0.91	-0.04	Low	Low
<i>Lepidoperca pulchella</i>	-0.9	-0.001	Low	Low
<i>Thunnus tonggol</i>	-0.89	-0.04	Low	Low
<i>Gempylus serpens</i>	-0.88	-0.06	Low	Low
<i>Acanthocybium solandri</i>	-0.88	-0.04	Low	Low
<i>Makaira nigricans</i>	-0.84	-0.08	Medium	Low
<i>Echinorhinus brucus</i>	-0.79 (-2.15)	-0.001	Medium	
<i>Kajikia audax</i>	-0.79	-0.001	Medium	Low
<i>Sphyrna jello</i>	-0.77	-0.03	Low	Low
<i>Lactoria cornuta</i>	-0.76	-0.0003	Medium	Extreme
<i>Scomberomorus commerson</i>	-0.75	-0.001	Medium	Low
<i>Pteroplatytrygon violacea</i>	-0.72	-0.11	Medium	Low
<i>Sarda australis</i>	-0.65	-0.001	Medium	Low
<i>Thunnus maccoyii</i>	-0.64	-0.0004	Medium	Low
<i>Argyrosomus japonicus</i>	-0.62	-0.001	Medium	Low
<i>Sphyrna mokarran</i>	-0.58	-0.0003	High	Low
<i>Gasterochisma melampus</i>	-0.57	-0.09	Medium	Low
<i>Vanacampus vercoi</i>	-0.5 (-5.2)	-0.0001		
<i>Taractes asper</i>	-0.49	-0.18	Medium	Low
<i>Parastromateus niger</i>	-0.46	-0.03	Low	Low
<i>Elops hawaiiensis</i>	-0.45	-0.03	High	
<i>Centroberyx lineatus</i>	-0.45 (-3.45)	-0.0001		
<i>Brachypterois serrulifer</i>	-0.44	-0.03	Medium	Low
<i>Carcharhinus melanopterus</i>	-0.43	-0.0002	High	Low
<i>Pseudocaranx georgianus</i>	-0.43 (-3.43)	-0.0001		Low
<i>Emmelichthys nitidus</i>	-0.43 (-3.43)	-0.0001		

Species Latin Name	Peak C Score	Mean C Score	PSA	Cumulative eSAFE
<i>Acanthopagrus australis</i>	-0.42	-0.02	Low	Low
<i>Aluterus scriptus</i>	-0.41	-0.02	Low	Low
<i>Sphyraena qenie</i>	-0.4	-0.03	Medium	Low
<i>Gerres oblongus</i>	-0.4	-0.03	Low	
<i>Rhinoptera neglecta</i>	-0.4 (-3.48)	-0.03	Medium	Low
<i>Sphyraena barracuda</i>	-0.4	-0.03	Medium	Low
<i>Meuschenia australis</i>	-0.4	-0.0001		
<i>Sillago ciliata</i>	-0.39	-0.02	Low	Low
<i>Gerres filamentosus</i>	-0.38	-0.03	Low	Low
<i>Bryaninops amplus</i>	-0.38	-0.03	Low	
<i>Symphorus nematophorus</i>	-0.37	-0.0002	Medium	Low
<i>Acanthopagrus pacificus</i>	-0.37	-0.03	Low	
<i>Rhabdosargus sarba</i>	-0.37	-0.0002	Low	Low
<i>Gymnapistes marmoratus</i>	-0.36	-0.05		
<i>Thyssa setirostris</i>	-0.35	-0.03	Low	Low
<i>Halicampus boothae</i>	-0.35 (-4.35)	0		
<i>Belonepterygion fasciolatum</i>	-0.34	-0.02	High	
<i>Carcharhinus brevipinna</i>	-0.32	-0.02	High	Low
<i>Campichthys tryoni</i>	-0.31 (-1.31)	0		
<i>Kaupichthys diodontus</i>	-0.27	-0.03	High	
<i>Pellona ditchela</i>	-0.27	-0.02	Low	Low
<i>Platax orbicularis</i>	-0.27	-0.0001	Medium	
<i>Carcharhinus brachyurus</i>	-0.25	-0.0002	High	Extreme
<i>Lophotus lacepede</i>	-0.24	-0.08	High	Extreme
<i>Carcharhinus amblyrhynchoides</i>	-0.16	-0.01	High	Low
<i>Scobinichthys granulatus</i>	-0.13	-0.0001	Low	Low
<i>Brachaelurus waddi</i>	-0.12	-0.00002		
<i>Alabes parvulus</i>	-0.11	-0.01	High	
<i>Pomatomus saltatrix</i>	-0.11	-0.0001	Low	Low
<i>Acanthopagrus butcheri</i>	-0.07	-0.00003	Low	
<i>Hippocampus planifrons</i>	-0.07 (-2.86)	> -0.00001		
<i>Lethrinus miniatus</i>	-0.06	> -0.00001		
<i>Mordacia mordax</i>	-0.05	-0.01	High	
<i>Cheilinus trilobatus</i>	-0.05	> -0.00001		
<i>Glyphis glyphis</i>	-0.04	> -0.00001		
<i>Doryrhamphus janssi</i>	-0.04	> -0.00001		
<i>Arothron caeruleopunctatus</i>	-0.02	-0.02	Low	
<i>Echinophryne crassispina</i>	-0.02	-0.01	Medium	
<i>Sillago bassensis</i>	-0.02	0.01		
<i>Brachynectes fasciatus</i>	-0.02	-0.01	Low	
<i>Aulohalaelurus labiosus</i>	-0.01	-0.01	High	
<i>Furgaleus macki</i>	-0.01	> -0.00001	Medium	
<i>Aetapcus maculatus</i>	-0.01	-0.01	High	
<i>Geotria australis</i>	-0.01	-0.01	High	
<i>Tilodon sexfasciatus</i>	-0.01	> -0.00001	Low	
<i>Hippocampus procerus</i>	-0.01 (-1.26)	> -0.00001		
<i>Festucalex cinctus scalaris</i>	0 (-3)	0		
<i>Halicampus brocki</i>	0 (-2.8)	0		
<i>Halicampus macrorhynchus</i>	0 (-0.49)	0		
<i>Hippocampus angustus</i>	0 (-3.1)	0		
<i>Hippocampus subelongatus</i>	0 (-1.6)	0		
<i>Mitotichthys meraculus</i>	0 (-1.8)	0		
<i>Nannocampus subosseus</i>	0 (-6.09)	0		
<i>Solegnathus guentheri</i>	0 (-1.87)	0		
<i>Trachurus murphyi</i>	0 (-3.5)	0		

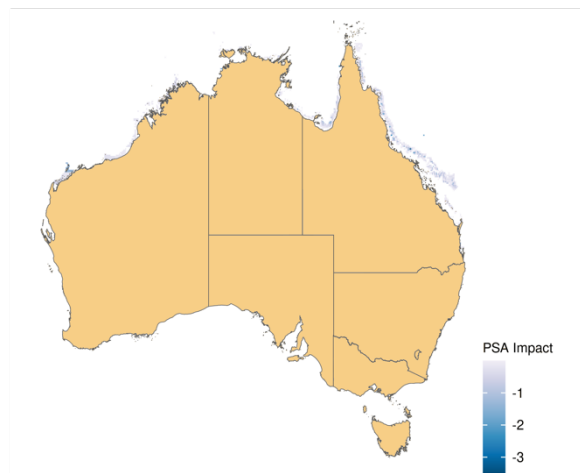
Appendix 6: Maps of Stage 1 Results – Residual Cumulative Effects (with Zoning)

The following maps provide the Stage I “Sum of Pressures Analysis” CEA maps for the 405 species assessed Australia wide using the spatialised PSA approach with zoning effects included – i.e. where there is zoning excluding a gear type that fishery has its effort zeroed in the cumulative map and all areas with zero effort blanked on the map so only residual effects are shown. Larger negative values indicate greater cumulative effects. The species are ordered alphabetically by Latin name (common names can be found via a name search at <https://fishesofaustralia.net.au/> or <https://www.ala.org.au/>).

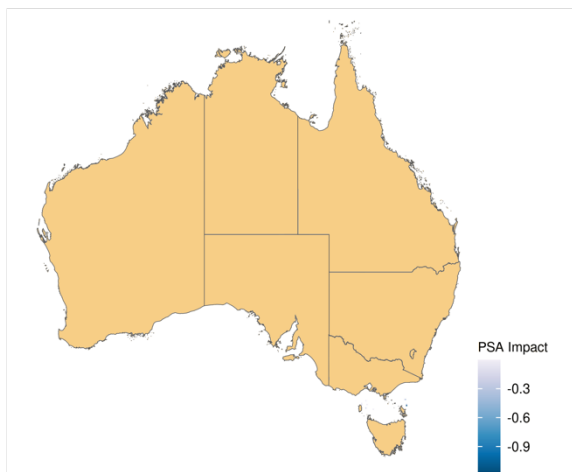
Abalistes stellaris



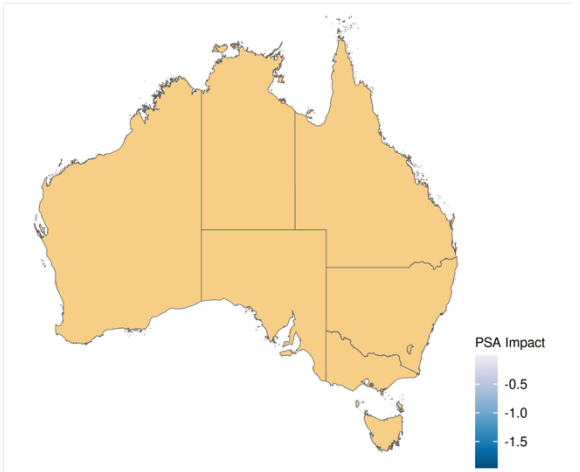
Acalyptophis peronii



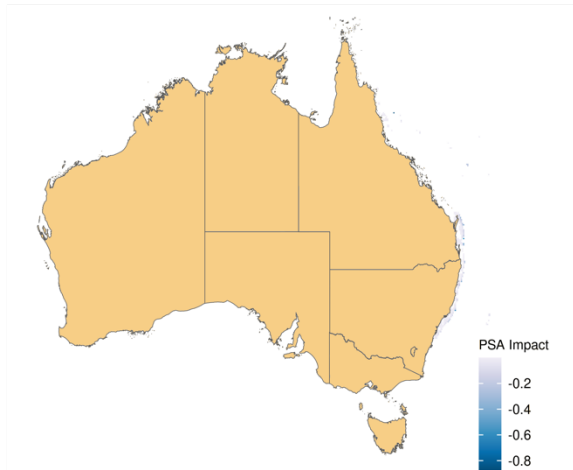
Acanthaluteres spilomelanurus



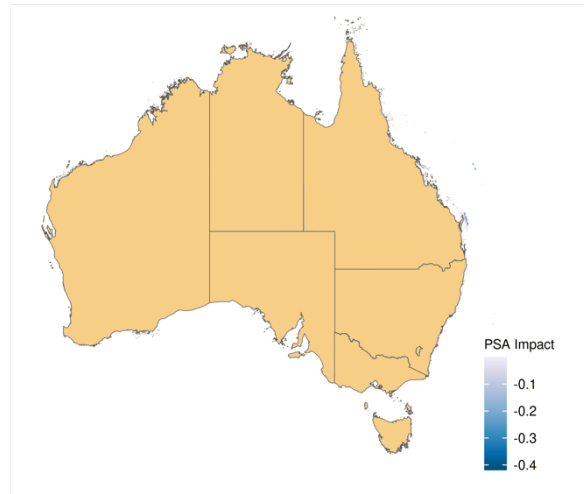
Acanthaluteres vittiger



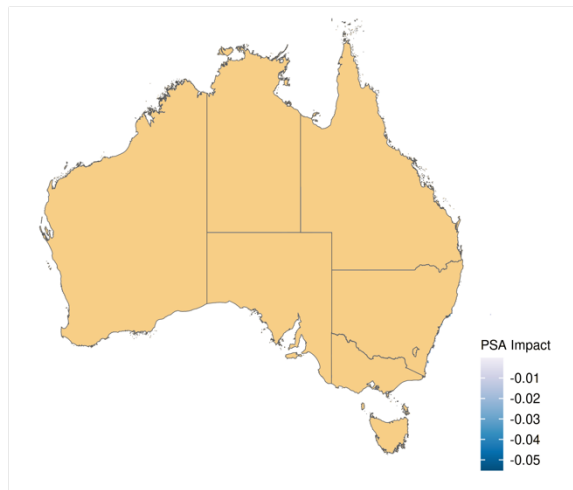
Acanthocybium solandri



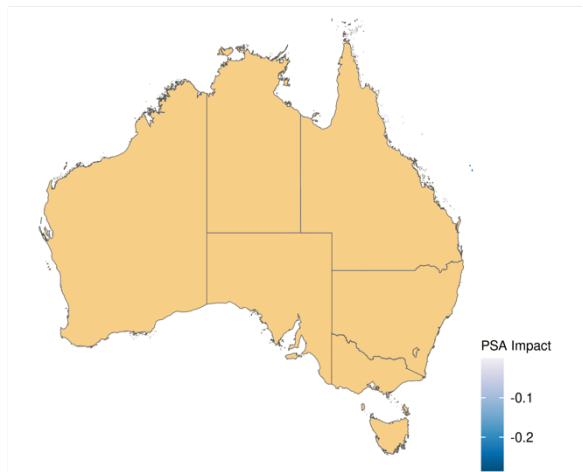
Acanthopagrus australis



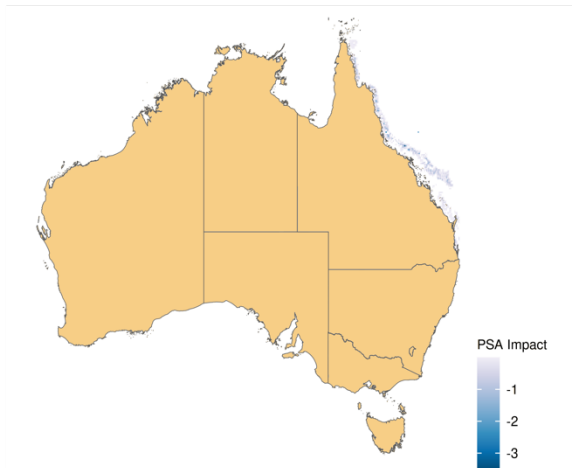
Acanthopagrus butcheri



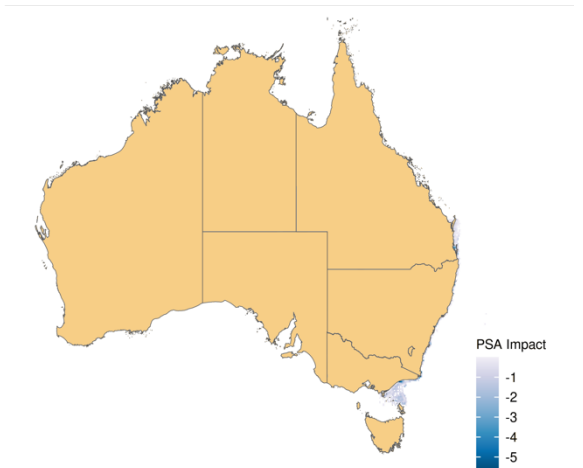
Acanthopagrus pacificus



Acentronura breviperula



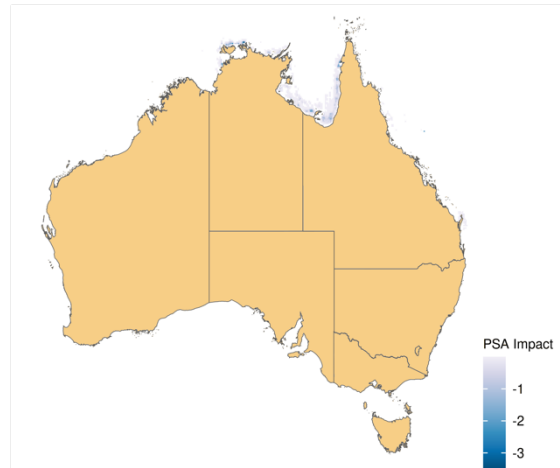
Achoerodus viridis



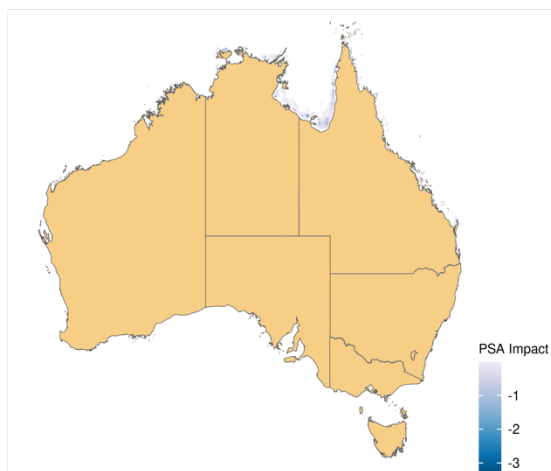
Aetapcus maculatus



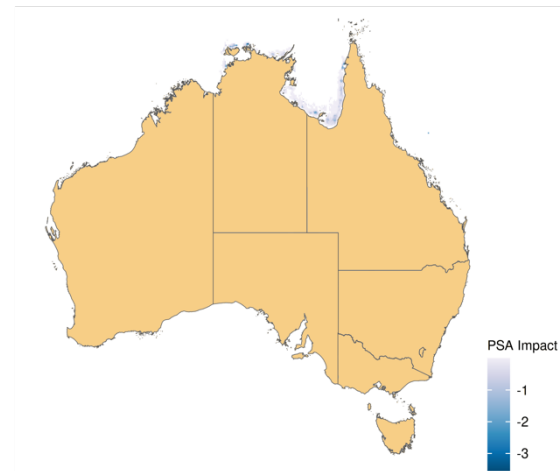
Aipysurus duboisii



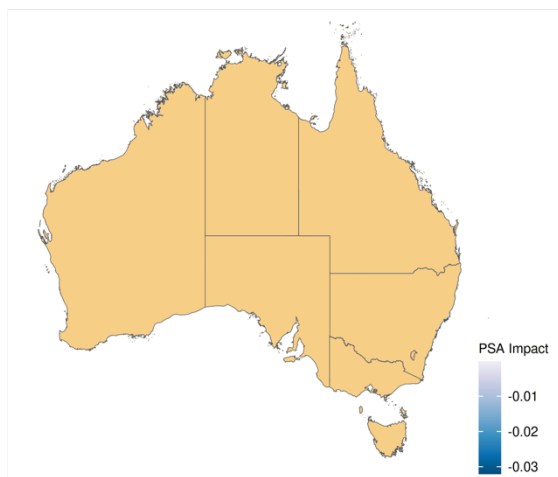
Aipysurus laevis



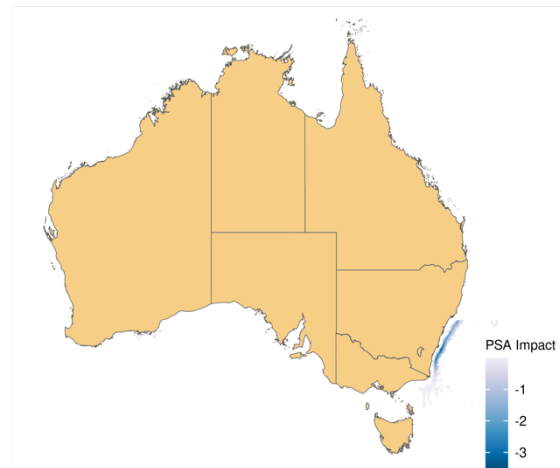
Aipysurus mosaicus



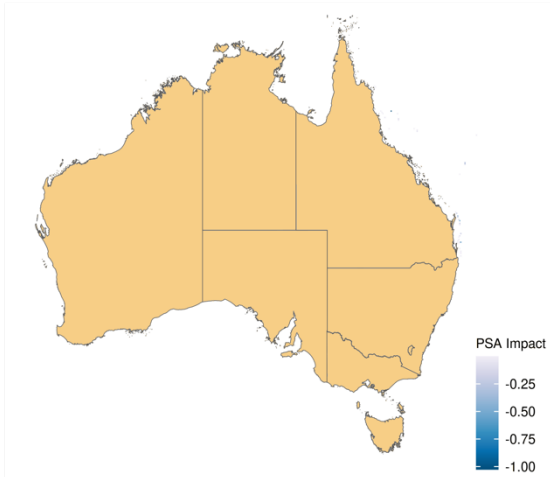
Alabes parvulus



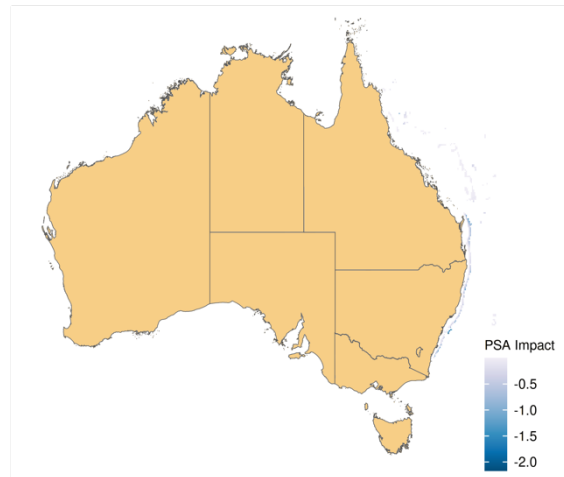
Alepisaurus ferox



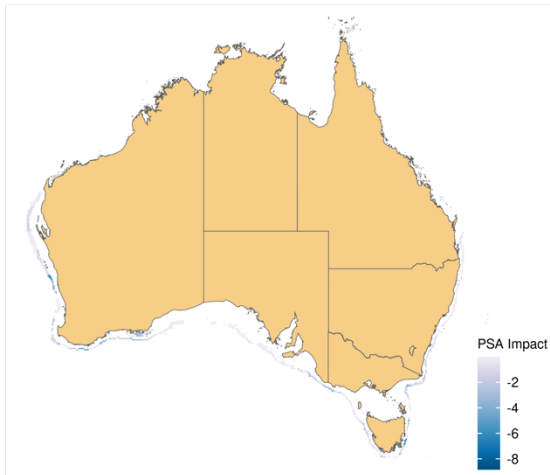
Alopias pelagicus



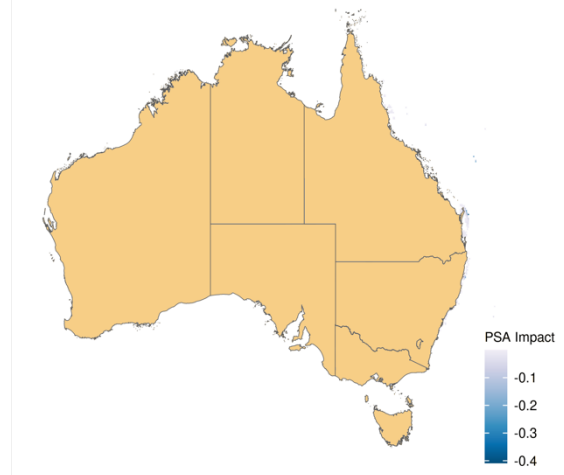
Alopias superciliosus



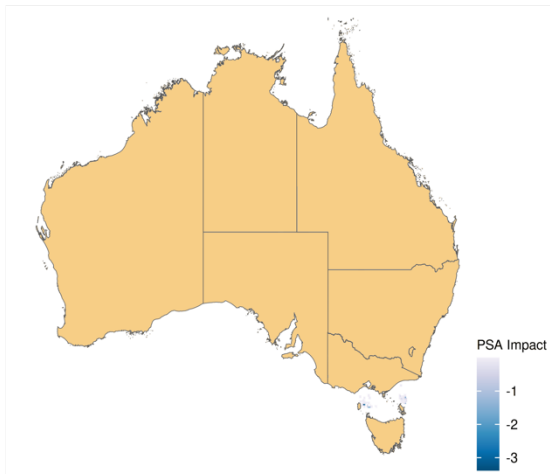
Alopias vulpinus



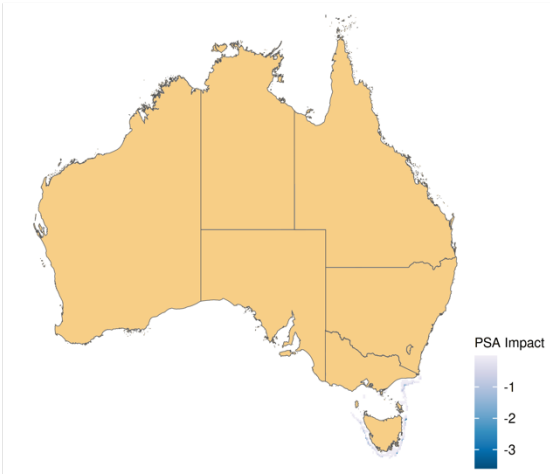
Aluterus scriptus



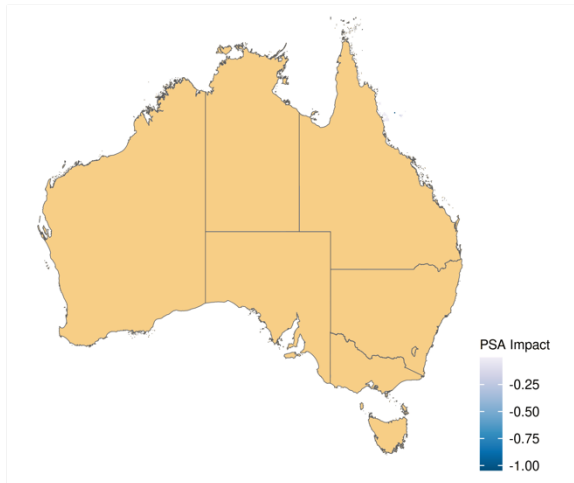
Ammotretis lituratus



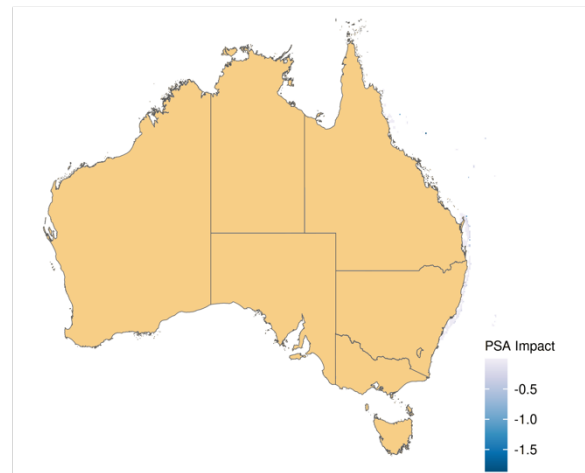
Anguilla reinhardtii



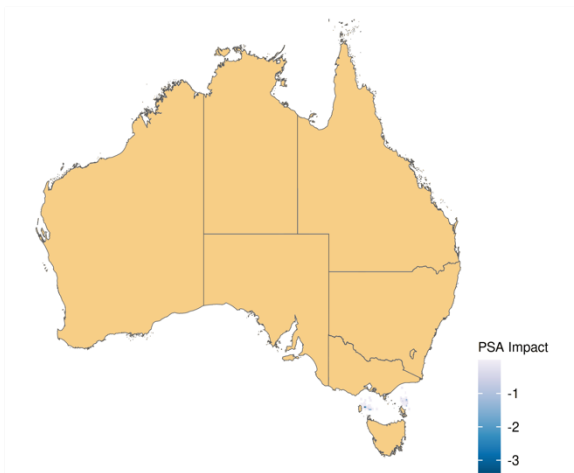
Aphareus rutilans



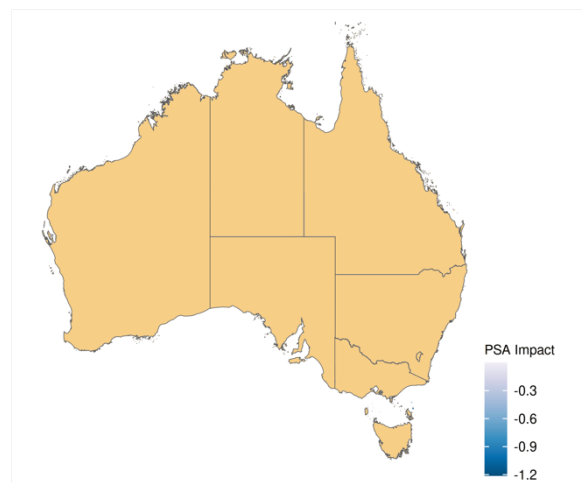
Aprion virescens



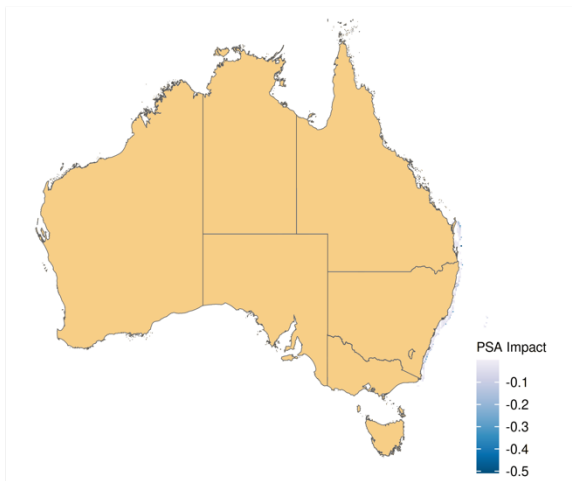
Aracana aurita



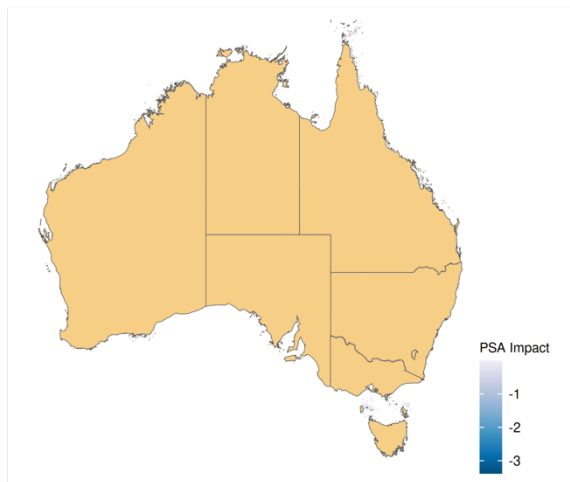
Aracana ornata



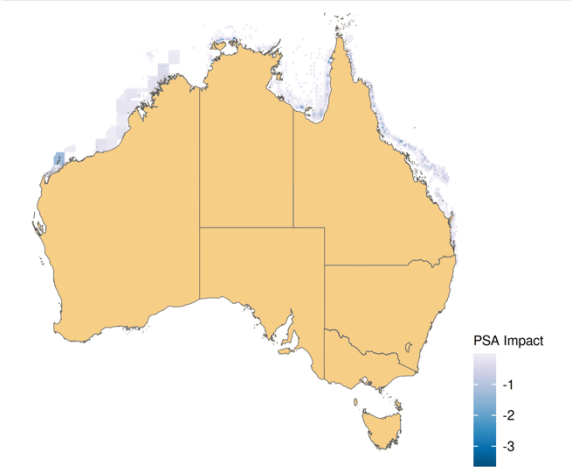
Argyrosomus japonicus



Arnoglossus muelleri



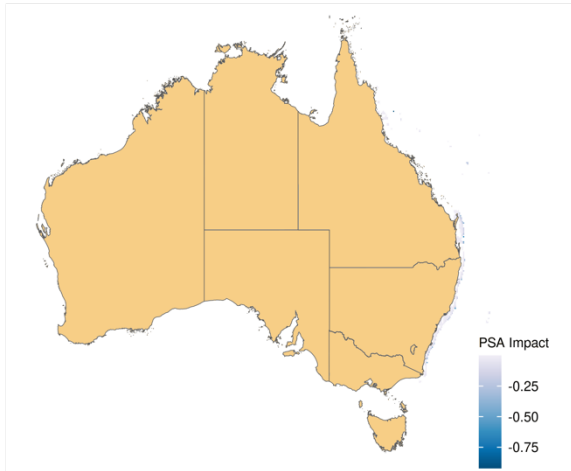
Astrotia stokesii



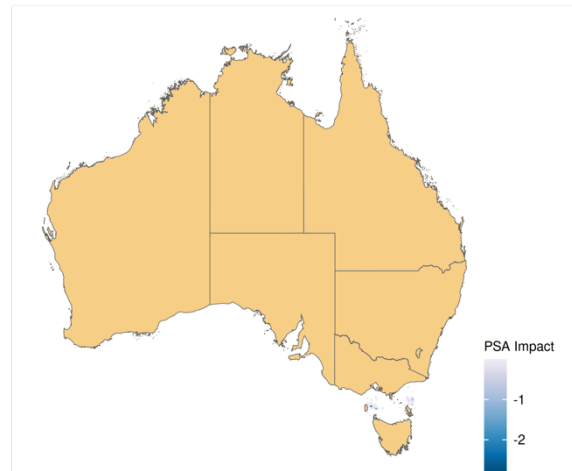
Aulohalaelurus labiosus



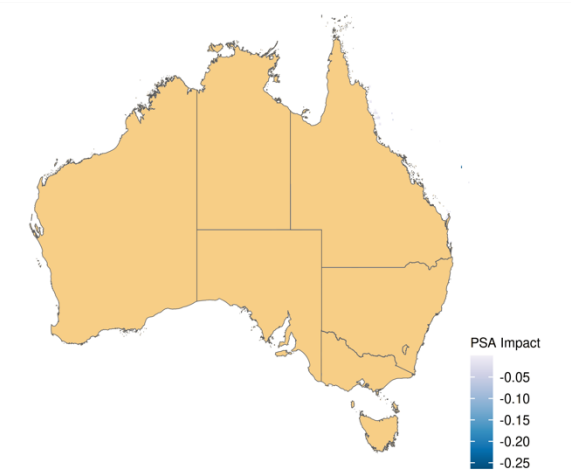
Auxis thazard



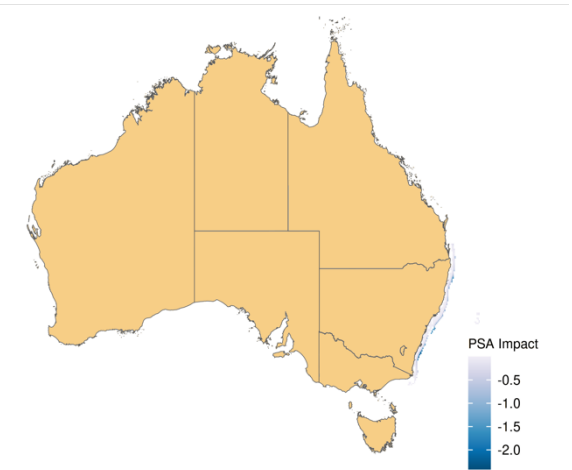
Bathytoshia brevicaudata



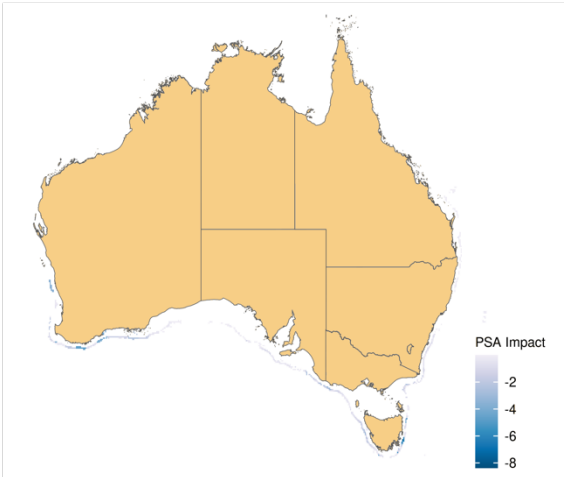
Belonepterygion fasciolatum



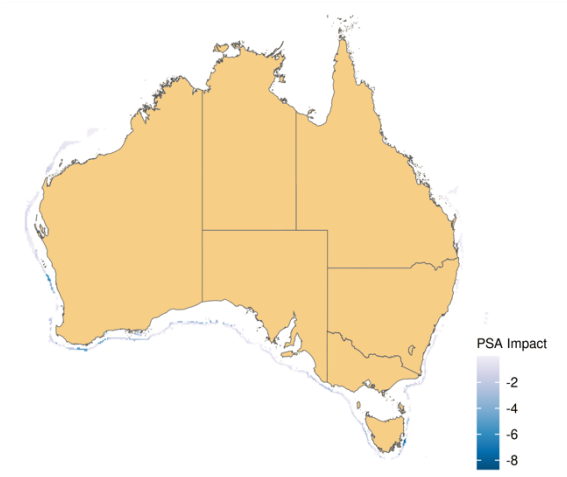
Benthodesmus elongatus



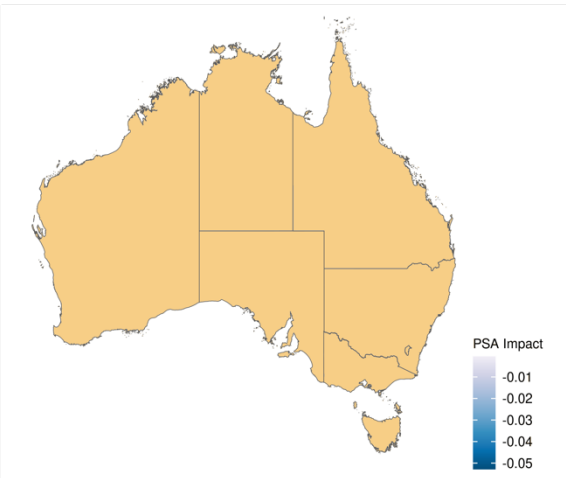
Beryx decadactylus



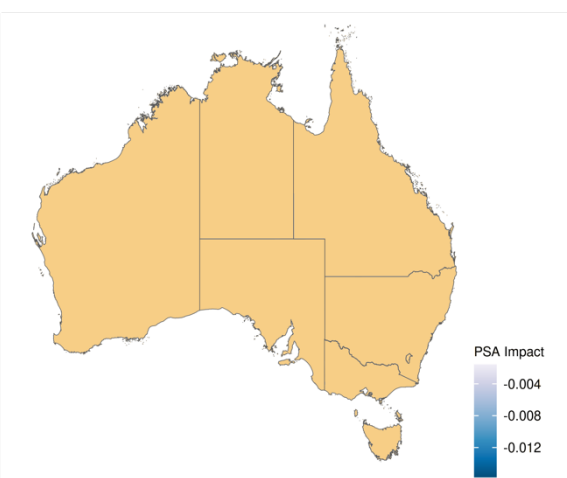
Beryx splendens



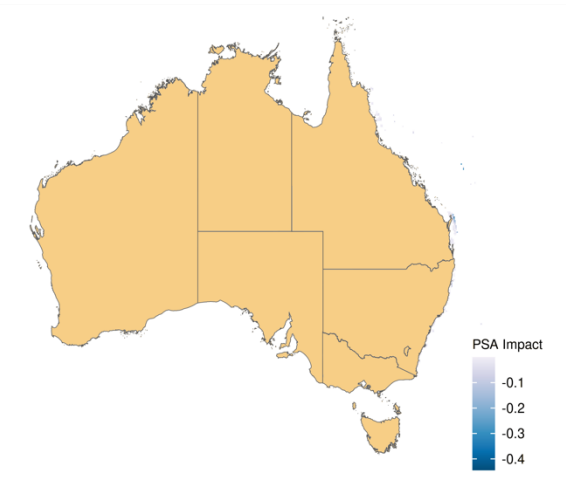
Brachaelurus waddi



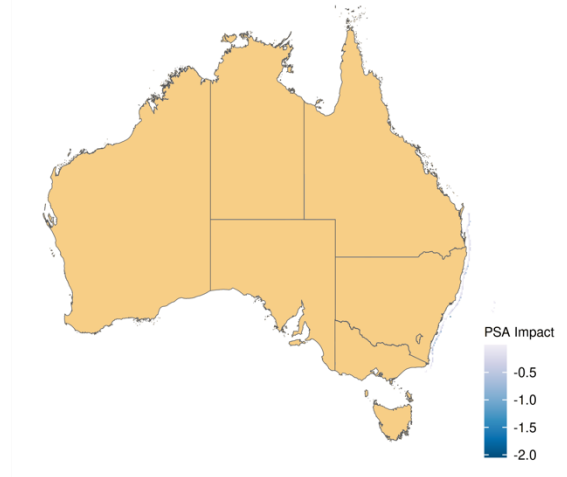
Brachynectes fasciatus



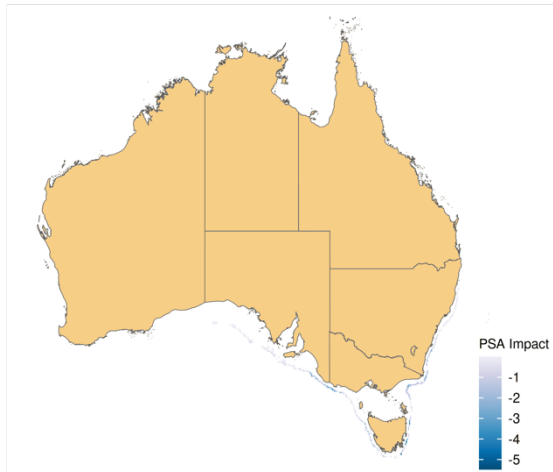
Brachypterois serrulifer



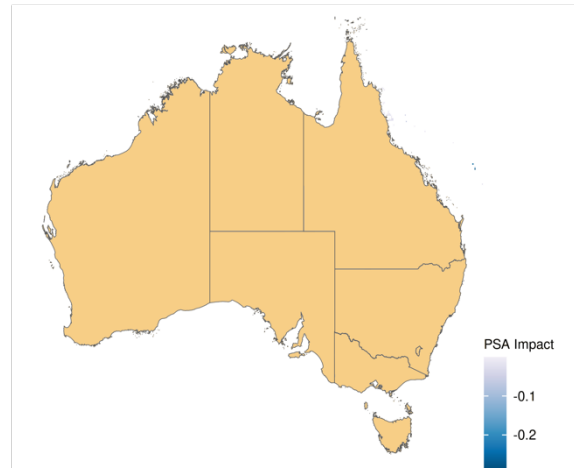
Brama australis



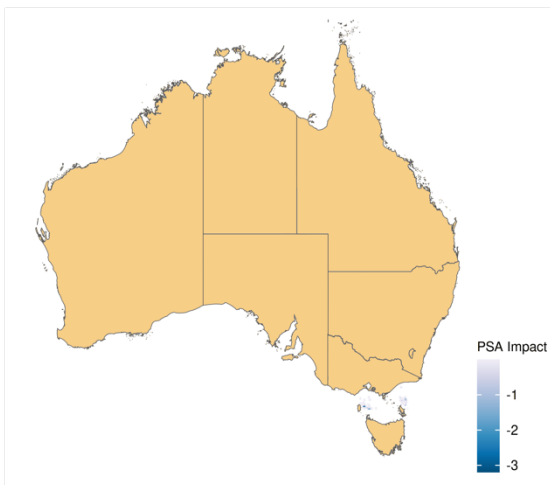
Brama brama



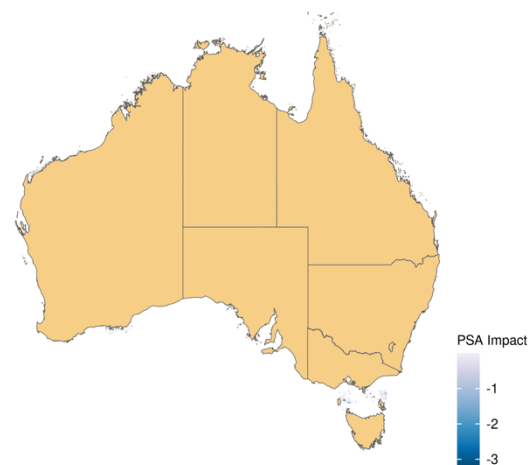
Bryaninops amplus



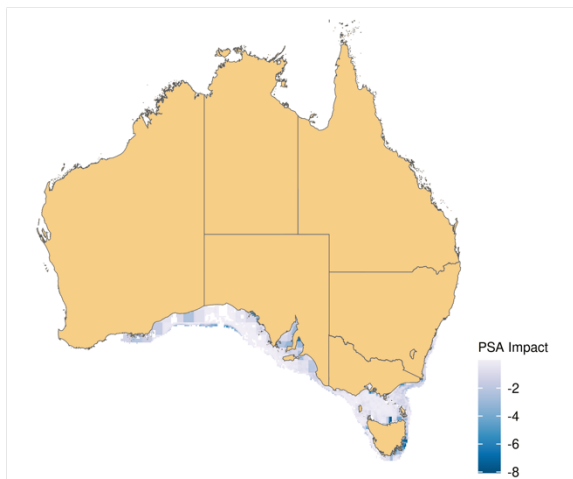
Caesioperca lepidoptera



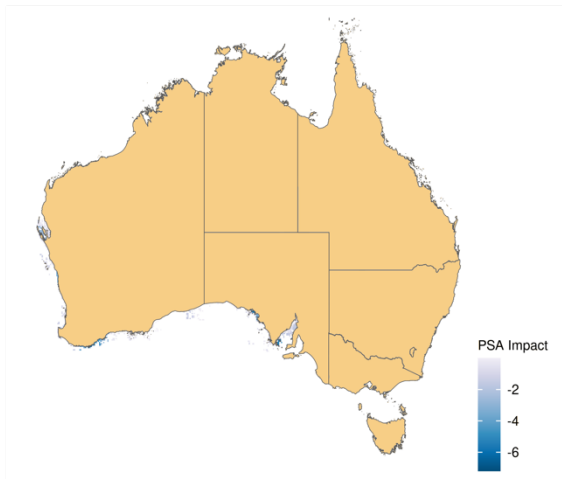
Caesioperca rasor



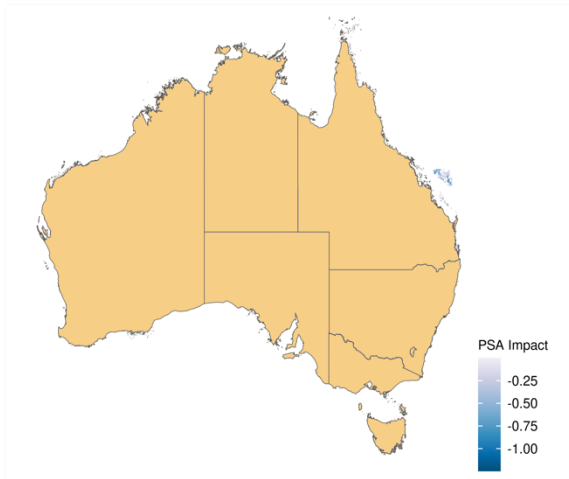
Callorhinchus milii



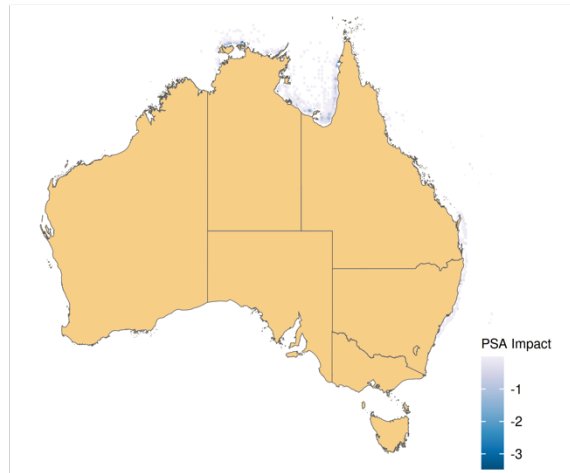
Campichthys galei



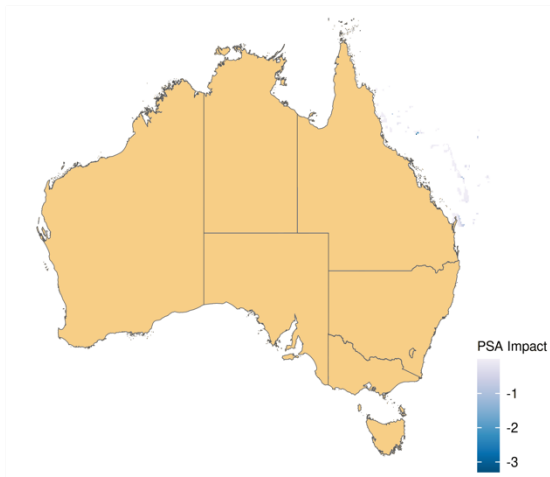
Campichthys tryoni



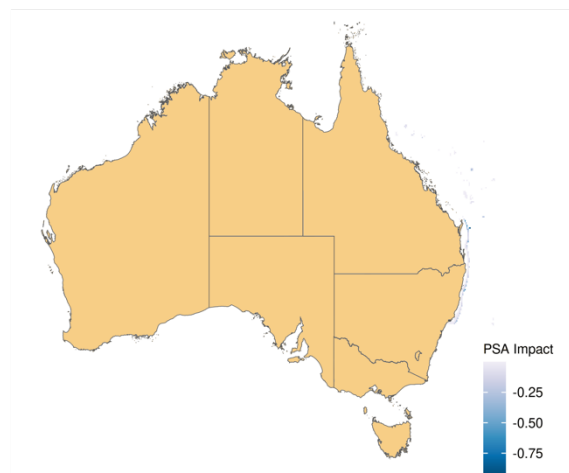
Caranx sexfasciatus



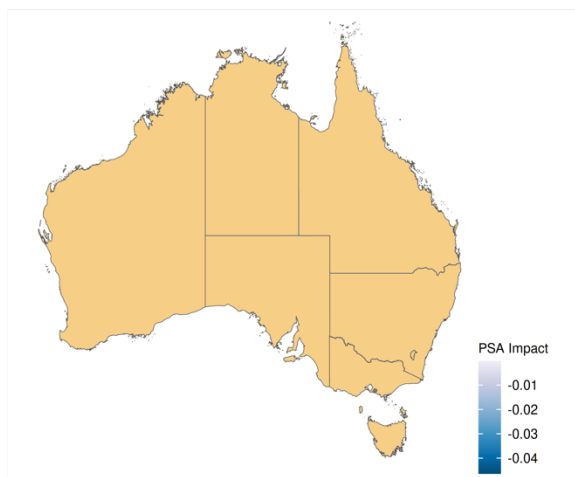
Carcharhinus albimarginatus



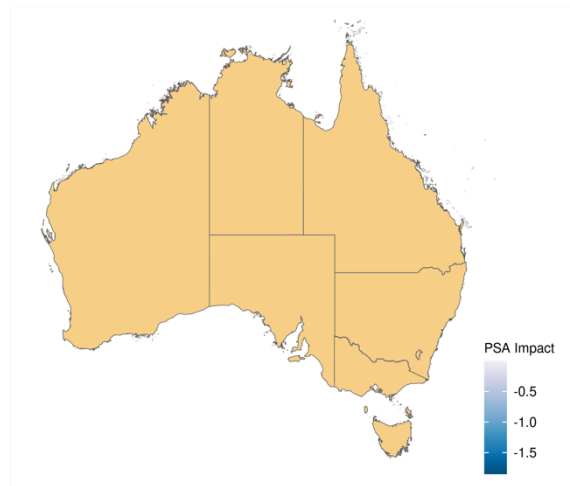
Carcharhinus altimus



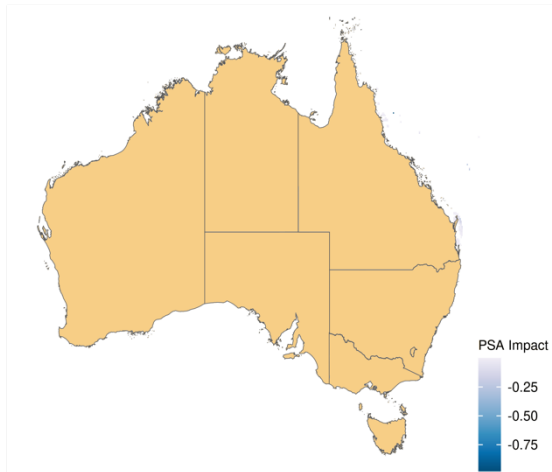
Carcharhinus amblyrhynchoides



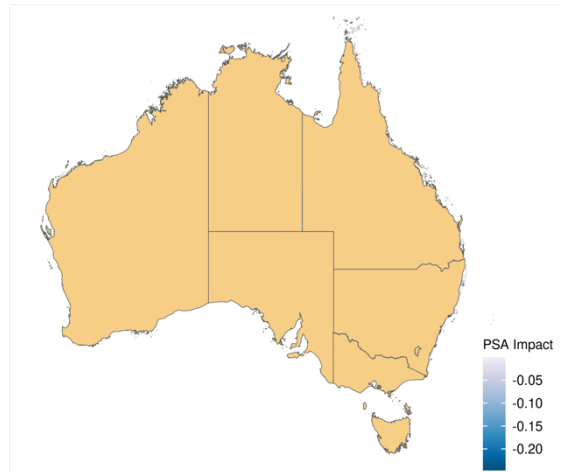
Carcharhinus amblyrhynchos



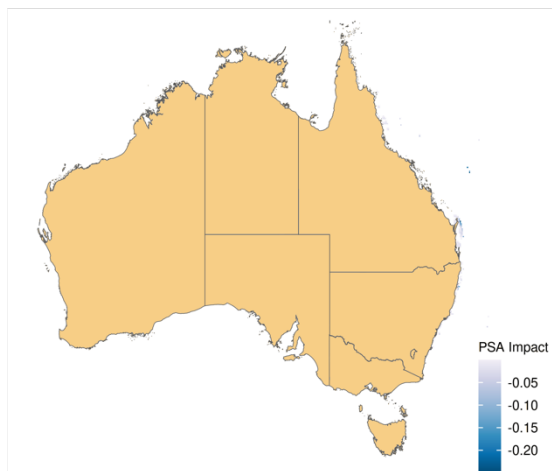
Carcharhinus amboinensis



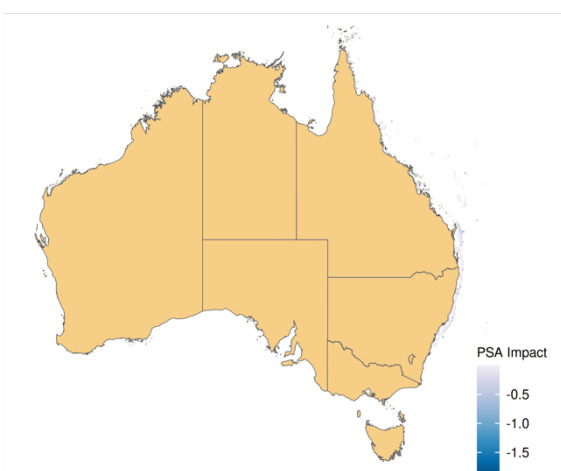
Carcharhinus brachyurus



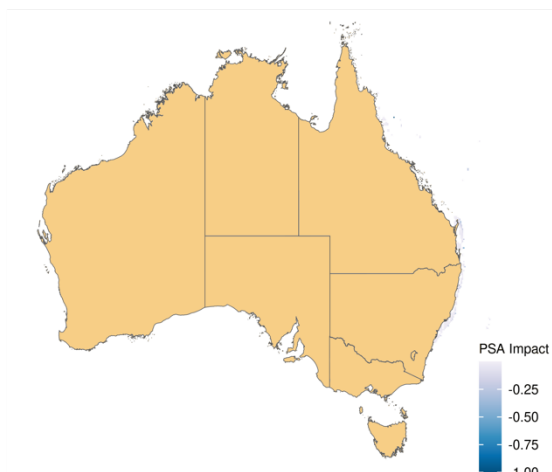
Carcharhinus brevipinna



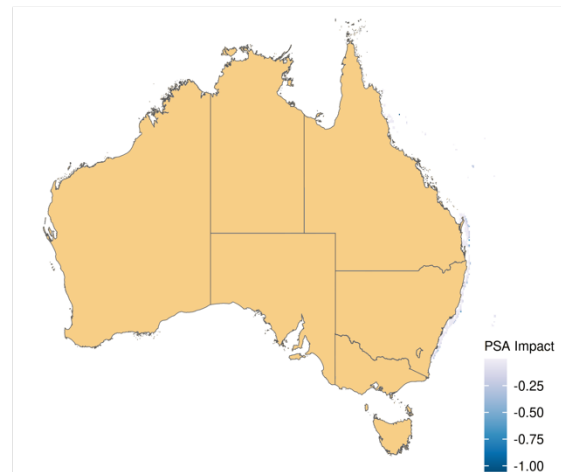
Carcharhinus falciformis



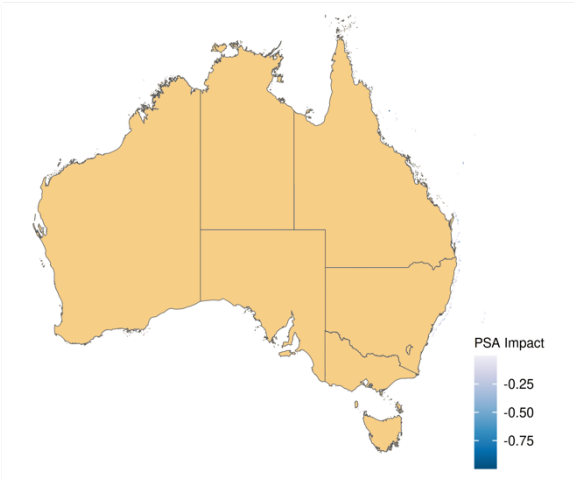
Carcharhinus leucas



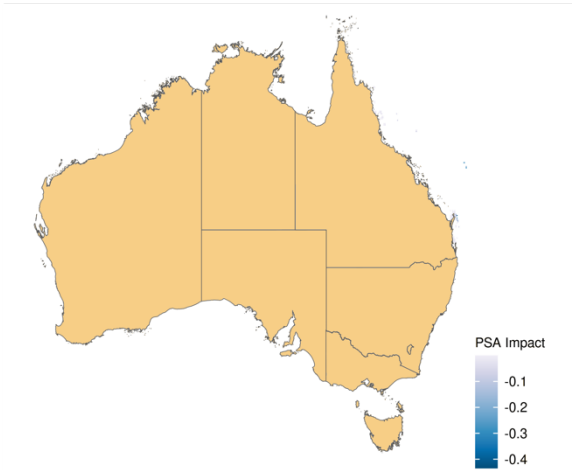
Carcharhinus limbatus



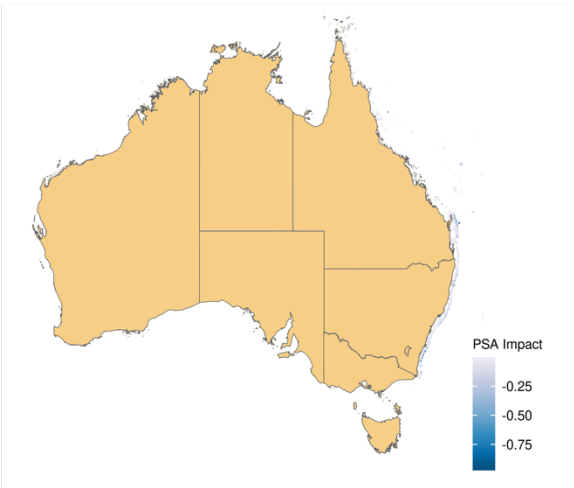
Carcharhinus longimanus



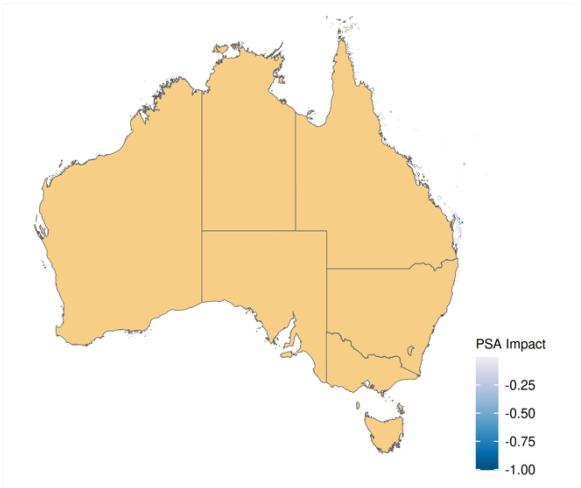
Carcharhinus melanopterus



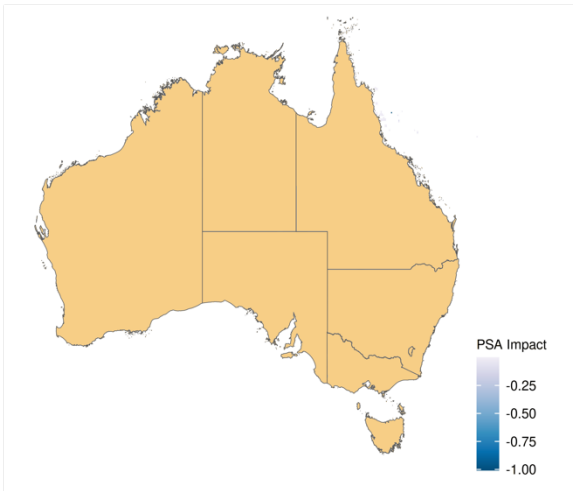
Carcharhinus obscurus



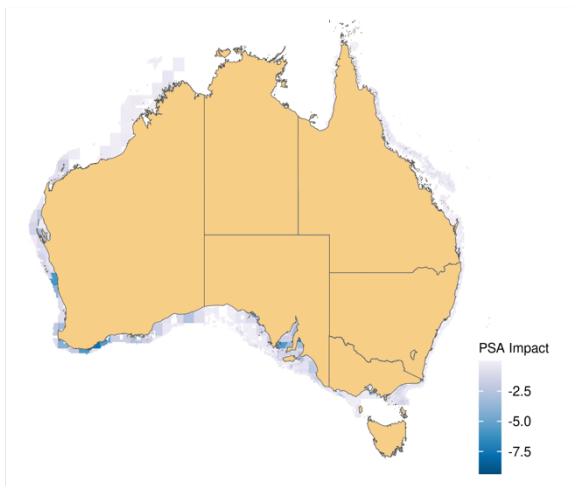
Carcharhinus plumbeus



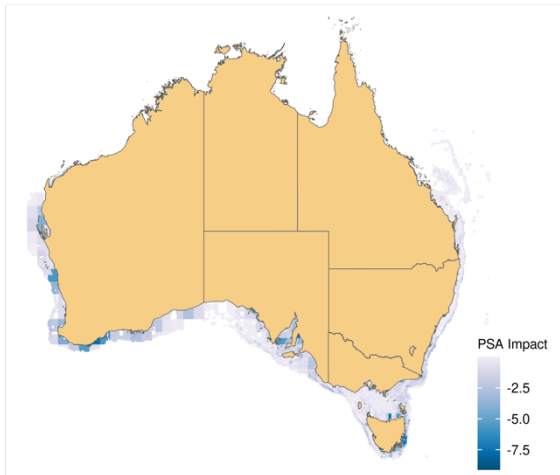
Carcharhinus tilstoni



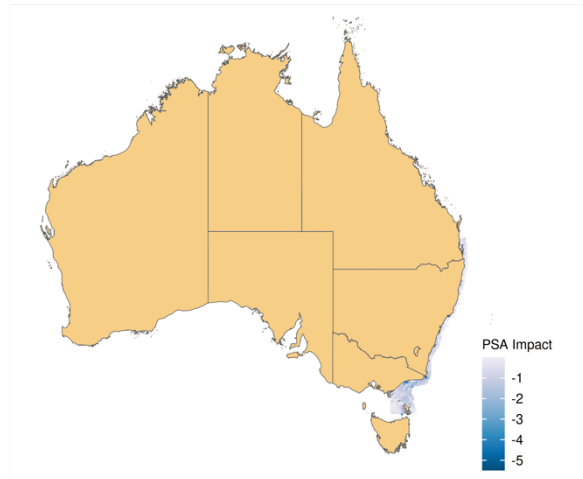
Carcharias taurus



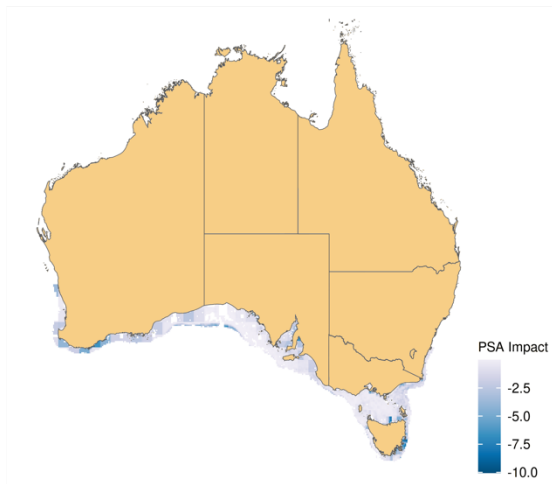
Carcharodon carcharias



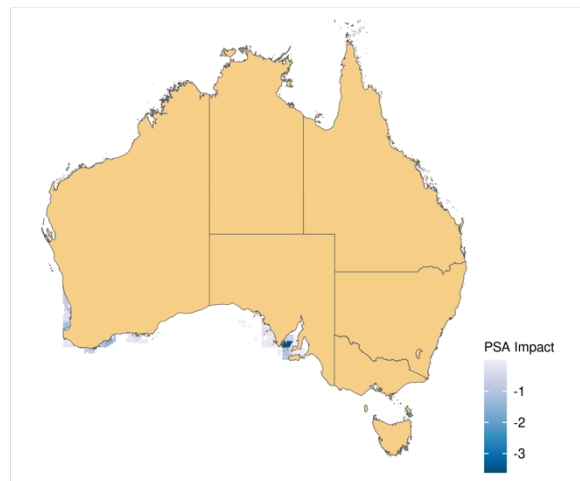
Centroberyx affinis



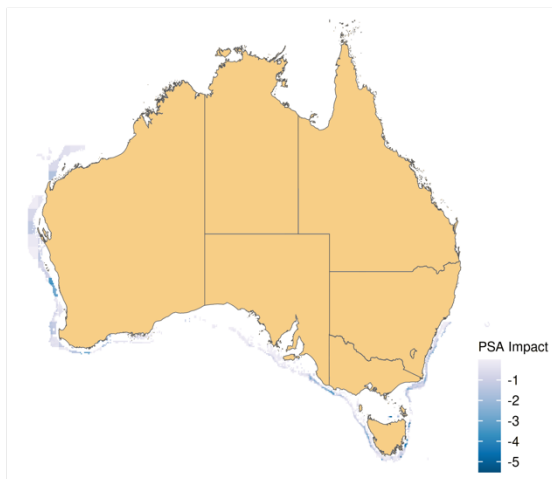
Centroberyx gerrardi



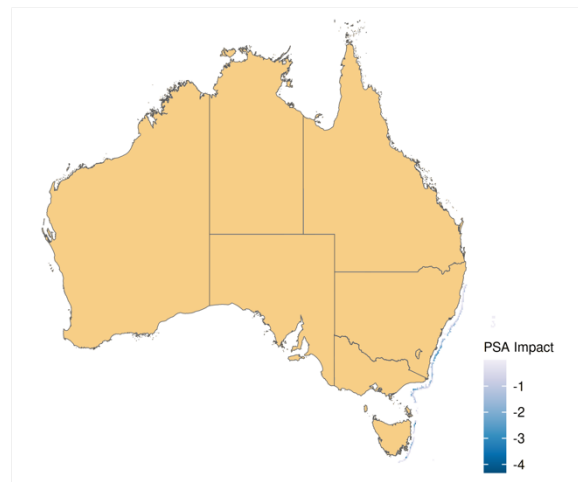
Centroberyx lineatus



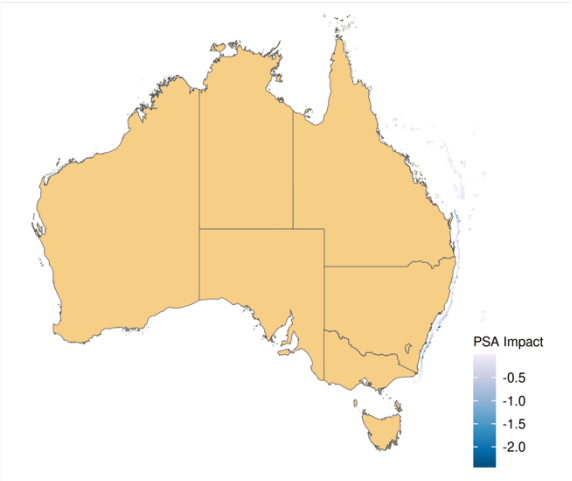
Centrolophus niger



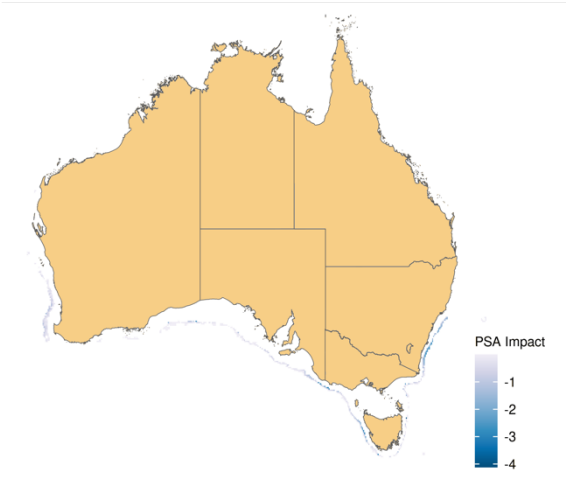
Centrophorus harrissoni



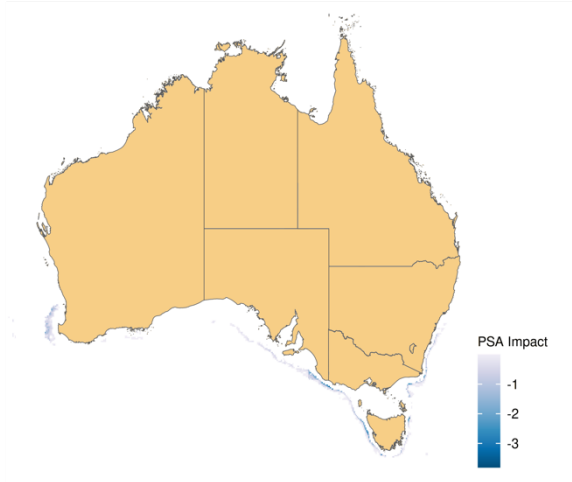
Centrophorus moluccensis



Centroscymnus owstonii



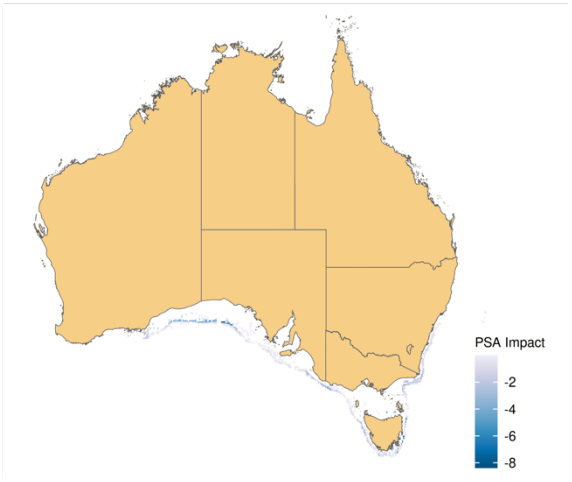
Centroselachus crepidater



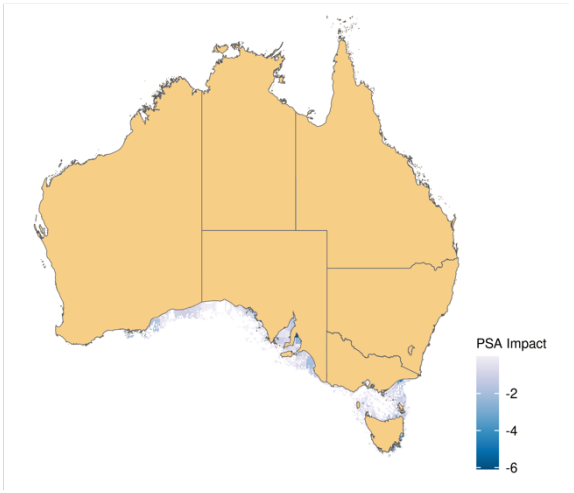
Cephalopholis cyanostigma



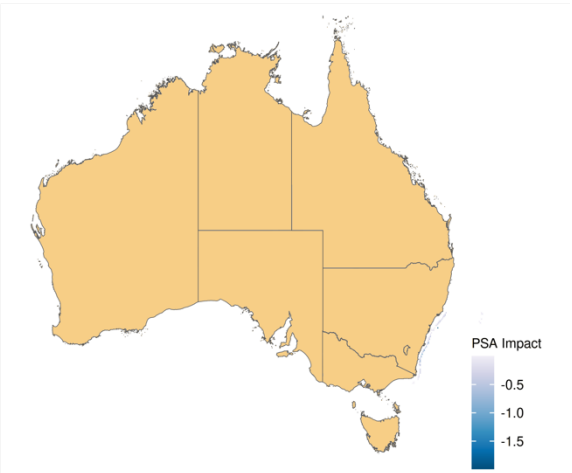
Cephaloscyllium albipinnum



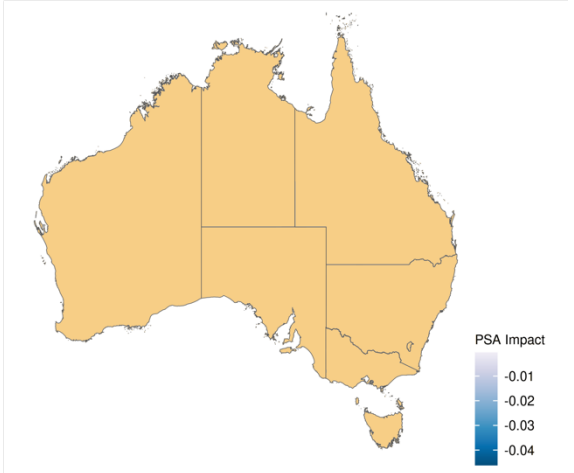
Cephaloscyllium laticeps



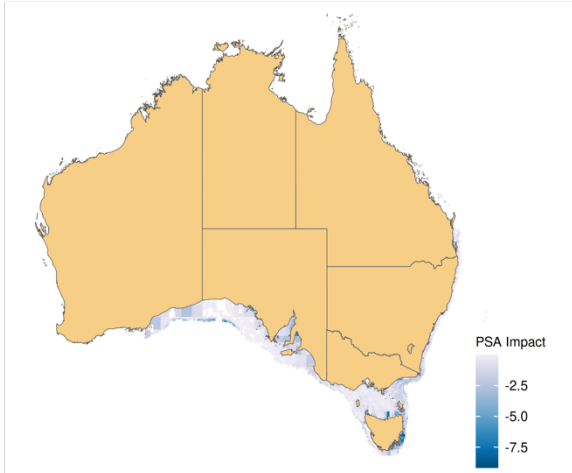
Cetorhinus maximus



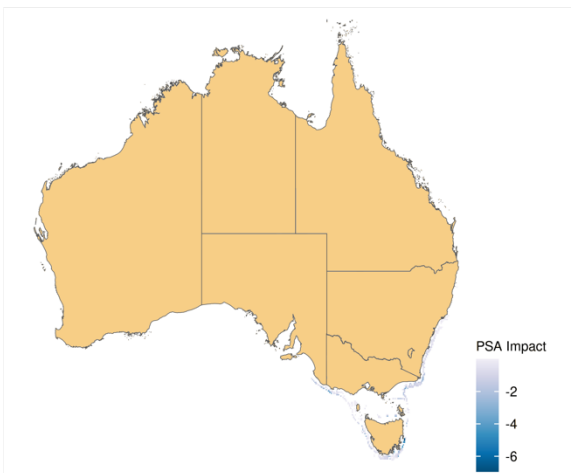
Cheilinus trilobatus



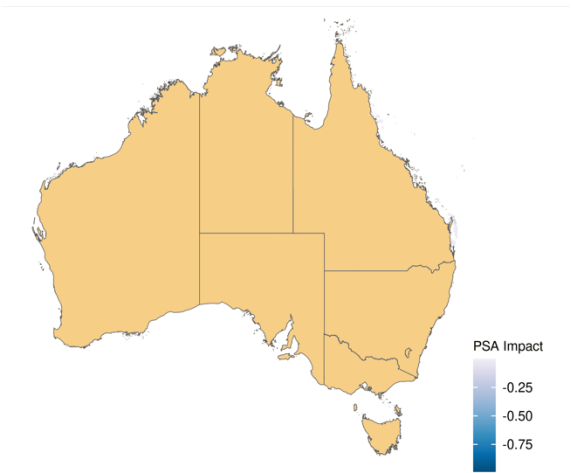
Chelidonichthys kumu



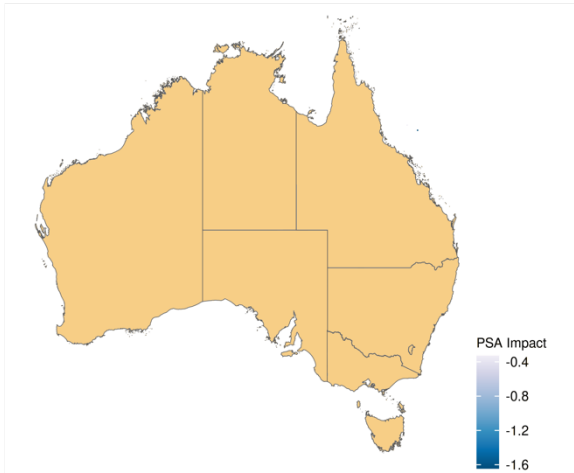
Chimaera ogilbyi



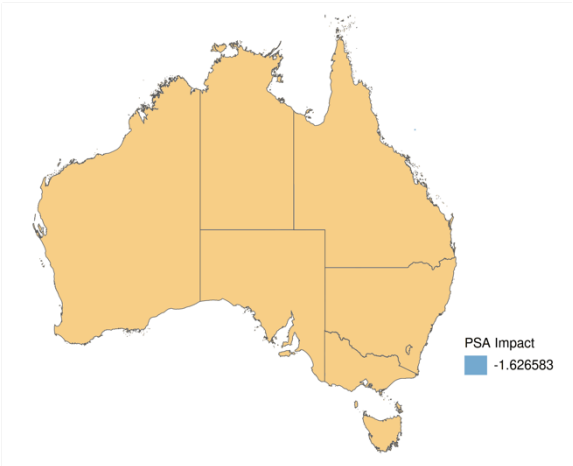
Chirocentrus dorab



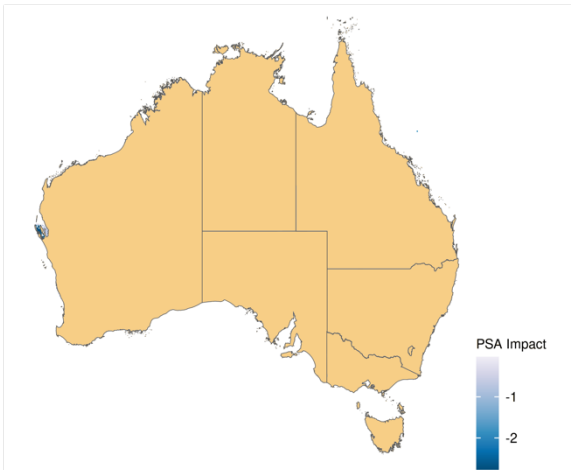
Choeroichthys brachysoma



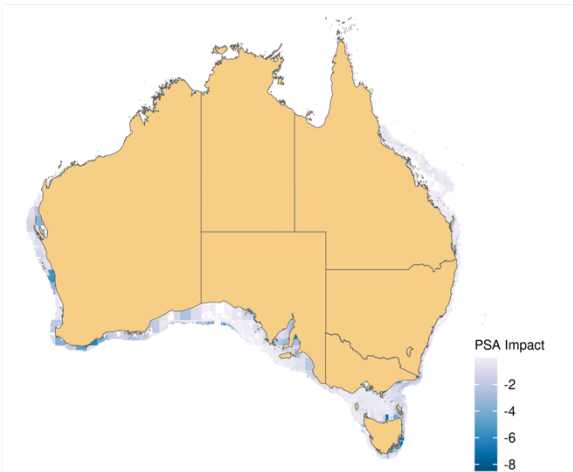
Choeroichthys sculptus



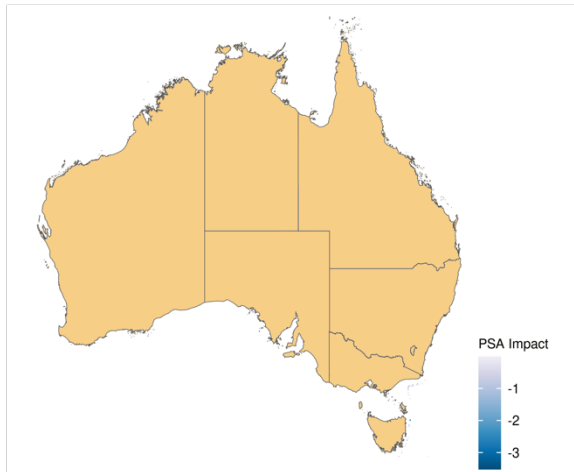
Choeroichthys suillus



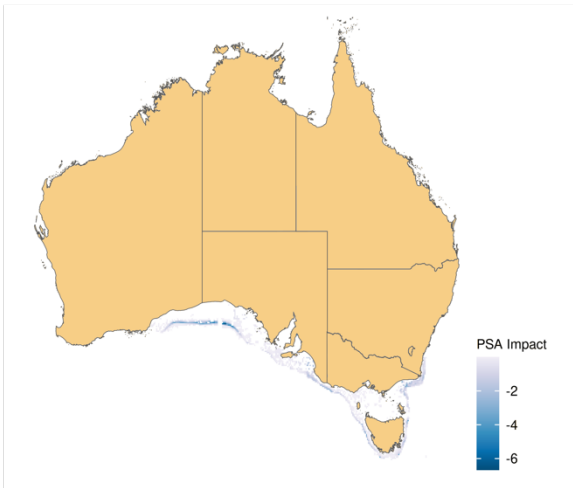
Chrysophrys auratus



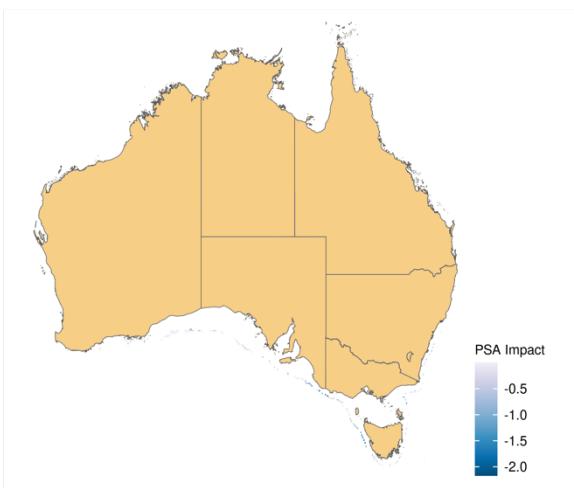
Cirrhitigaleus barbifer



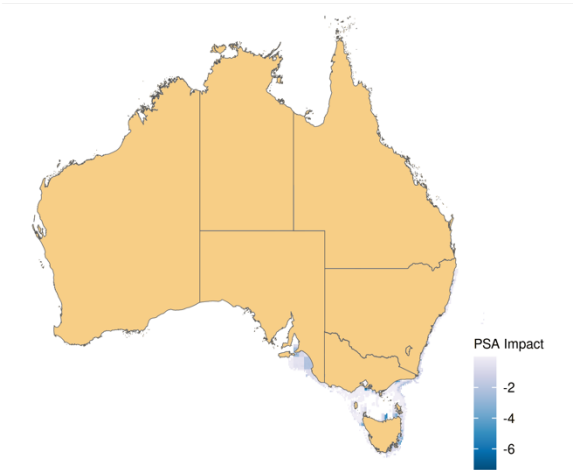
Coelorinchus australis



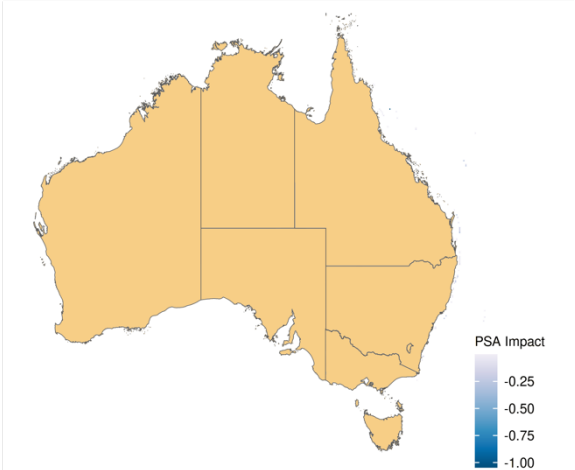
Coelorinchus fasciatus



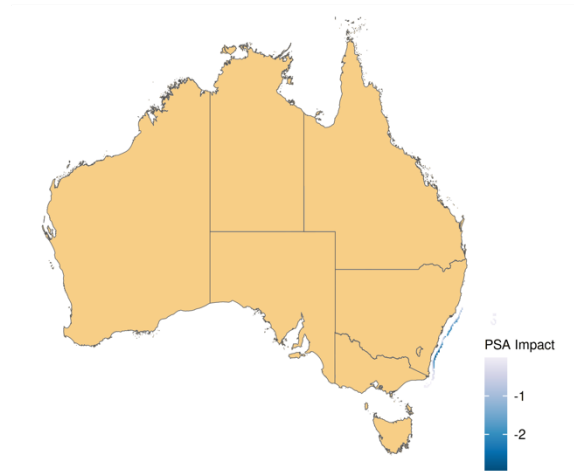
Conger verreauxi



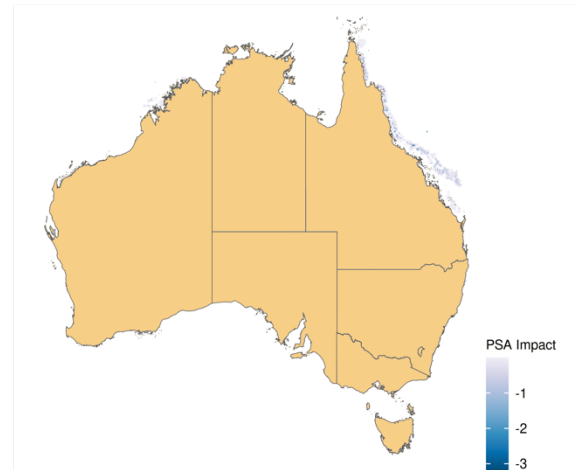
Coryphaena hippurus



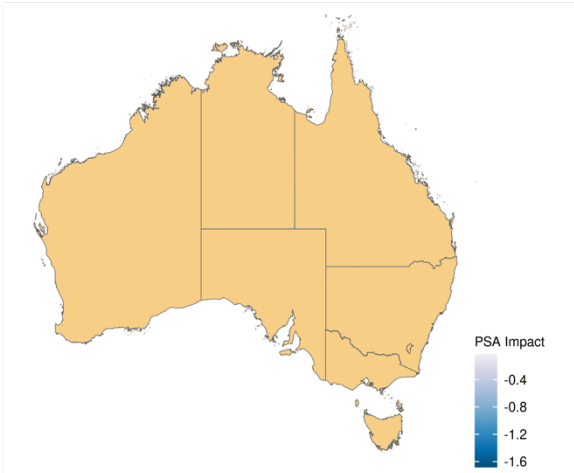
Coryphaenoides subserulatus



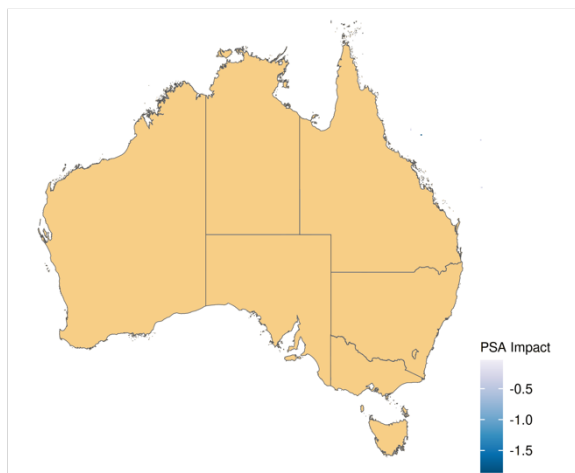
Corythoichthys amplexus



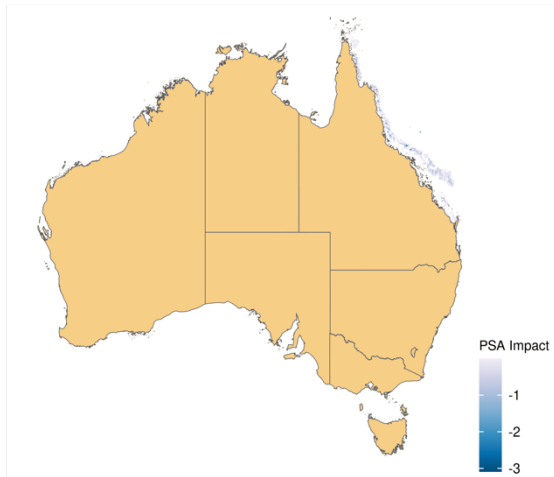
Corythoichthys conspicillatus



Corythoichthys intestinalis



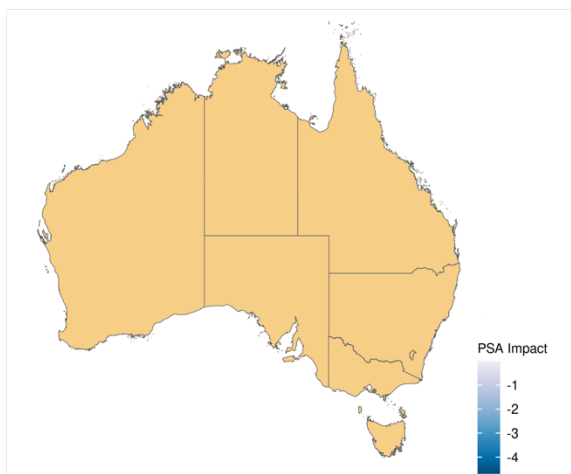
Corythoichthys ocellatus



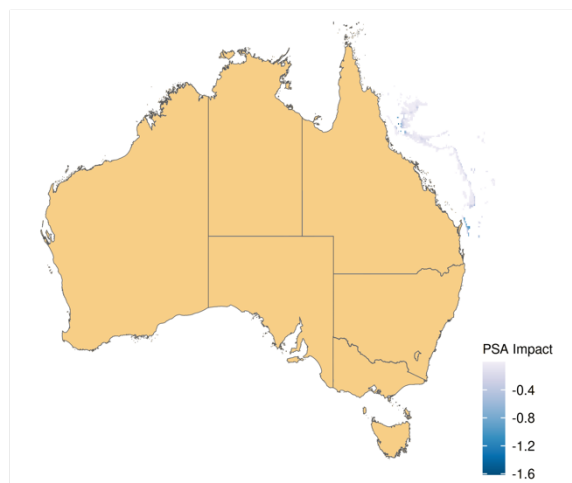
Corythoichthys schultzi



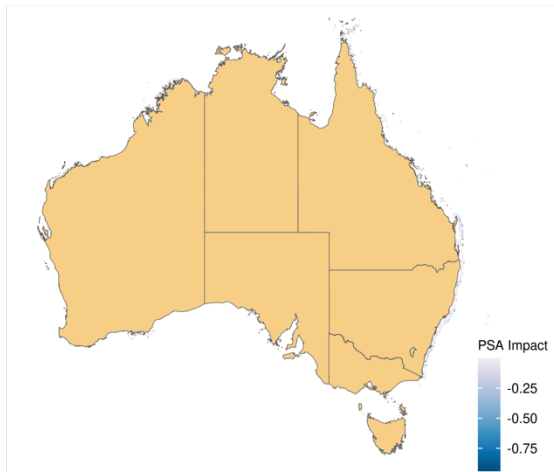
Cosmocampus howensis



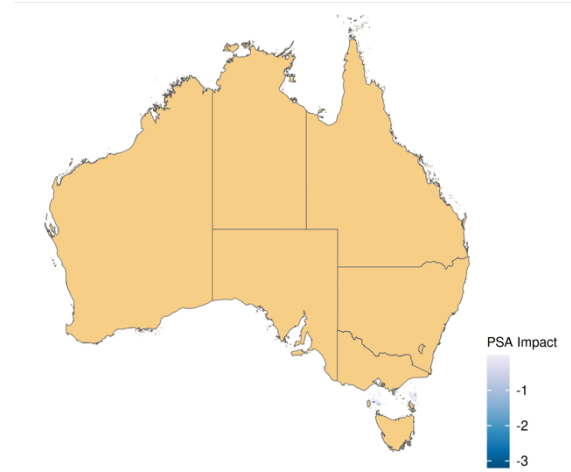
Cubiceps capensis



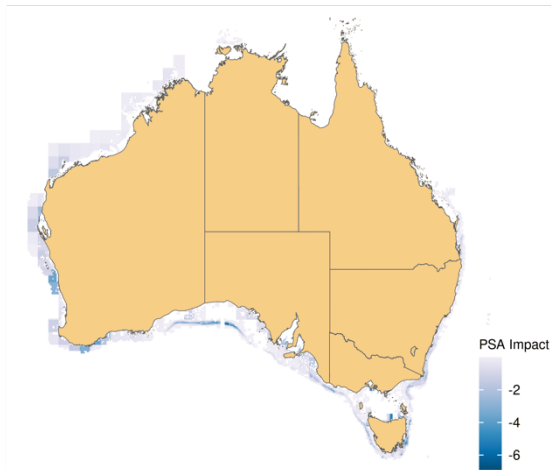
Cybiosarda elegans



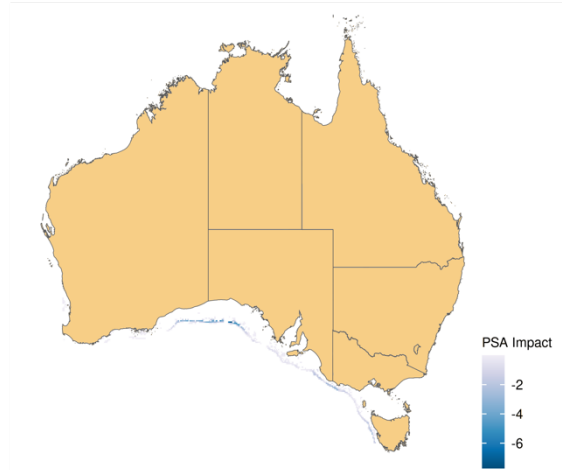
Cyttus australis



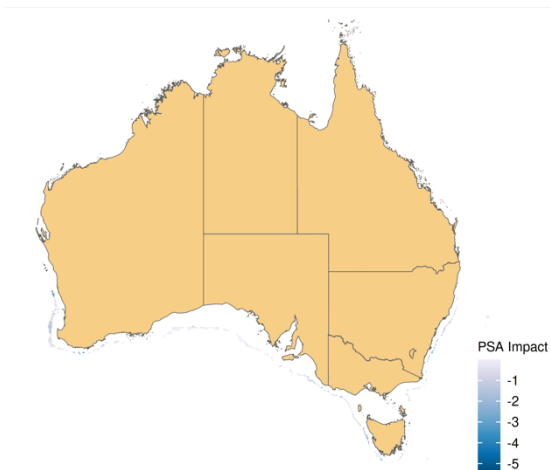
Dalatias licha



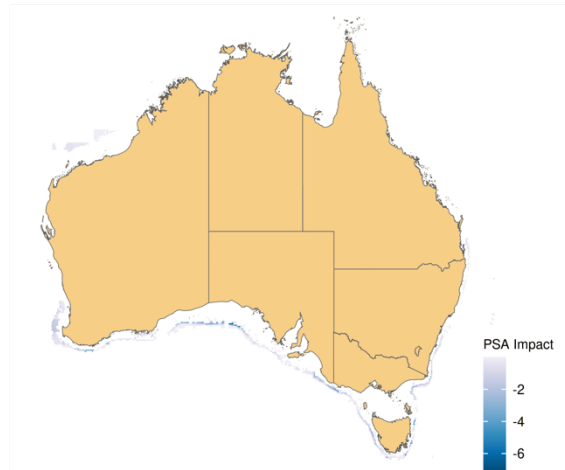
Dannevigia tusca



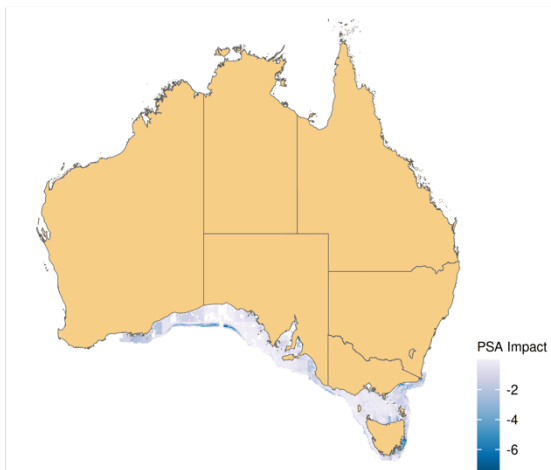
Deania calceus



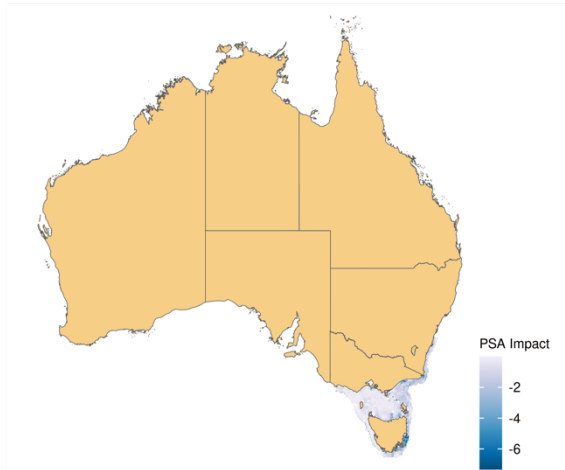
Deania quadrispinosa



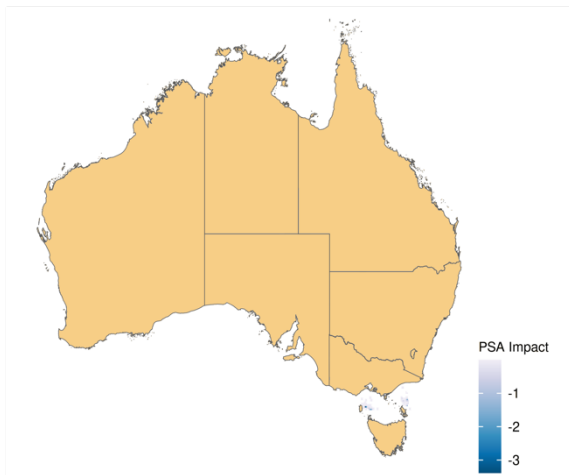
Dentiraja cerva



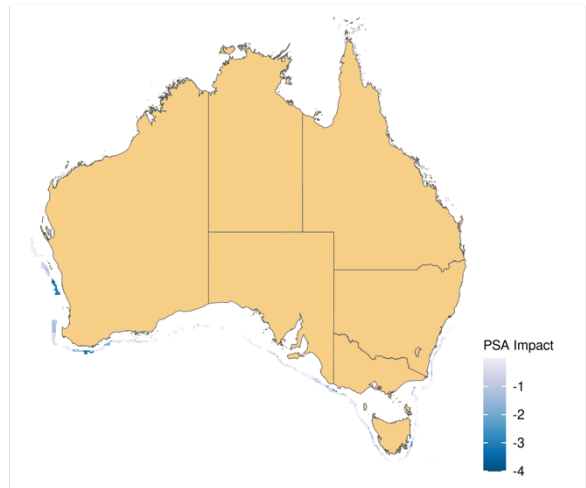
Dentiraja confusus



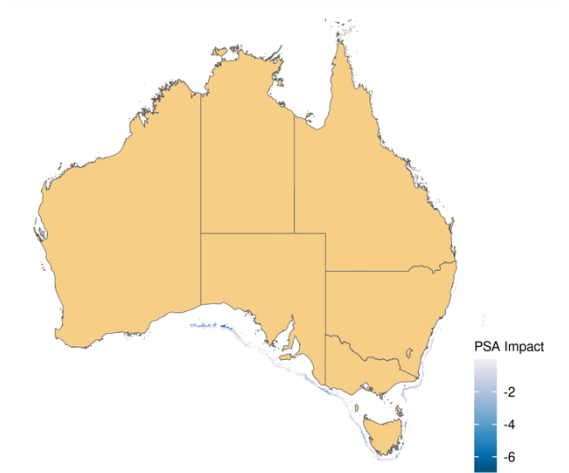
Dentiraja lemprieri



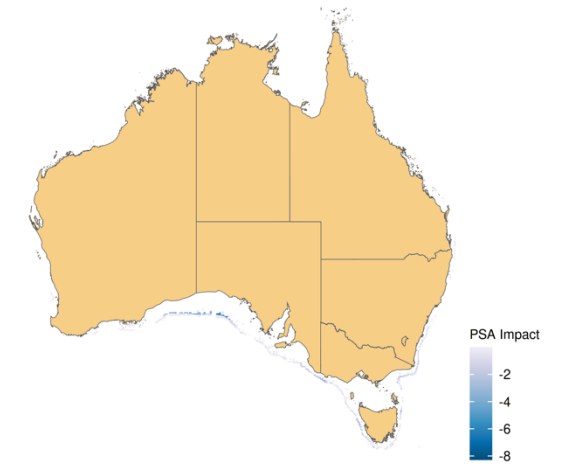
Diastobrachius capensis



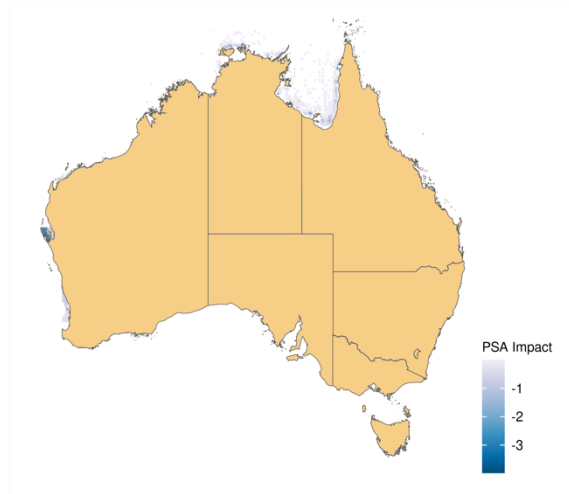
Dipturus canutus



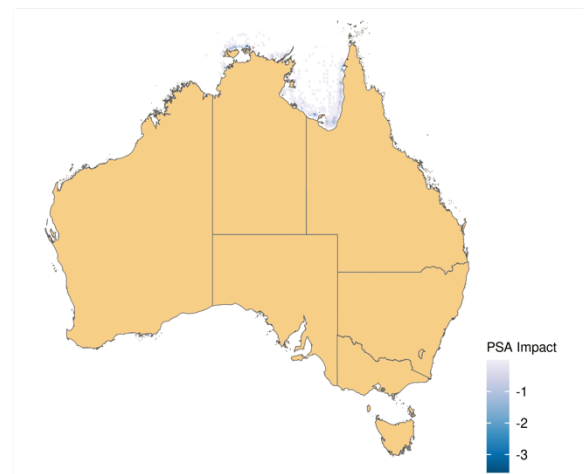
Dipturus gudgeri



Disteira kingii



Disteira major



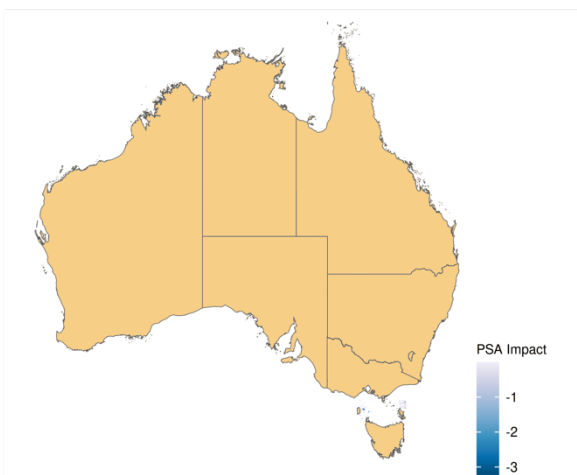
Doryrhamphus excisus



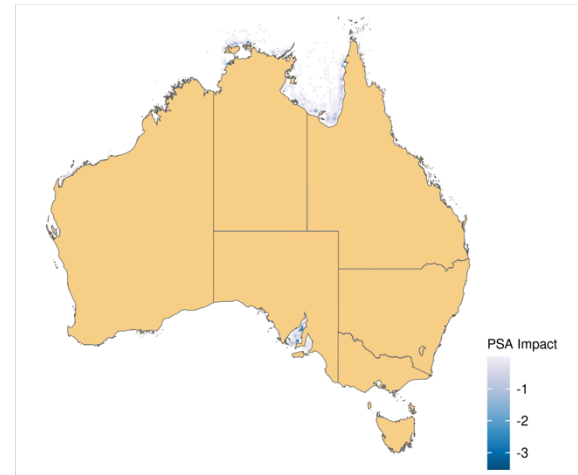
Doryrhamphus negrosensis



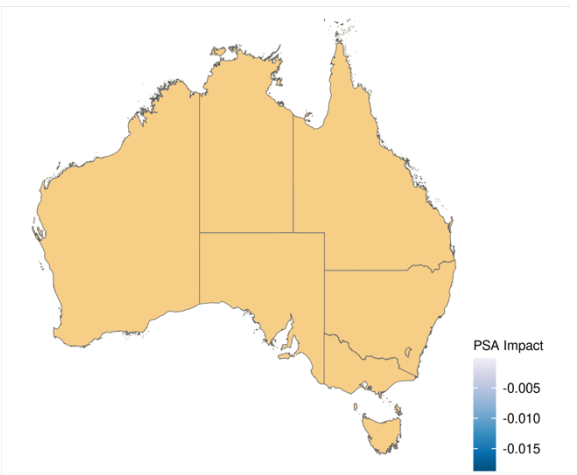
Dotalabrus aurantiacus



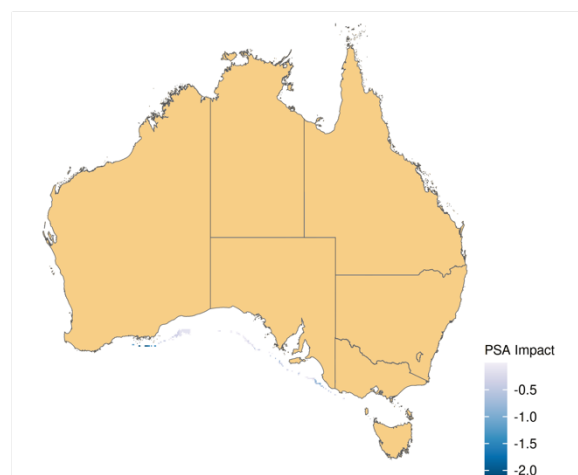
Echeneis naucrates



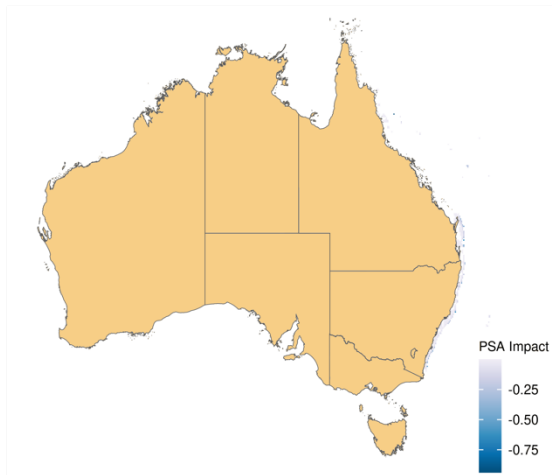
Echinophryne crassispina



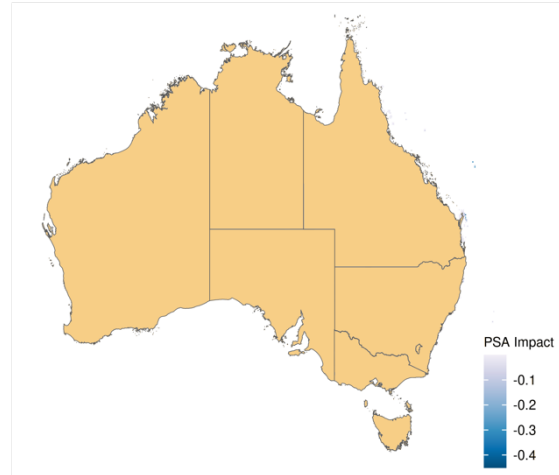
Echinorhinus brucus



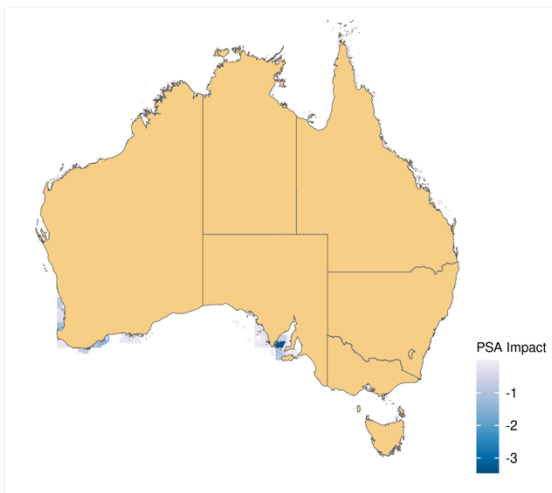
Elagatis bipinnulata



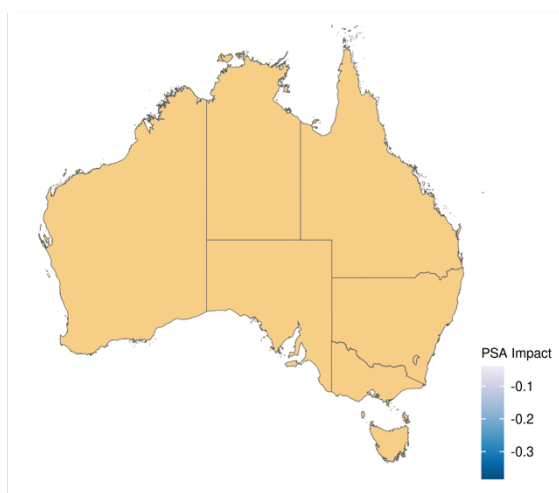
Elops hawaiiensis



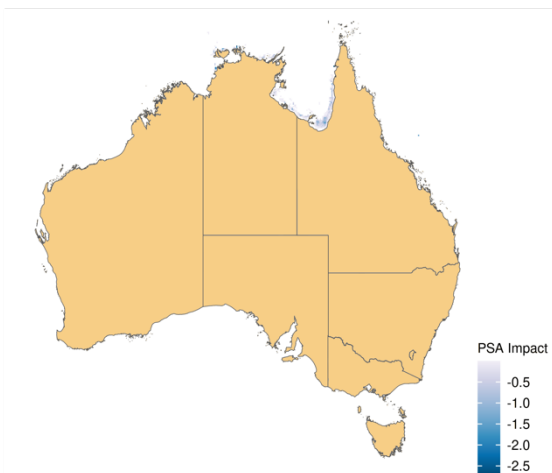
Emmelichthys nitidus



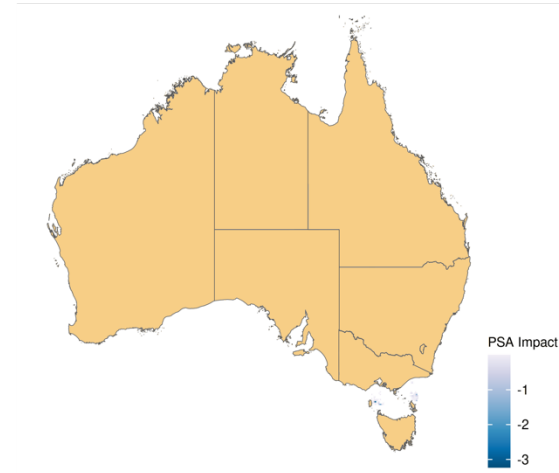
Emydocephalus annulatus



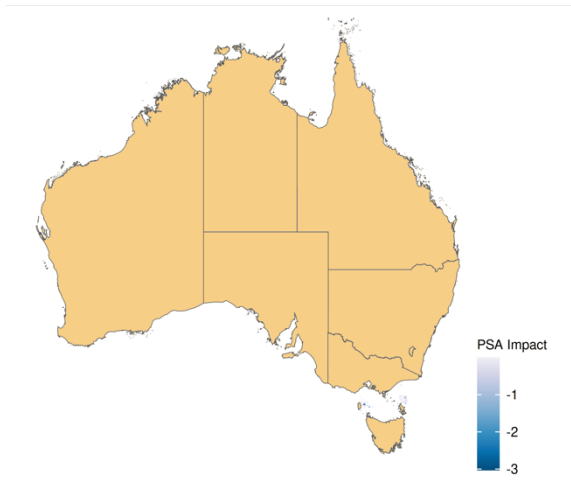
Enhydrina schistosa



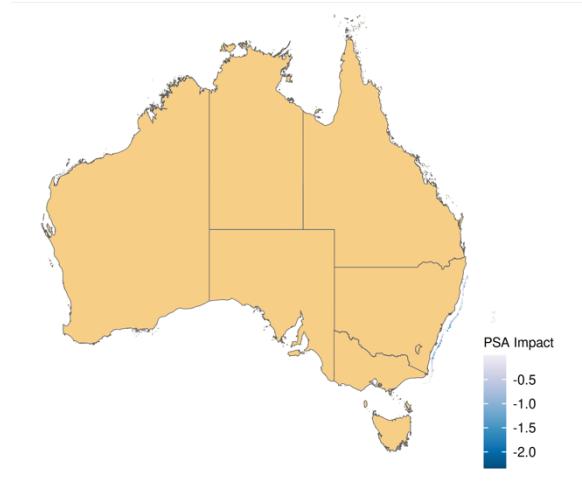
Enigmapercis reducta



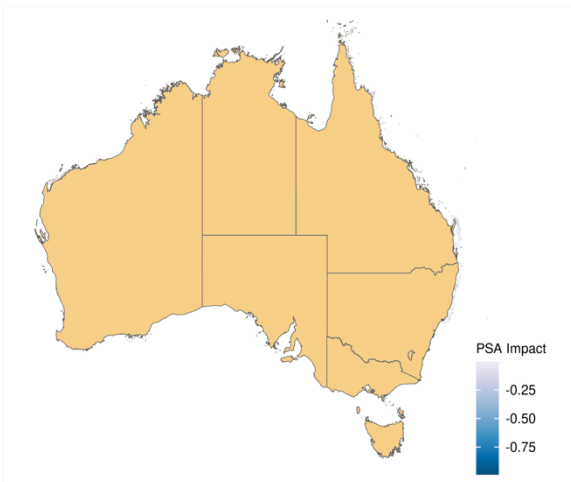
Eocallionymus papilio



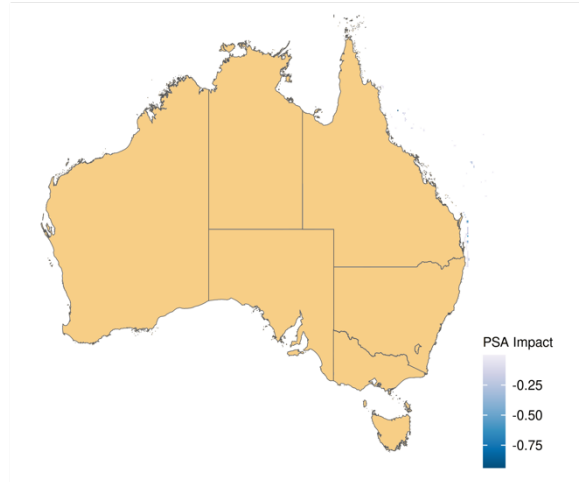
Epigonus denticulatus



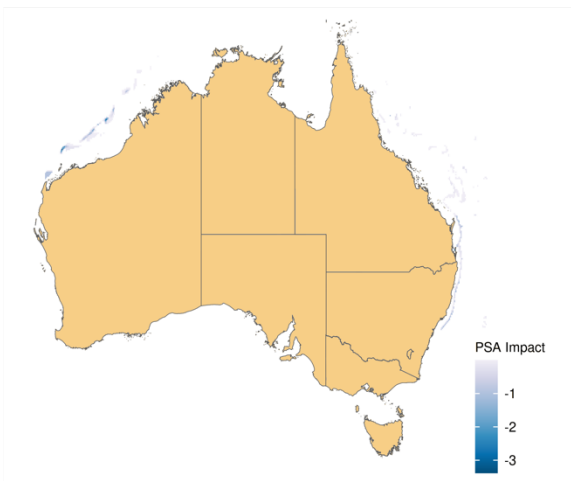
Epinephelus malabaricus



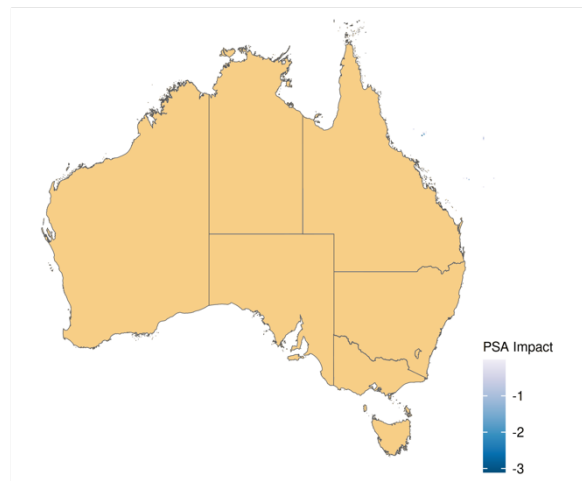
Epinephelus morrhua



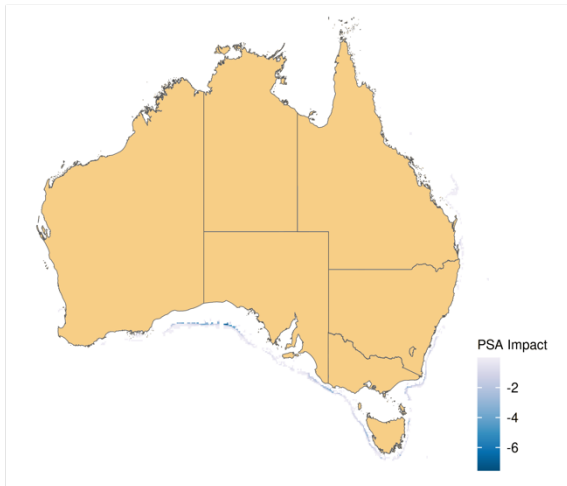
Etelis carbunculus



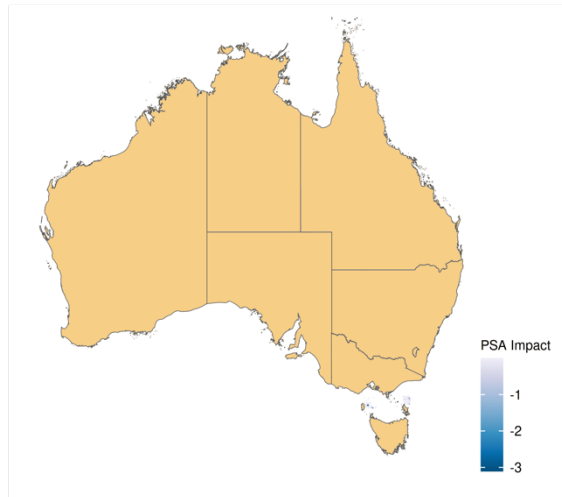
Etelis coruscans



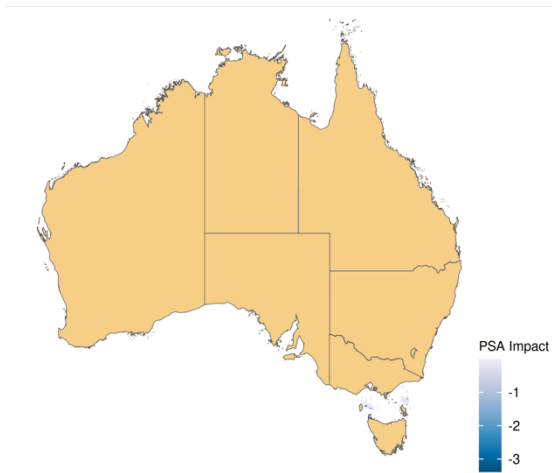
Etmopterus lucifer



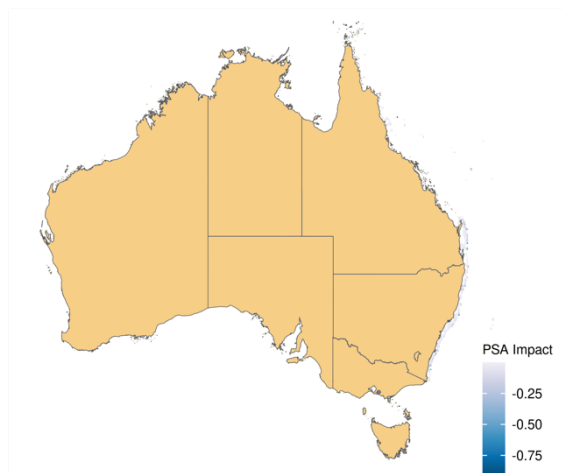
Eubalichthys gunnii



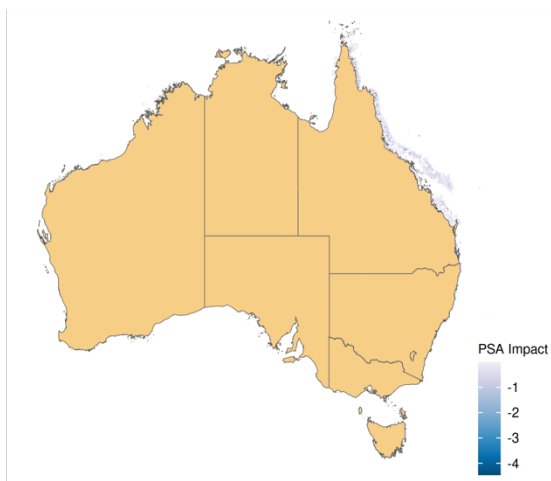
Eubalichthys mosaicus



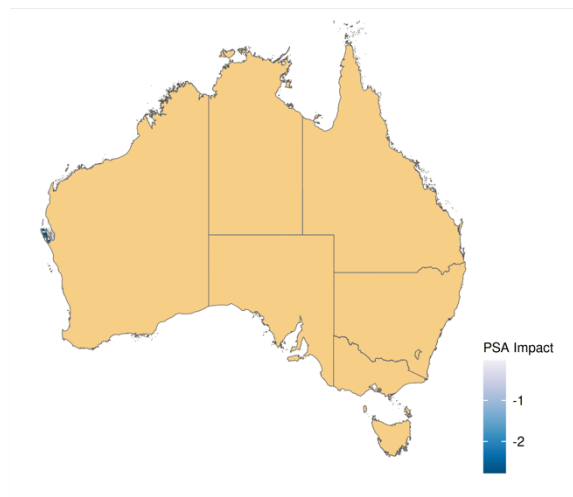
Euthynnus affinis



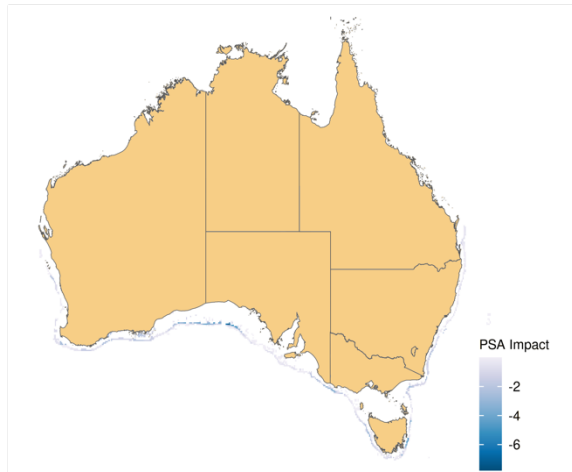
Festucalex cinctus



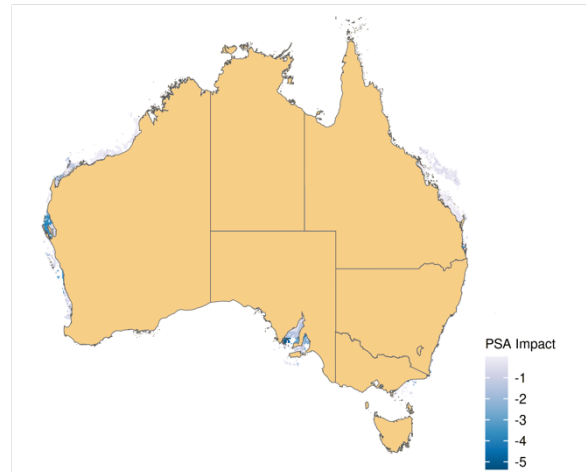
Festucalex scalaris



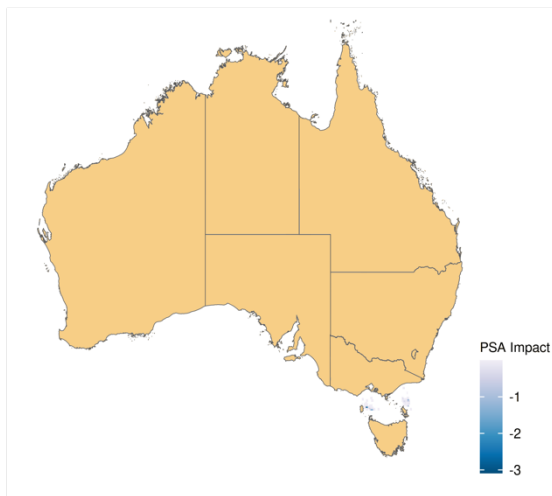
Figaro boardmani



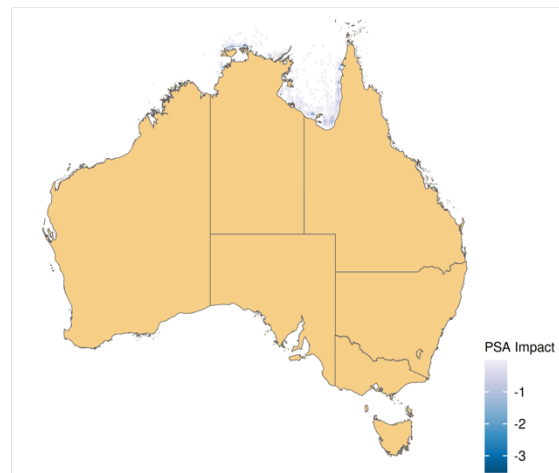
Filicampus tigris



Foetorepus calauropomus



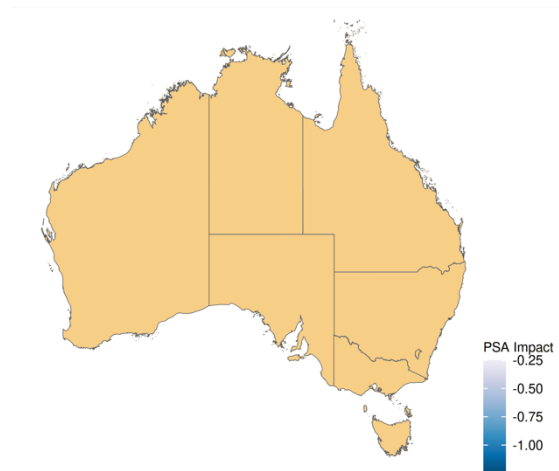
Forcipiger flavissimus



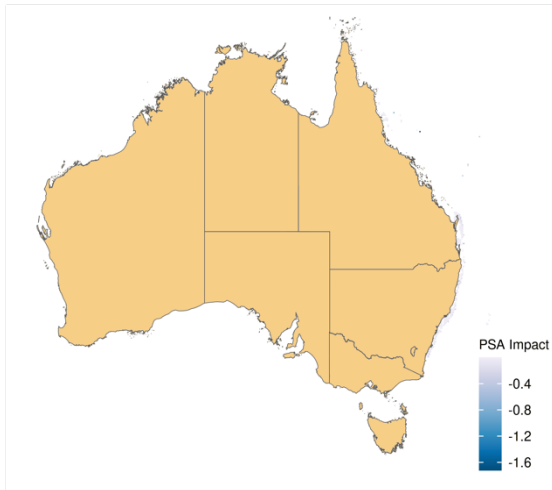
Furgaleus macki



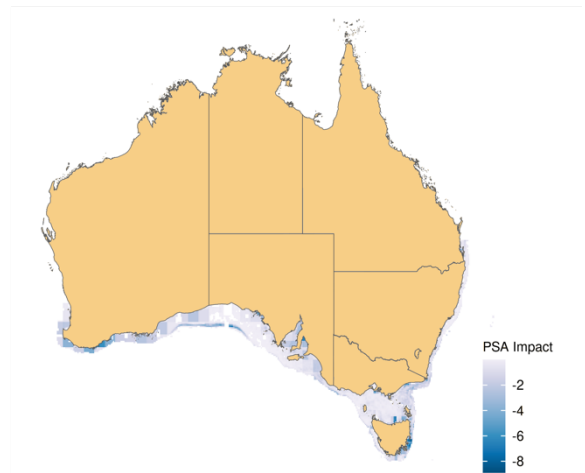
Gaidropsarus novaezealandiae



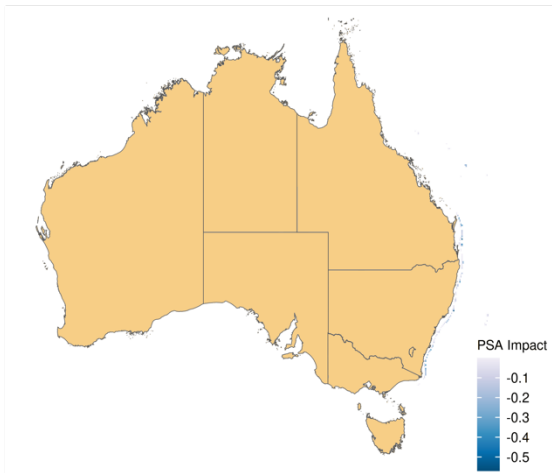
Galeocerdo cuvier



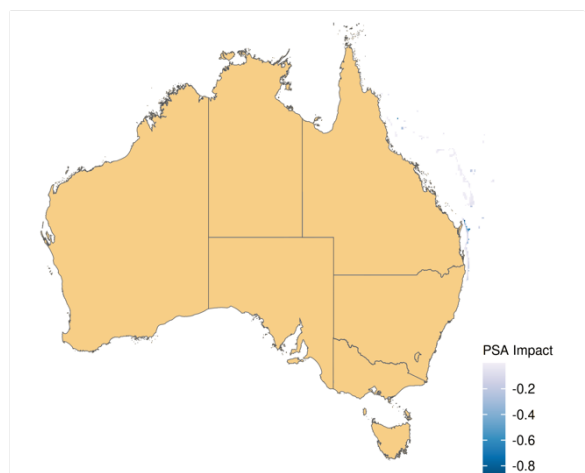
Galeorhinus galeus



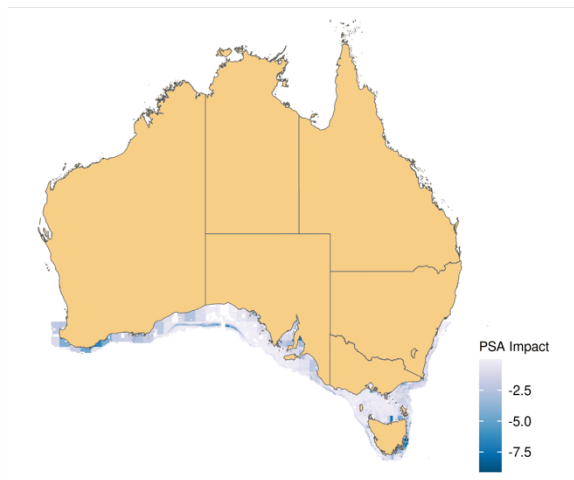
Gasterochisma melampus



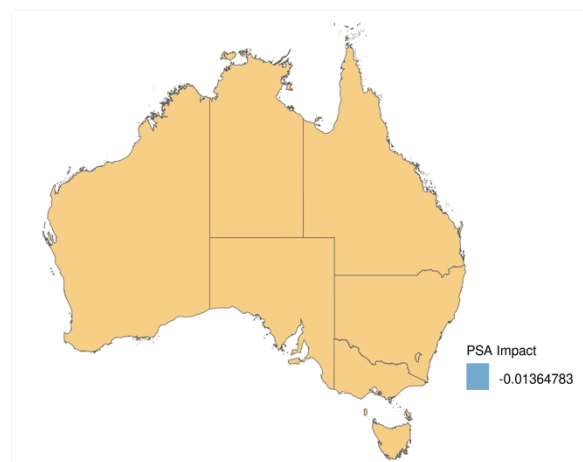
Gempylus serpens



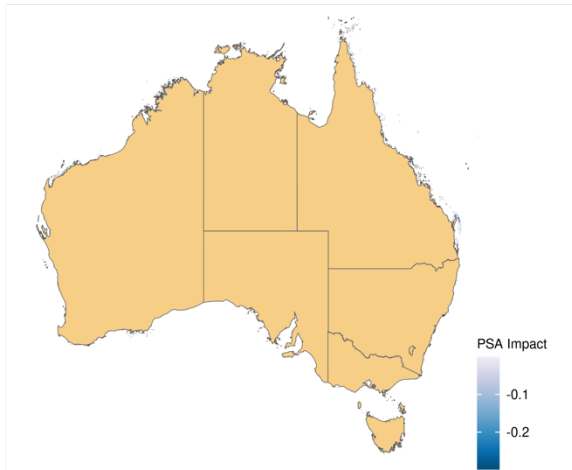
Genypterus blacodes



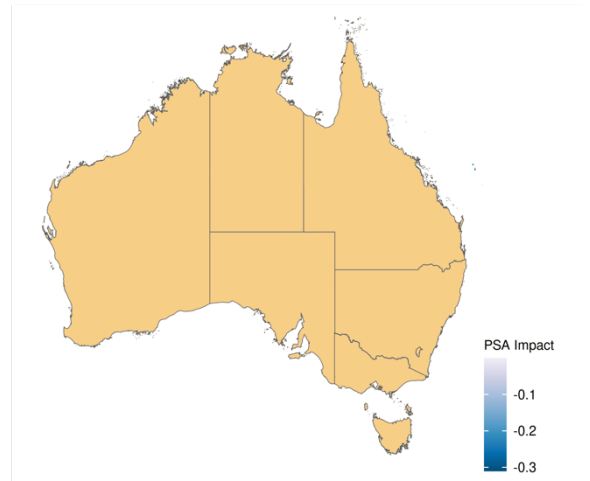
Geotria australis



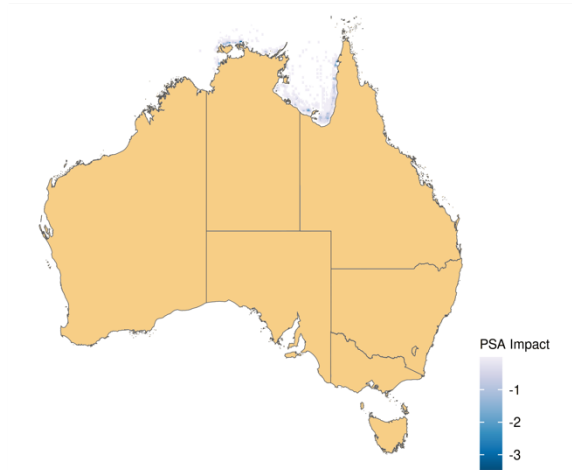
Gerres filamentosus



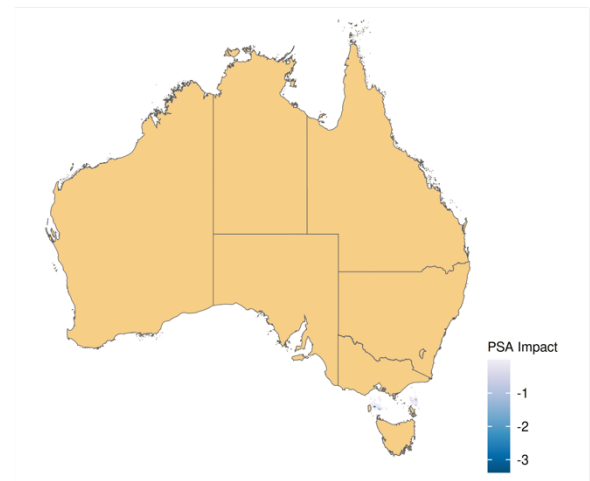
Gerres oblongus



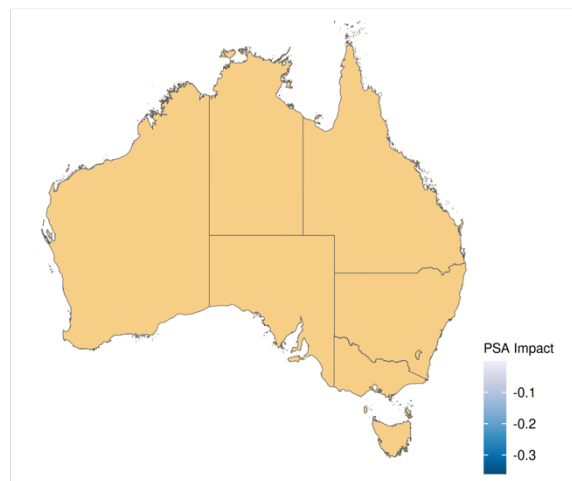
Gnathanodon speciosus



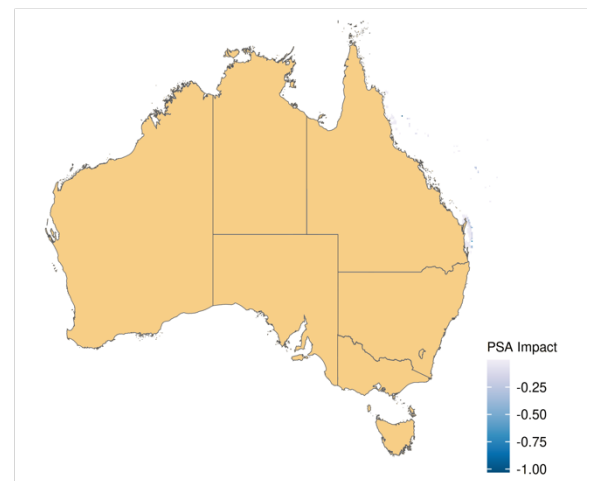
Gonorynchus greyi



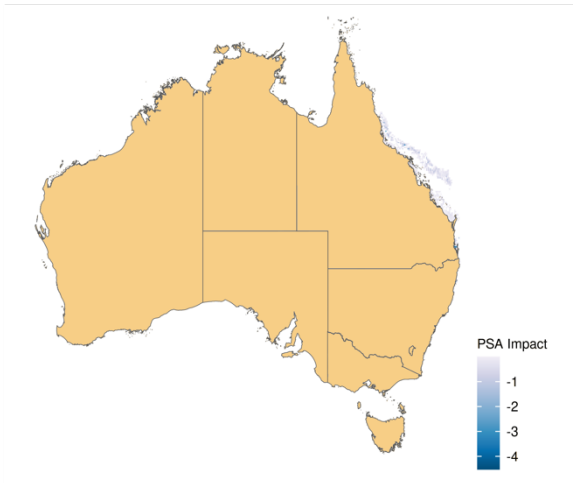
Gymnapistes marmoratus



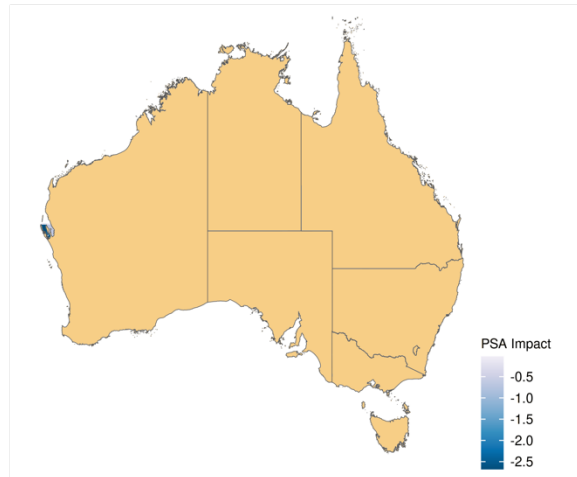
Gymnosarda unicolor



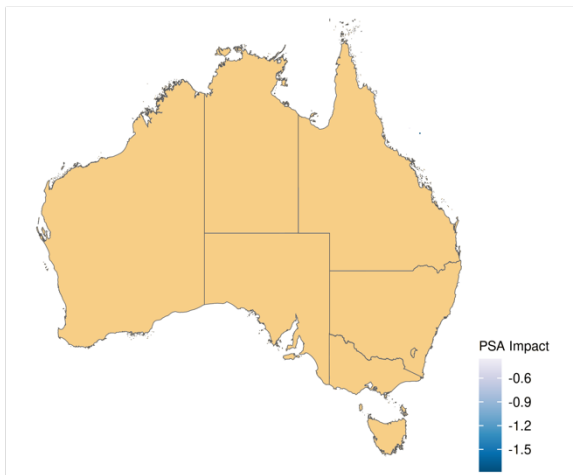
Halicampus boothae



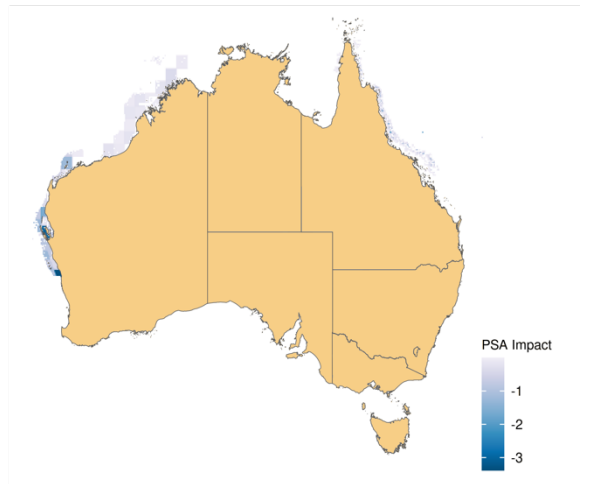
Halicampus brocki



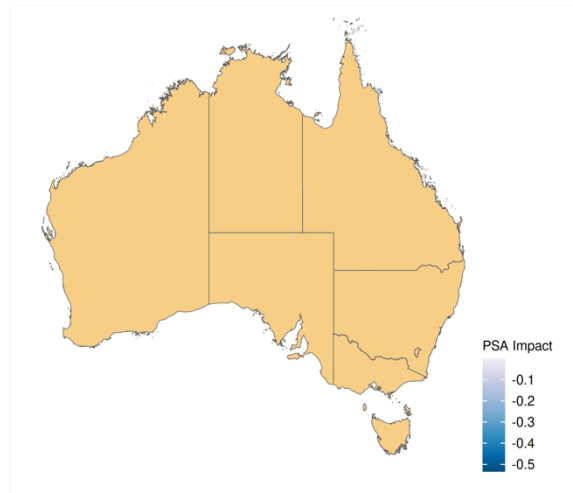
Halicampus dunckeri



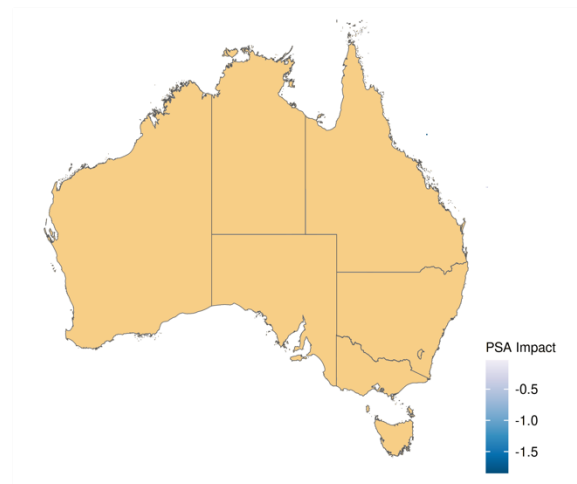
Halicampus grayi



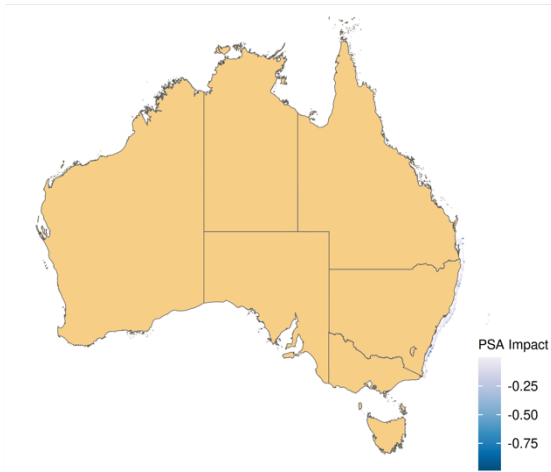
Halicampus macrorhynchus



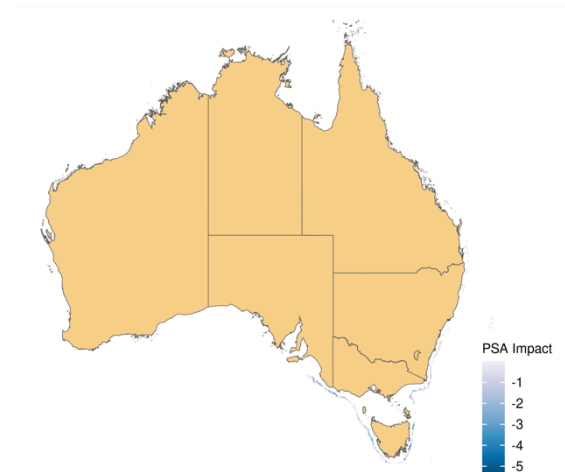
Halicampus spinirostris



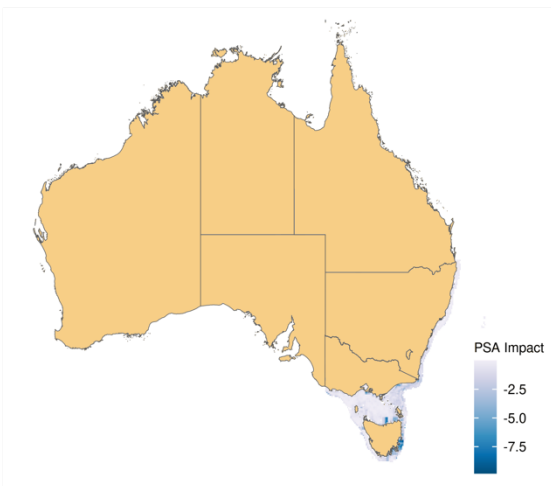
Halieutaea brevipcauda



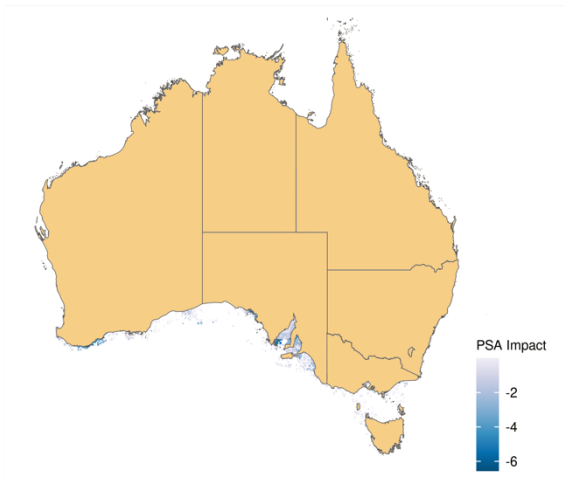
Helicolenus barathri



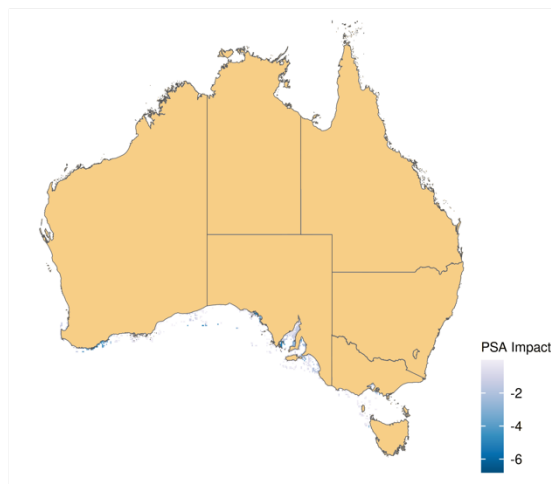
Helicolenus percoides



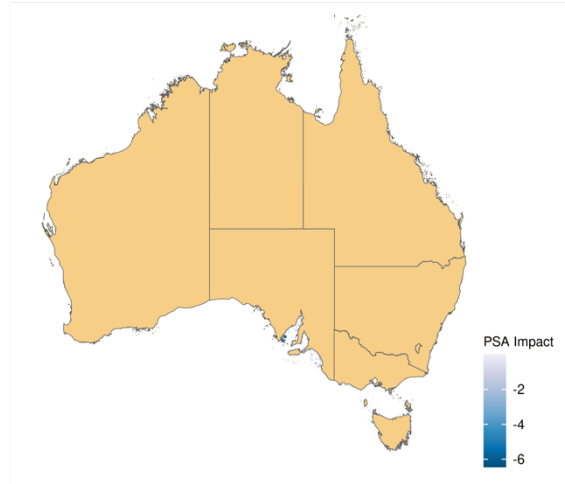
Heraldia nocturna



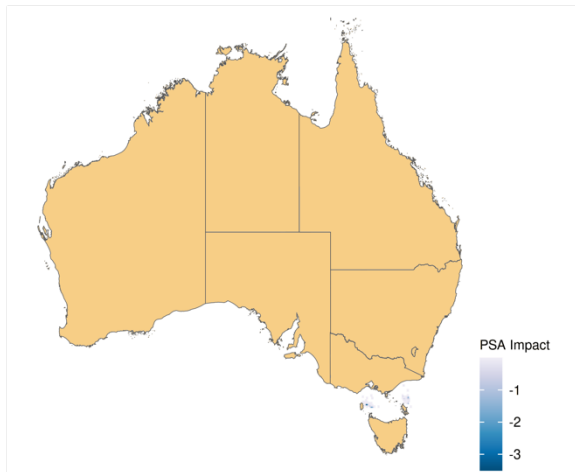
Heraldia sp. 1 [in Kuiter, 2000]



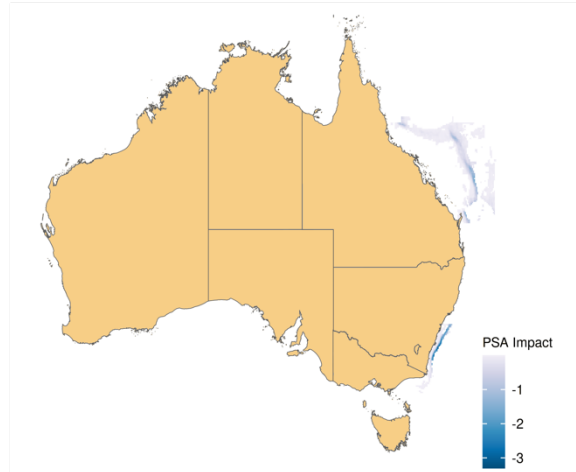
Heteroclinus perspicillatus



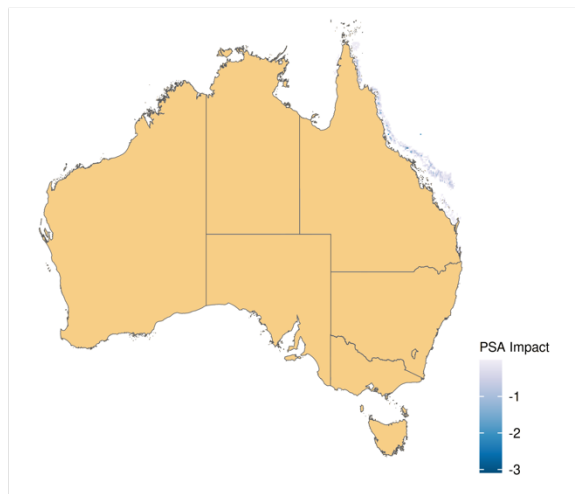
Heterodontus portusjacksoni



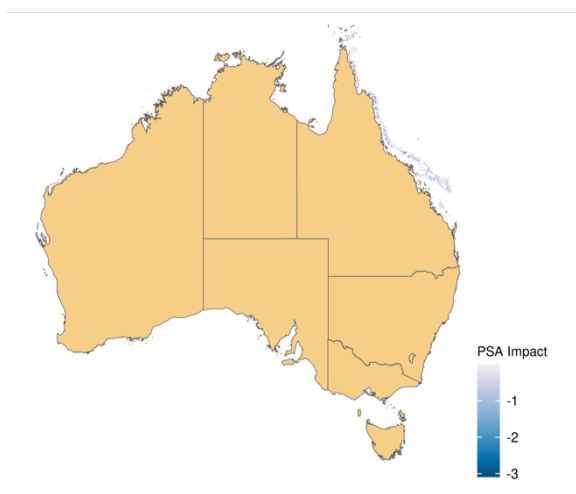
Hexanchus griseus



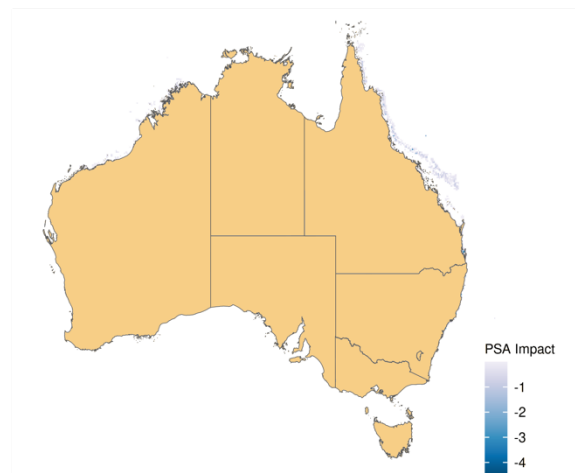
Hippichthys cyanospilos



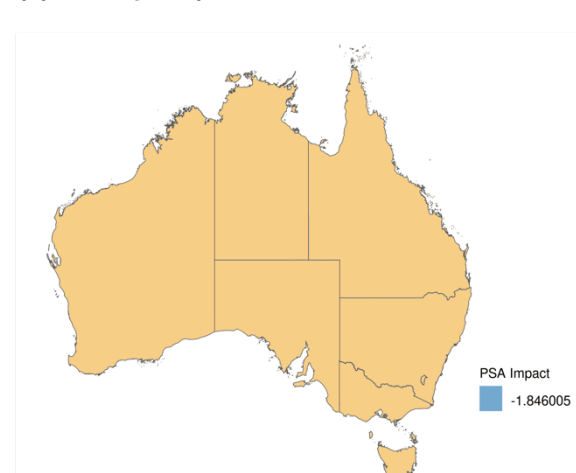
Hippichthys heptagonus



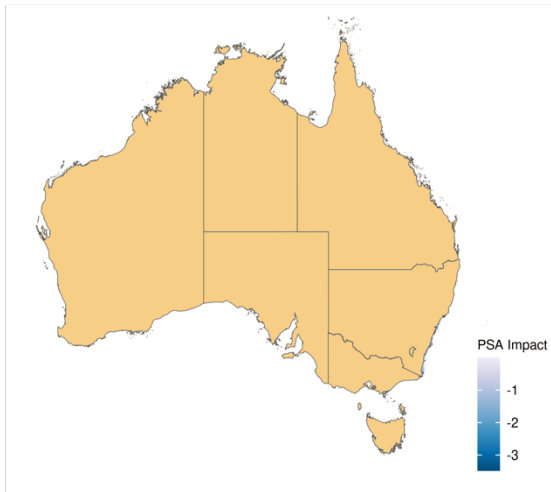
Hippichthys penicillus



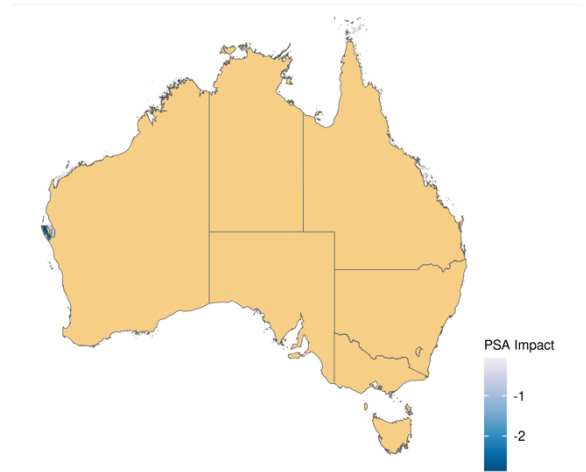
Hippichthys spicifer



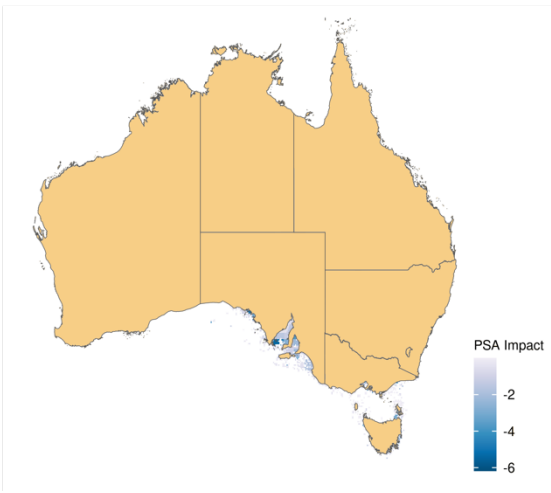
Hippocampus abdominalis



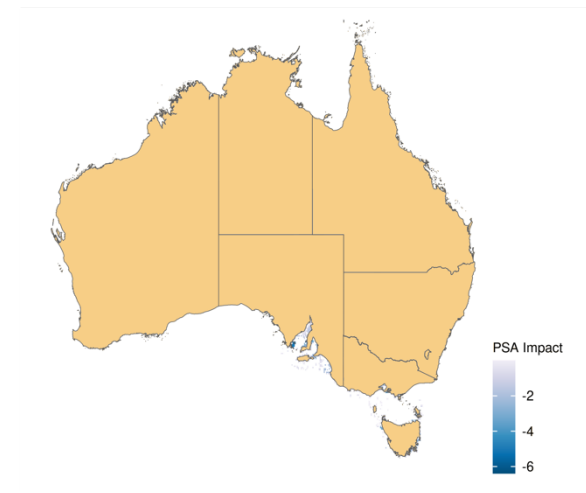
Hippocampus angustus



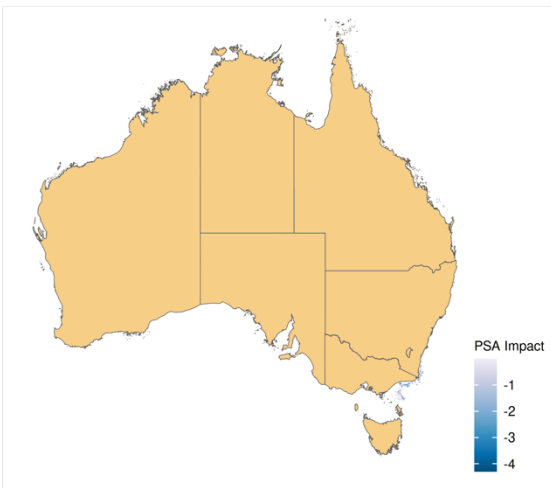
Hippocampus bleekeri



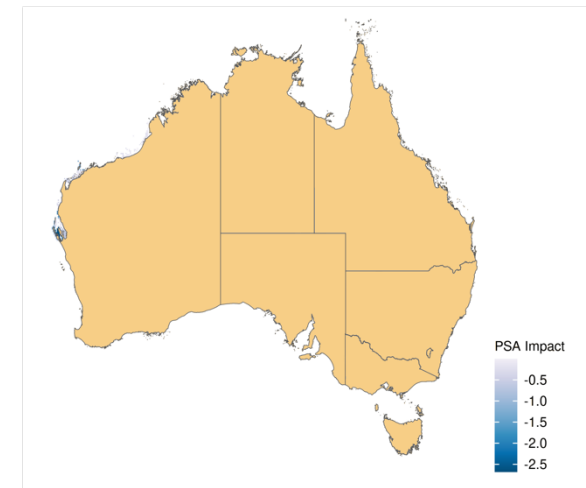
Hippocampus breviceps



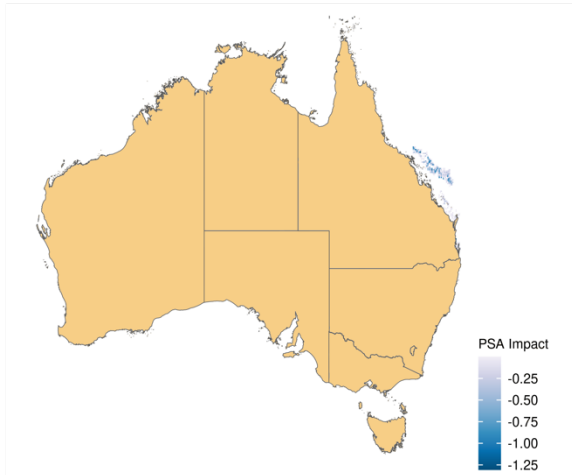
Hippocampus minotaur



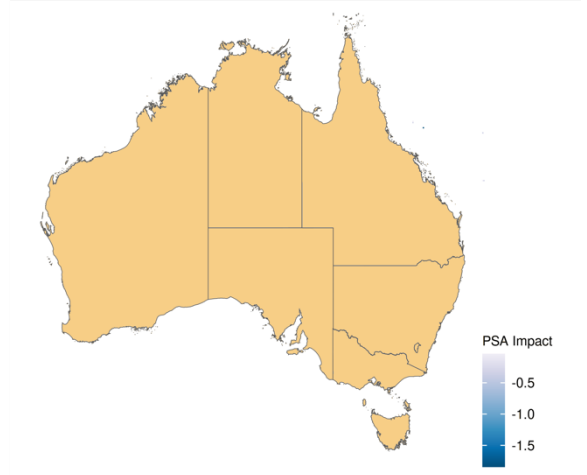
Hippocampus planifrons



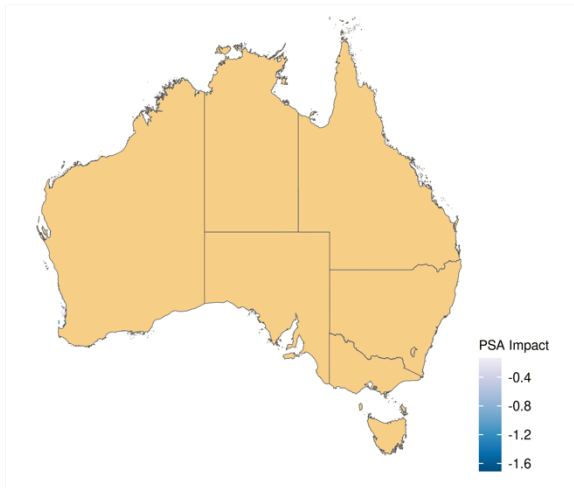
Hippocampus procerus



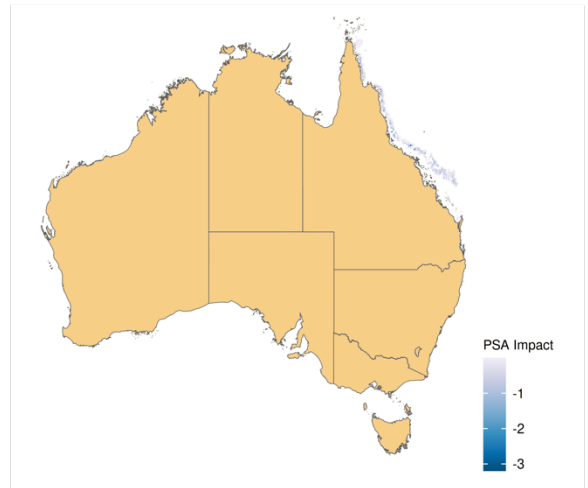
Hippocampus spinosissimus



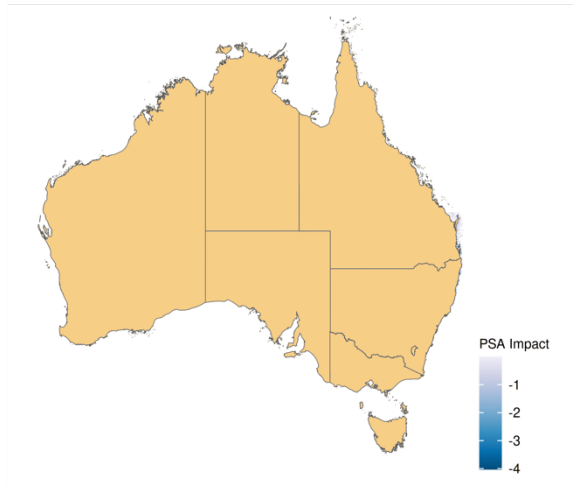
Hippocampus subelongatus



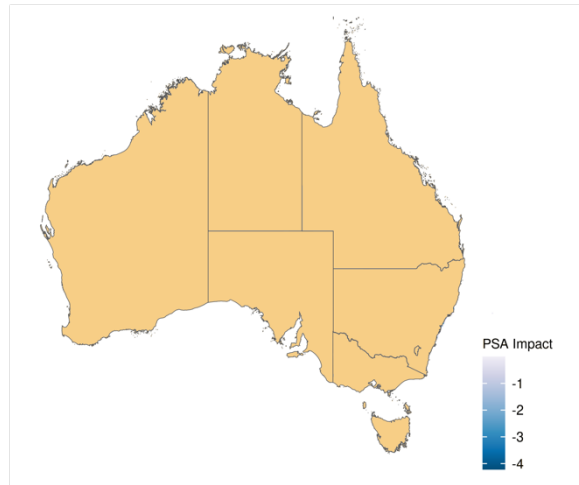
Hippocampus taeniopterus



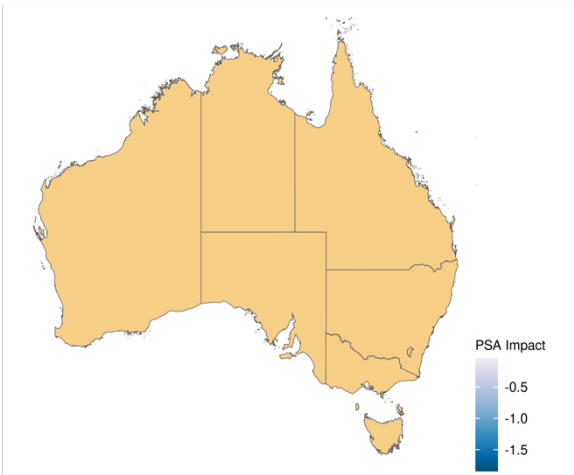
Hippocampus tristis



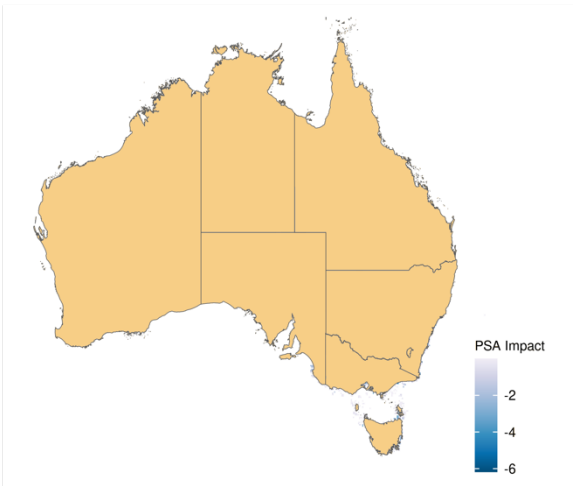
Hippocampus whitei



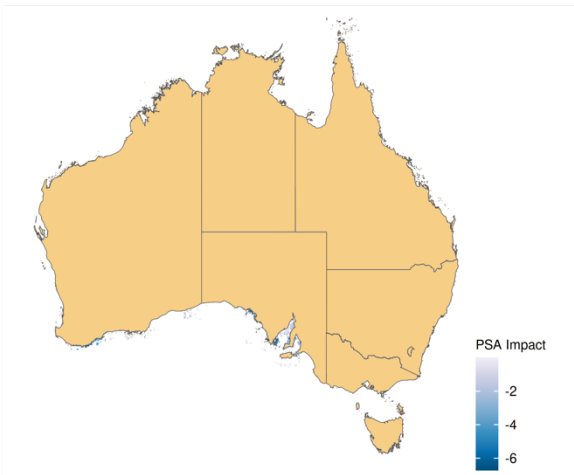
Hippocampus zebra



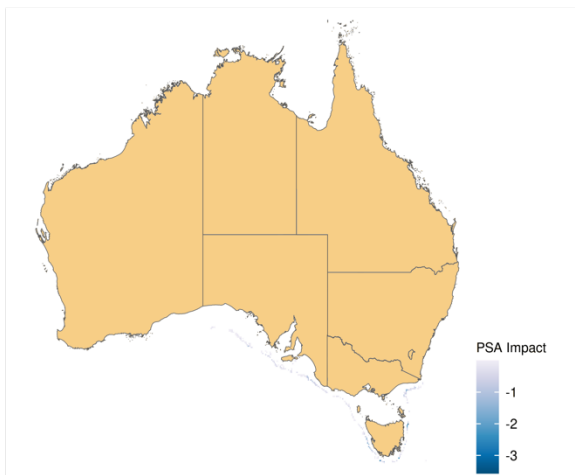
Histiogamphelus briggsii



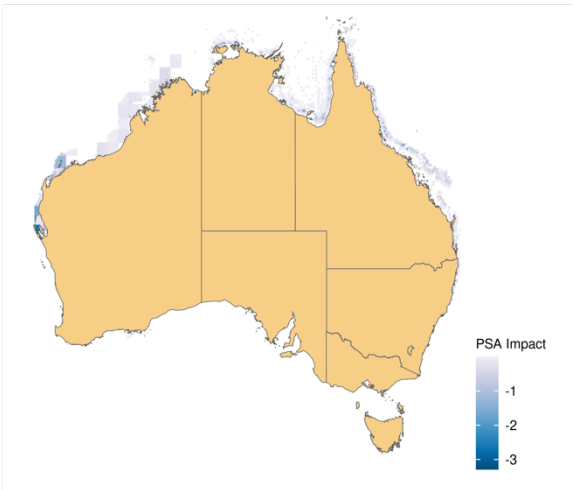
Histiogamphelus cristatus



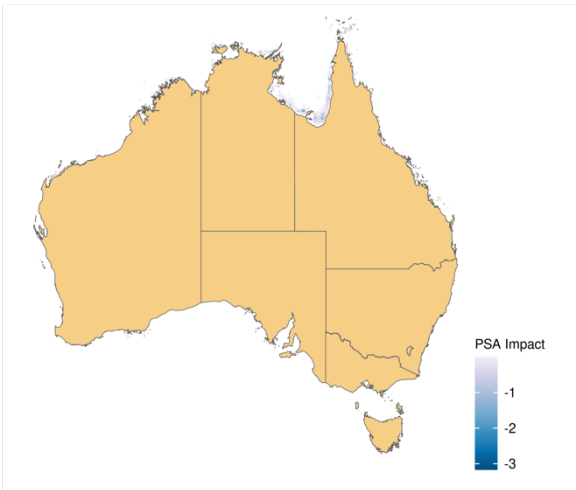
Hydrolagus lemures



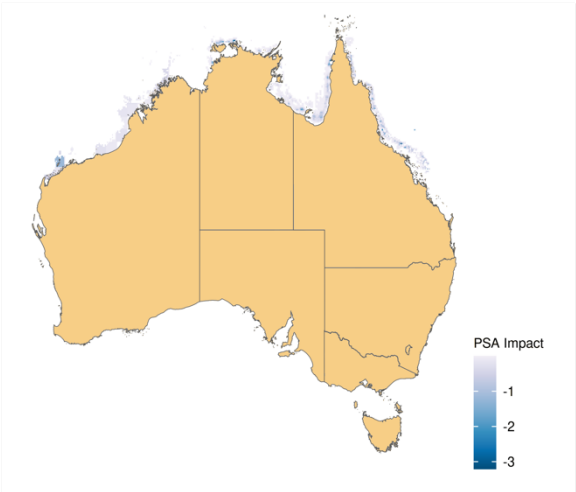
Hydrophis elegans



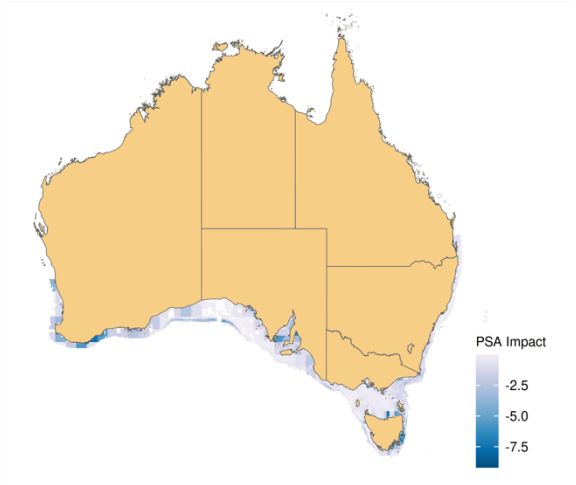
Hydrophis mcdowelli



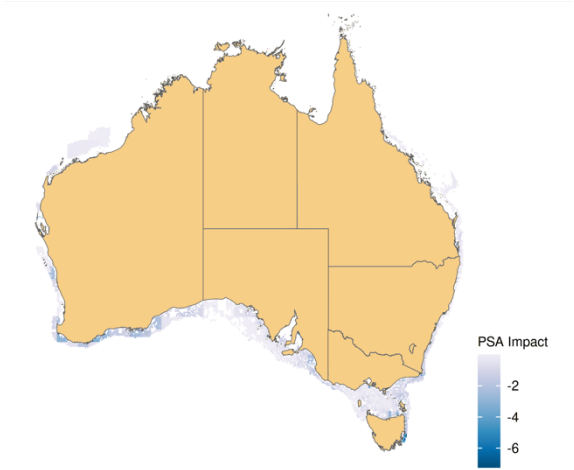
Hydrophis ornatus



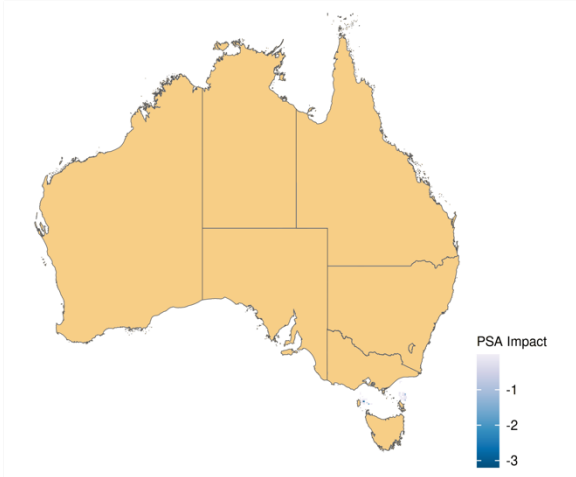
Hyperoglyphe antarctica



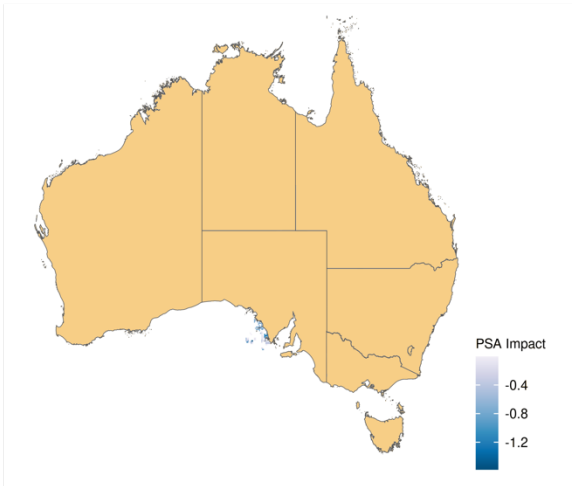
Hypogaleus hyugaensis



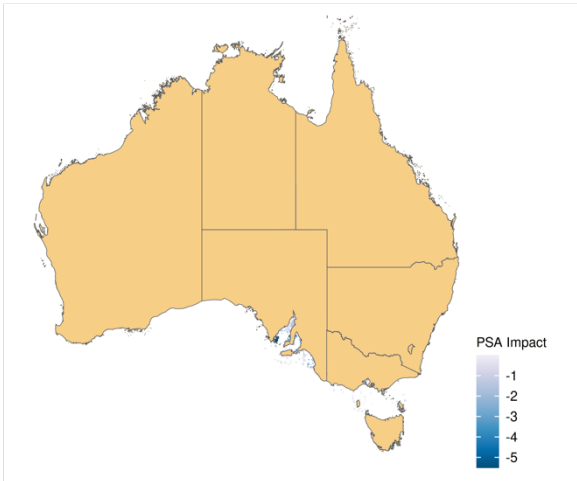
Hypoplectrodes maccullochi



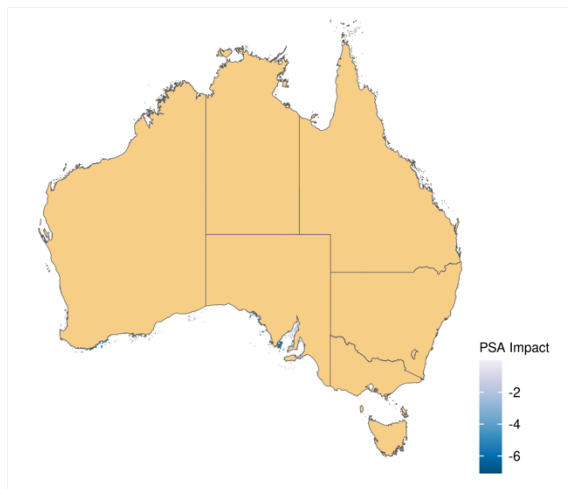
Hypselognathus horridus



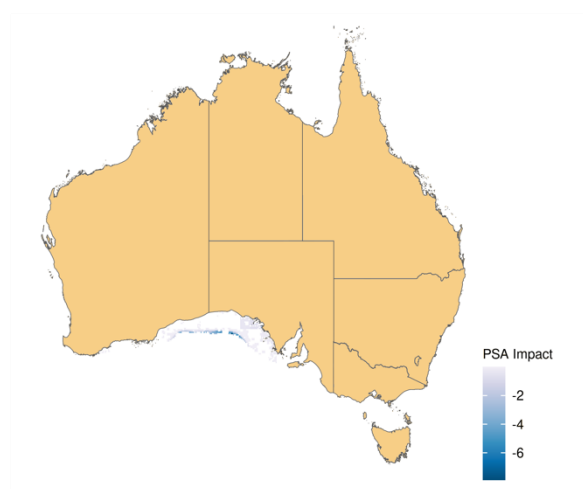
Hypselognathus rostratus



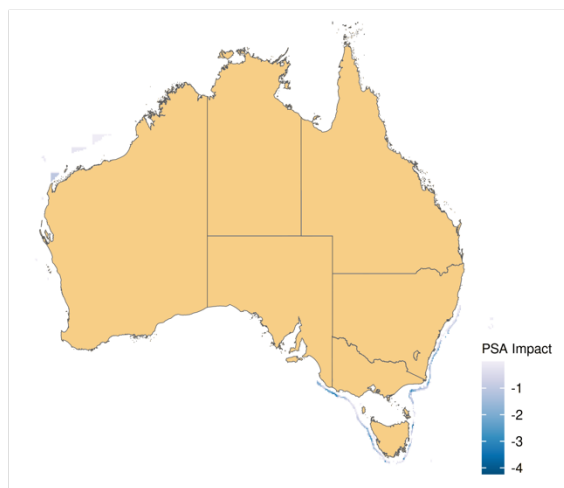
Idiotropiscis australe



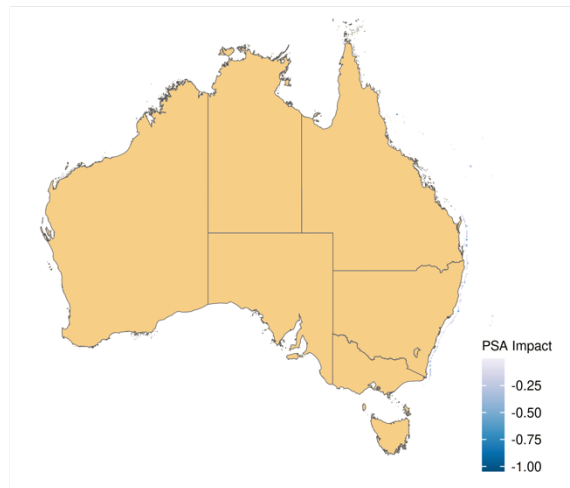
Irolita waitii



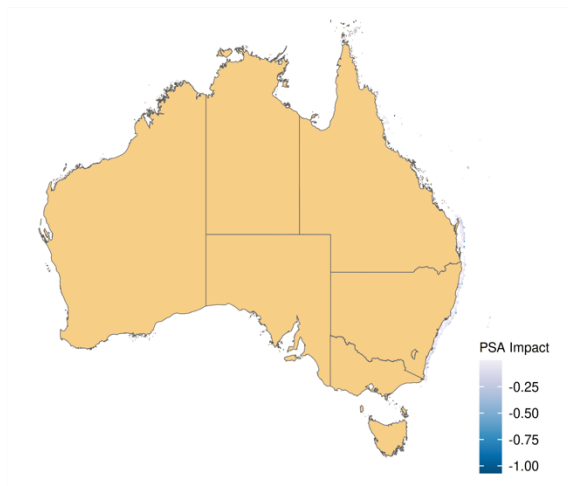
Isistius brasiliensis



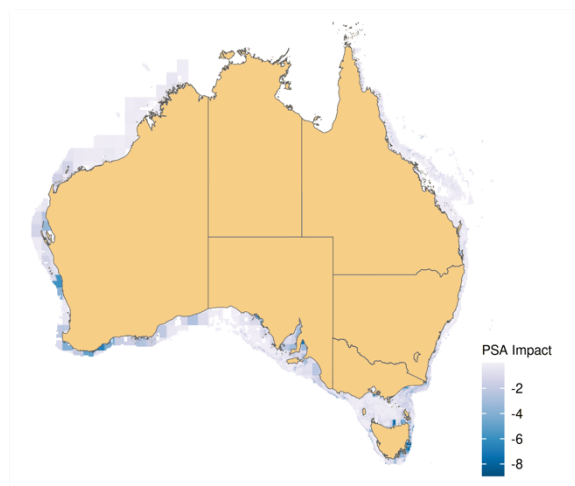
Istiompax indica



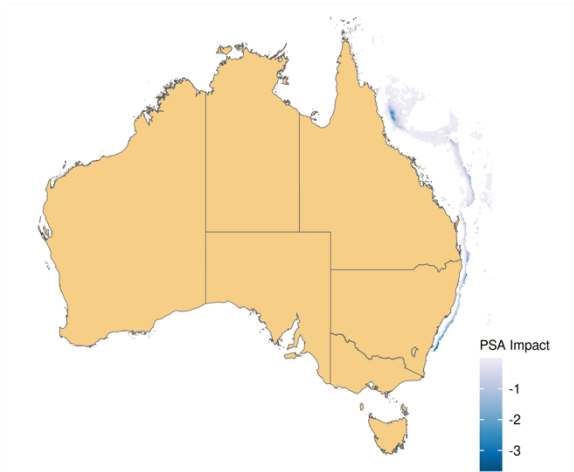
Istiophorus platypterus



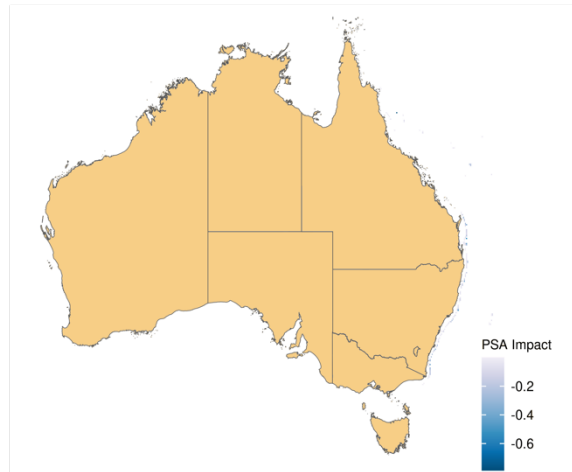
Isurus oxyrinchus



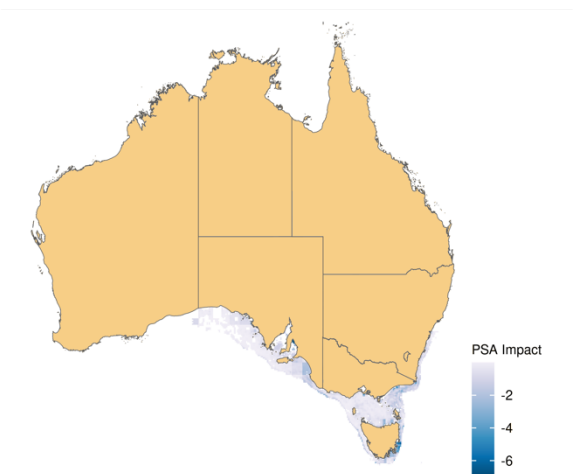
Isurus paucus



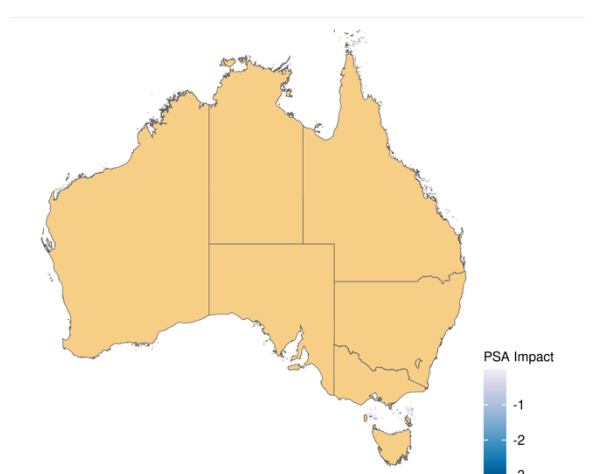
Kajikia audax



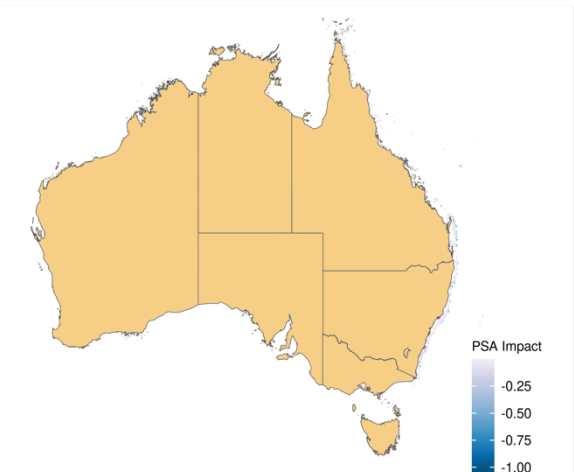
Kathetostoma canaster



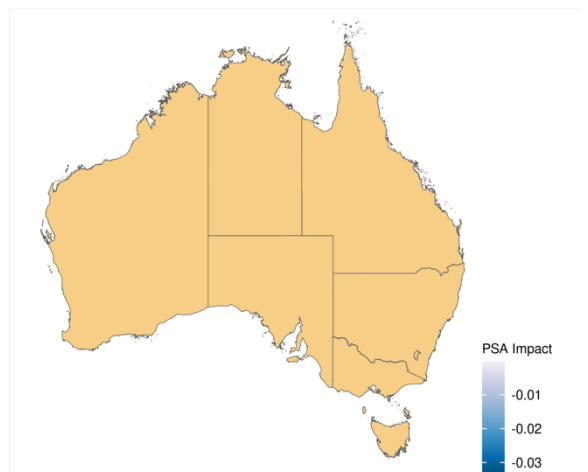
Kathetostoma laeve



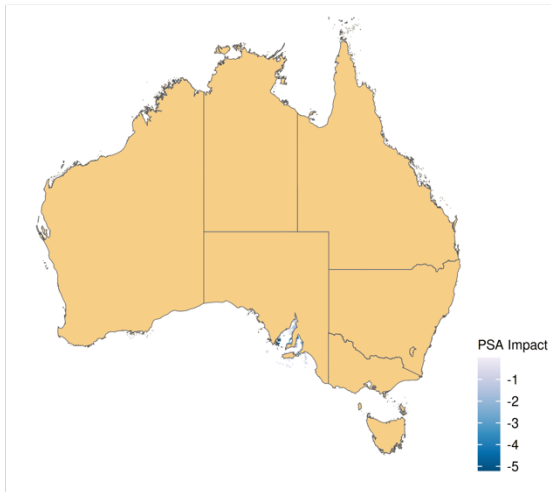
Katsuwonus pelamis



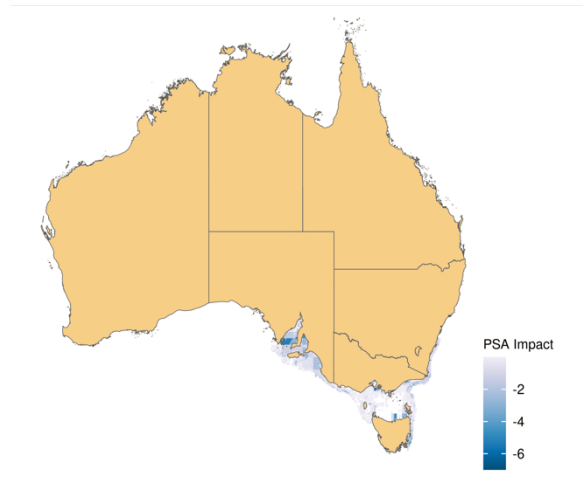
Kaupichthys diodontus



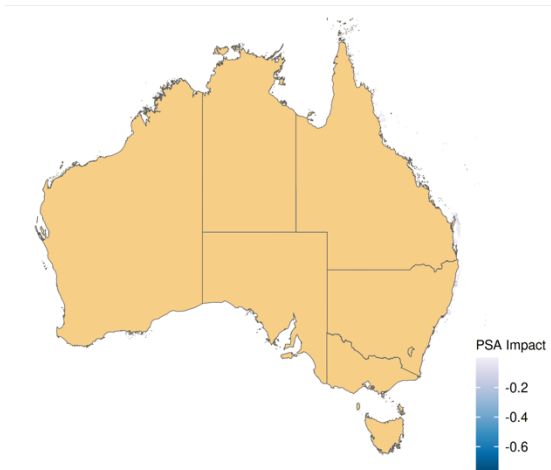
Kaupus costatus



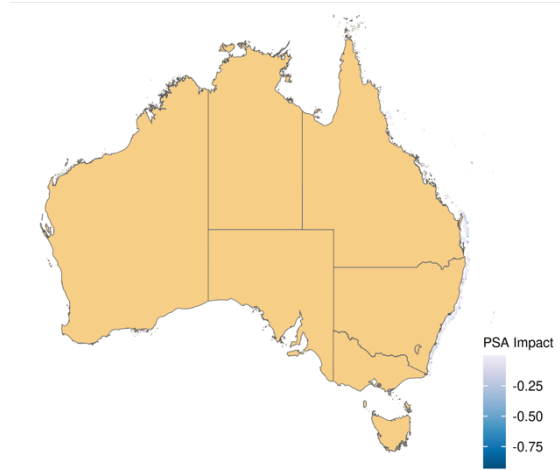
Kimblaeus bassensis



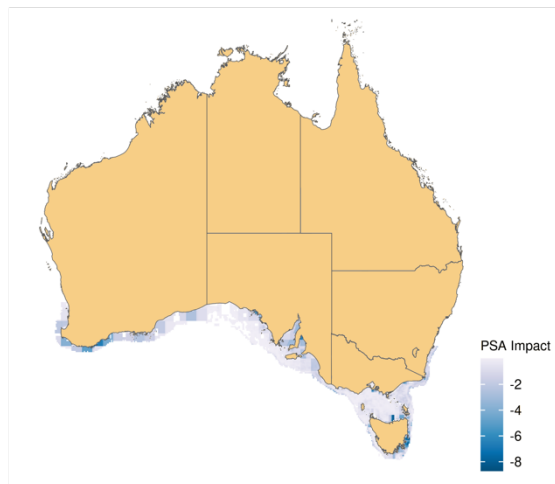
Lactoria cornuta



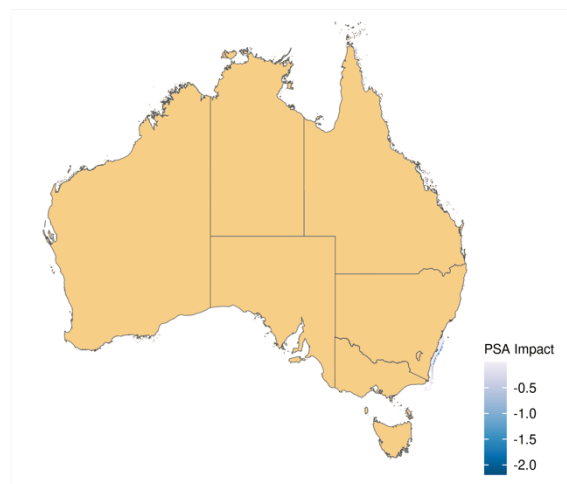
Lagocephalus lagocephalus



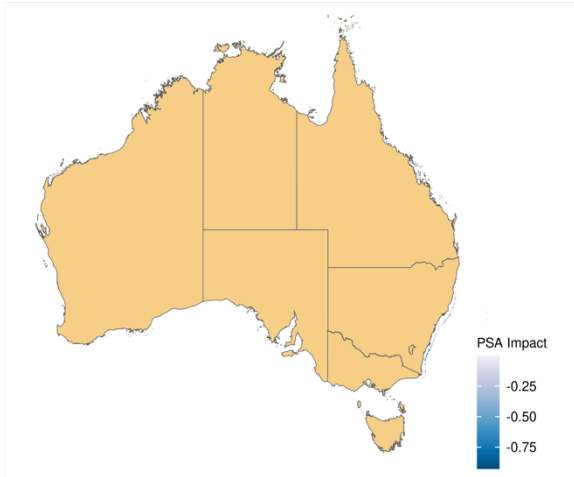
Lamna nasus



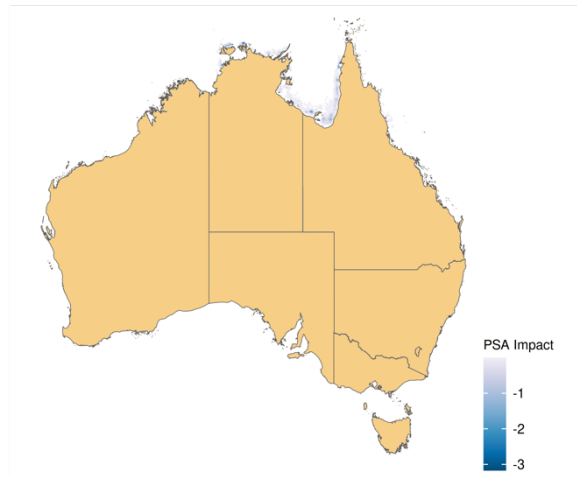
Lampanyctodes hectoris



Lampris guttatus



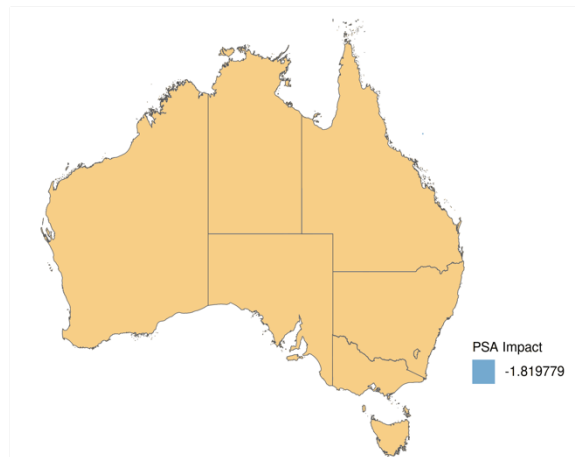
Lapemis curtis



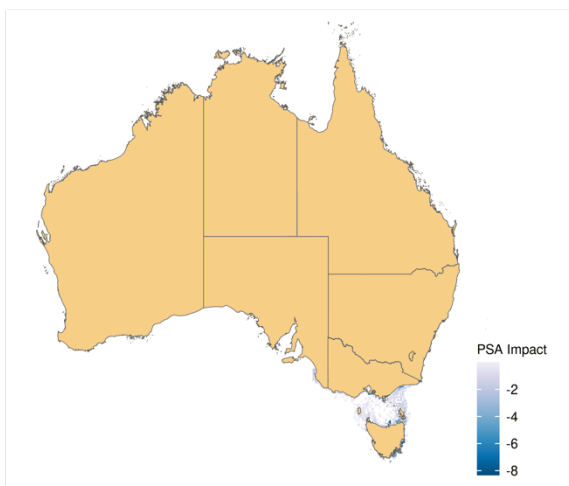
Laticauda colubrina



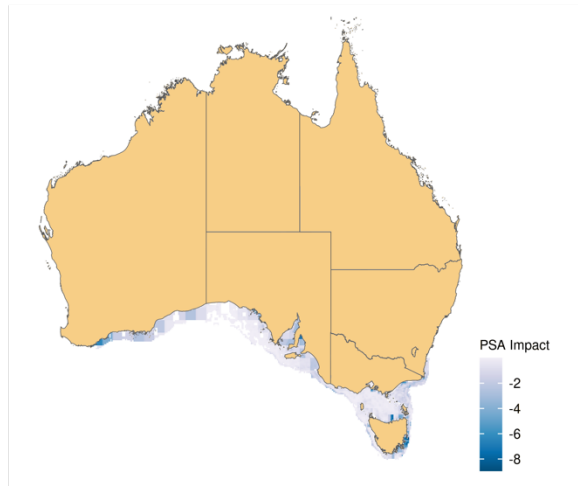
Laticauda laticaudata



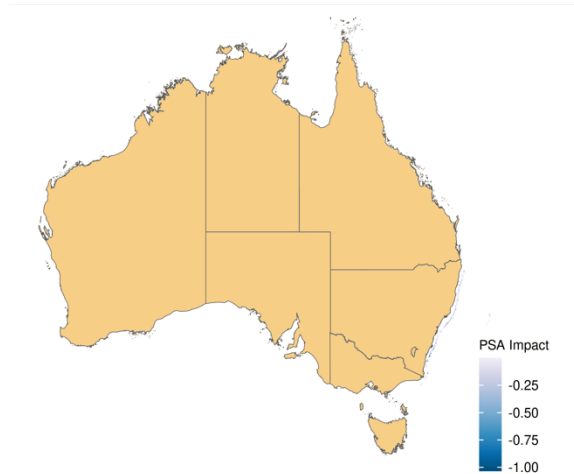
Latridopsis forsteri



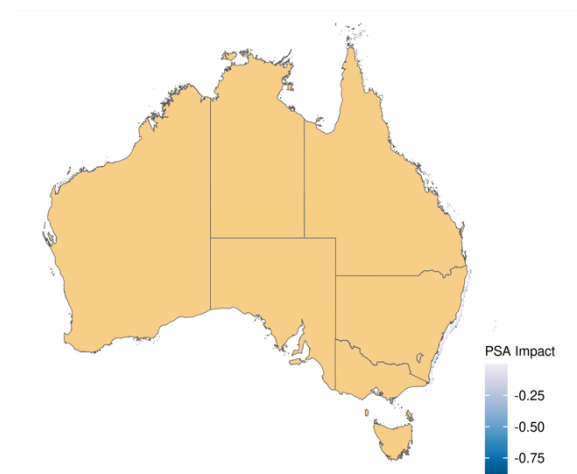
Latris lineata



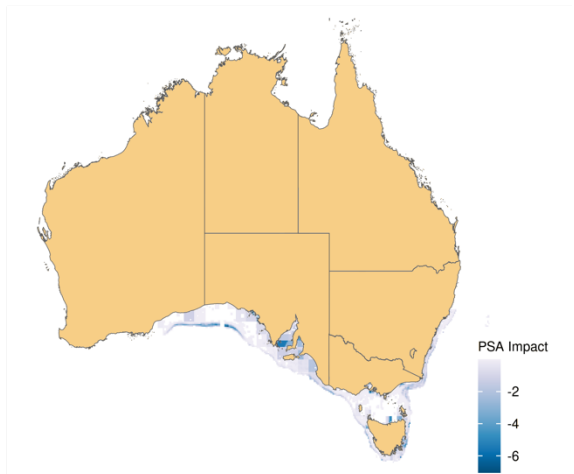
Lepidocybium flavobrunneum



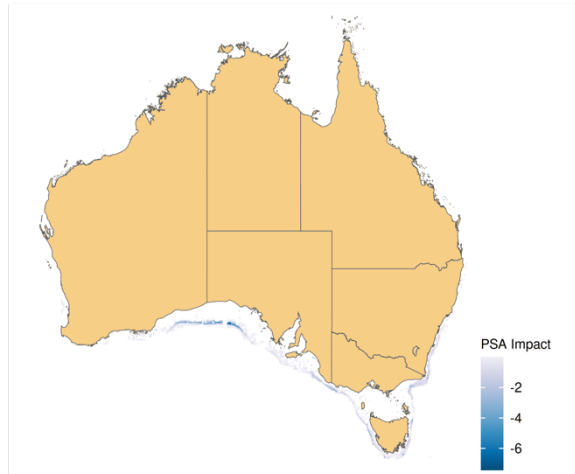
Lepidoperca pulchella



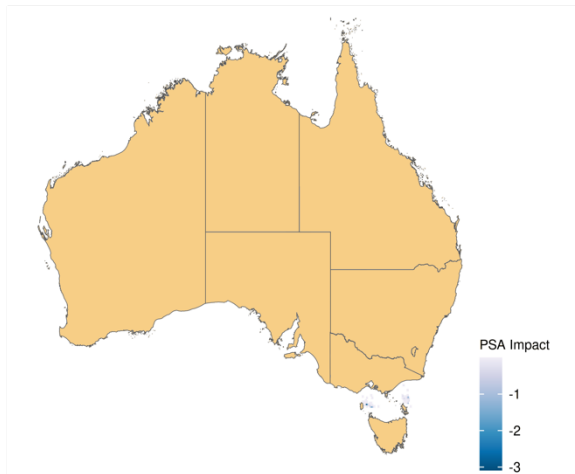
Lepidopus caudatus



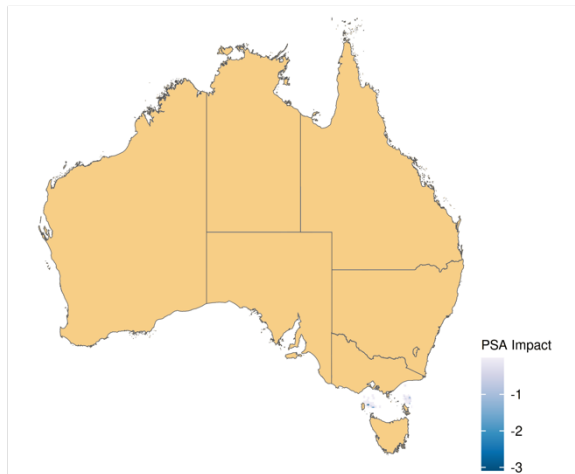
Lepidorhynchus denticulatus



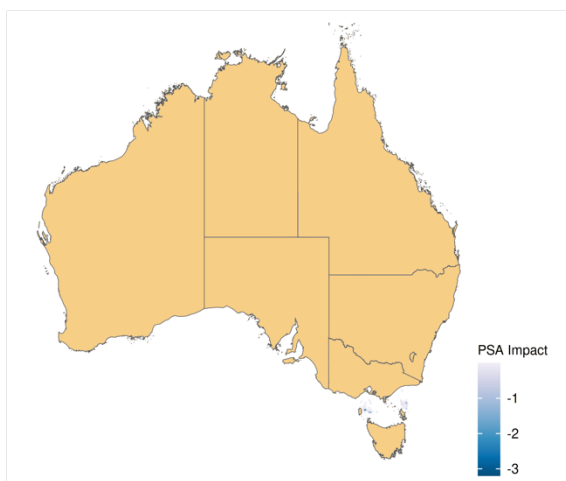
Lepidotrigla modesta



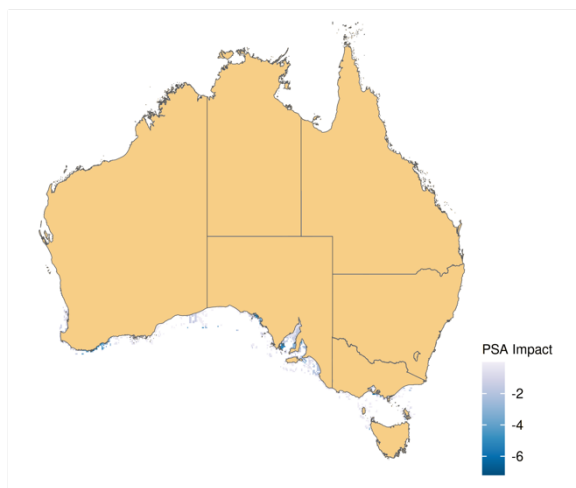
Lepidotrigla papilio



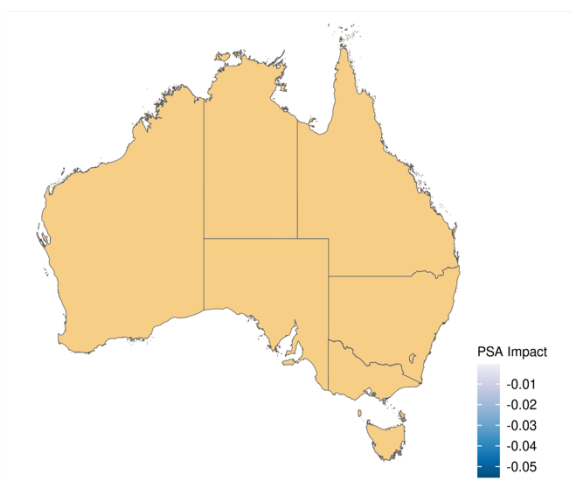
Lepidotrigla vanessa



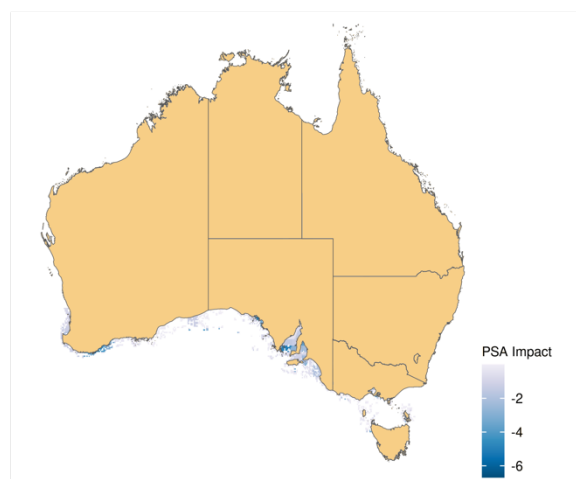
Leptoichthys fistularius



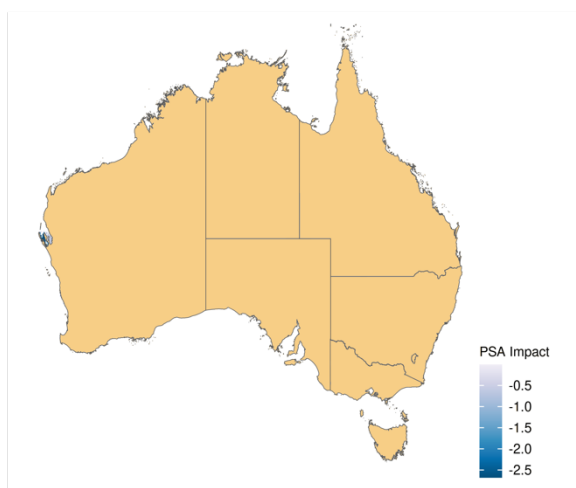
Lethrinus miniatus



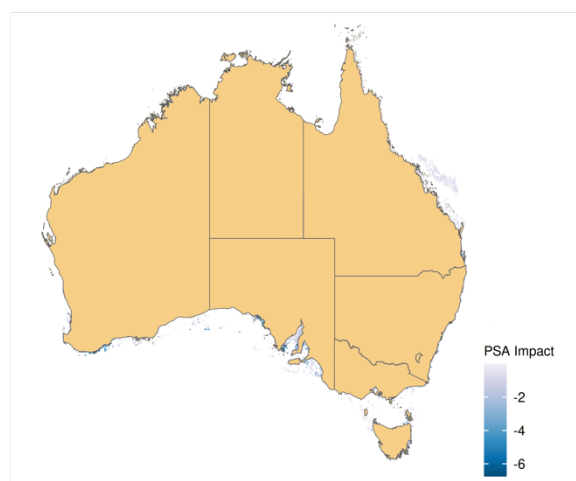
Lissocampus caudalis



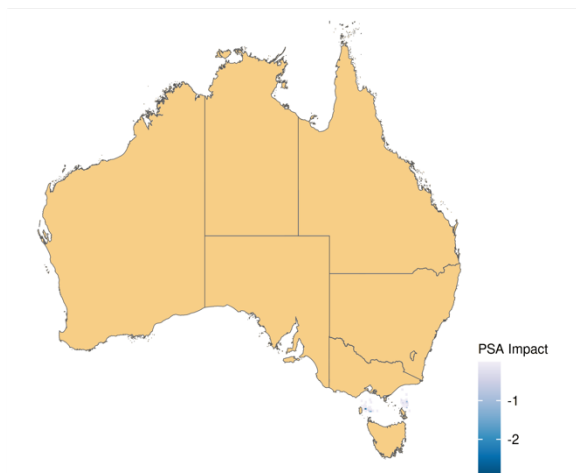
Lissocampus fatiloquus



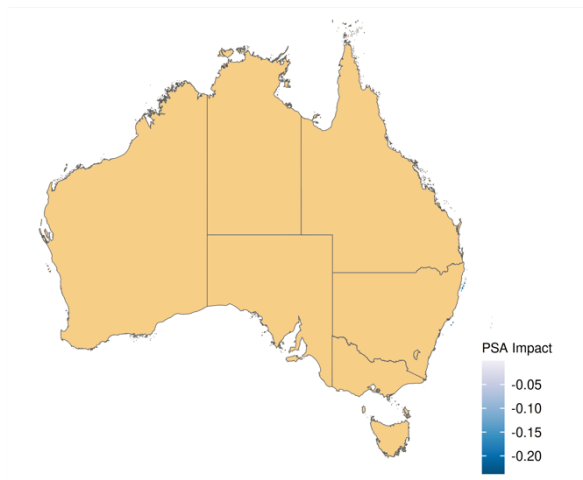
Lissocampus runa



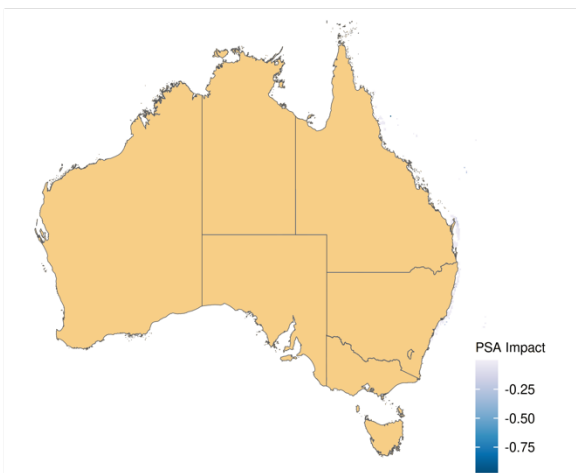
Lophonectes gallus



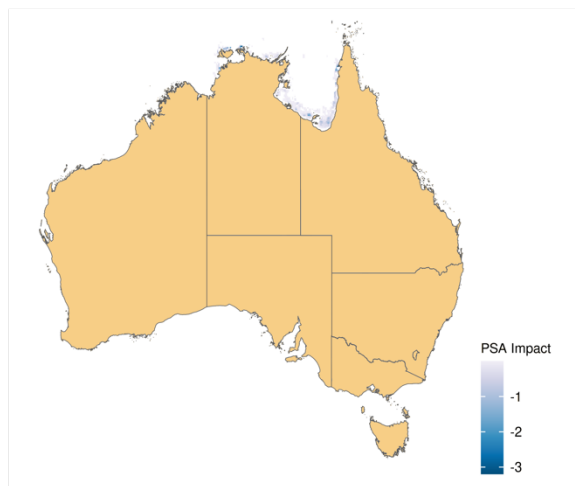
Lophotus lacepede



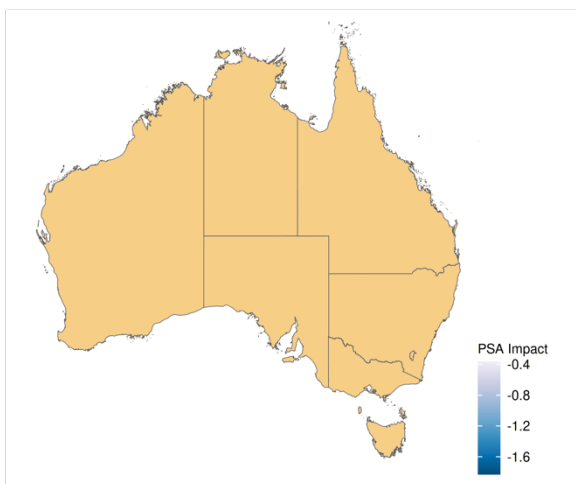
Lutjanus argentimaculatus



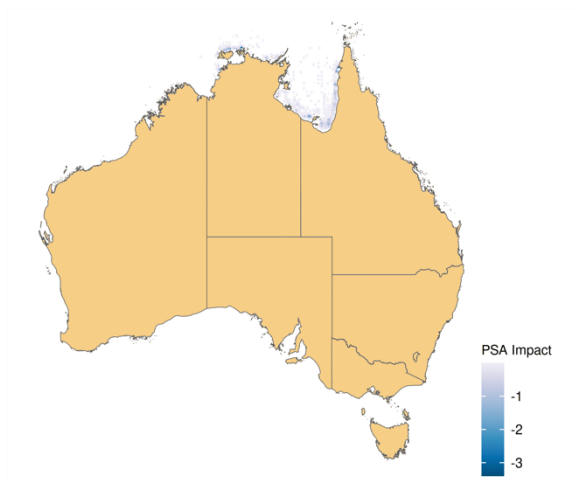
Lutjanus fulviflamma



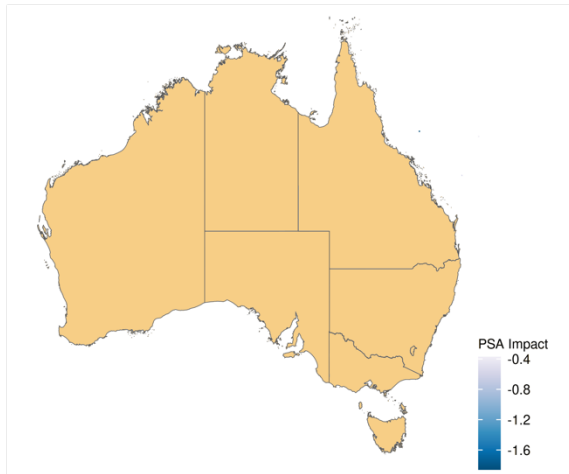
Lutjanus malabaricus



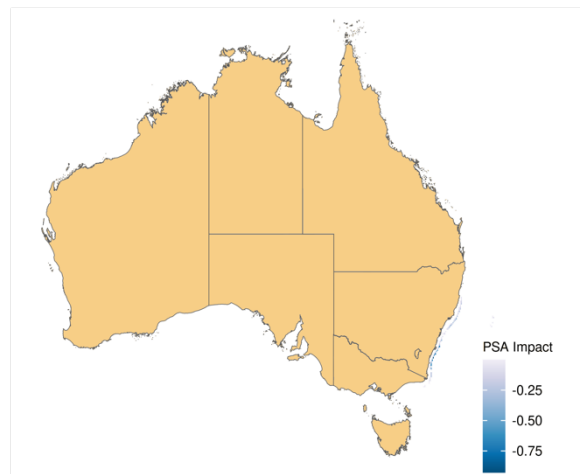
Lutjanus russellii



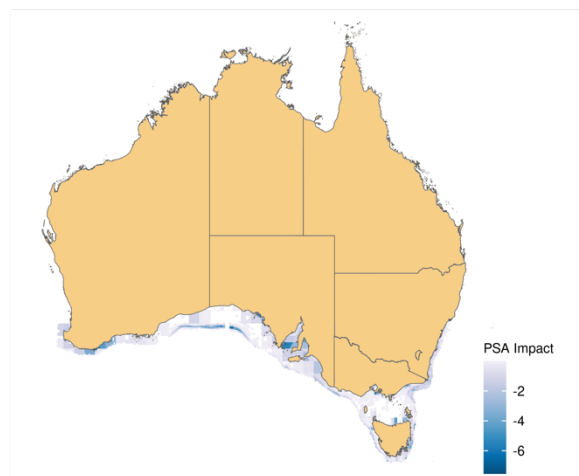
Lutjanus sebae



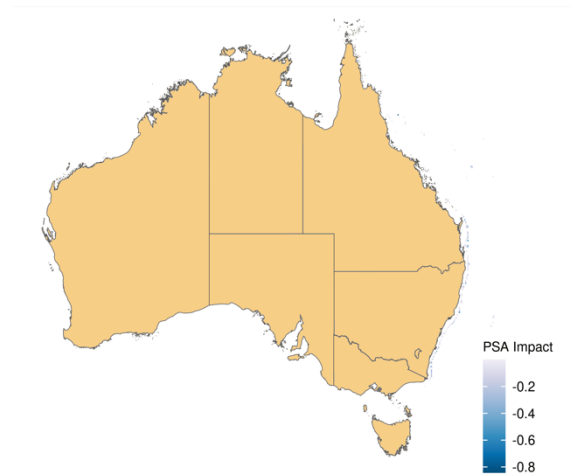
Luvarus imperialis



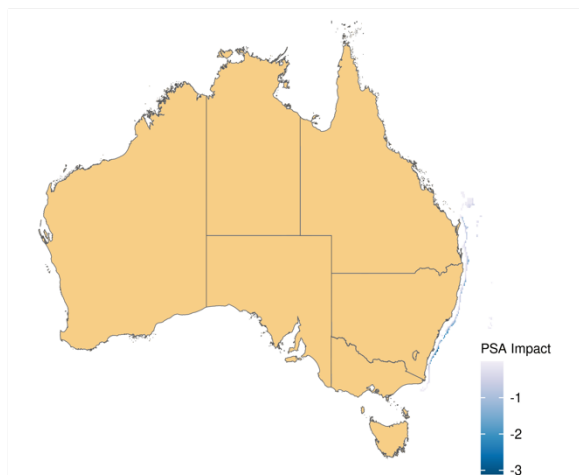
Macruronus novaezelandiae



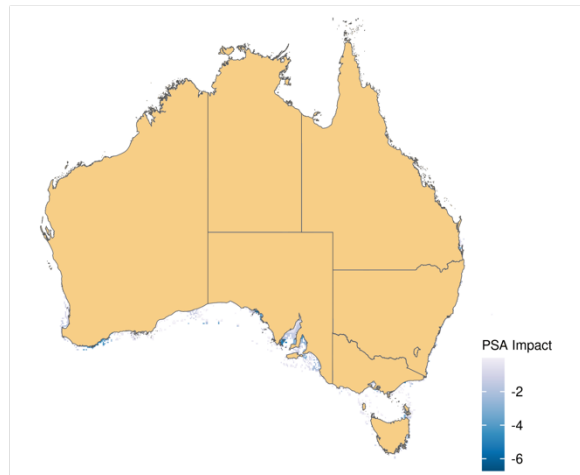
Makaira nigricans



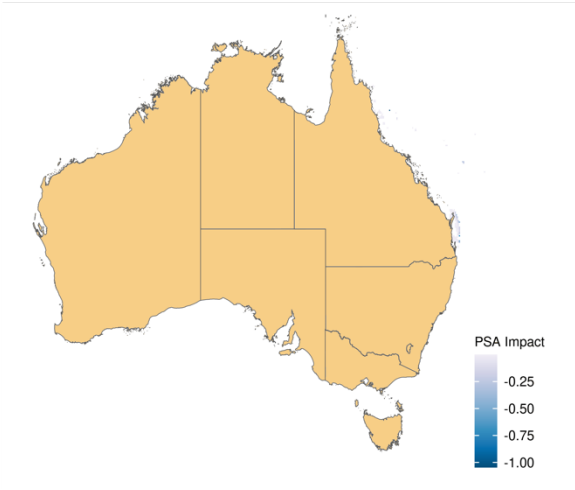
Malacocephalus laevis



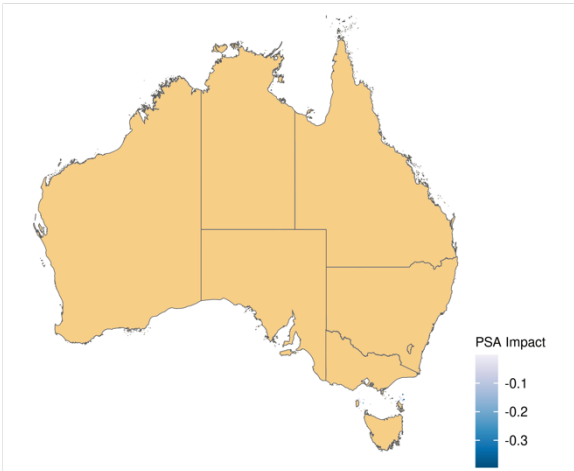
Maroubra perserrata



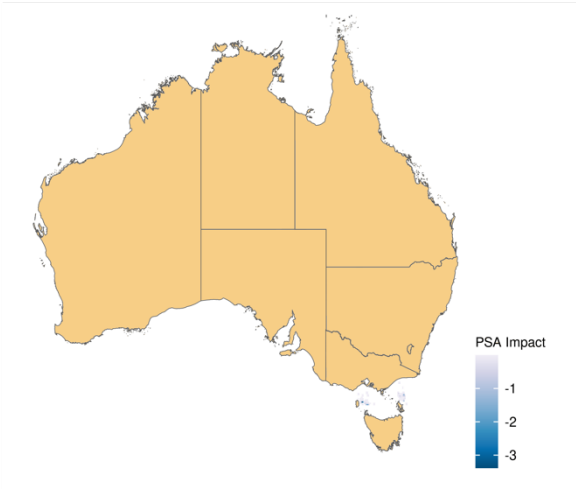
Mene maculata



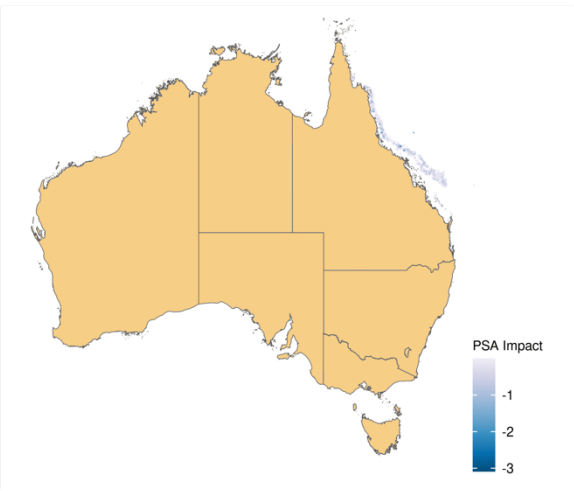
Meuschenia australis



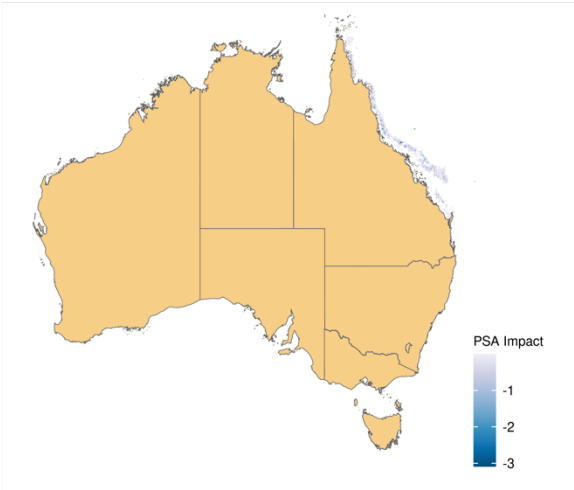
Meuschenia scaber



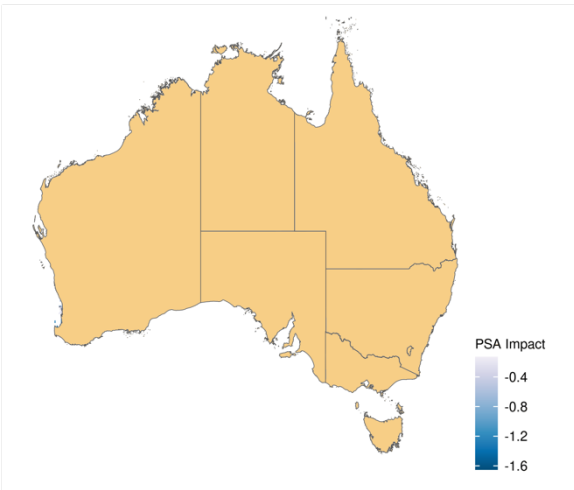
Micrognathus andersonii



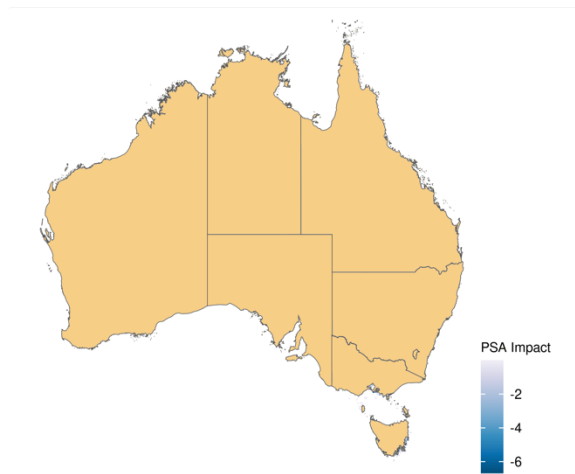
Micrognathus pygmaeus



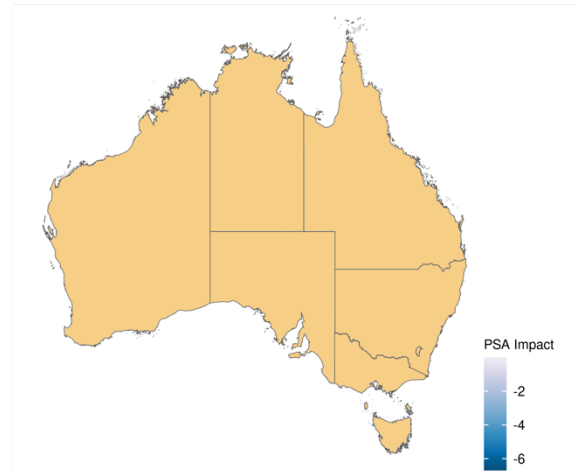
Mitotichthys meraculus



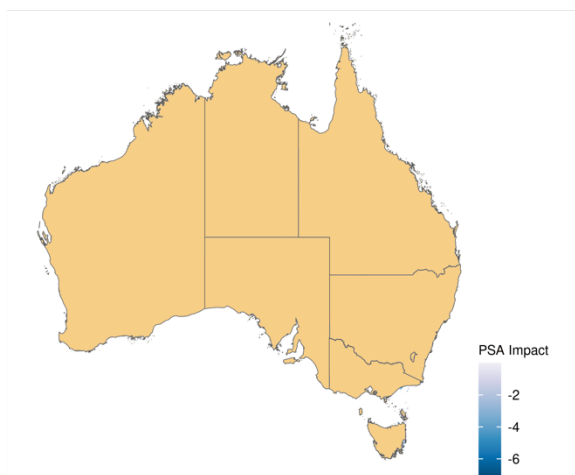
Mitotichthys mollisoni



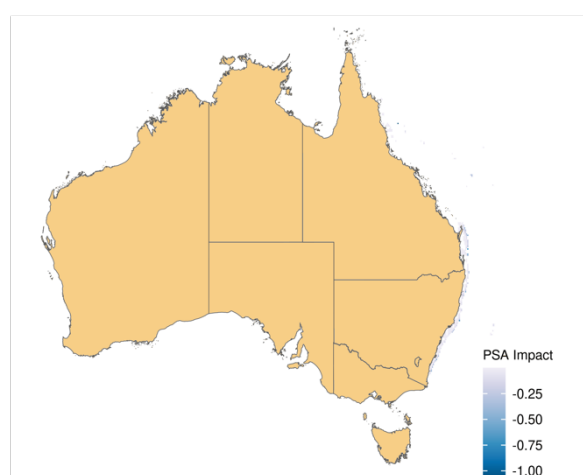
Mitotichthys semistriatus



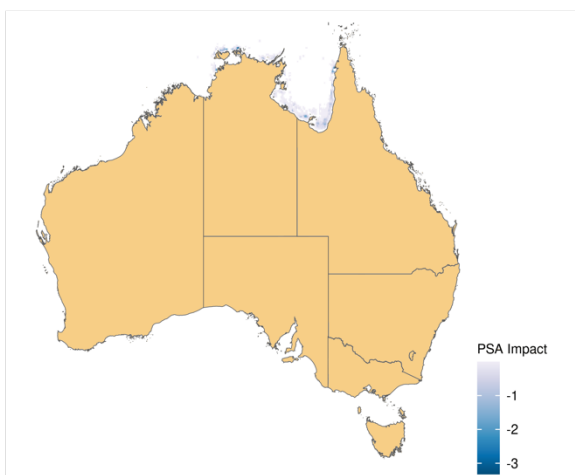
Mitotichthys tuckeri



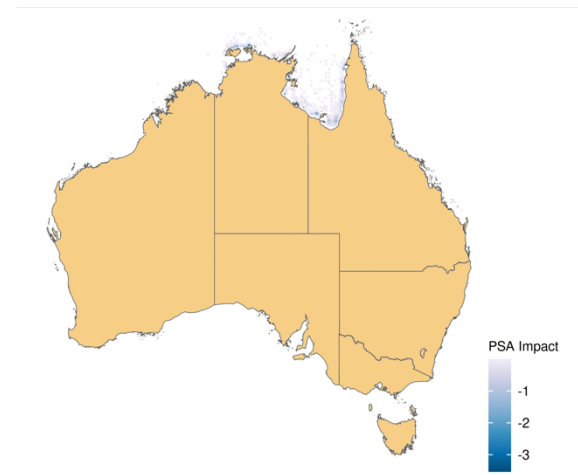
Mobula birostris



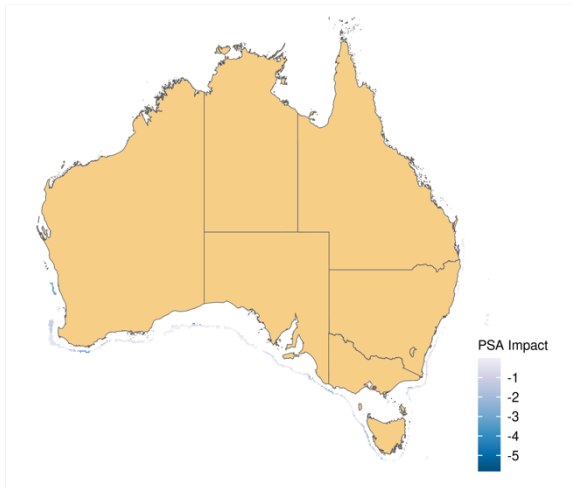
Monacanthus chinensis



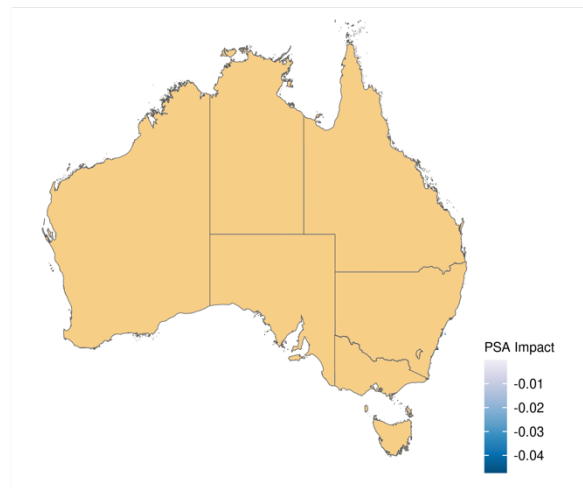
Monotaxis grandoculis



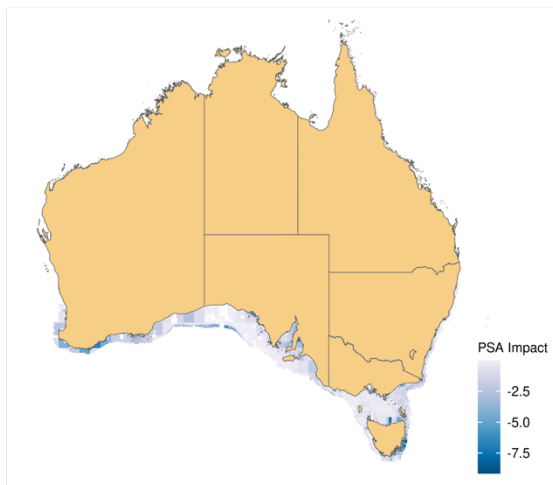
Mora moro



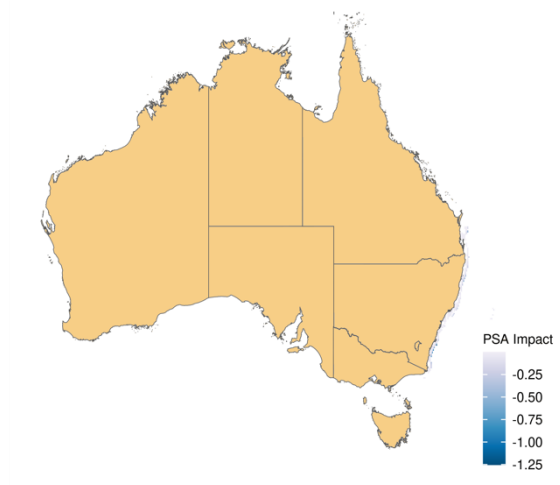
Mordacia mordax



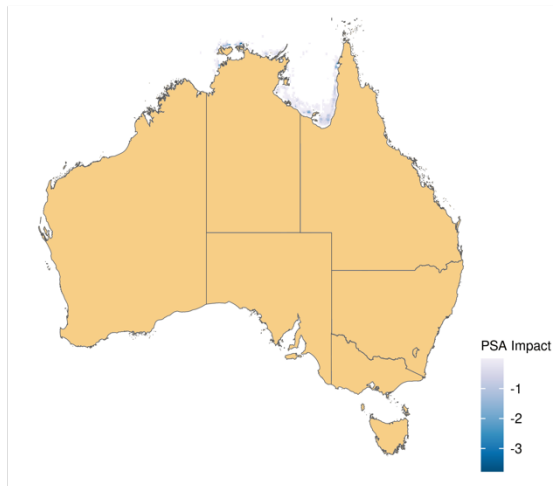
Mustelus antarcticus



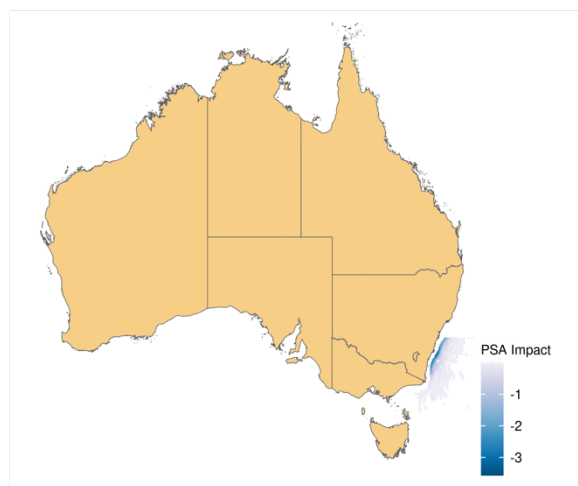
Myliobatis tenuicaudatus



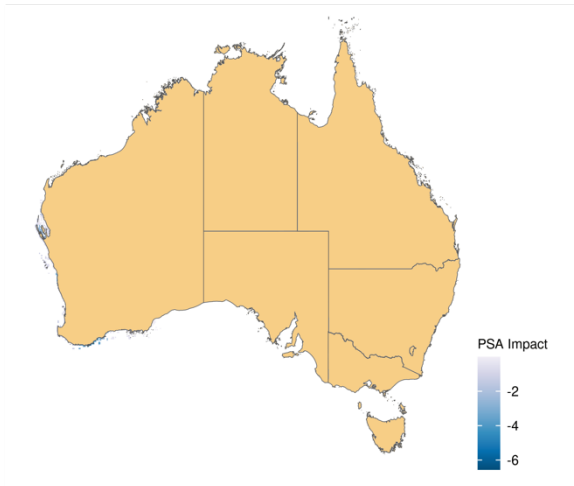
Myripristis murdjan



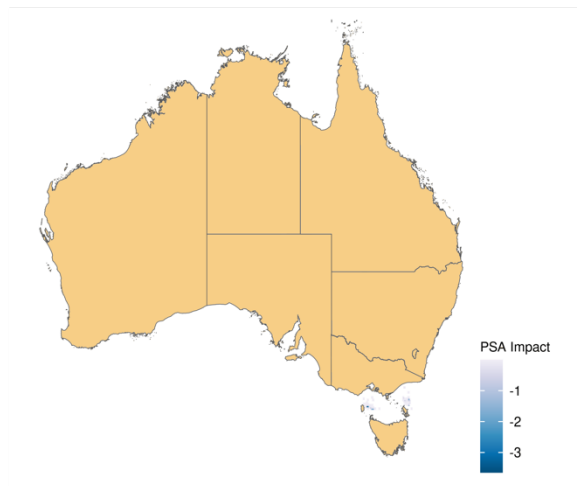
Nannobranchium achirus



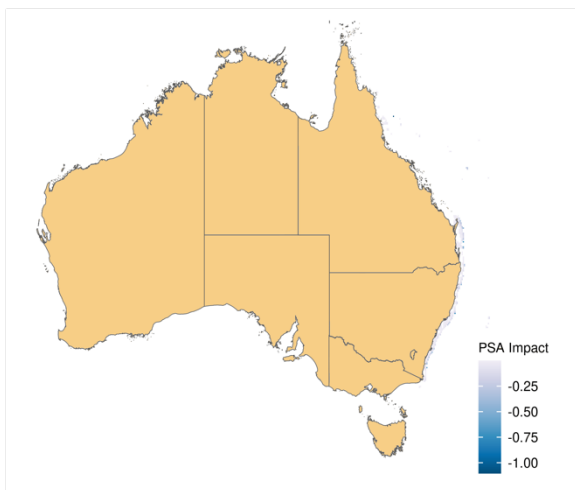
Nannocampus subosseus



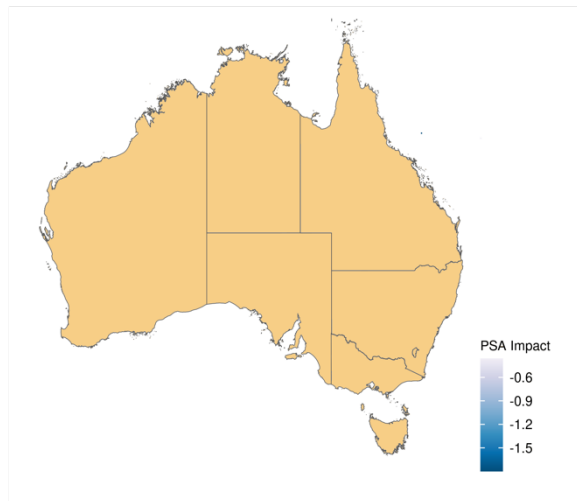
Narcine tasmaniensis



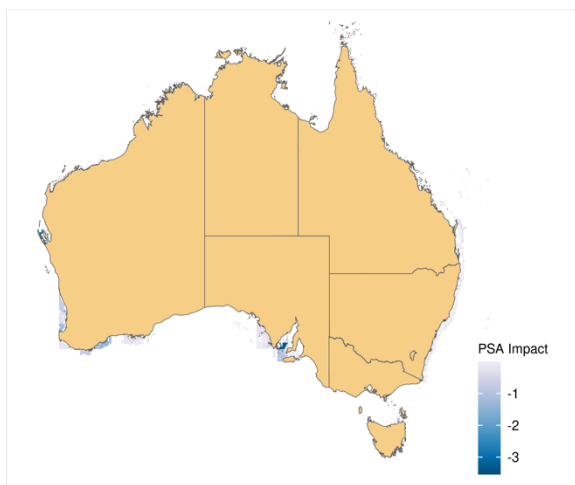
Naucrates ductor



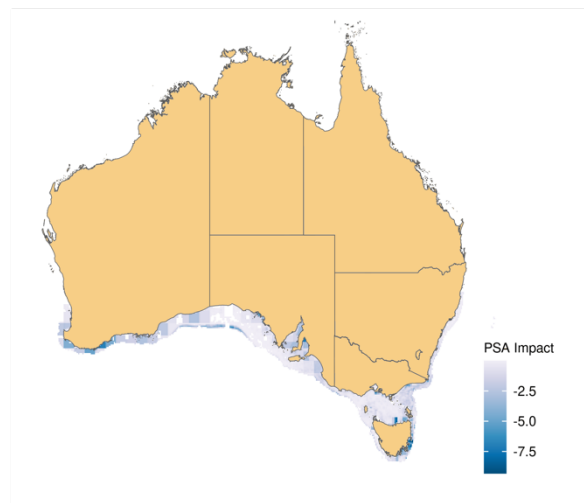
Nebrius ferrugineus



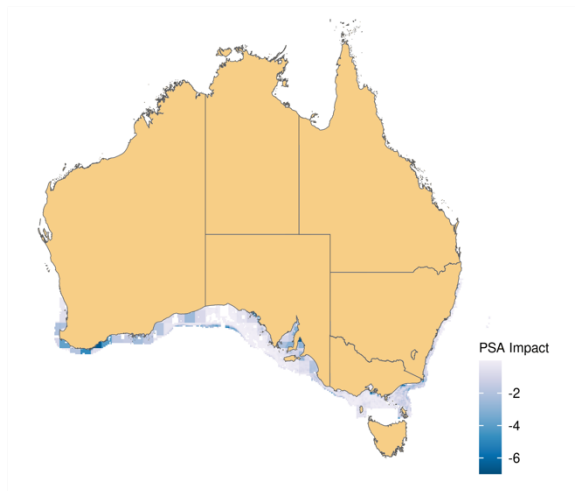
Nelusetta ayraud



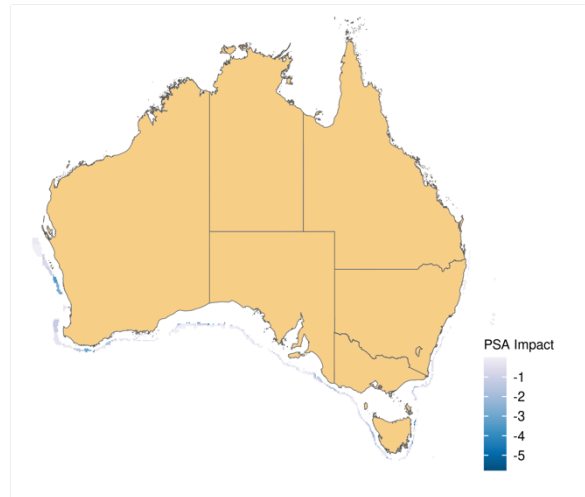
Nemadactylus macropterus



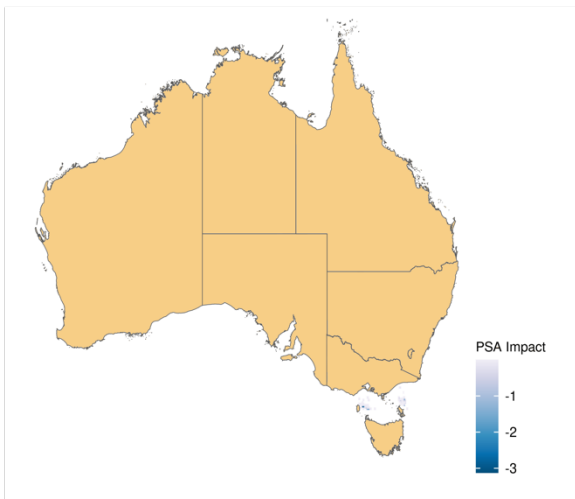
Nemadactylus valenciennesi



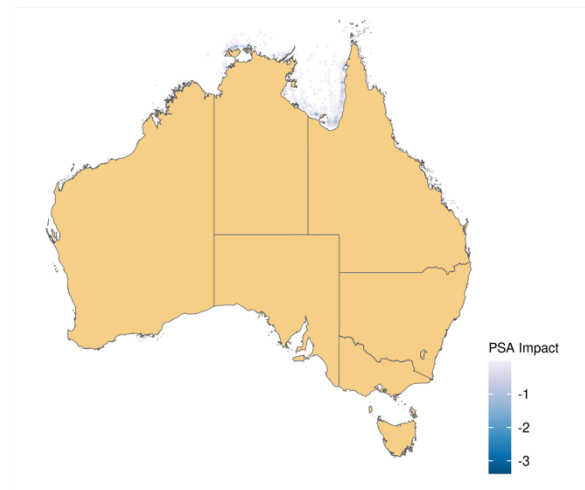
Neocyttus rhomboidalis



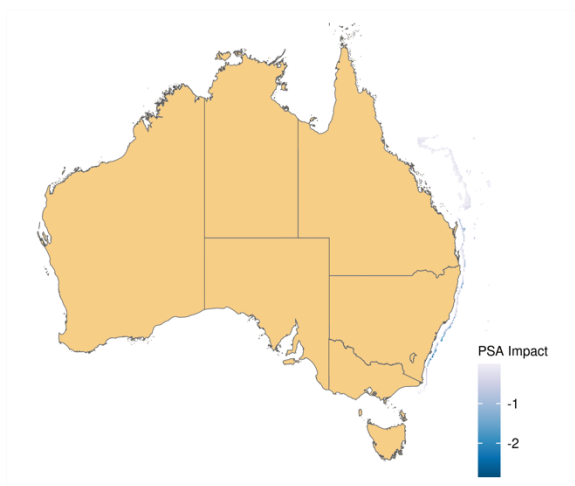
Neosebastes scorpaenoides



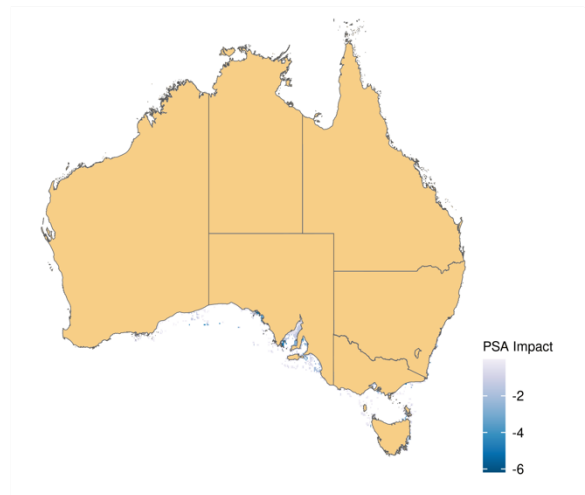
Neotrygon australiae



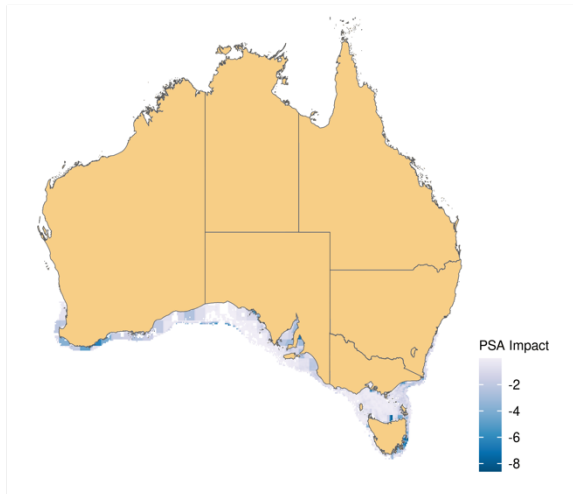
Nesiarchus nasutus



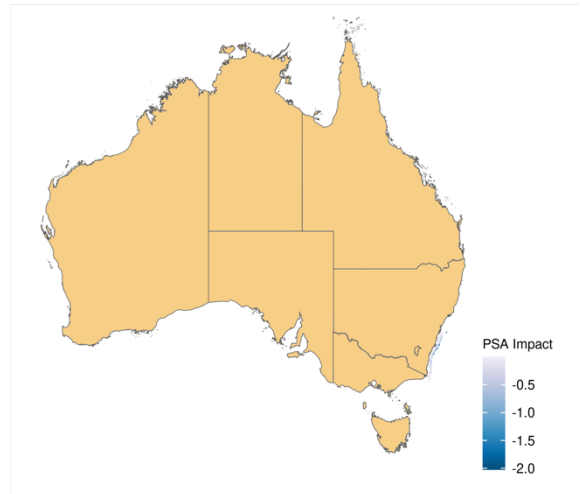
Notiocampus ruber



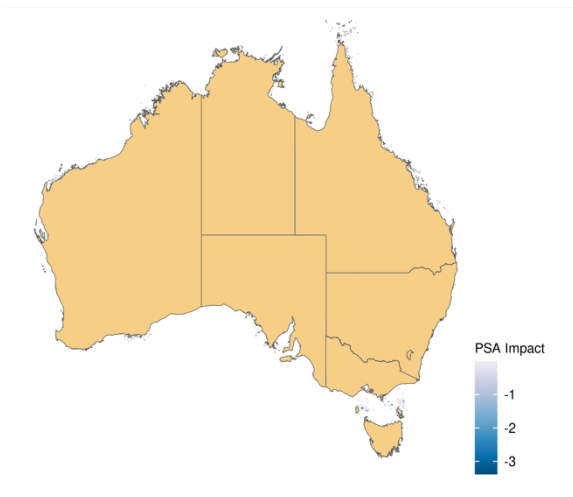
Notorynchus cepedianus



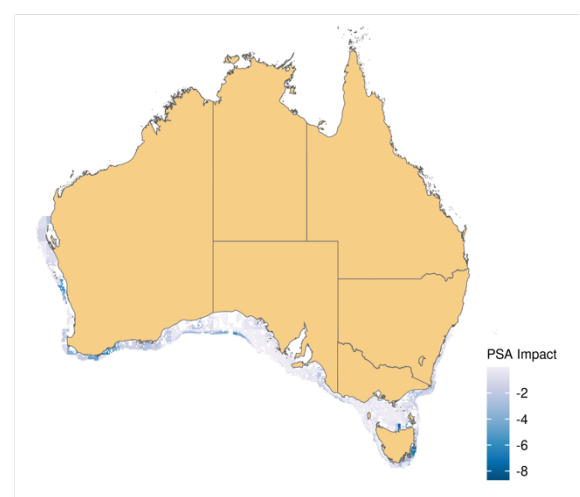
Odontaspis ferox



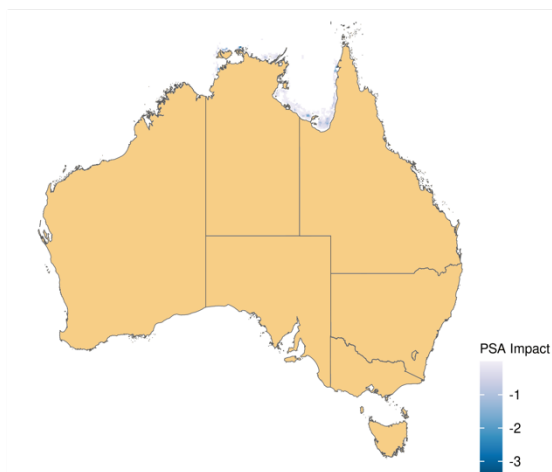
Ophisurus serpens



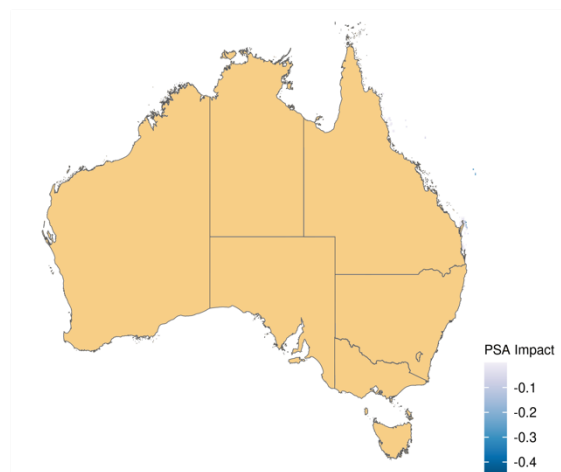
Oplegnathus woodwardi



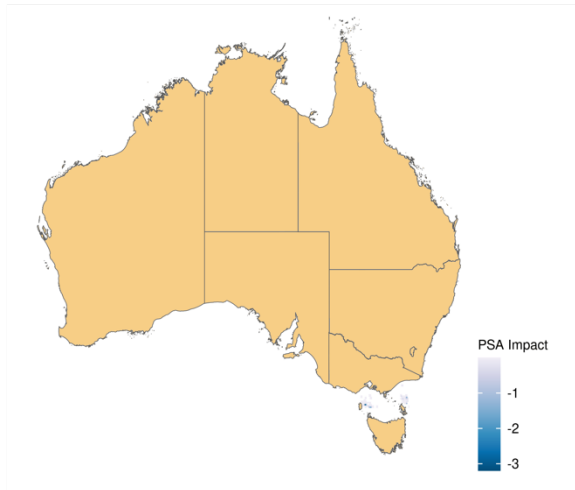
Ostracion meleagris



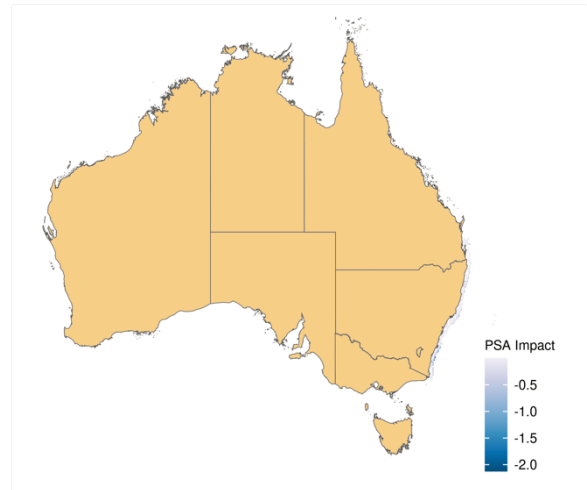
Parastromateus niger



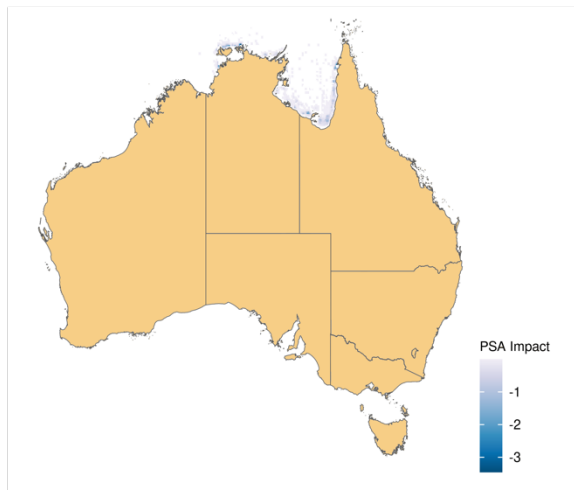
Parequula melbournensis



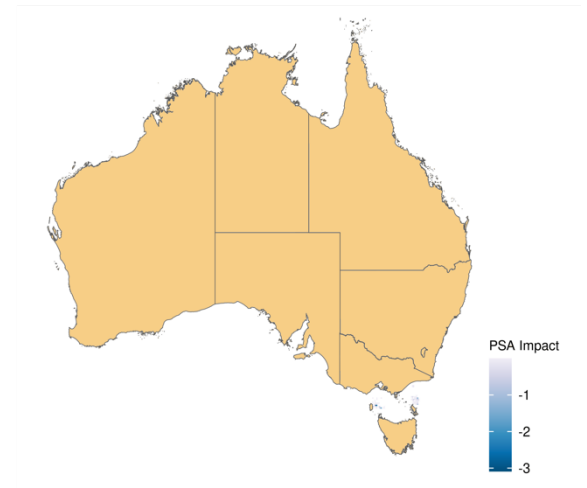
Paristiopterus labiosus



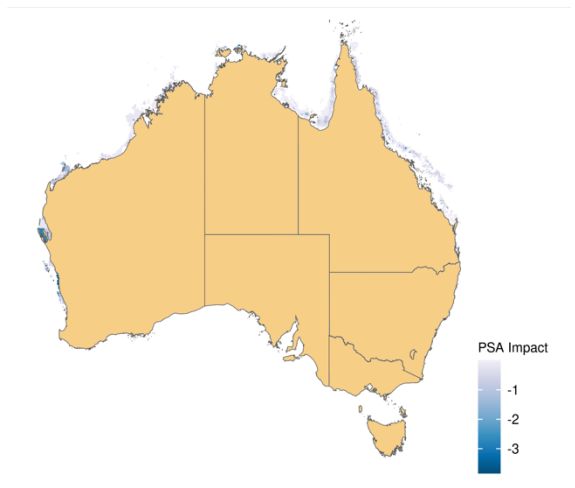
Parupeneus indicus



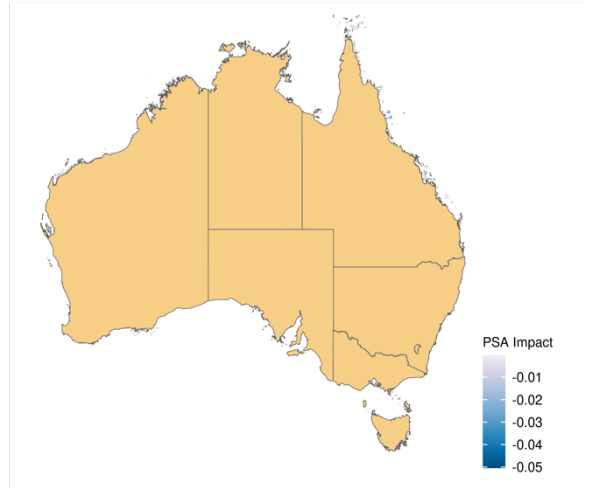
Pegasus lancifer



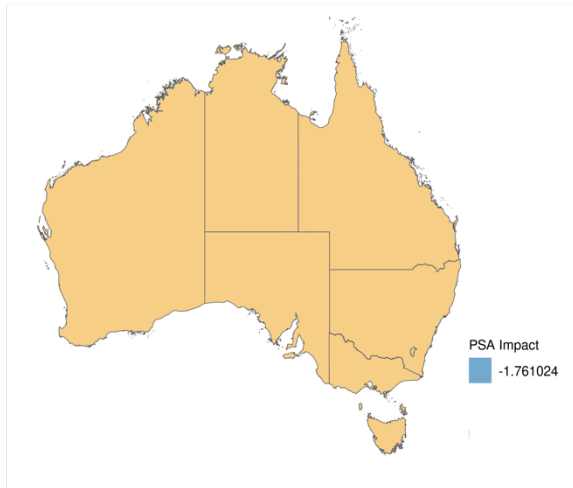
Pelamis platurus



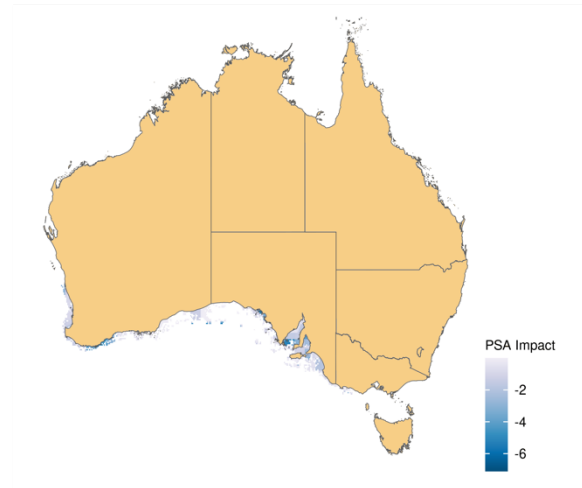
Pellona ditchela



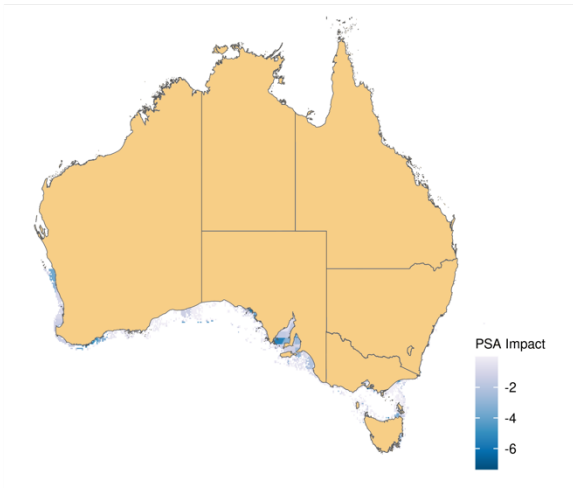
Phoxocampus diacanthus



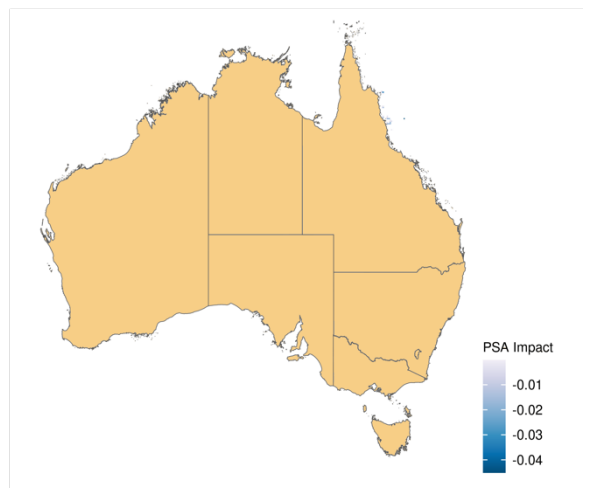
Phycodurus eques



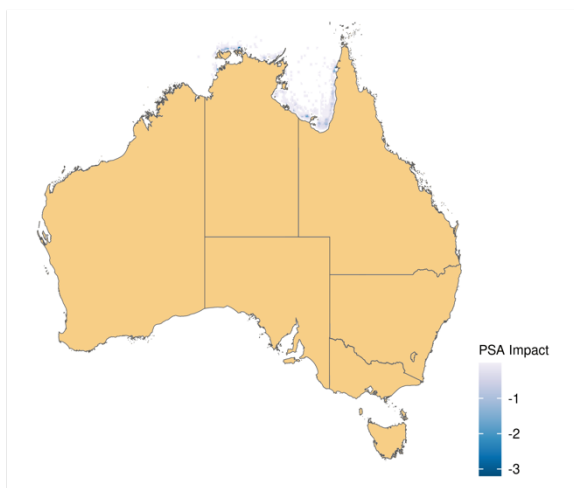
Phyllopteryx taeniolatus



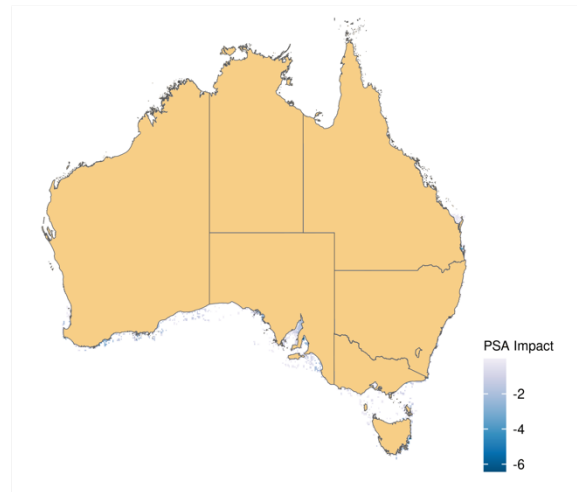
Platax orbicularis



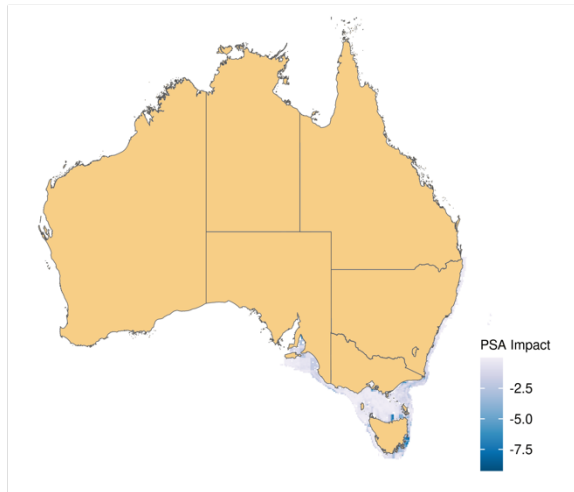
Platax teira



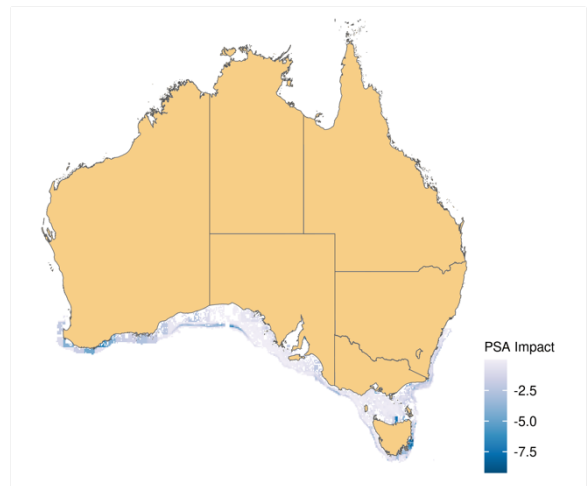
Platycephalus laevigatus



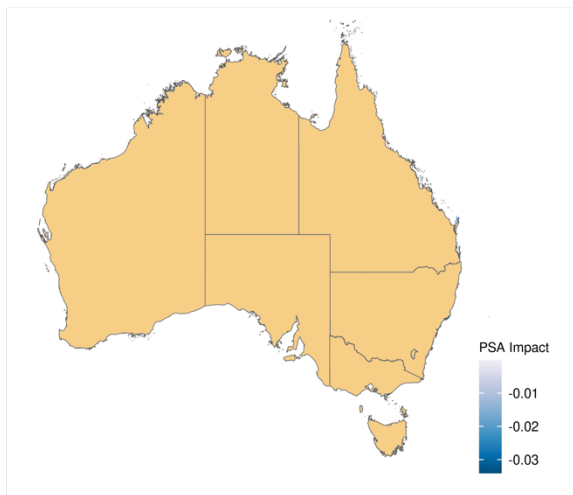
Platycephalus richardsoni



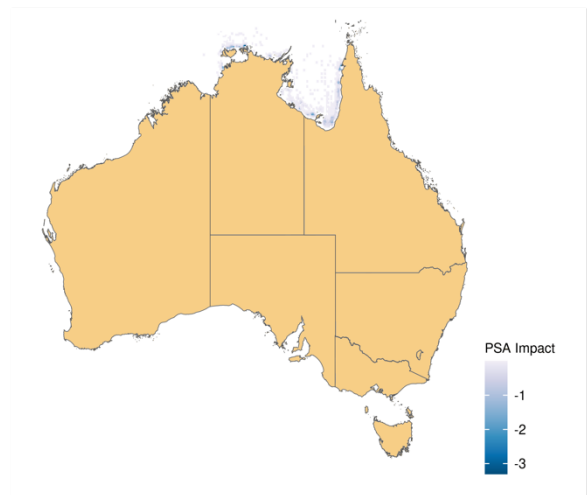
Polyprion oxygeneios



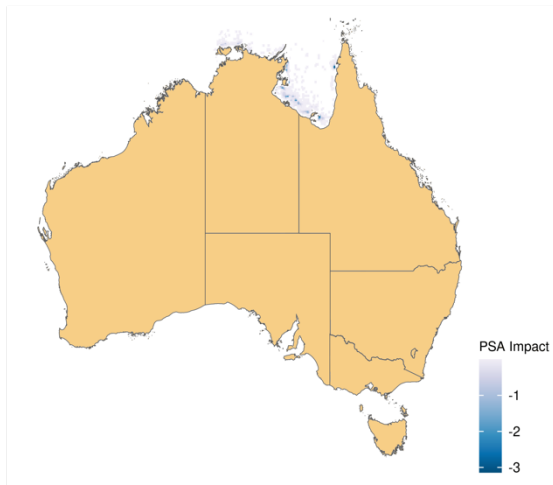
Pomatomus saltatrix



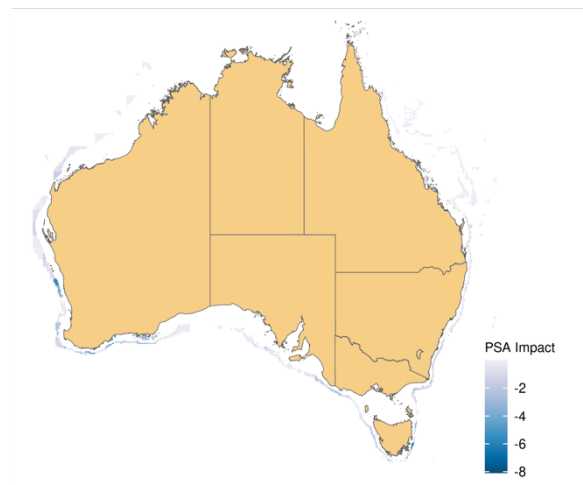
Priacanthus hamrur



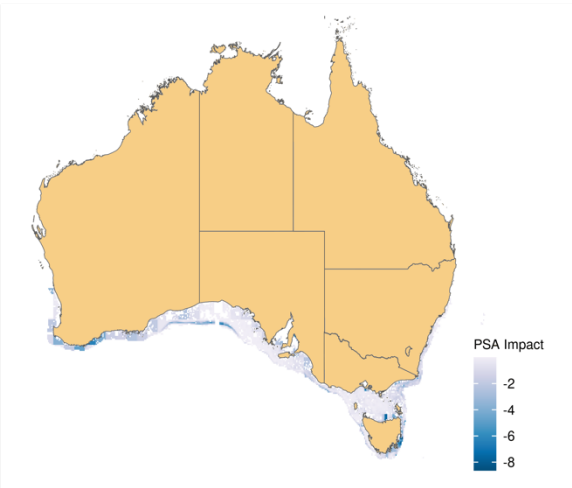
Priacanthus macracanthus



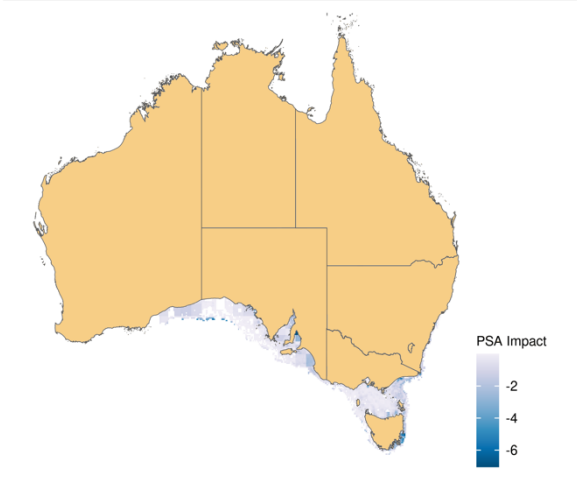
Prionace glauca



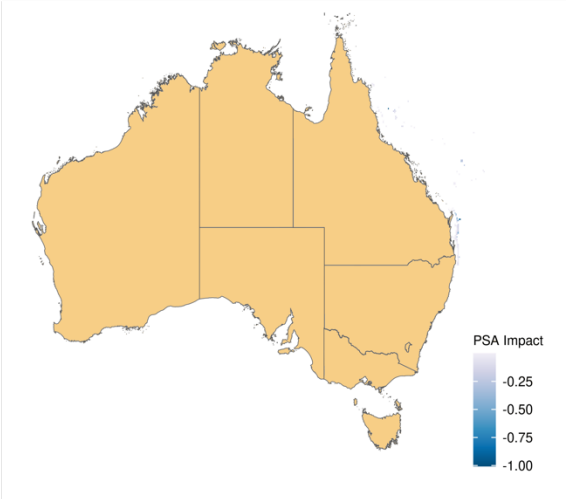
Pristiophorus cirratus



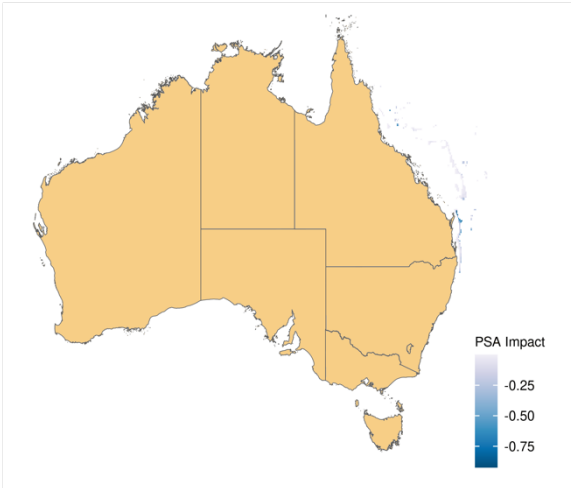
Pristiophorus nudipinnis



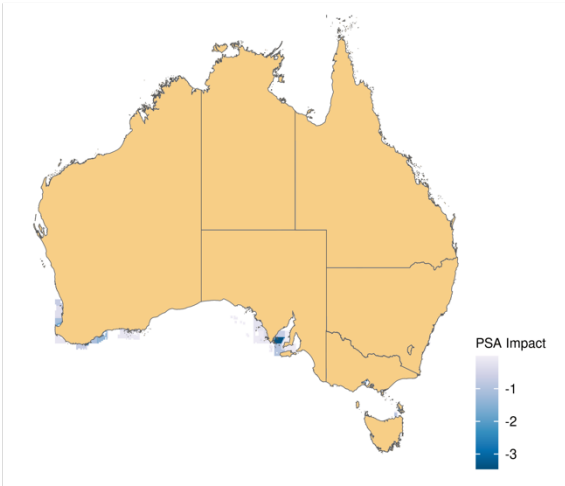
Pristipomoides filamentosus



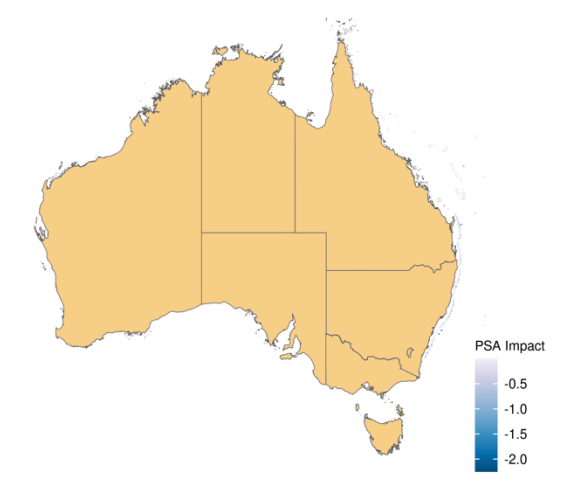
Promethichthys prometheus



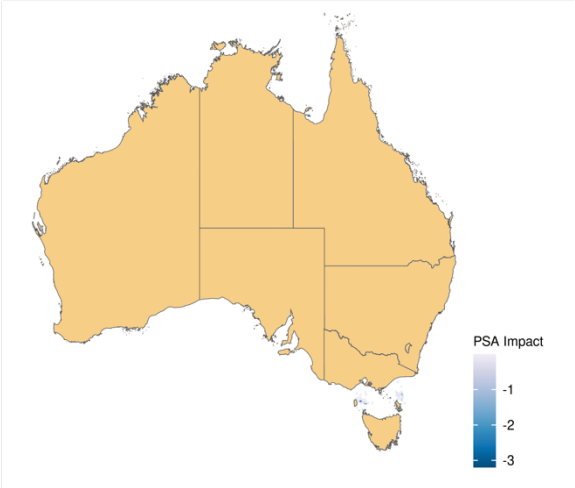
Pseudocaranx georgianus



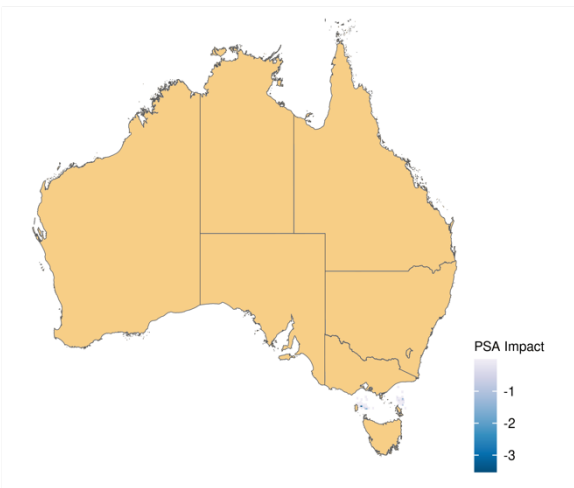
Pseudocarcharias kamoharai



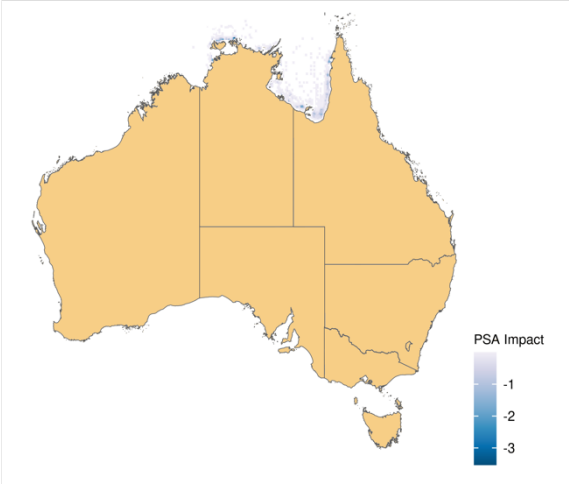
Pseudolabrus rubicundus



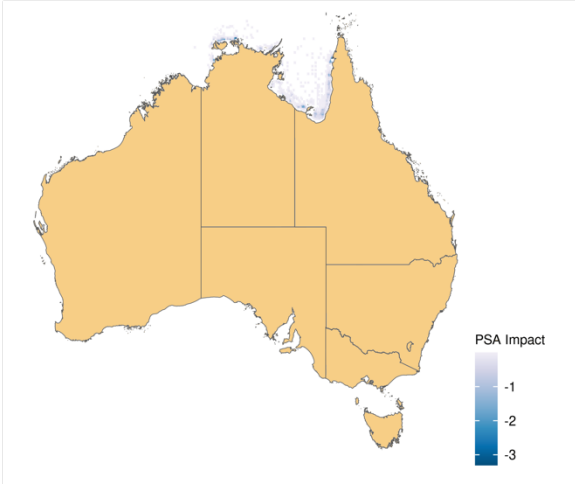
Pseudophycis barbata



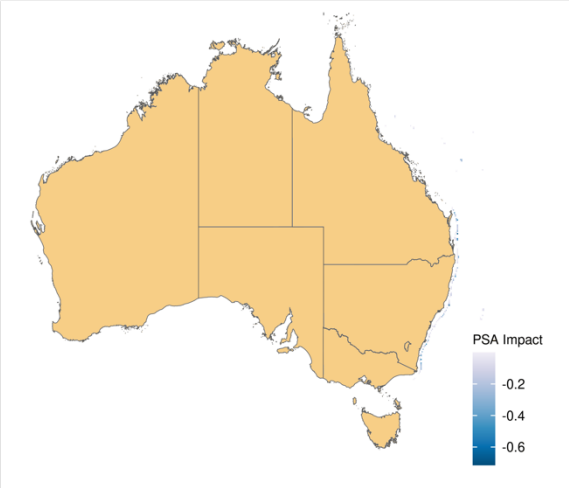
Pterois russelii



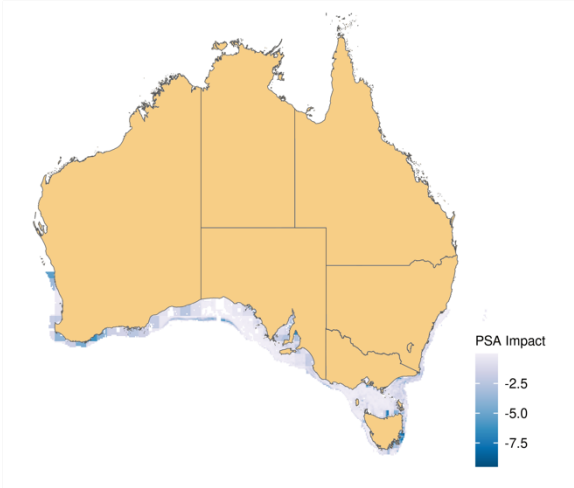
Pterois volitans



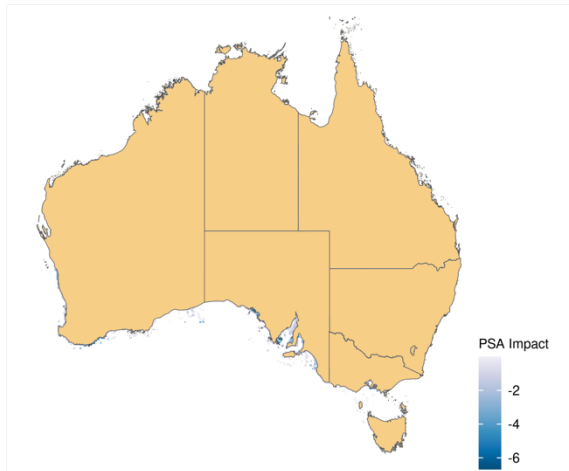
Pteroplatytrygon violacea



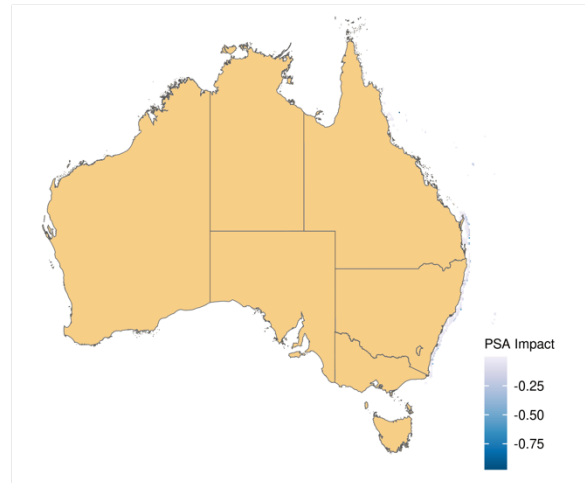
Pterygotrigla polyommata



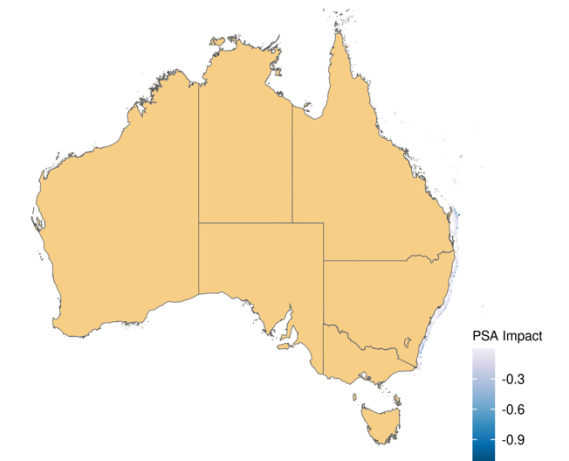
Pugnaso curtirostris



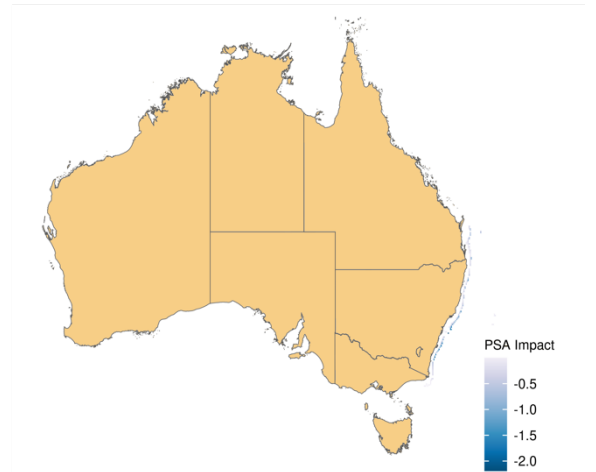
Rachycentron canadum



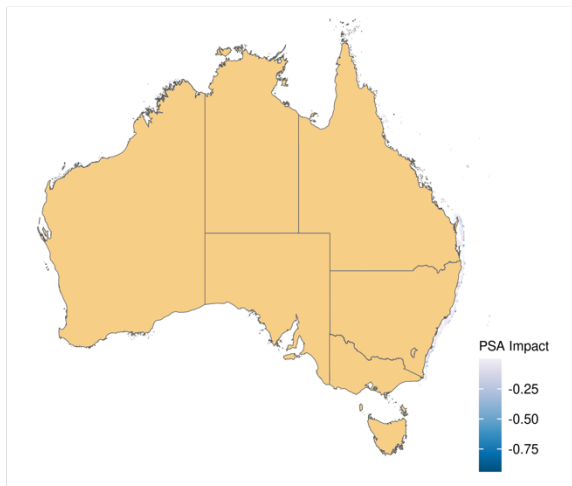
Ratabulus diversidens



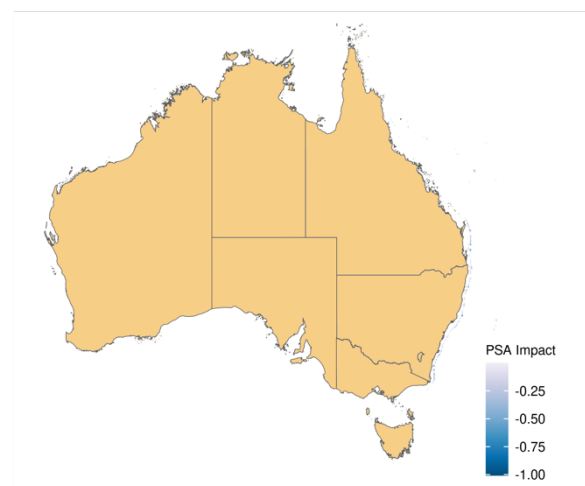
Regalecus glesne



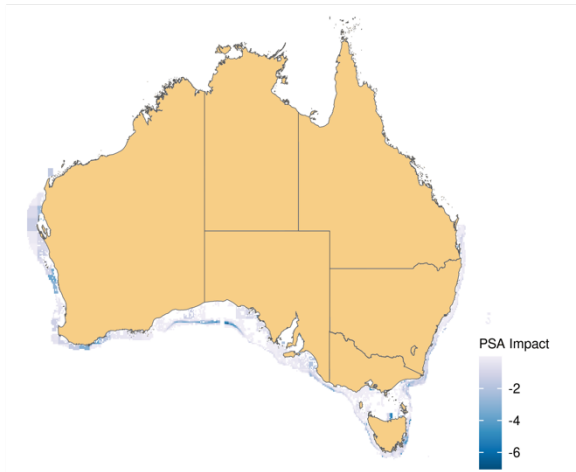
Remora brachyptera



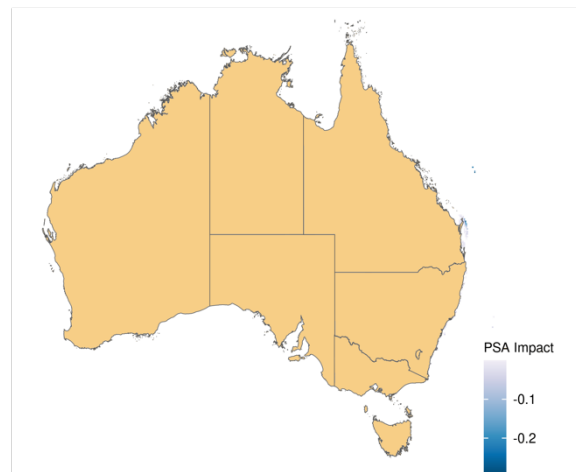
Remora remora



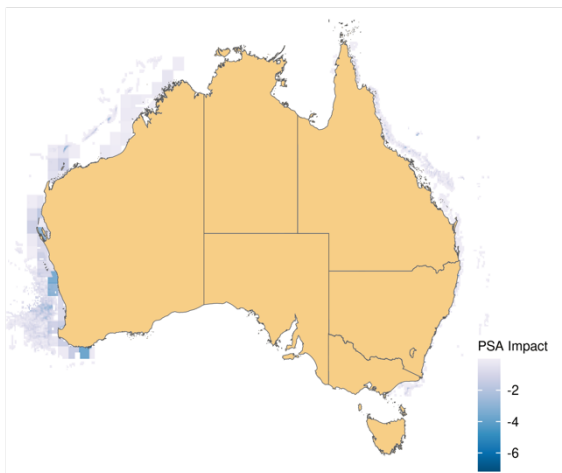
Rexea solandri



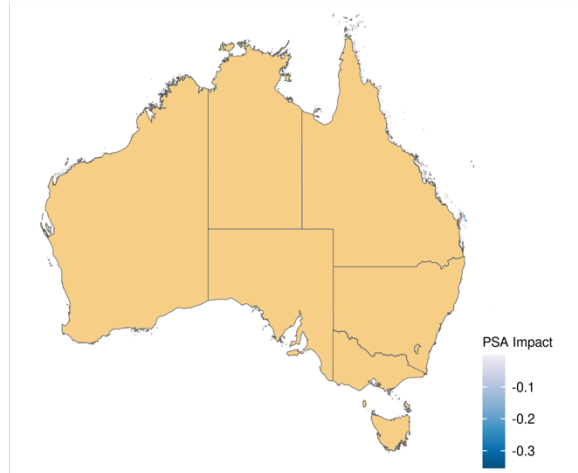
Rhabdosargus sarba



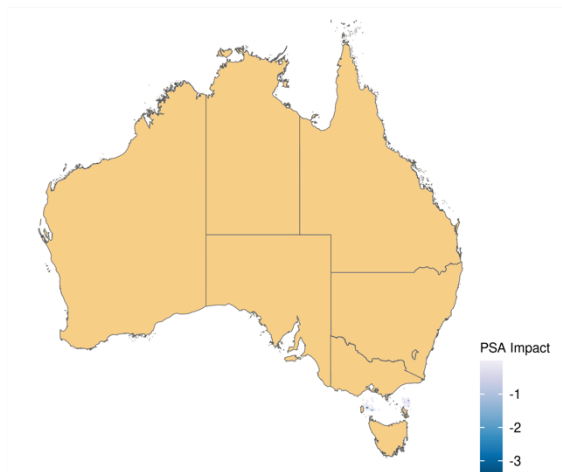
Rhincodon typus



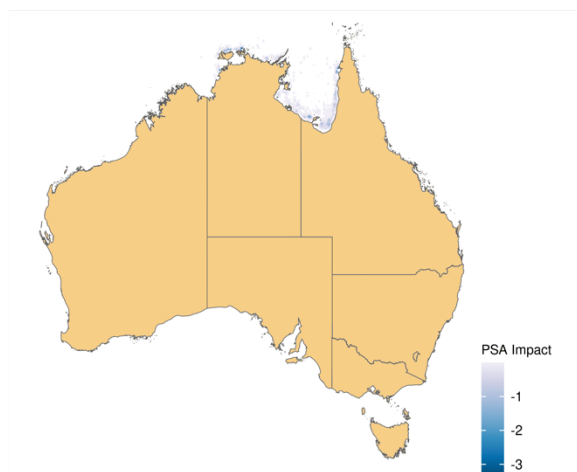
Rhinoptera neglecta



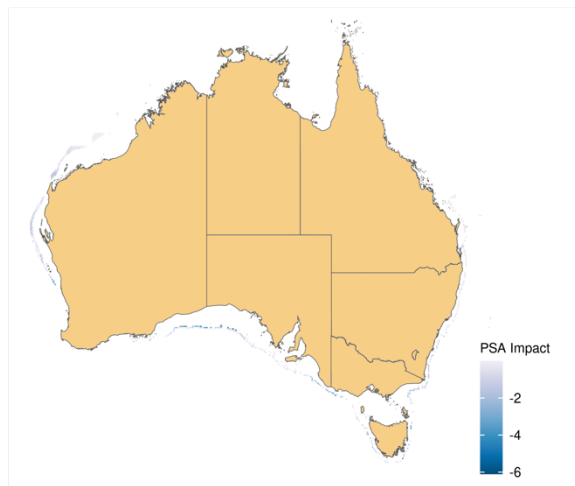
Rhombosolea tapirina



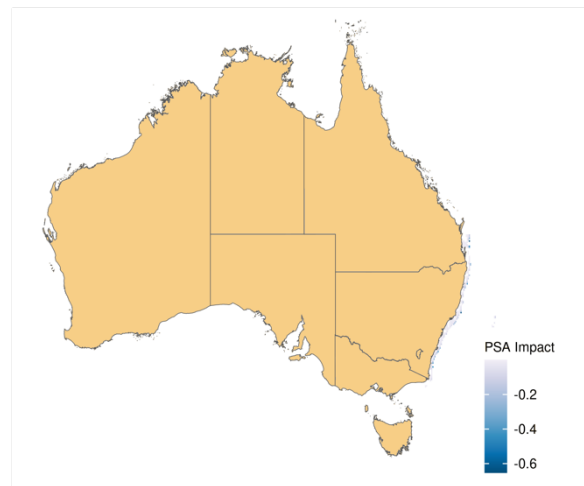
Rhynchobatus australiae



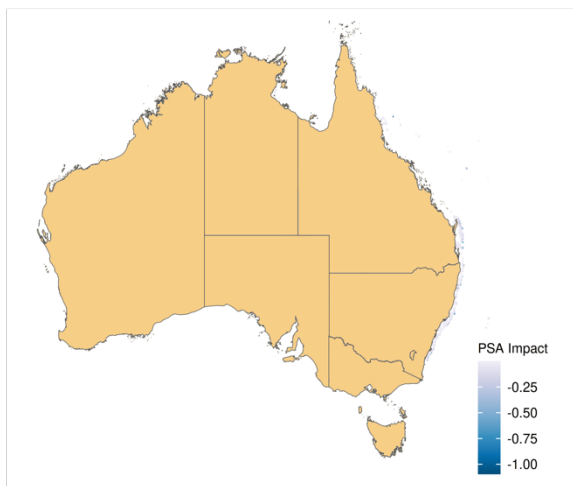
Ruvettus pretiosus



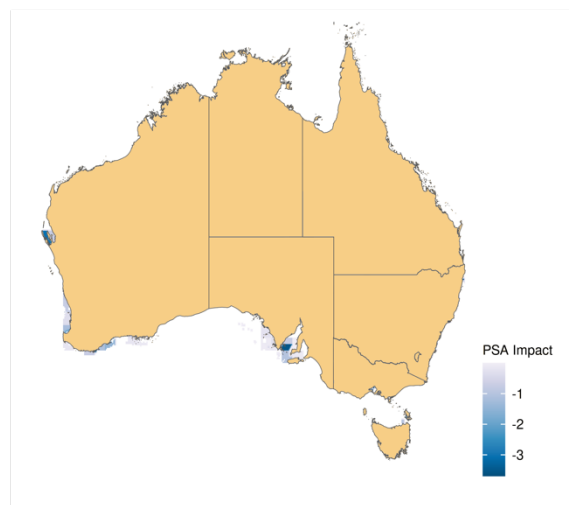
Sarda australis



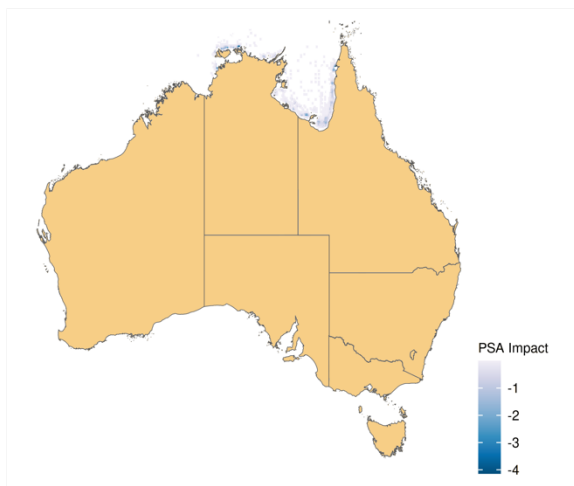
Sardinella gibbosa



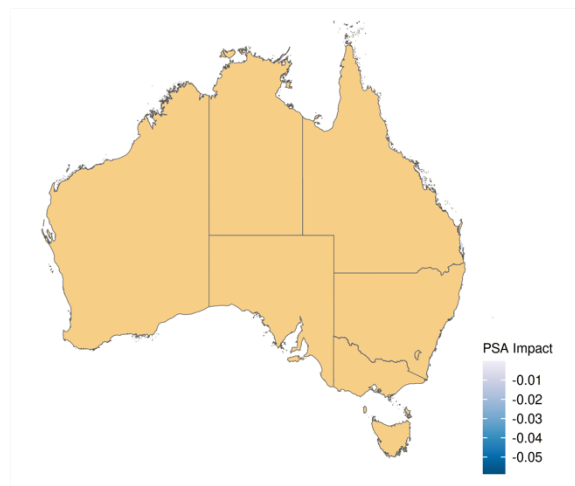
Sardinops sagax



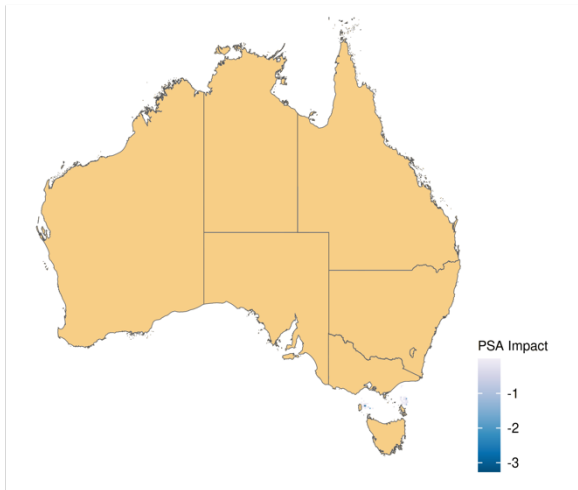
Sargocentron rubrum



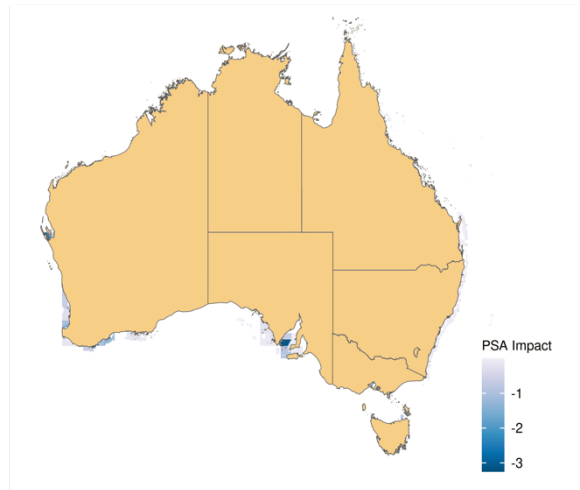
Scobinichthys granulatus



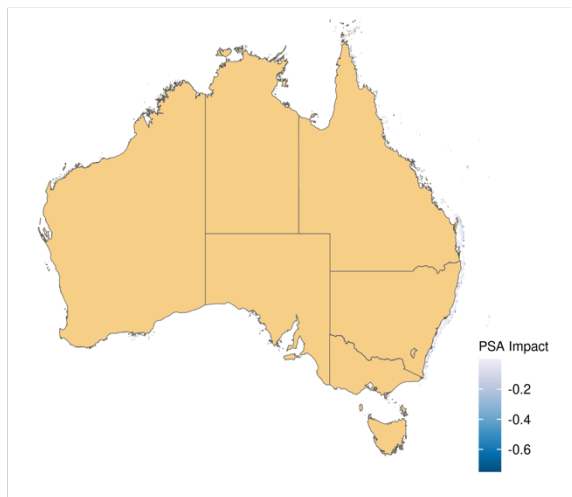
Scolecenchelys australis



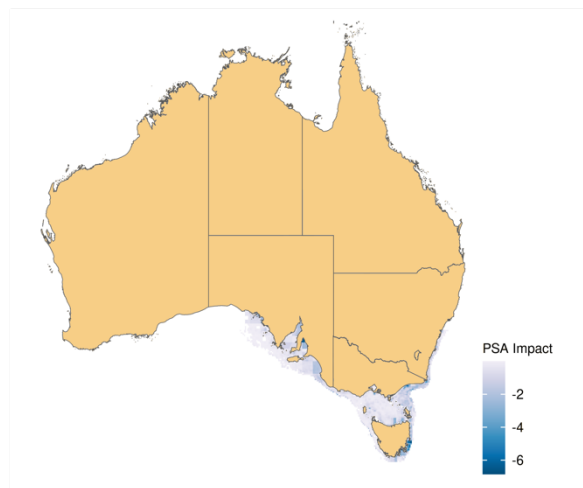
Scomber australasicus



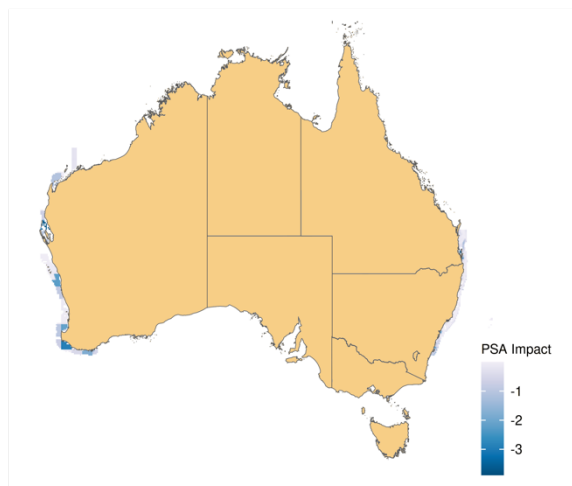
Scomberomorus commerson



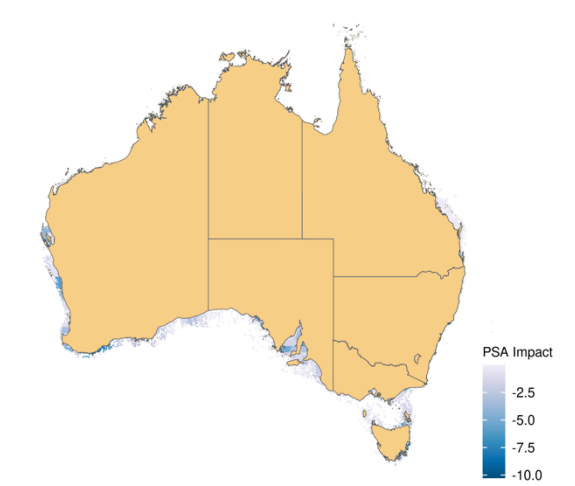
Scorpaena papillosa



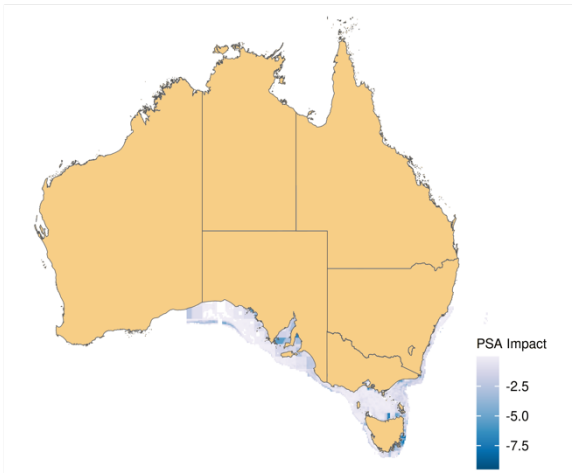
Seriola dumerilli



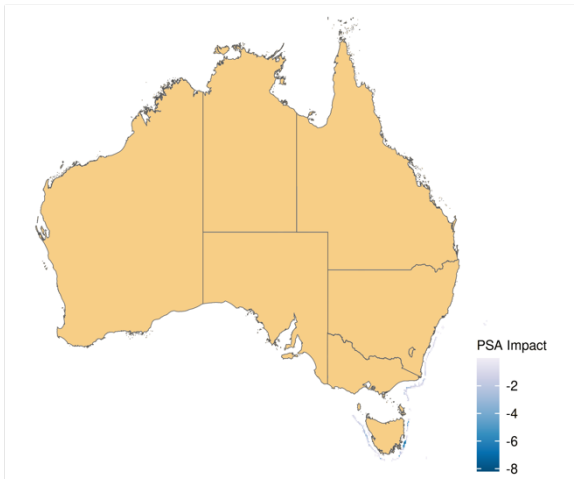
Seriola lalandi



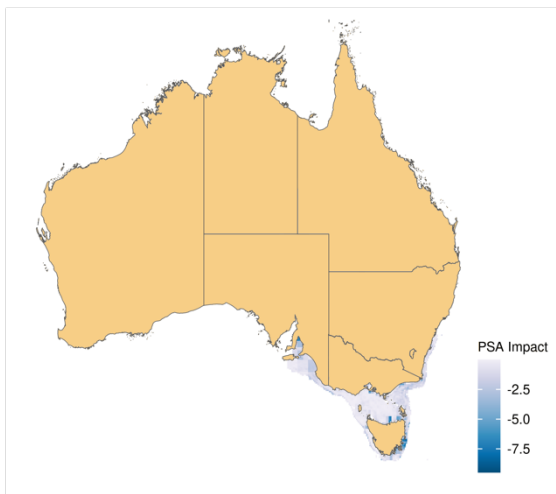
Seriolella brama



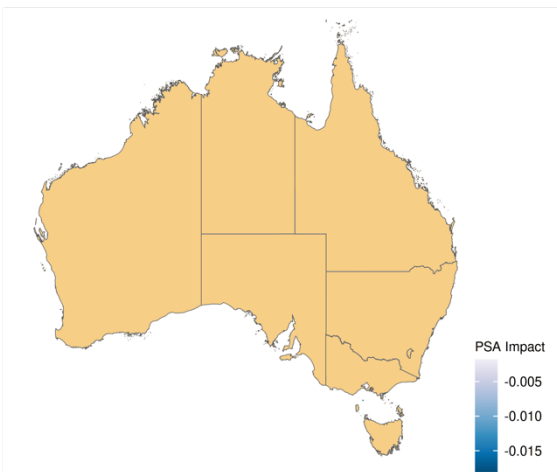
Seriolella caerulea



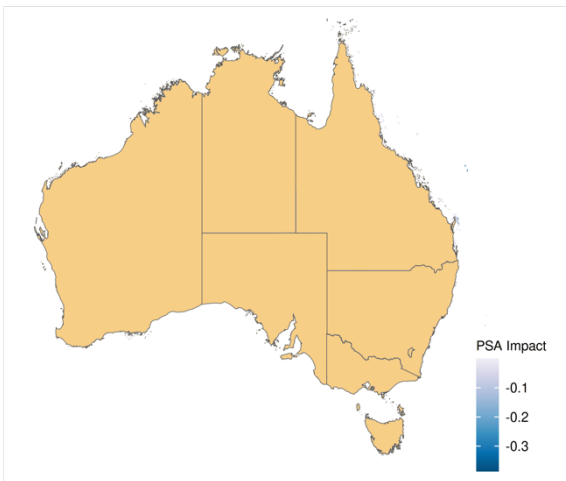
Seriolella punctata



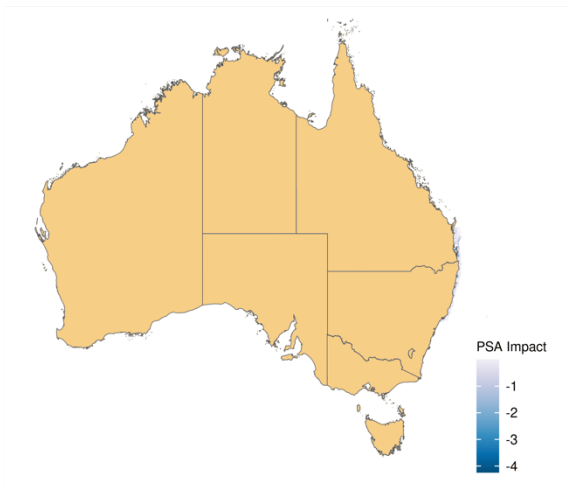
Sillago bassensis



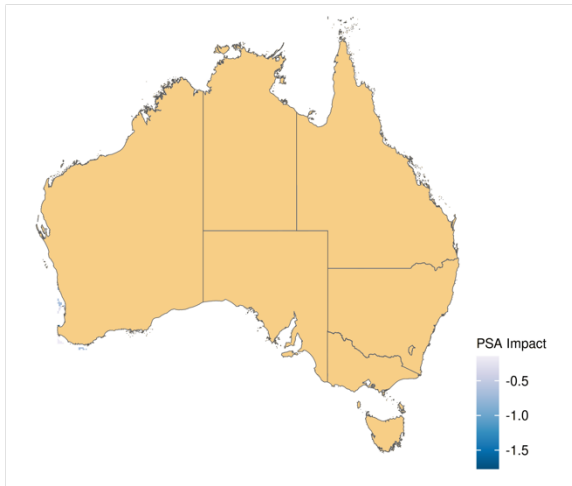
Sillago ciliata



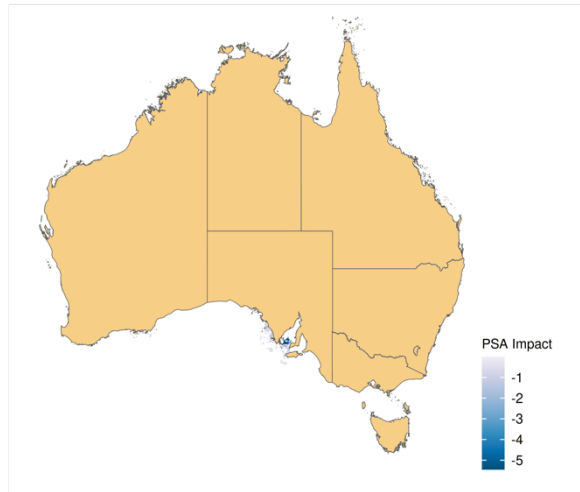
Solegnathus dunckeri



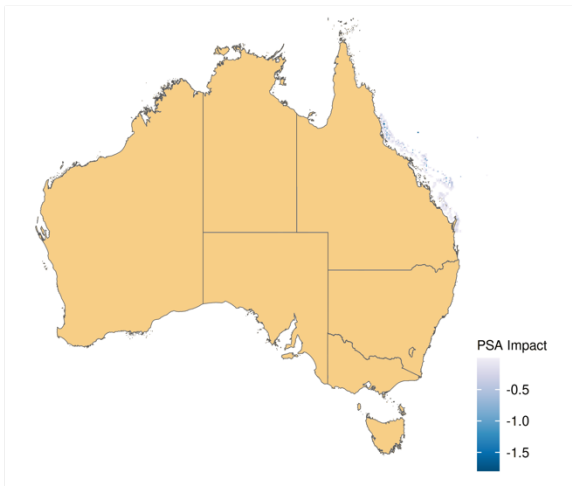
Solegnathus guentheri



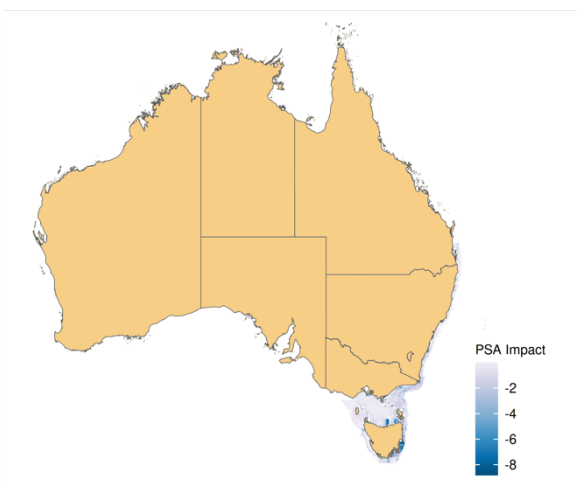
Solegnathus robustus



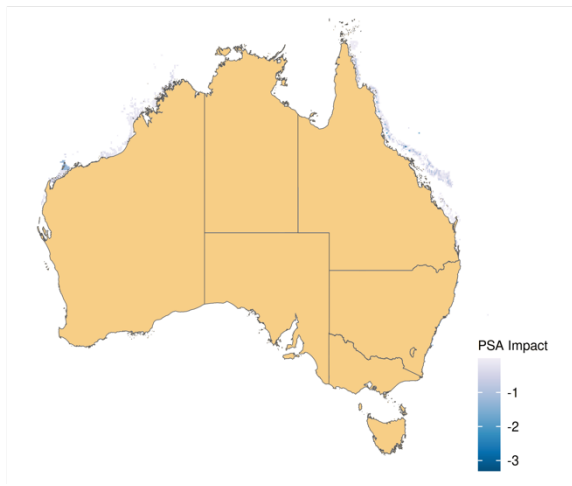
Solegnathus sp. 1 [in Kuiter, 2000]



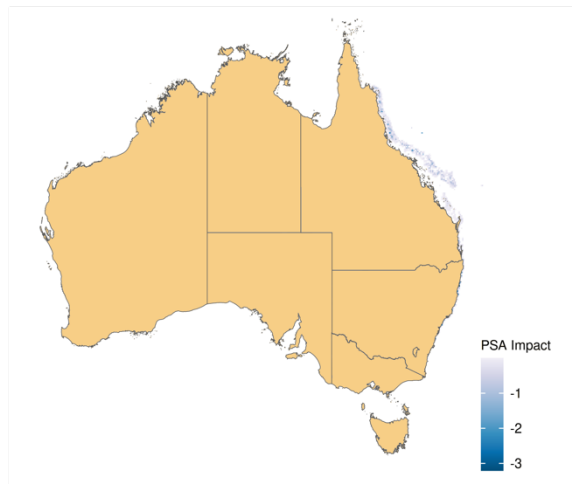
Solegnathus spinosissimus



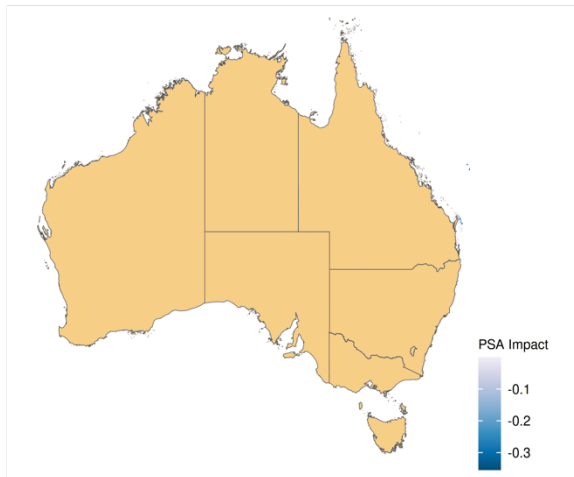
Solenostomus cyanopterus



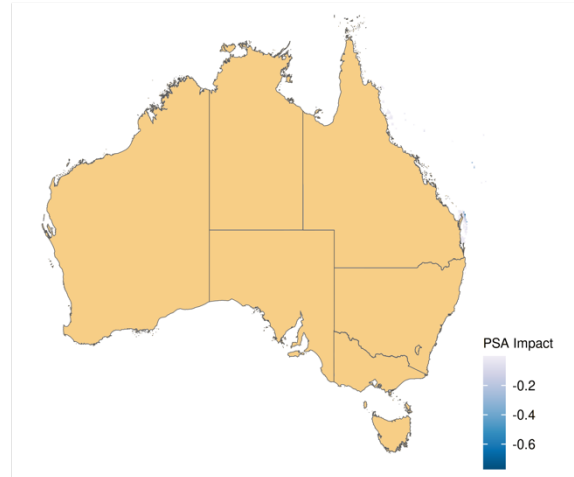
Solenostomus paradoxus



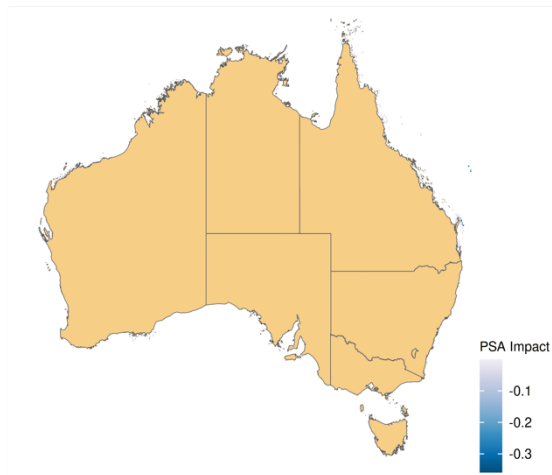
Sphyraena barracuda



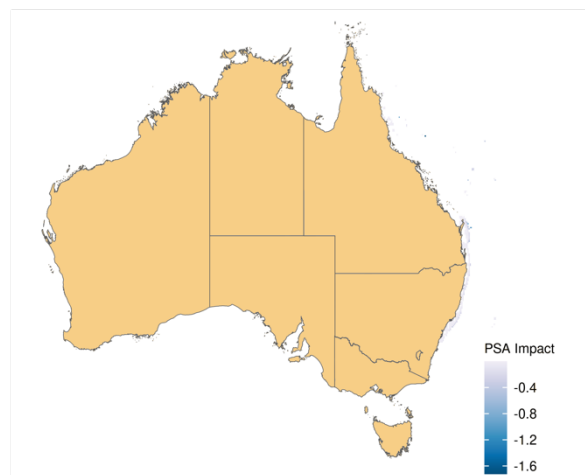
Sphyraena jello



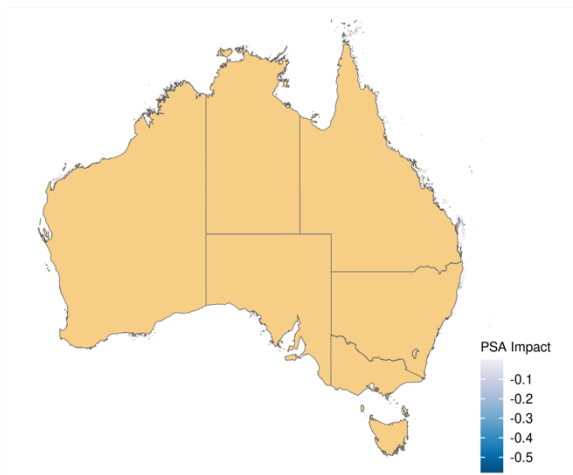
Sphyraena qenie



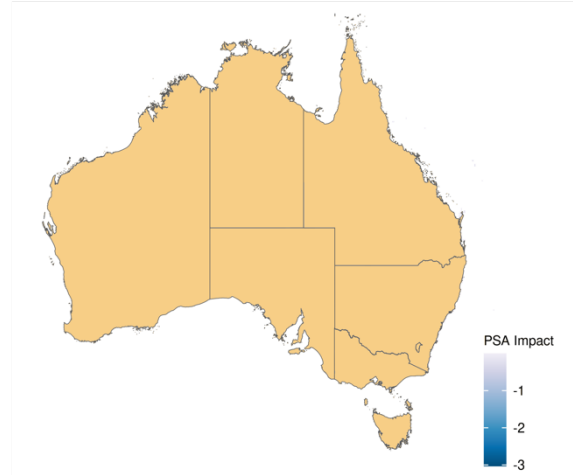
Sphyrna lewini



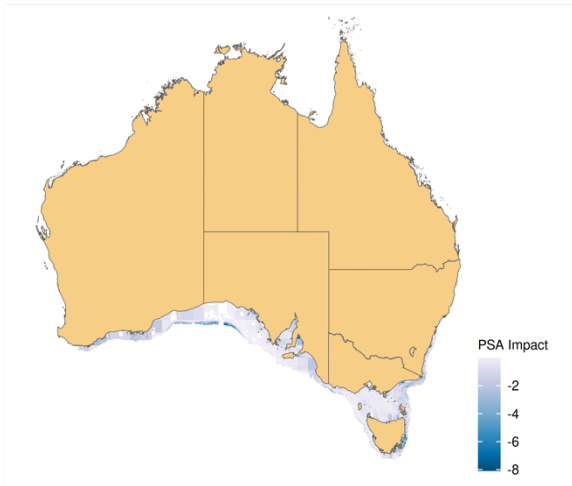
Sphyrna mokarran



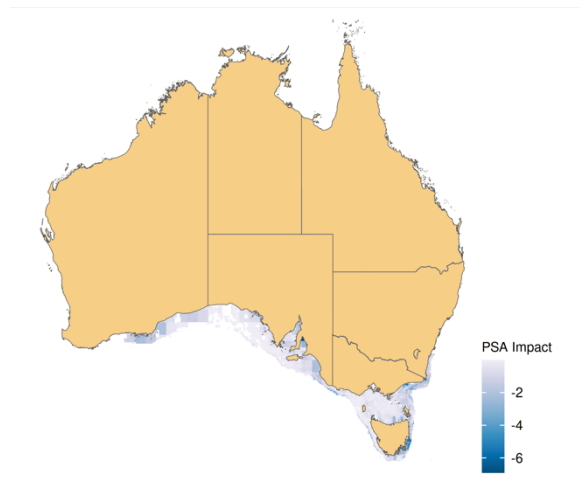
Sphyrna zygaena



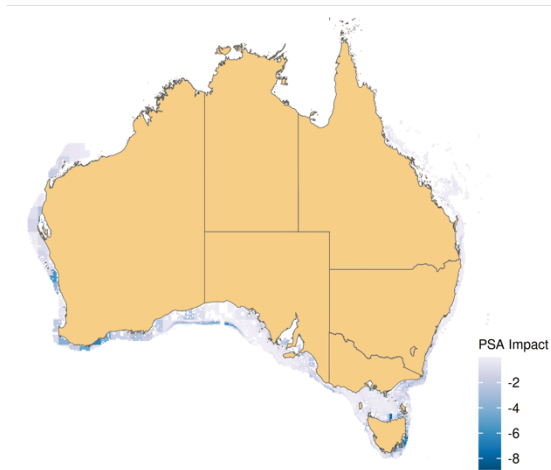
Spiniraja whitleyi



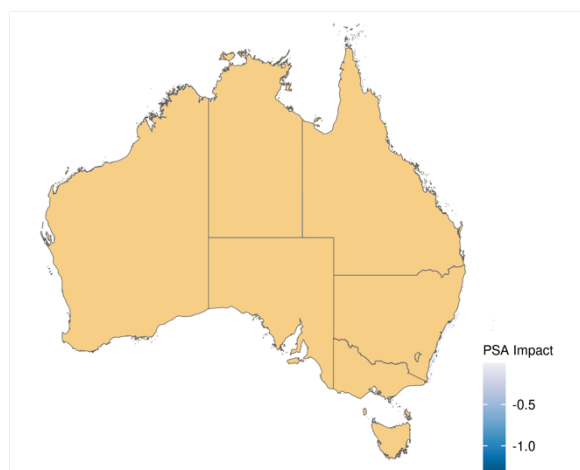
Squalus acanthias



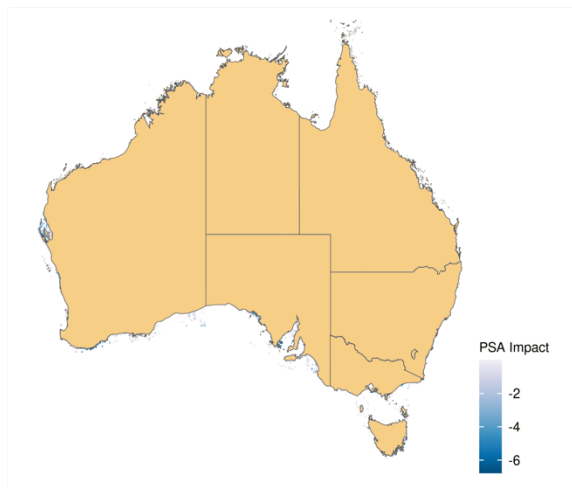
Squalus megalops



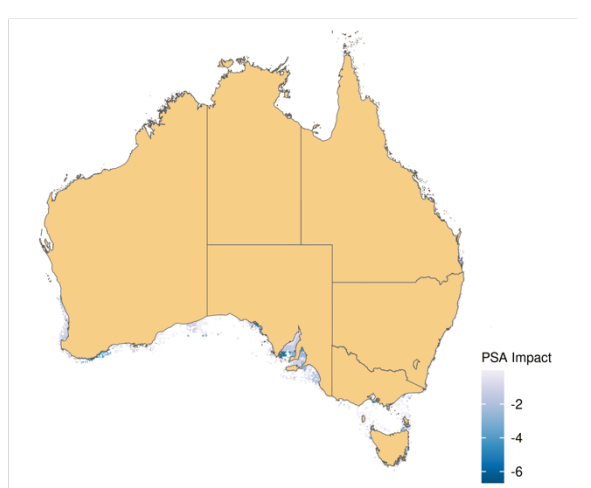
Squatina australis



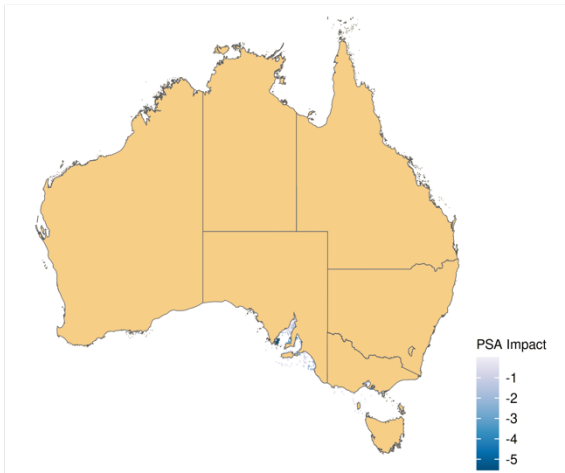
Stigmatopora argus



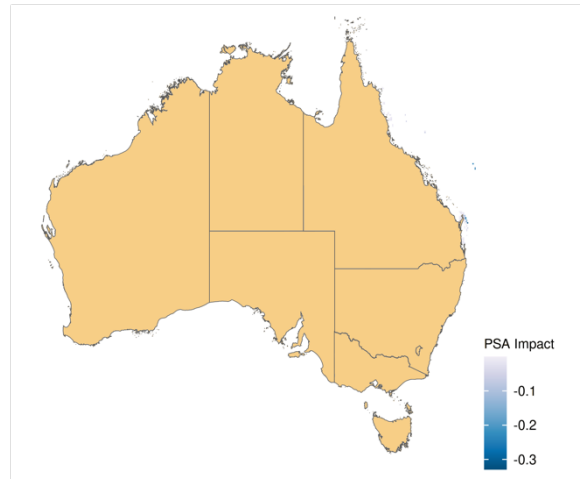
Stigmatopora nigra



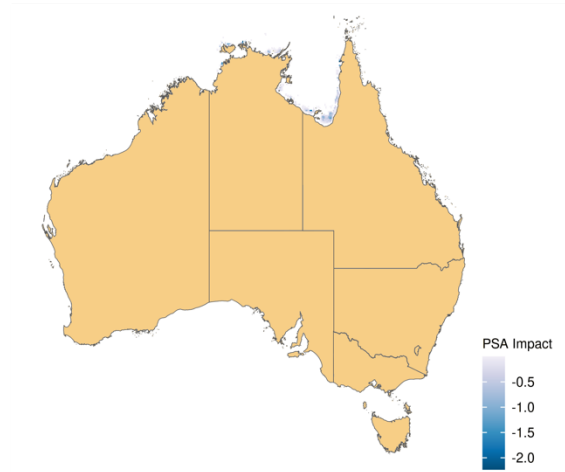
Stipecampus cristatus



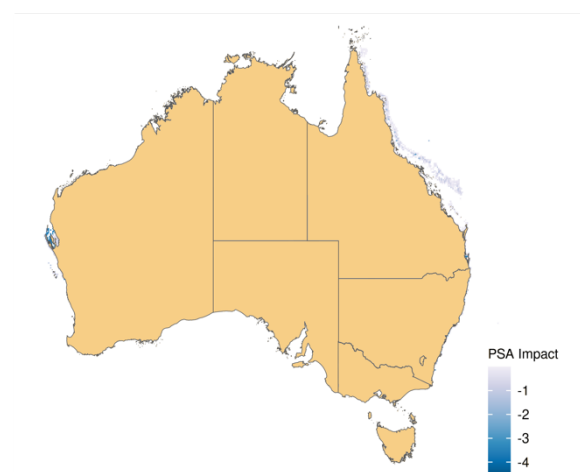
Symphorus nematophorus



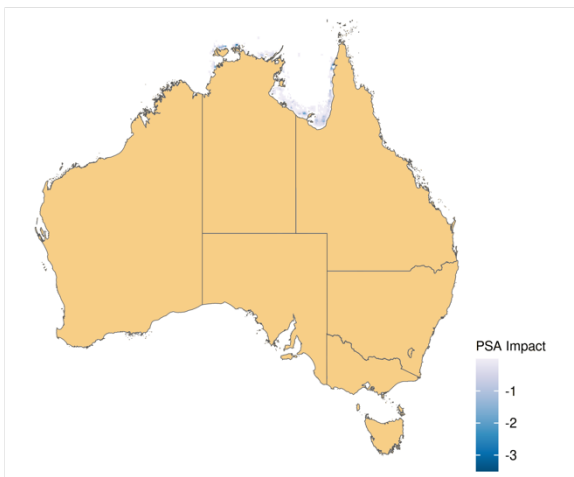
Synanceia verrucosa (unverified)



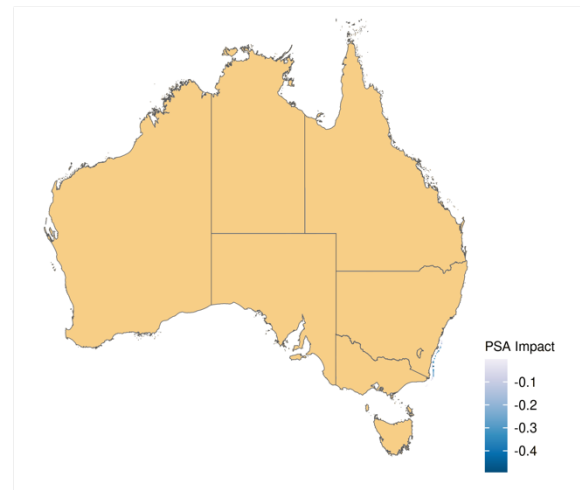
Syngnathoides biaculeatus



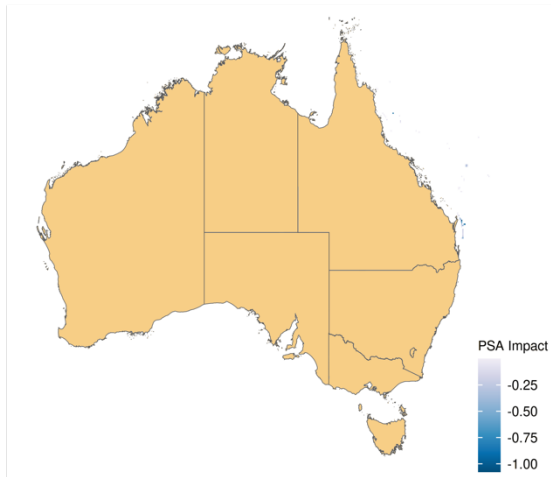
Taeniurops meyeri



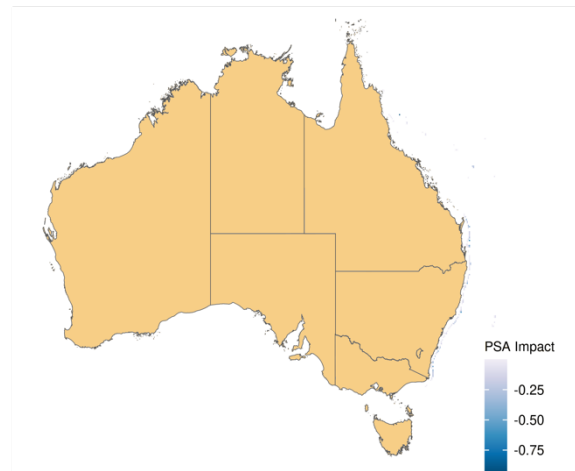
Taractes asper



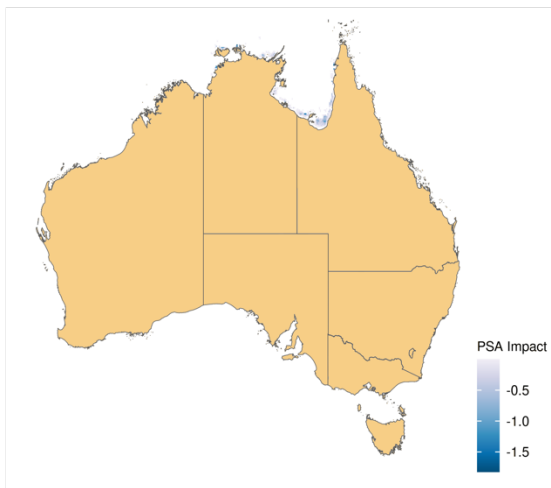
Taractichthys steindachneri



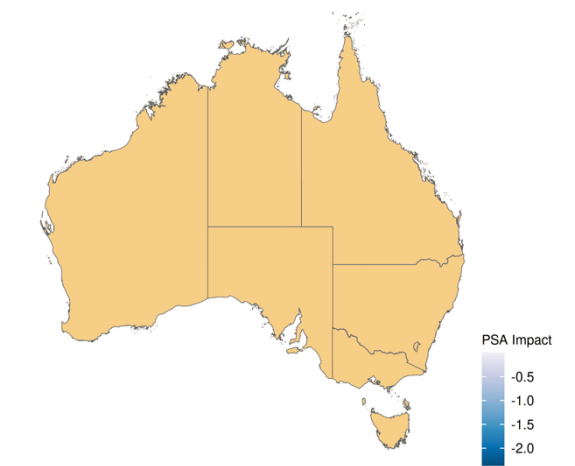
Tetrapturus angustirostris



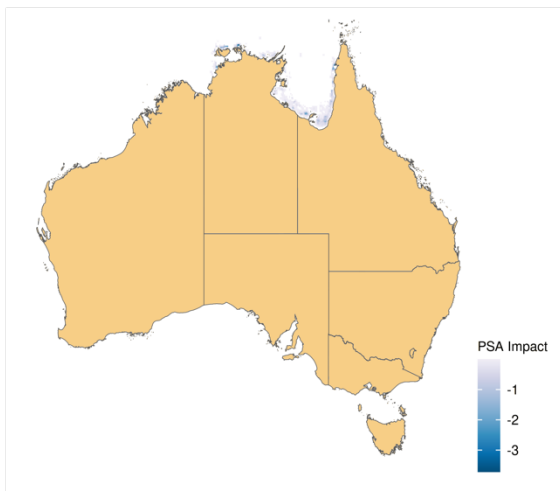
Thalassoma lunare



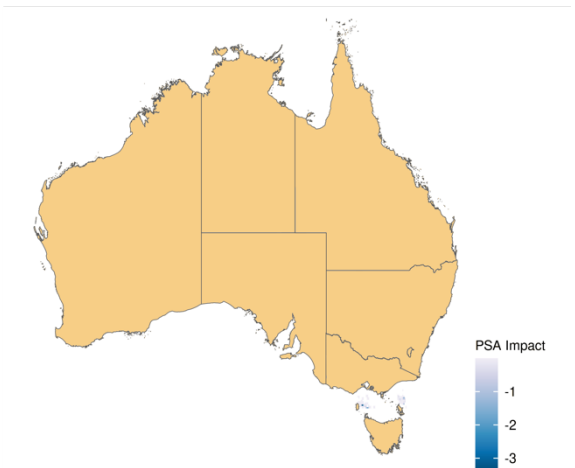
Thalassoma purpureum



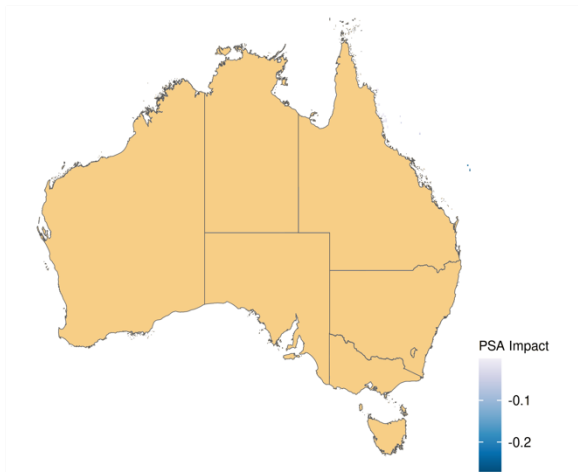
Thalassoma quinquevittatum



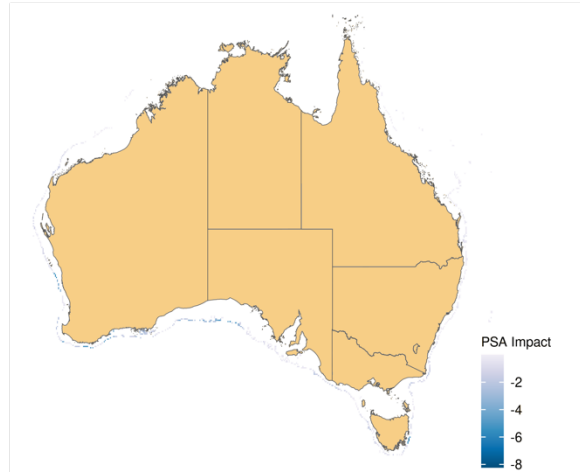
Thamnaconus degeni



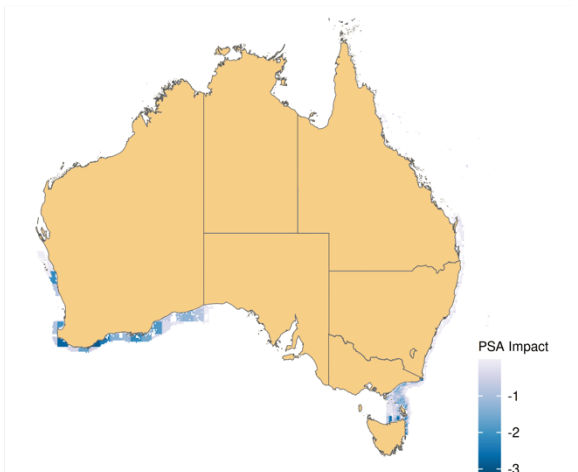
Thryssa setirostris



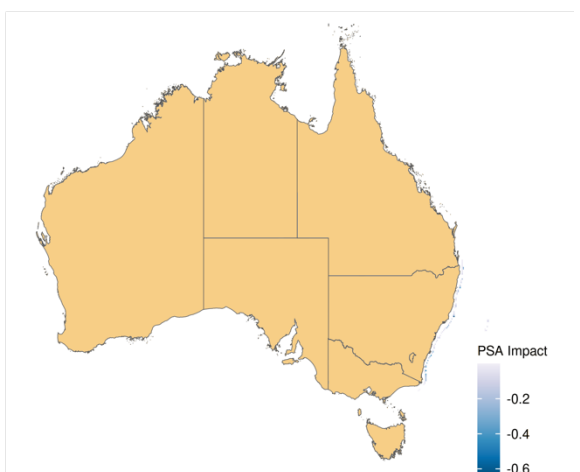
Thunnus alalunga



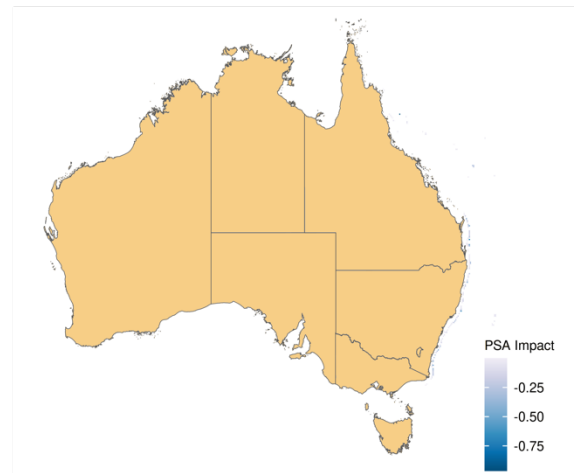
Thunnus albacares



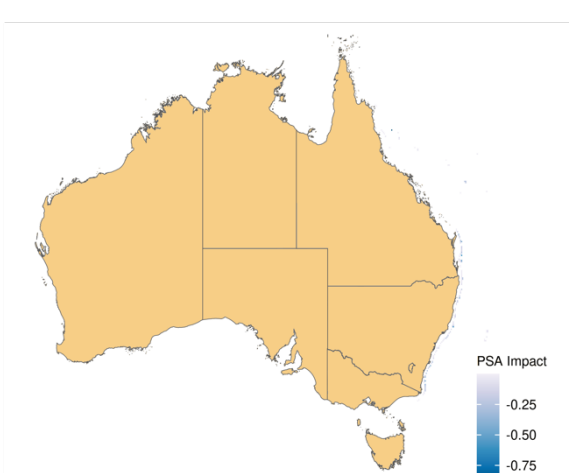
Thunnus maccoyii



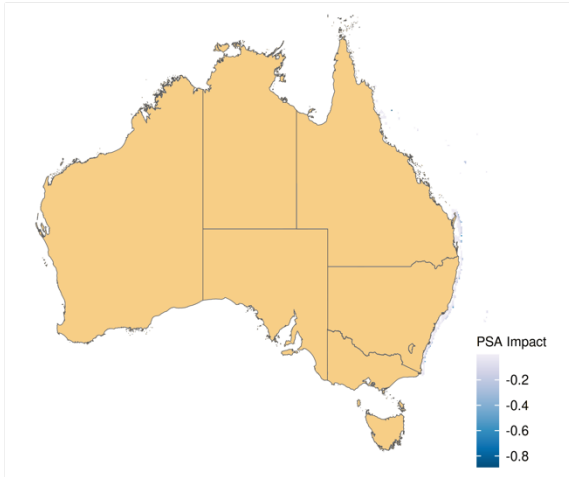
Thunnus obesus



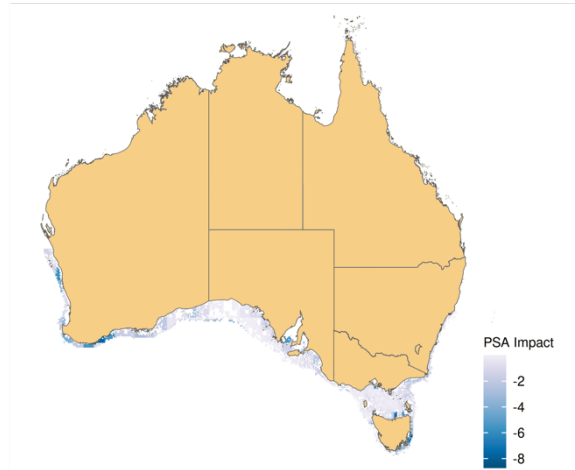
Thunnus orientalis



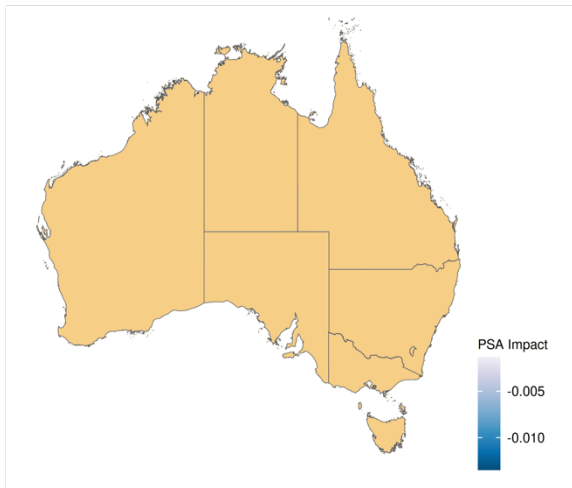
Thunnus tonggol



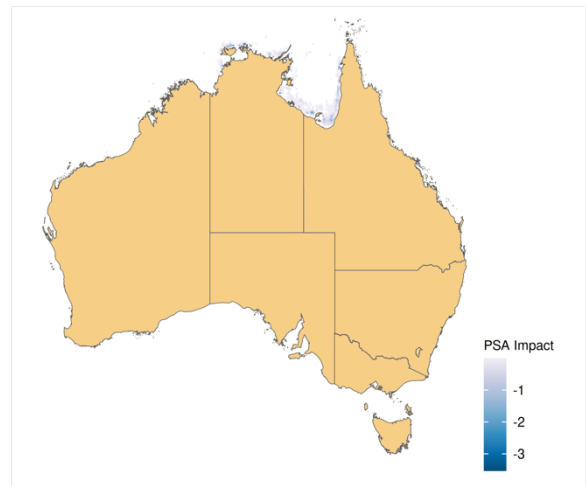
Thyrsites atun



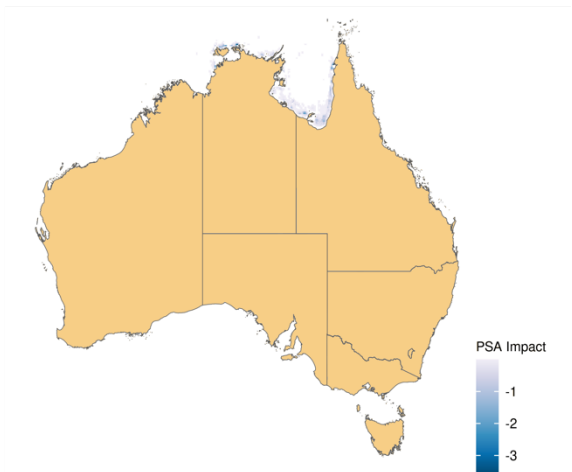
Tilodon sexfasciatus



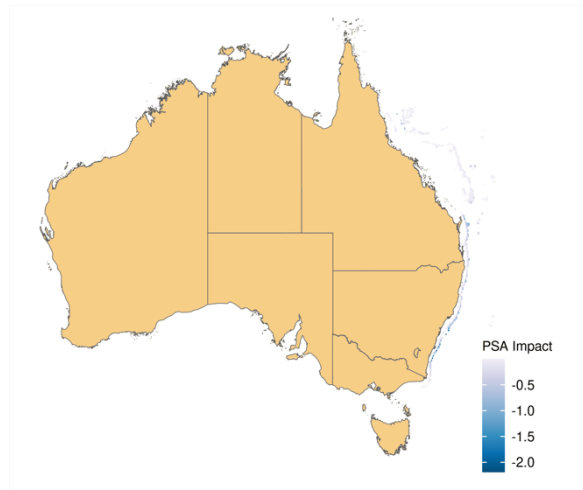
Trachinotus baillonii



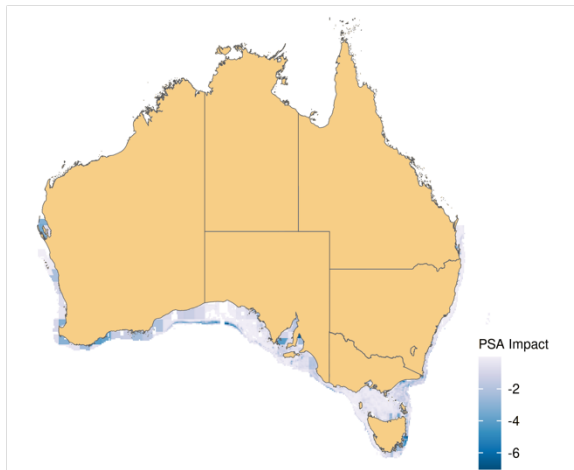
Trachinotus blochii



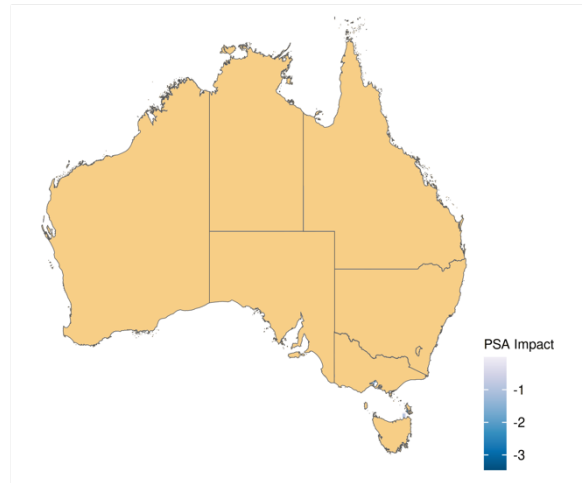
Trachipterus arawatae



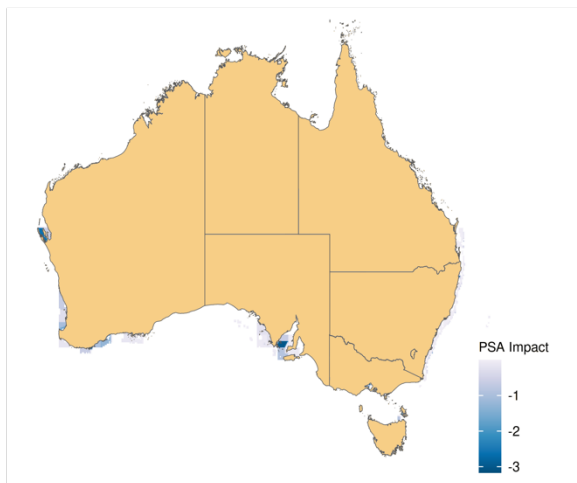
Trachurus declivis



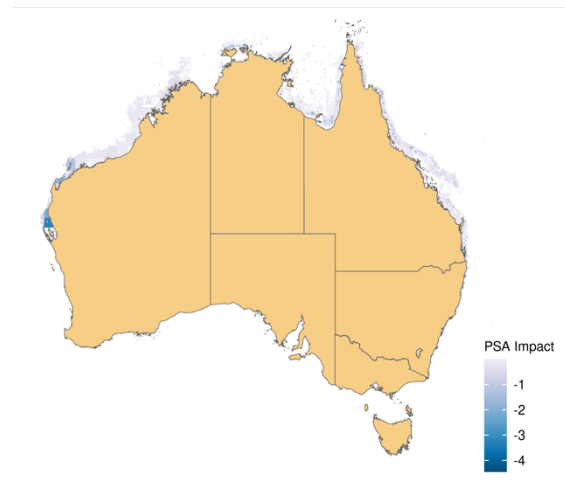
Trachurus murphyi



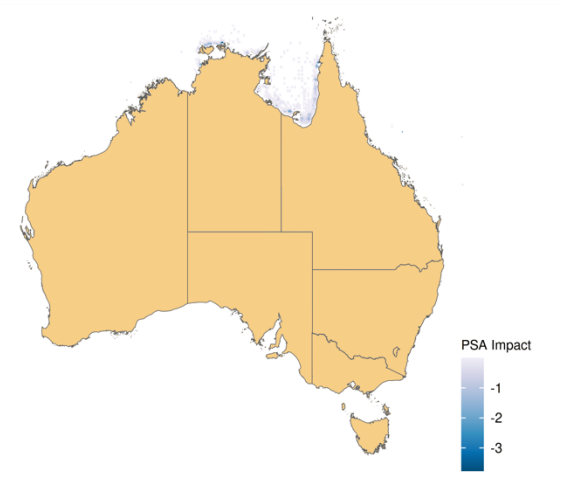
Trachurus novaezelandiae



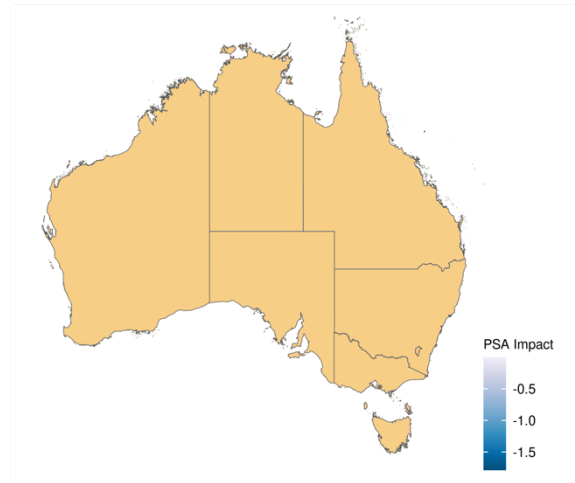
Trachyrhamphus bicoarctatus



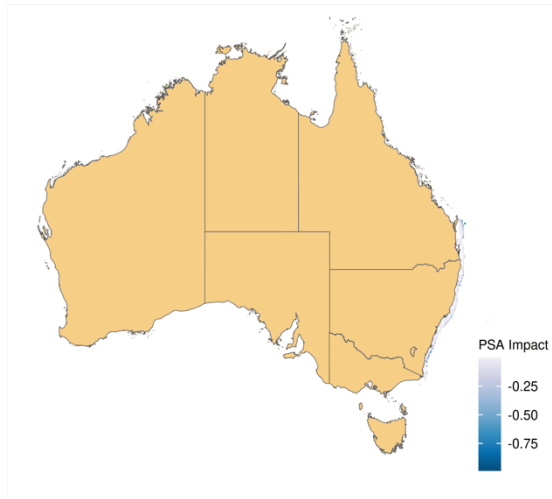
Trachyrhamphus longirostris



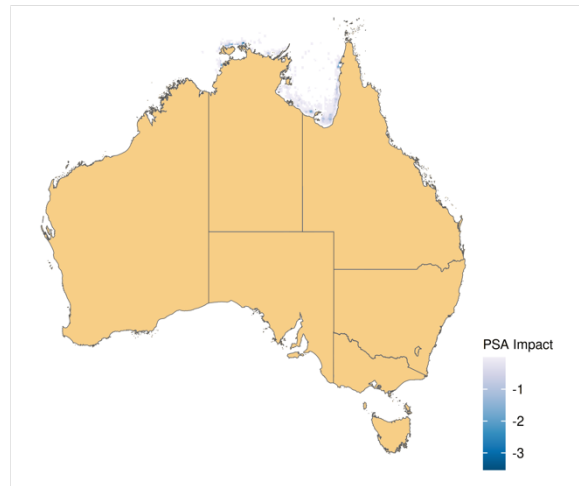
Triaenodon obesus



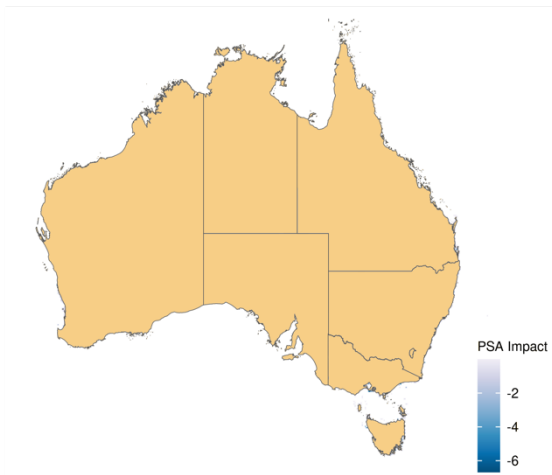
Trichiurus lepturus



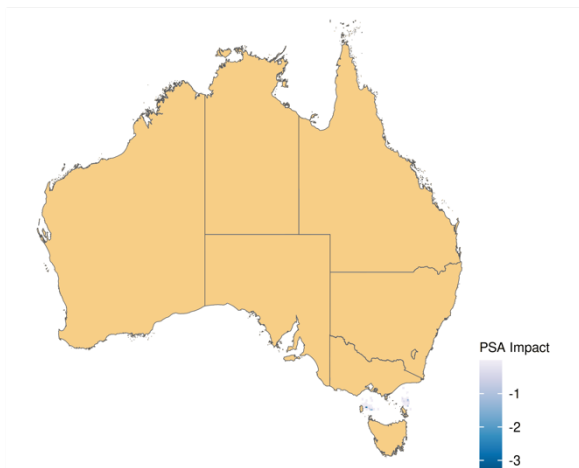
Upeneus tragula



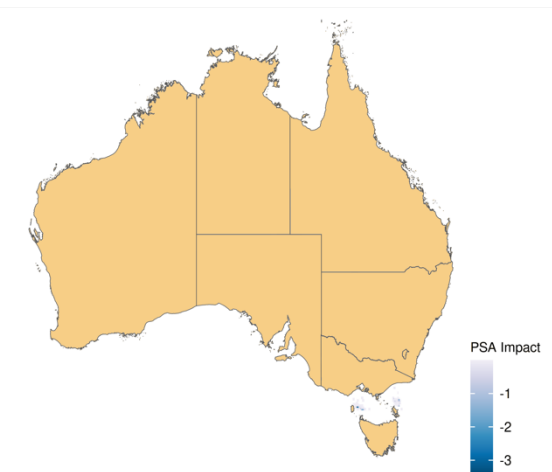
Urocampus carinirostris



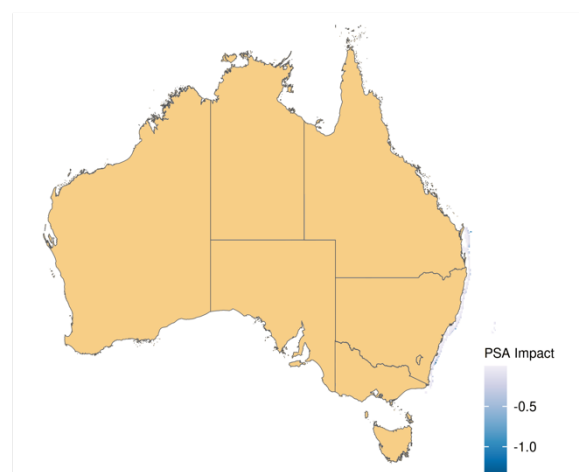
Urolophus cruciatus



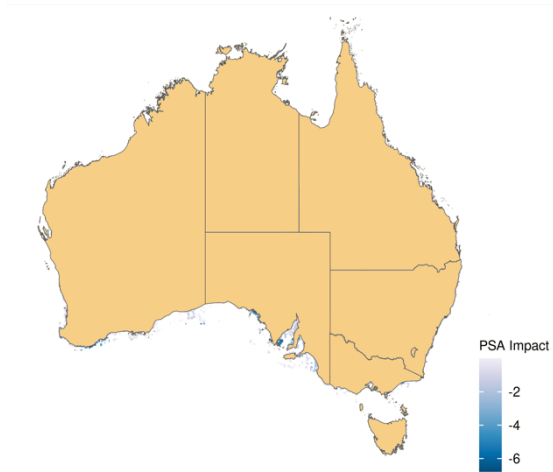
Urolophus paucimaculatus



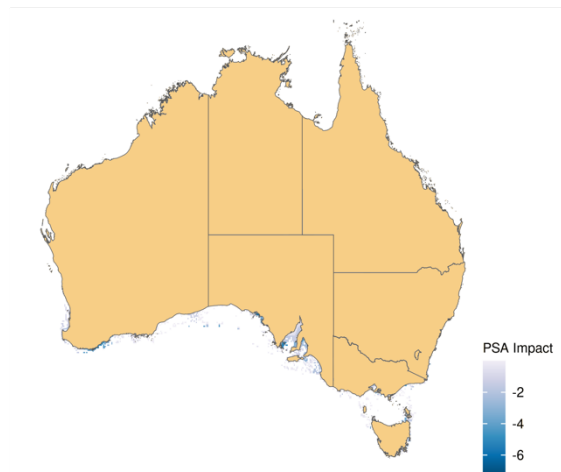
Urolophus viridis



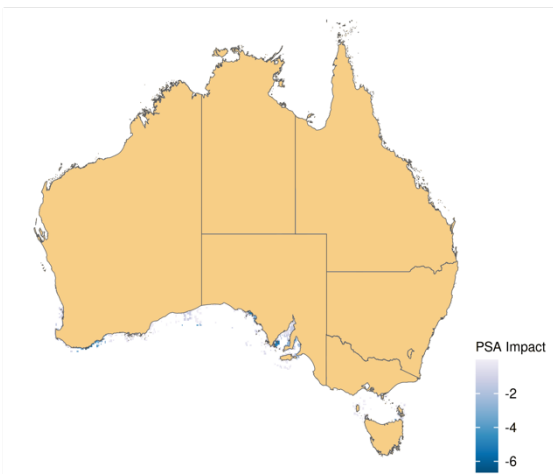
Vanacampus margaritifer



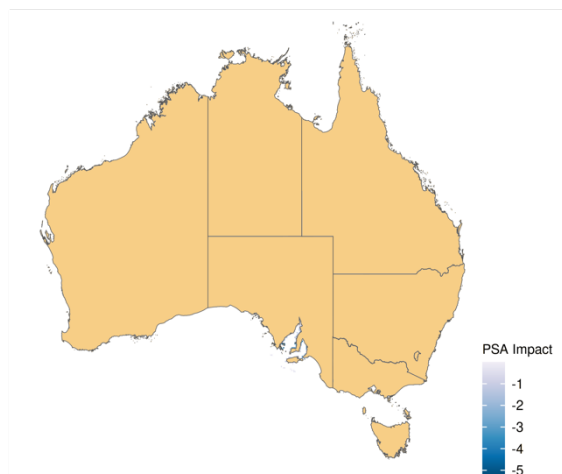
Vanacampus phillipi



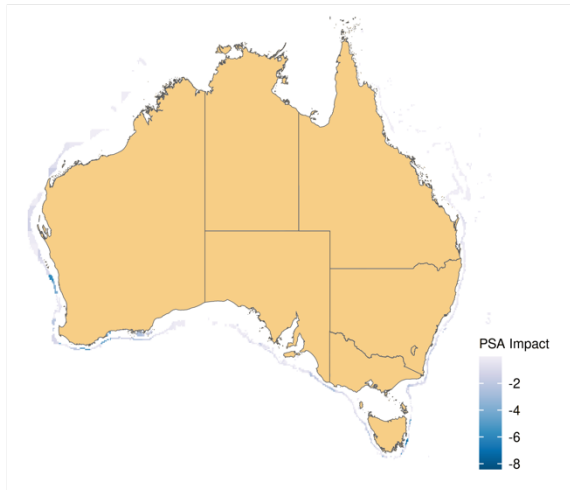
Vanacampus poecilolaemus



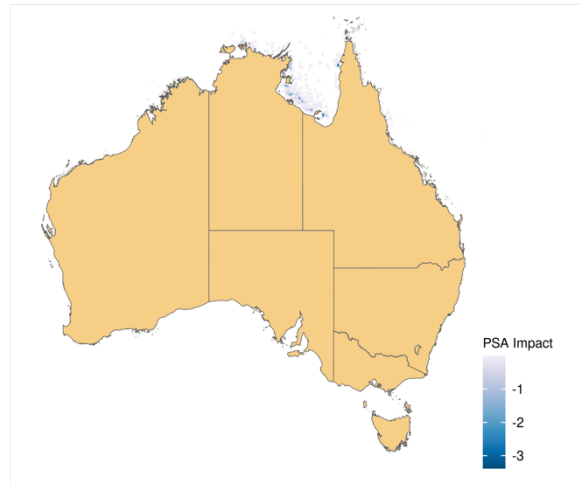
Vanacampus vercoi



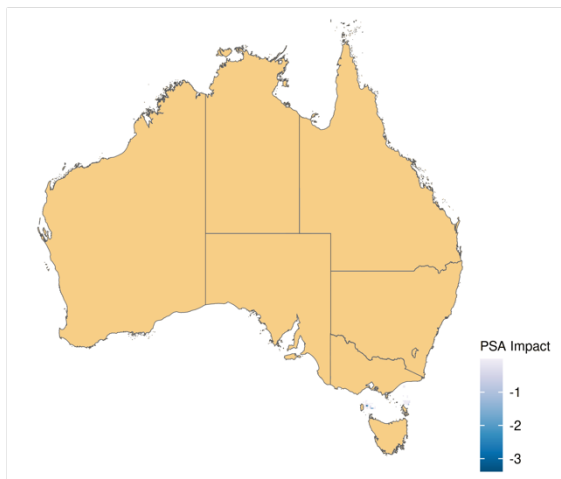
Xiphias gladius



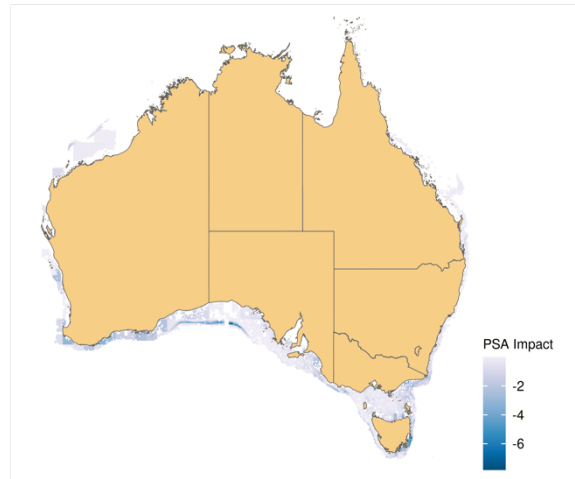
Xiphocheilus typus



Zebrias scalaris



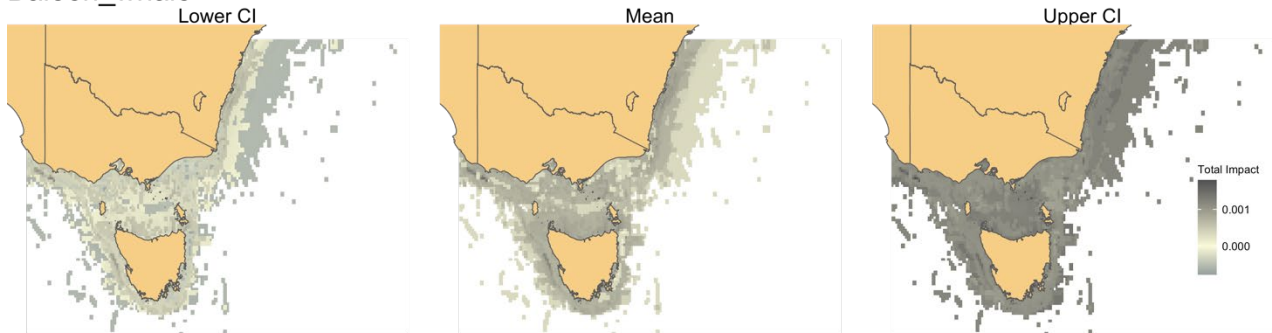
Zenopsis nebulosa



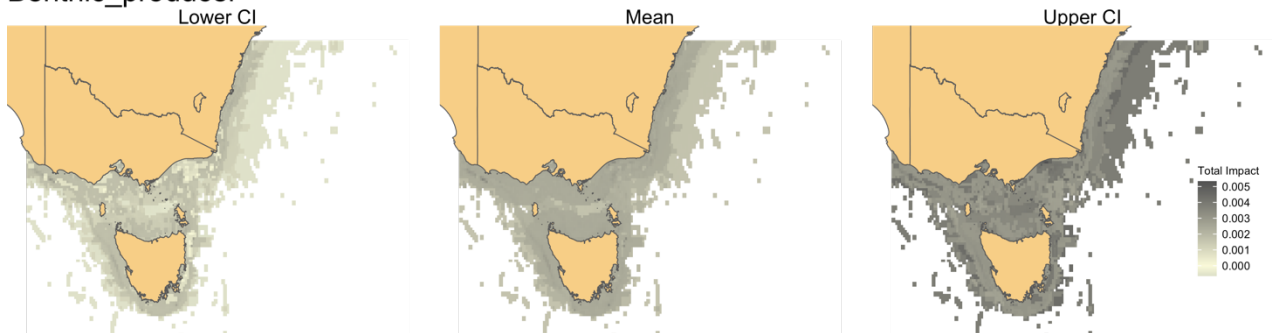
Appendix 7: Maps of Stage II Results

The following maps provide the Stage II CEA maps for the species and functional groups included in the south-eastern Australian Ecopath with Ecosim model used as a basis of the derivation of the nonlinear impact-response function (species constituting functional groups are detailed in Bulman et al (2006). This is intended as a proof of concept and so is not as comprehensive or species specific as for the PSA-based cumulative scores given in Appendix 5 and 6. Grey values indicate a species benefits from cumulative effects, whereas blues represent an impact (negative effect) as in Appendices 5 and 6. We have not standardised the ranges shown across plots so the detail can be seen per species or functional group.

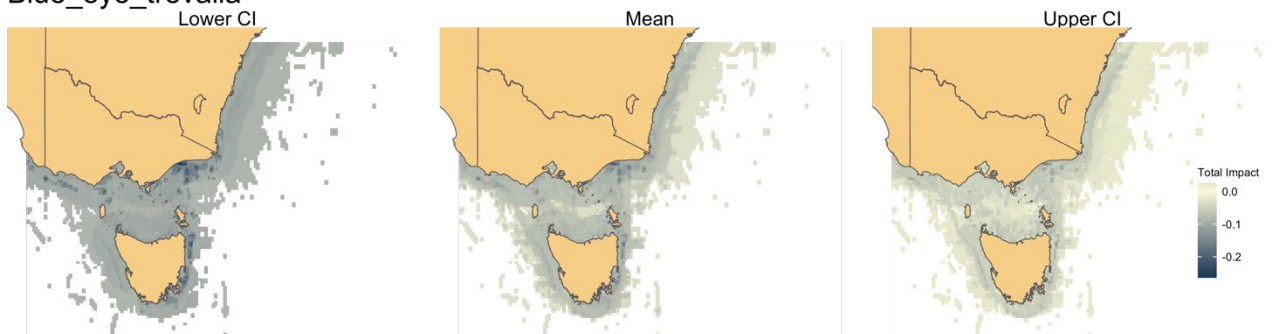
Baleen_whale



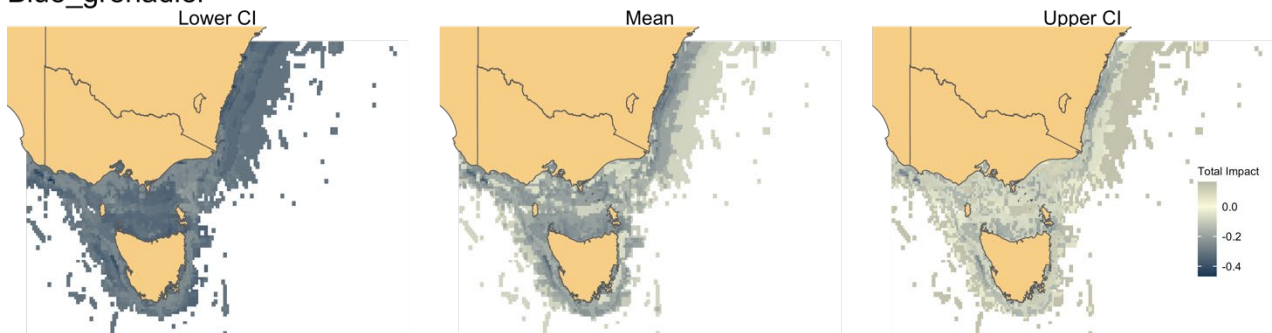
Benthic_producer



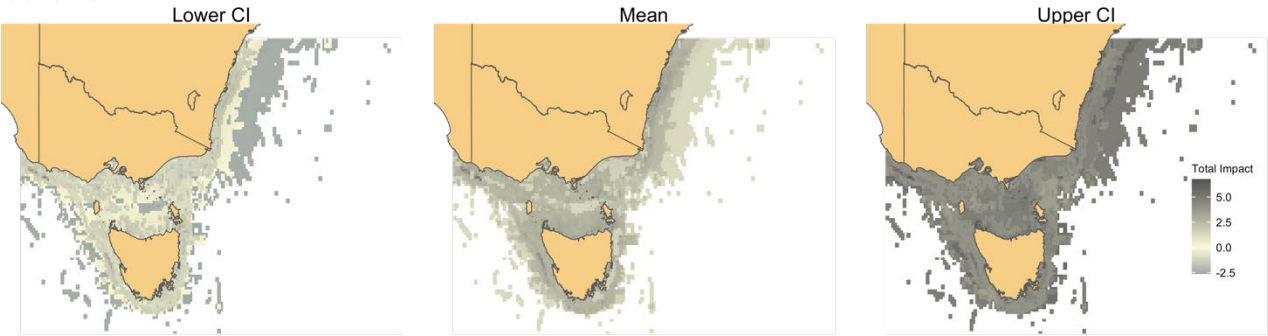
Blue_eye_trevalla



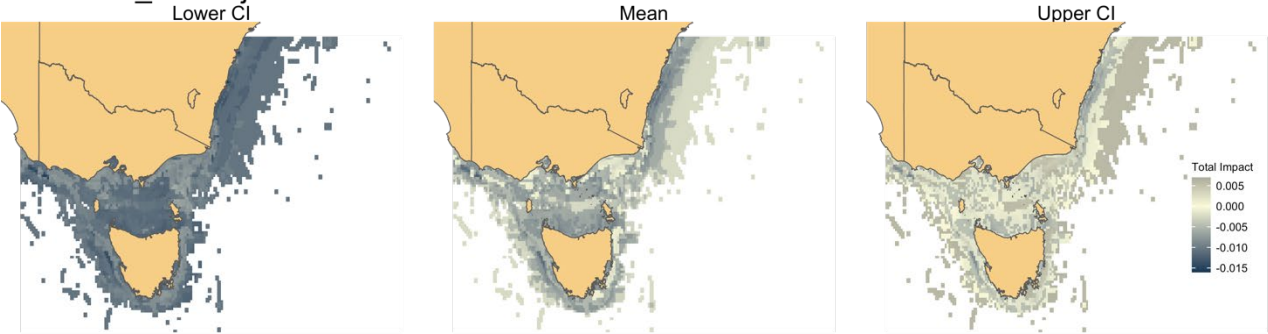
Blue_grenadier



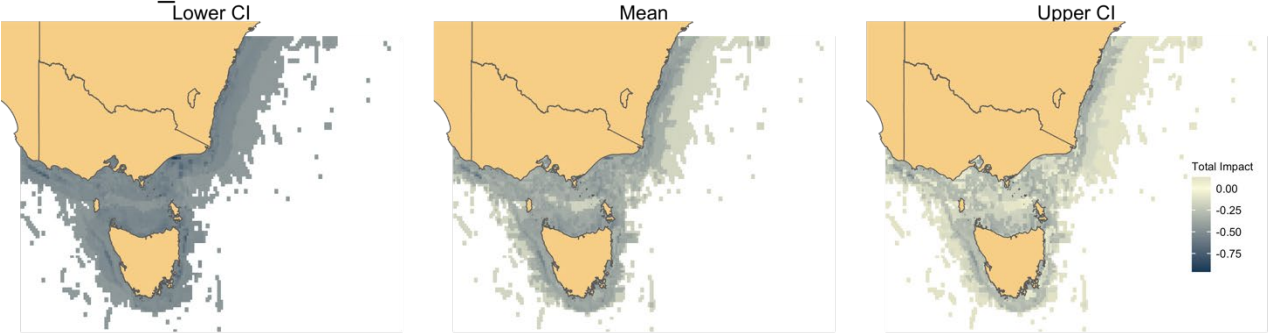
Cardinal



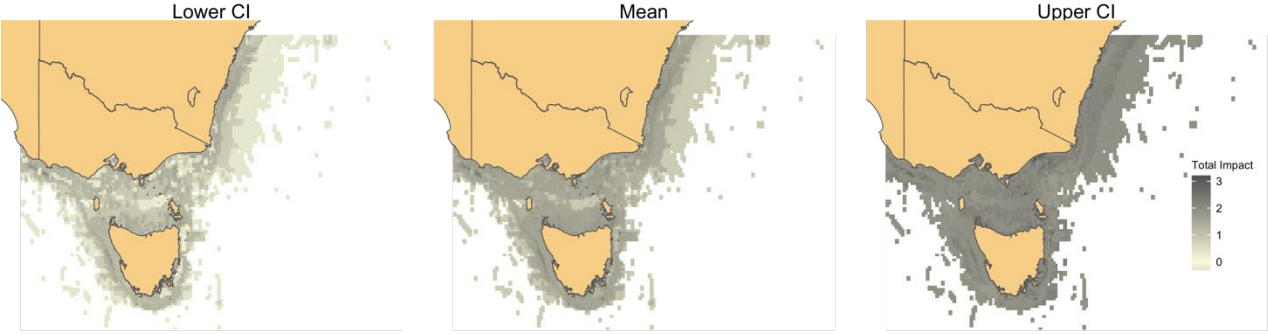
Chinaman_leatherjacket



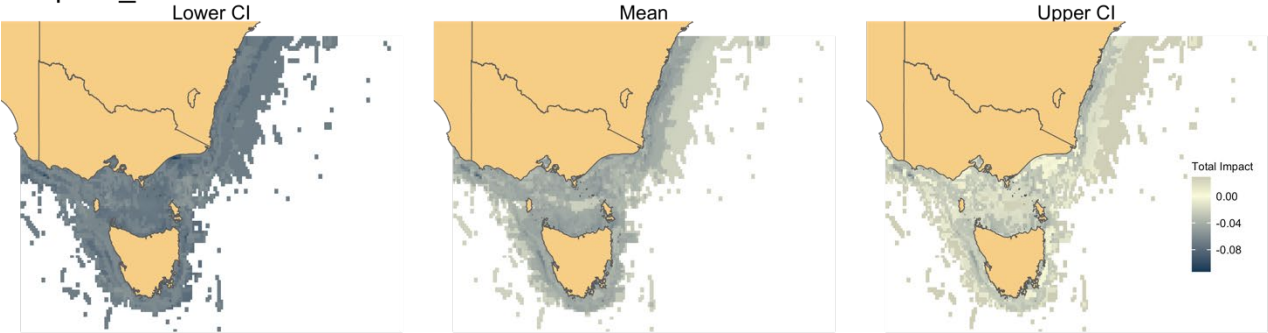
Commercial_Prawns



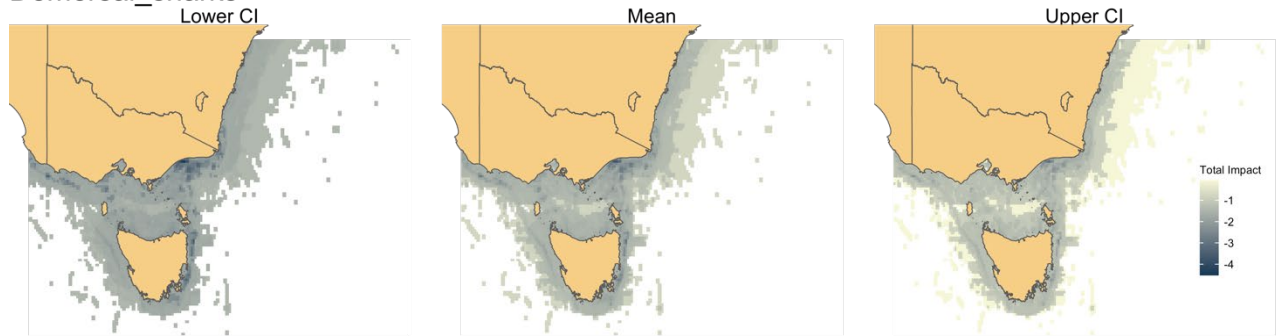
Cucumberfish



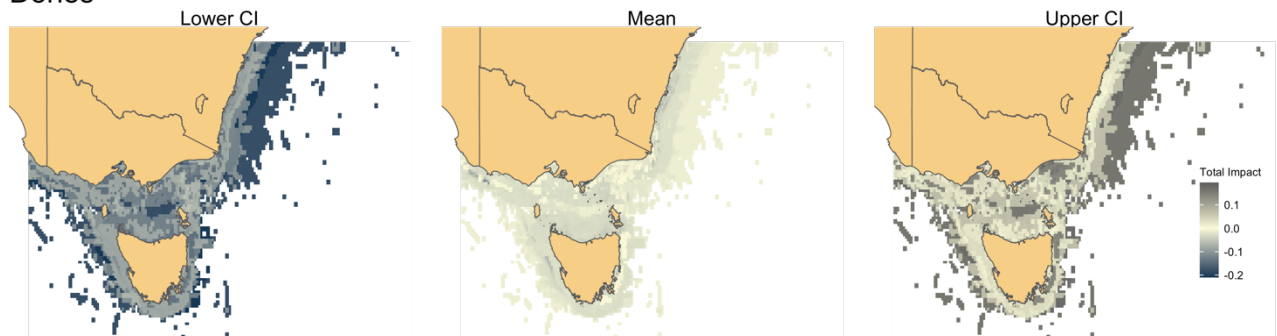
Deepsea_Cod



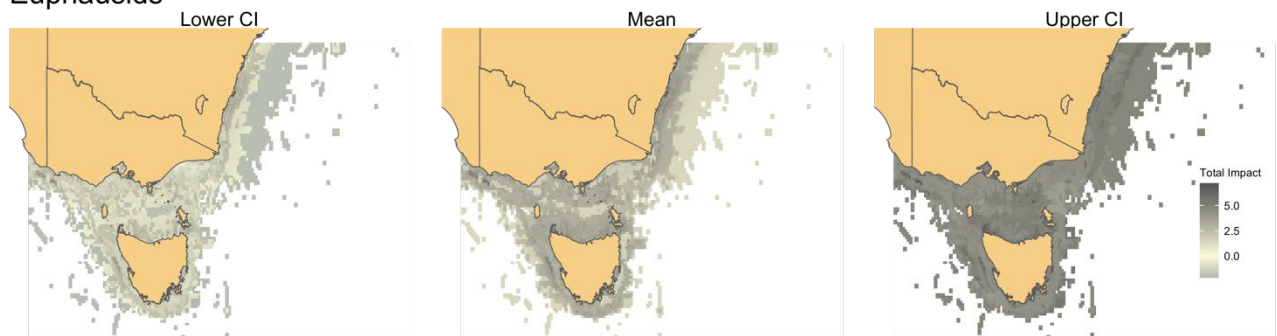
Demersal_sharks



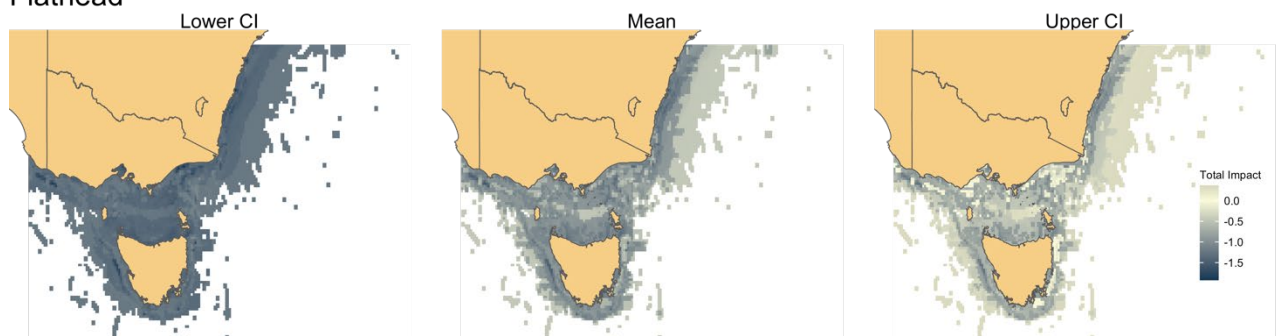
Dories



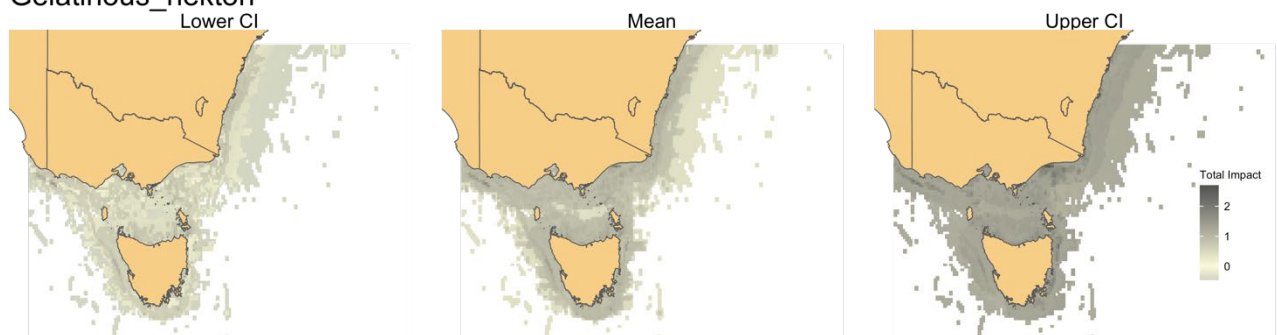
Euphausiids



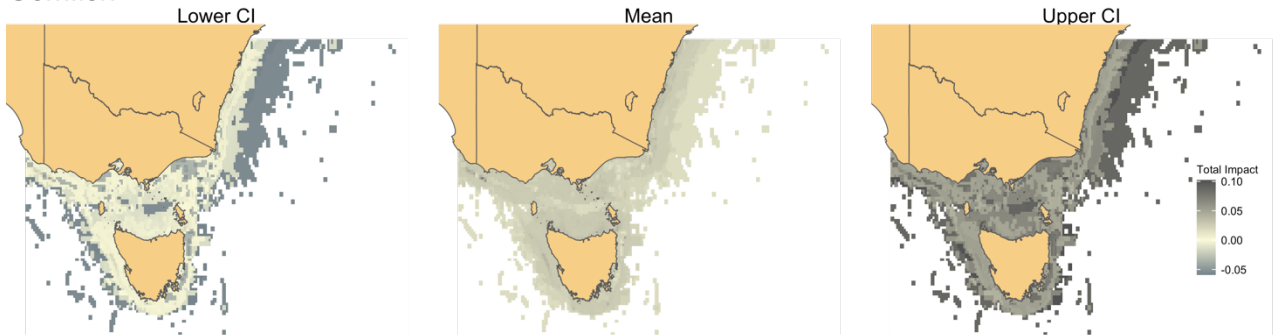
Flathead



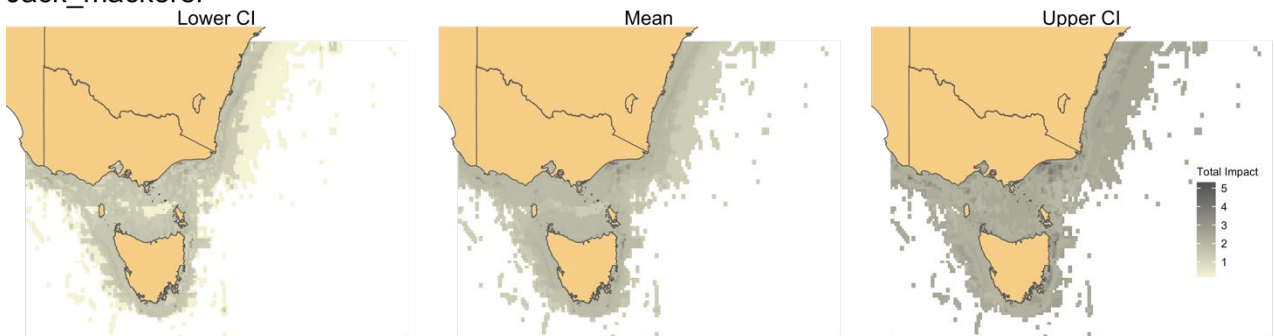
Gelatinous_nekton



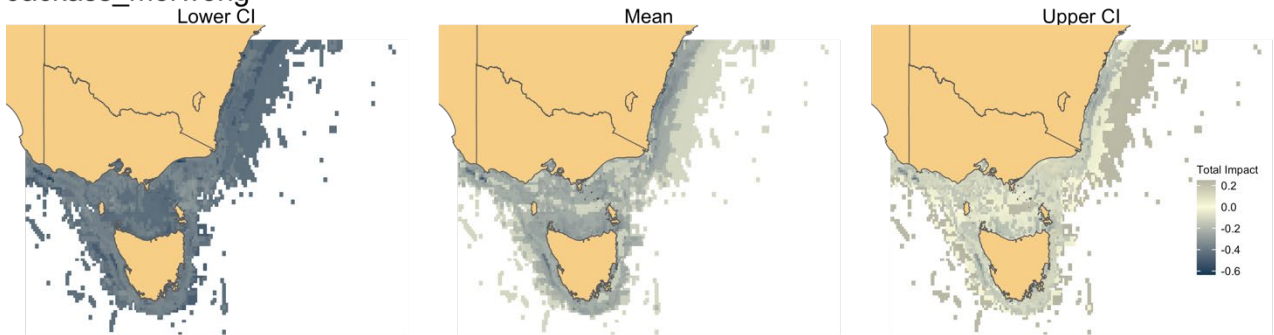
Gemfish



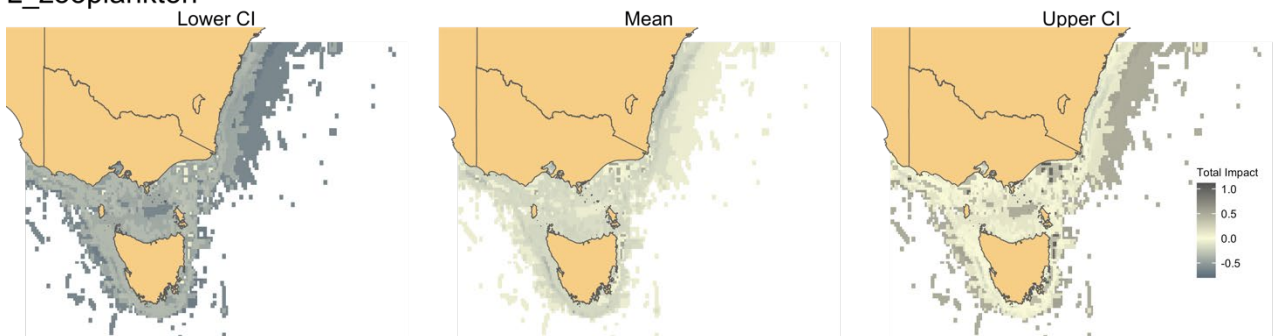
Jack_mackerel



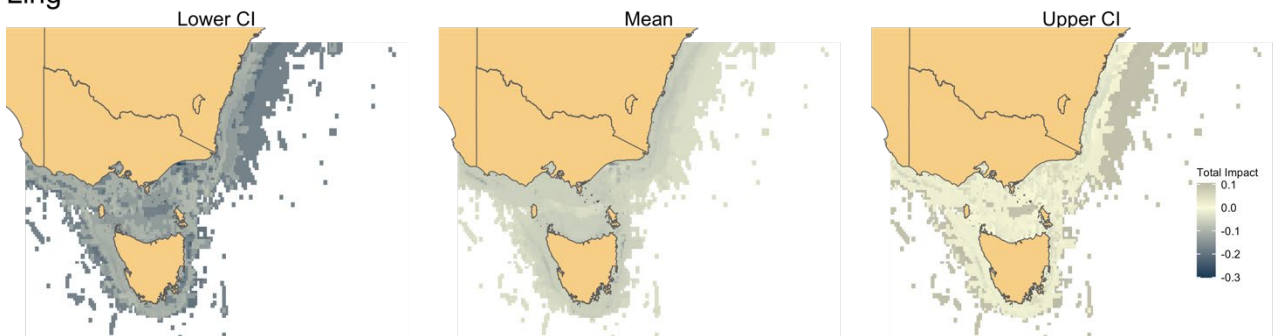
Jackass_morwong



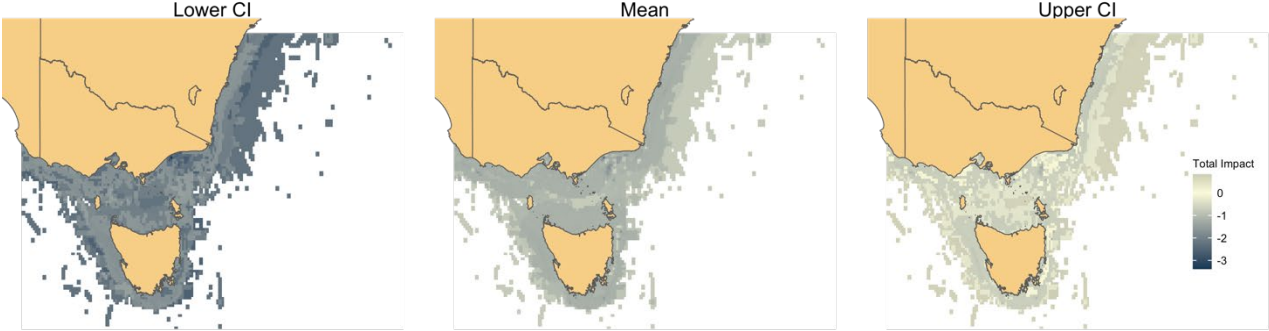
L_zooplankton



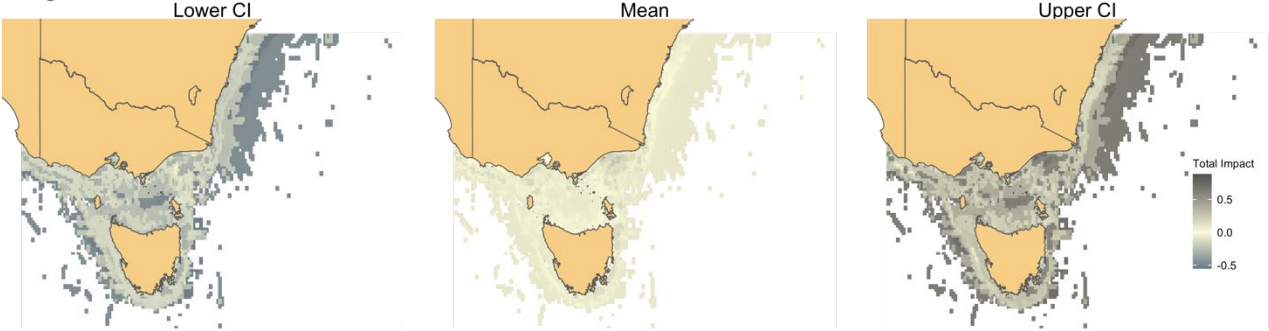
Ling



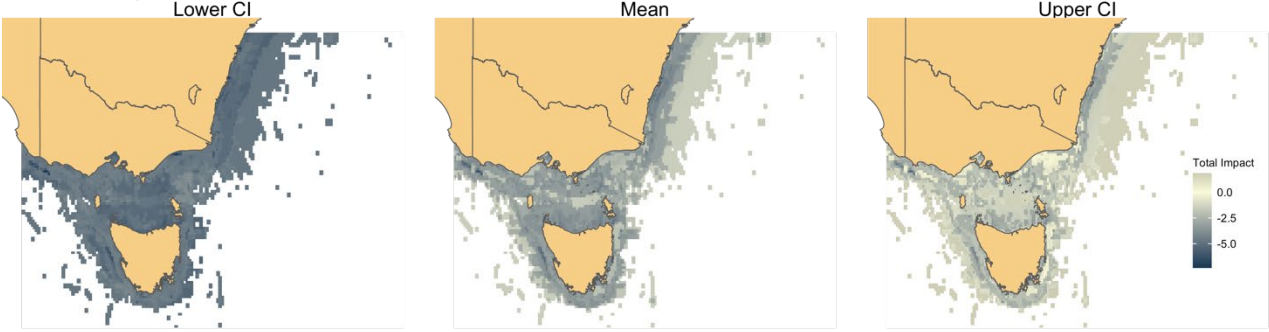
Macrobenthos



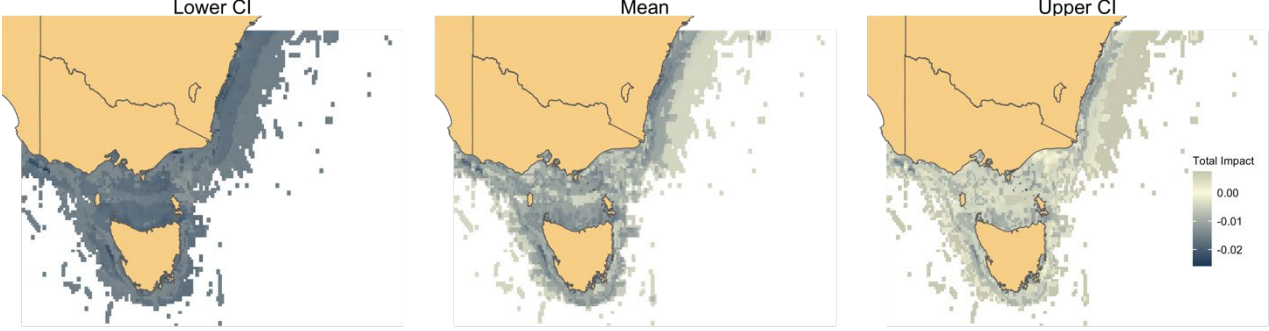
Megabenthos



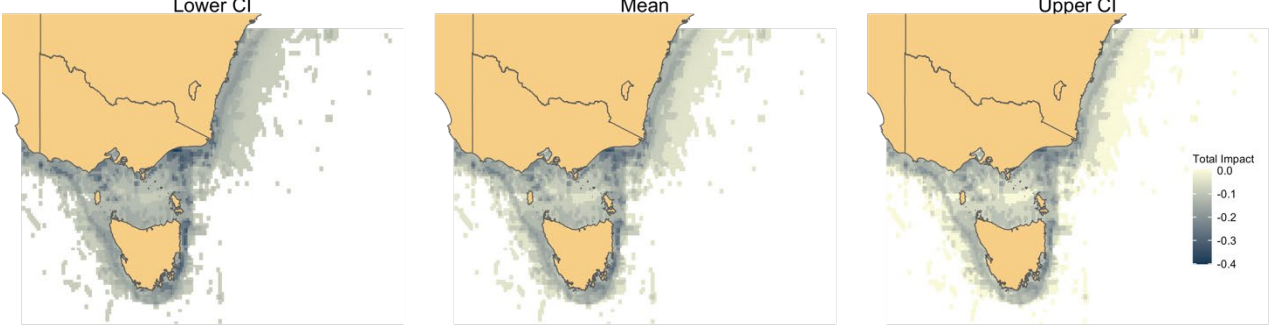
Mesopelagics



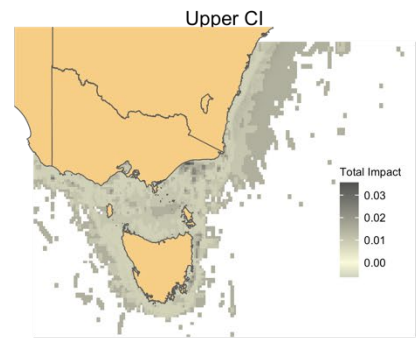
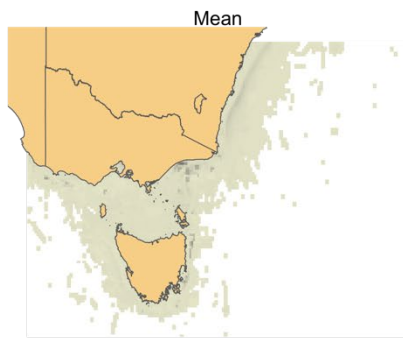
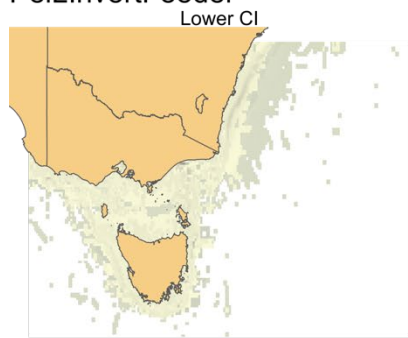
Oreos



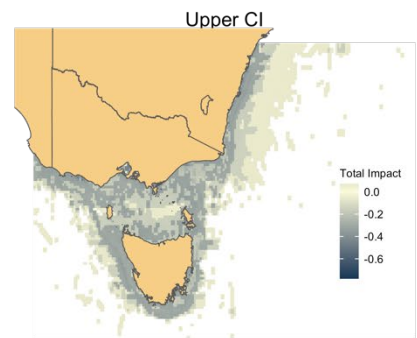
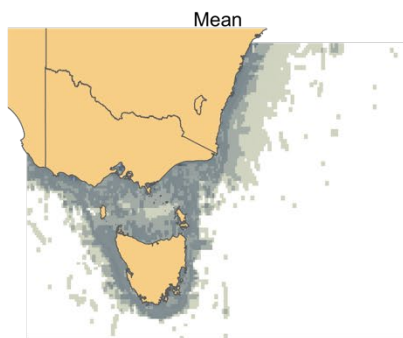
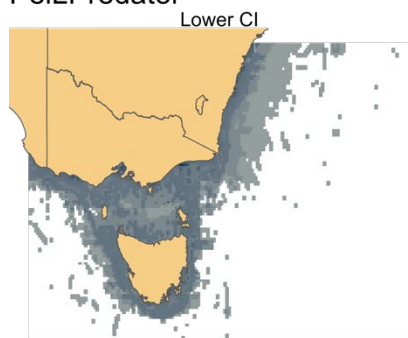
Pelagic_sharks



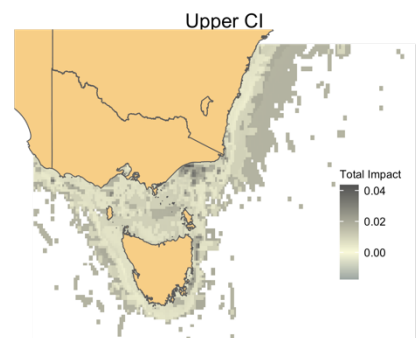
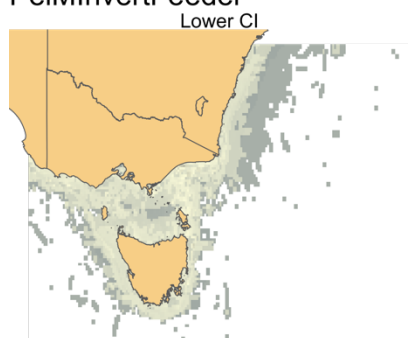
PelLInvertFeeder



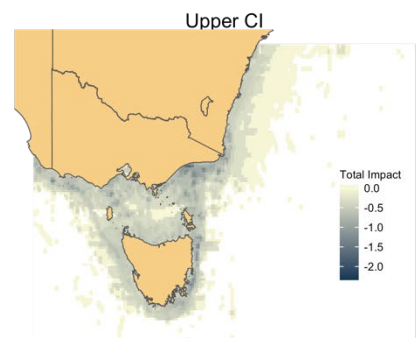
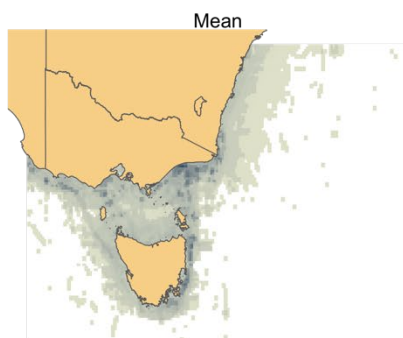
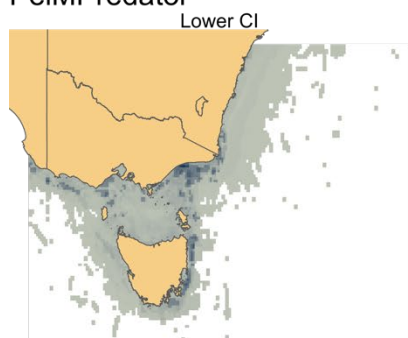
PelLPredator



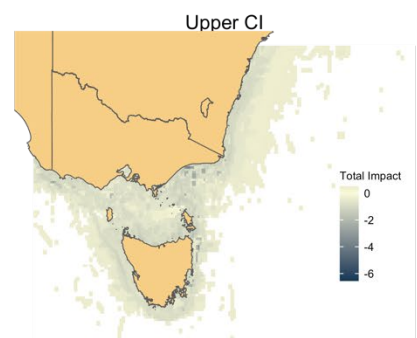
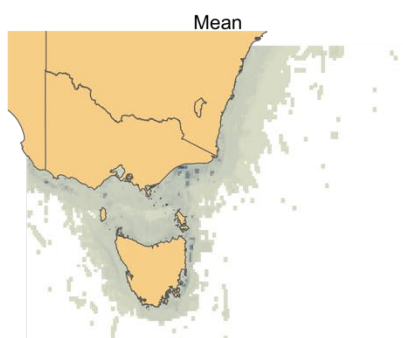
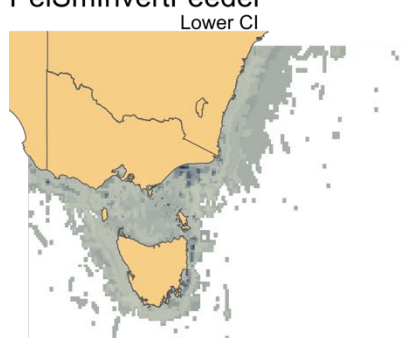
PelMInvertFeeder



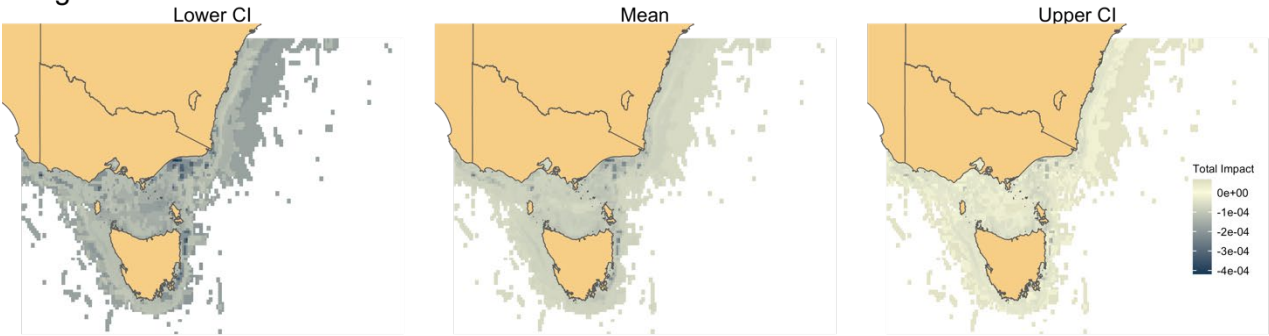
PelMPredator



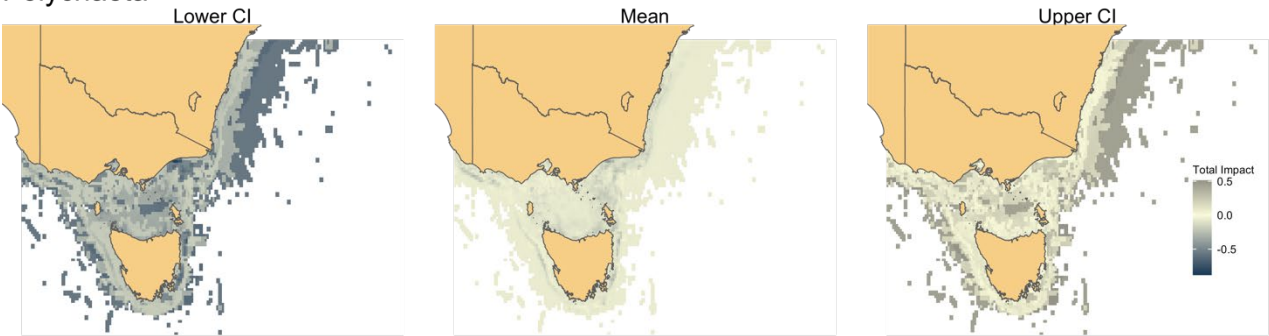
PelSmInvertFeeder



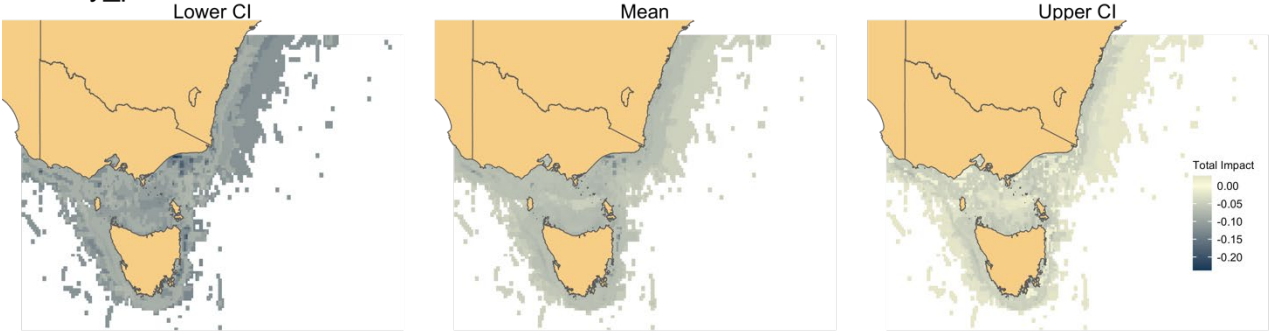
Penguins



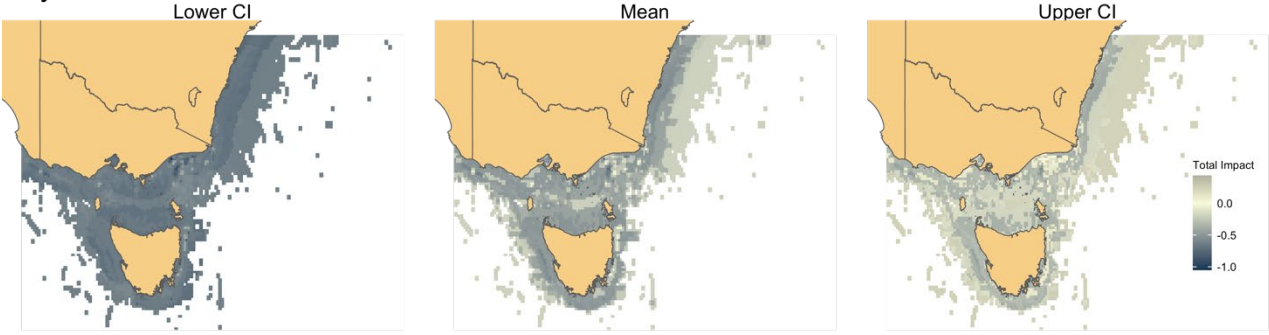
Polychaeta



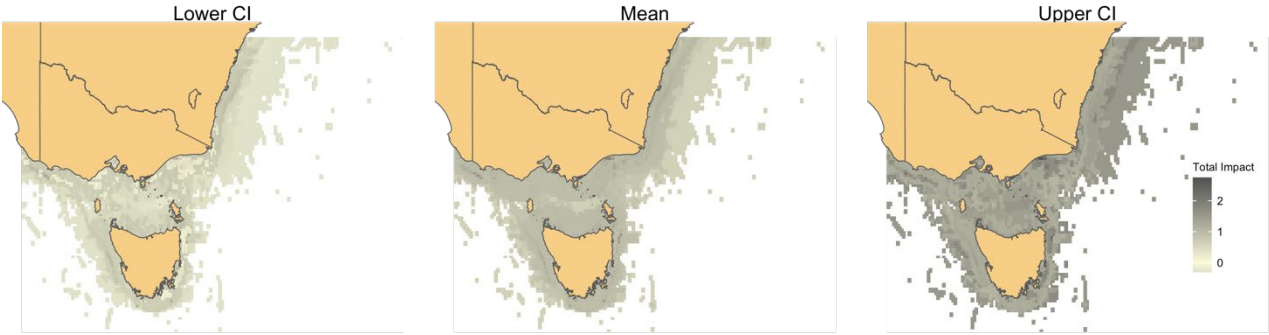
Primary_producers



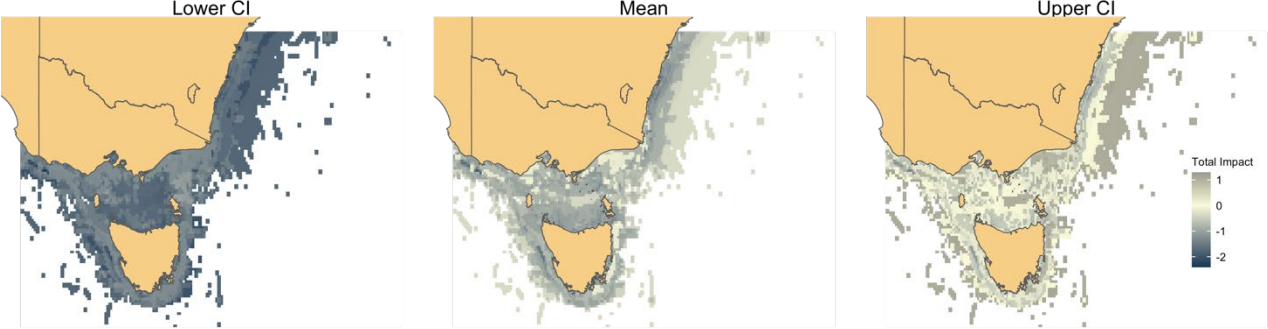
Rays



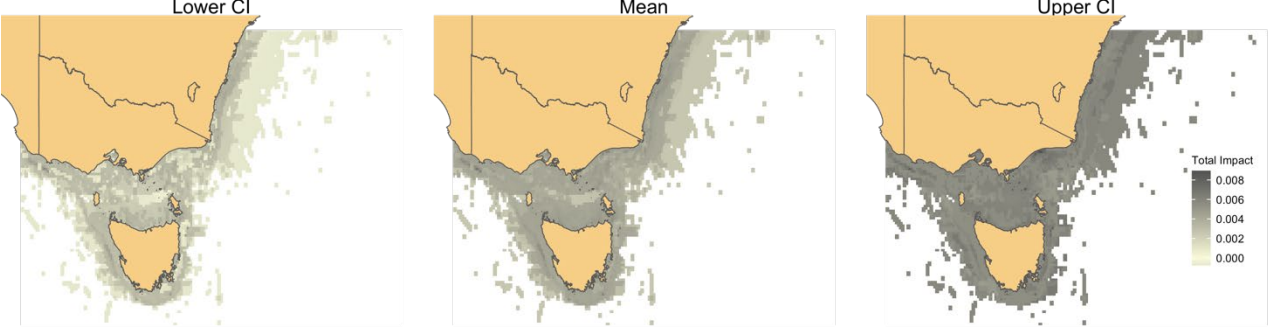
Redbait



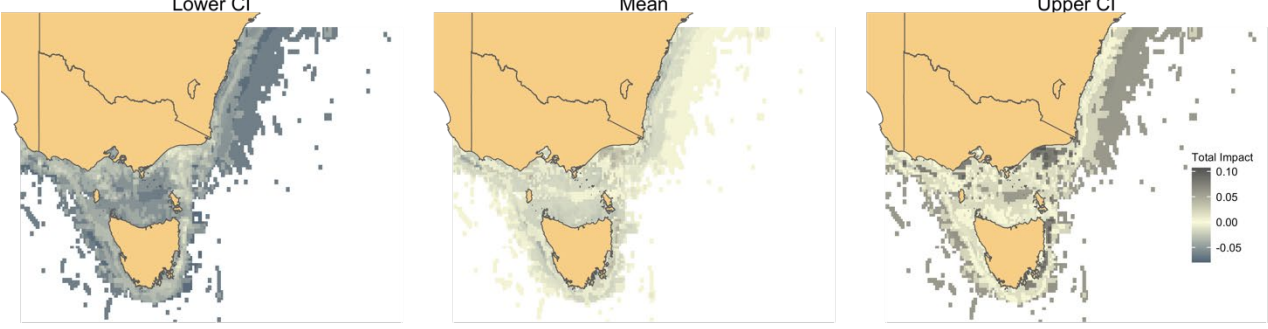
Redfish



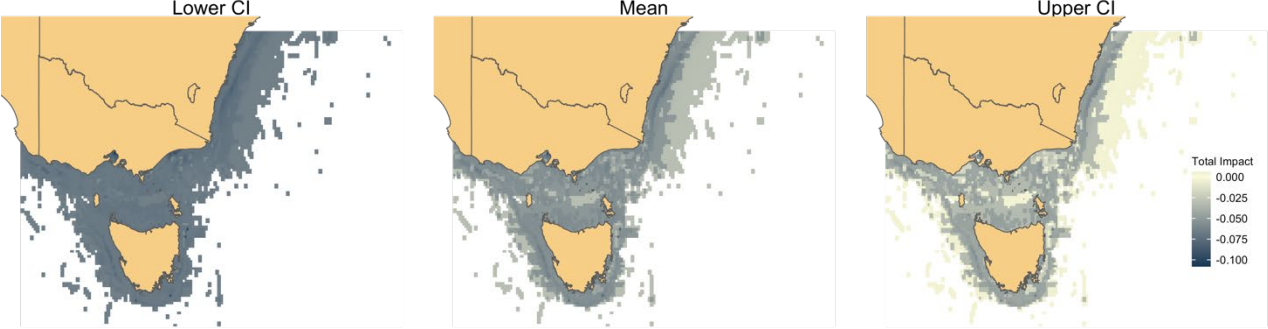
Seabirds



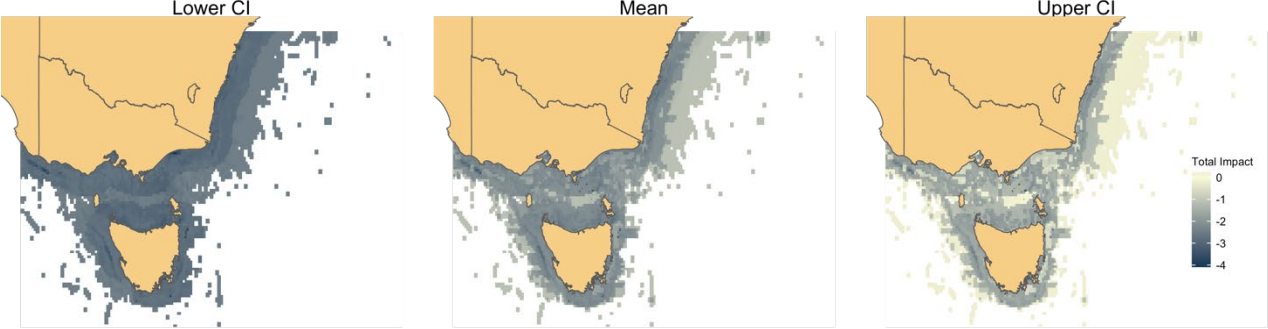
Seal



ShLinvertFeeder

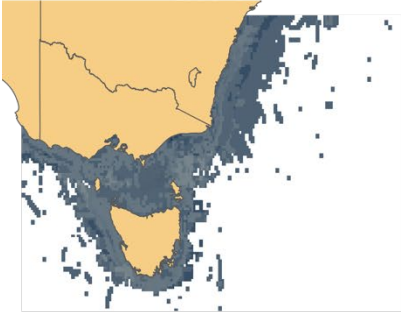


ShLPredator

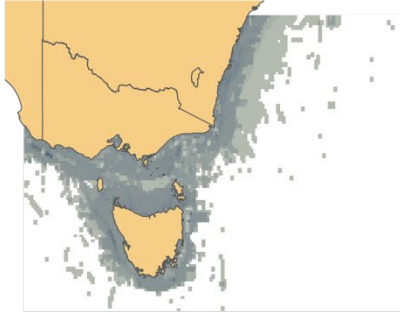


ShMedInvertFeeder

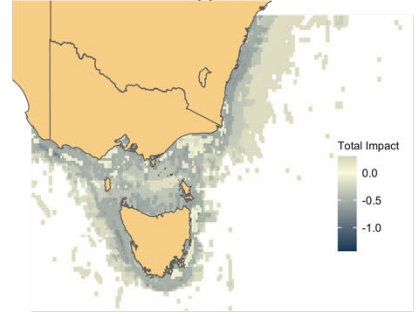
Lower CI



Mean

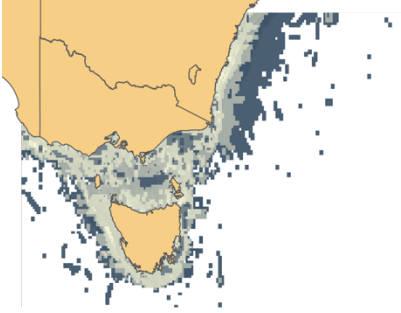


Upper CI



ShMedPredator

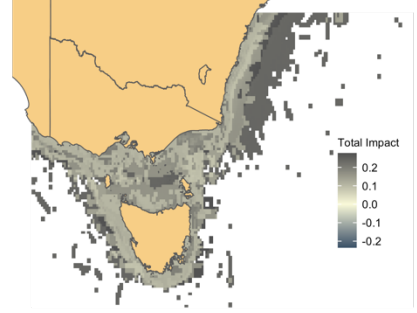
Lower CI



Mean

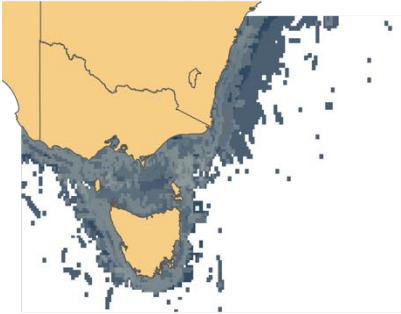


Upper CI

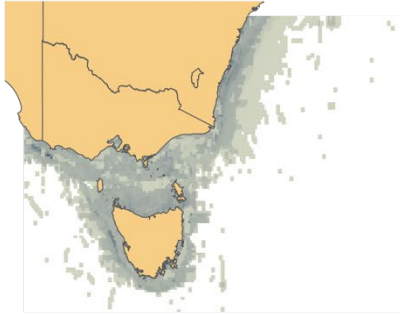


ShOceanPerch

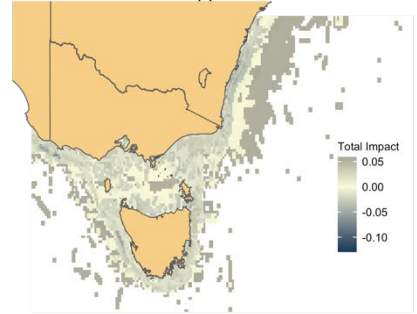
Lower CI



Mean

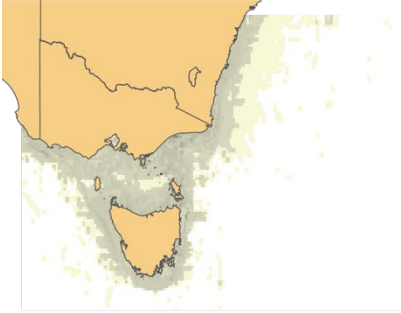


Upper CI

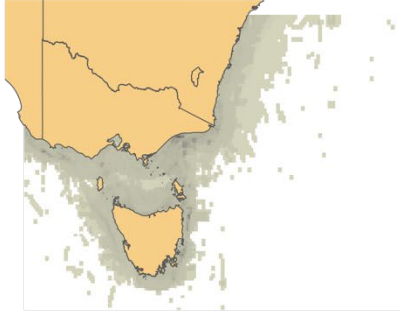


ShSmInvertFeeder

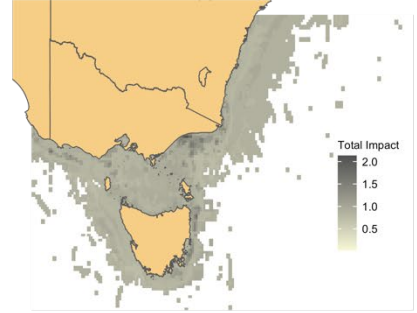
Lower CI



Mean

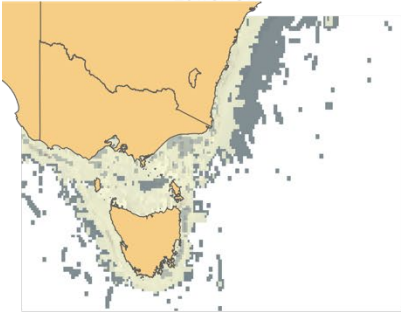


Upper CI

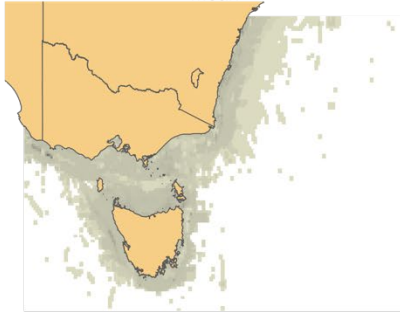


ShSmPredator

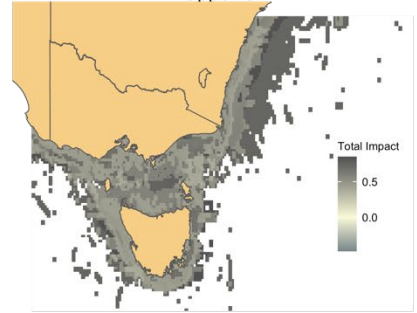
Lower CI



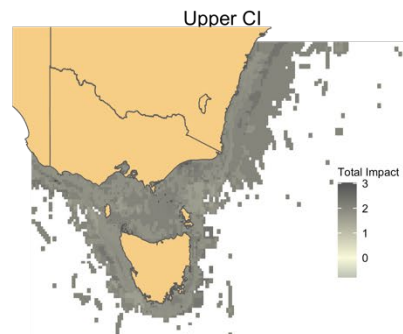
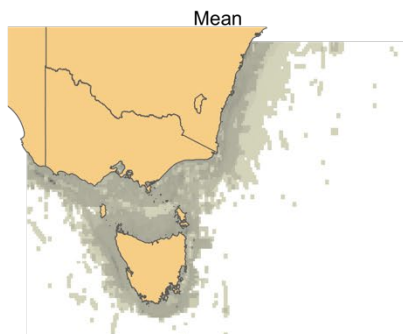
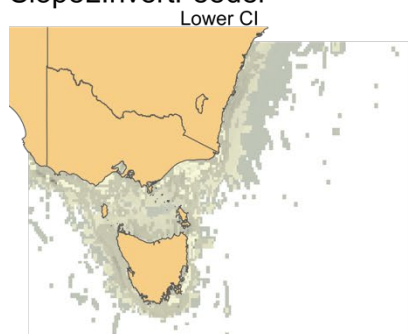
Mean



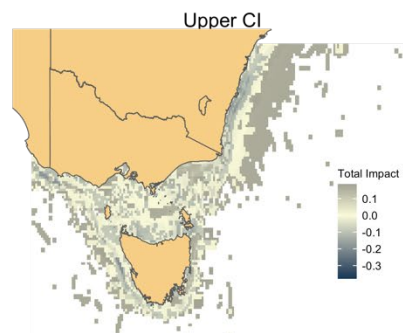
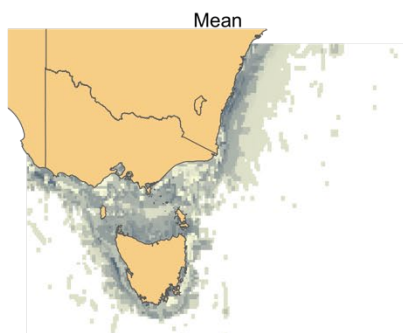
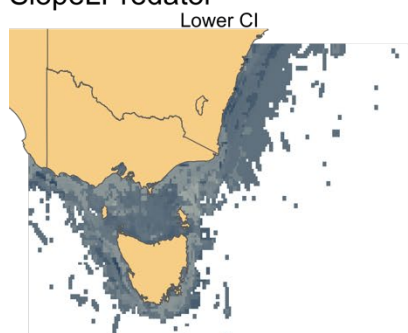
Upper CI



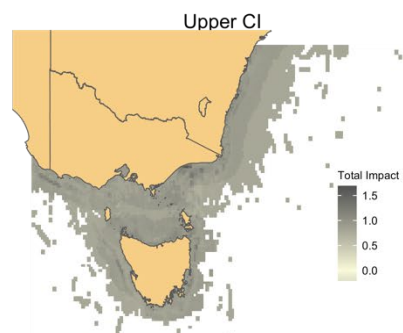
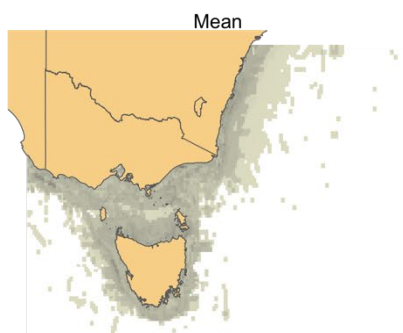
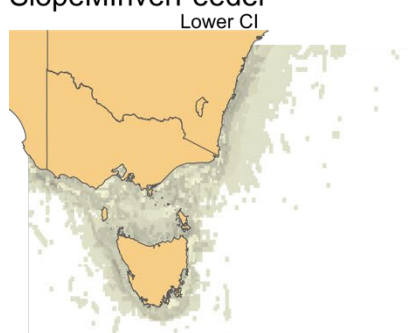
SlopeLInvertFeeder



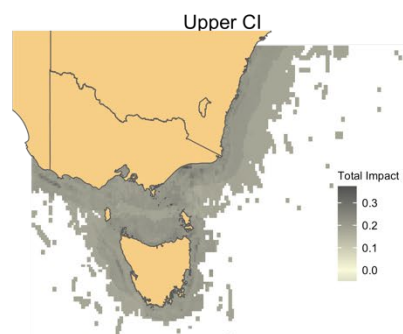
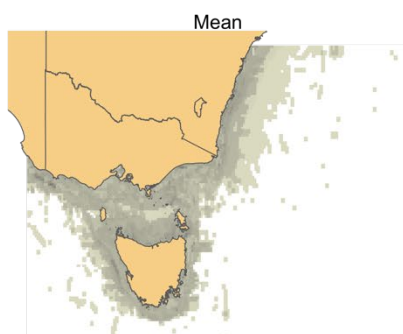
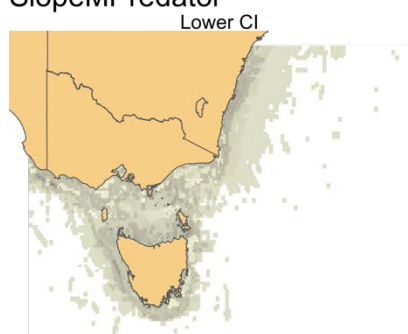
SlopeLPredator



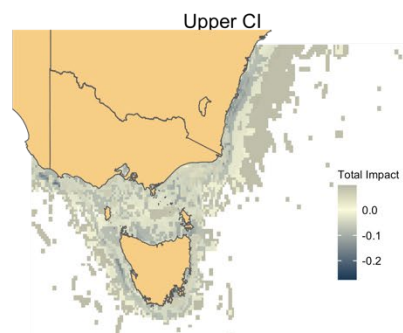
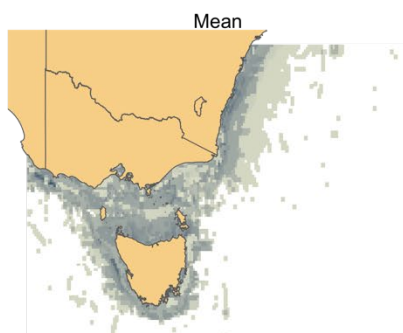
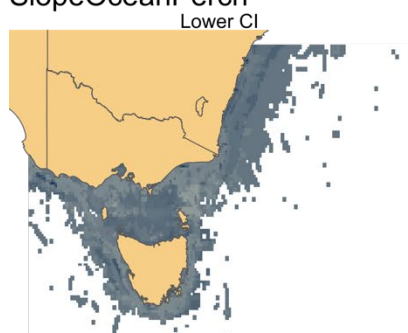
SlopeMInverFeeder



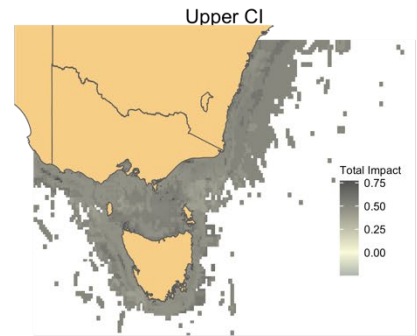
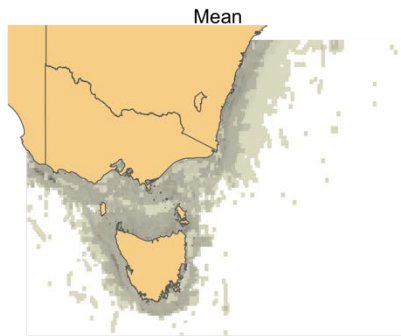
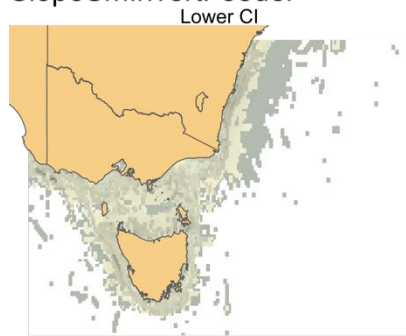
SlopeMPredator



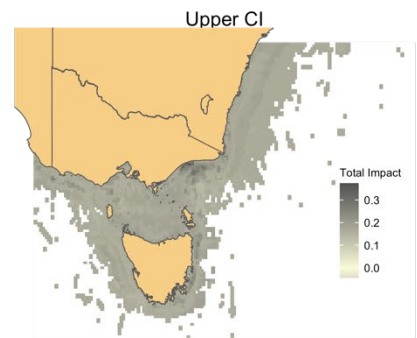
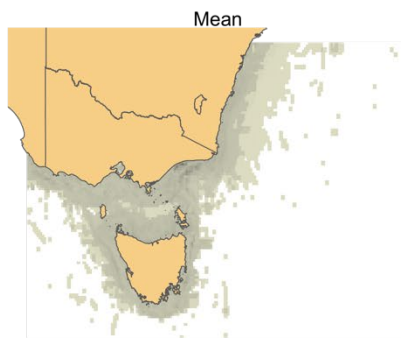
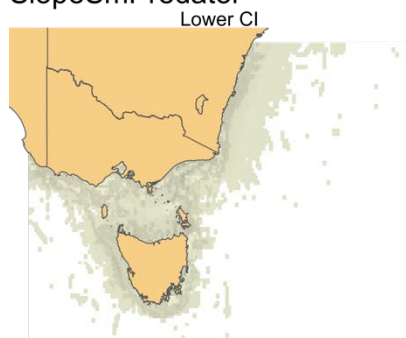
SlopeOceanPerch



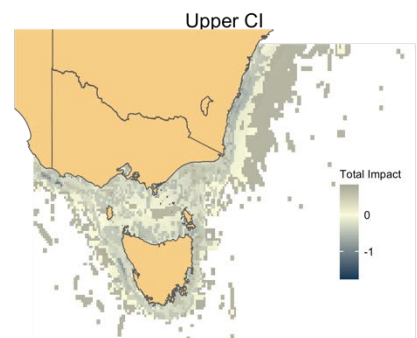
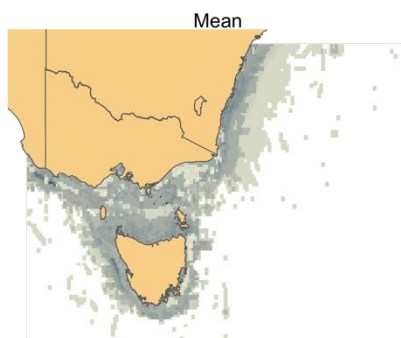
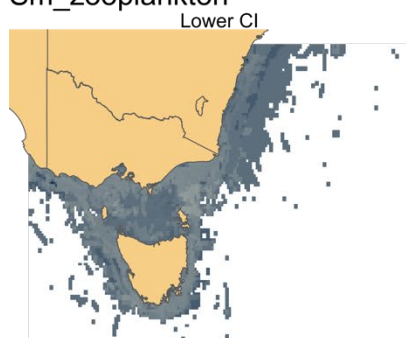
SlopeSmInvertFeeder



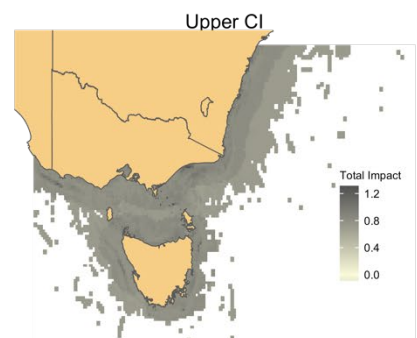
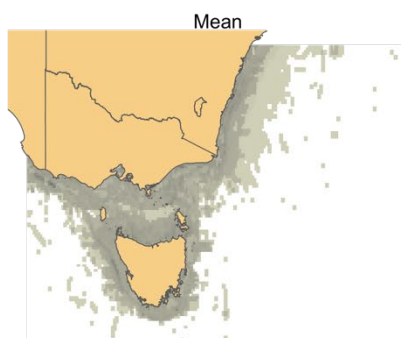
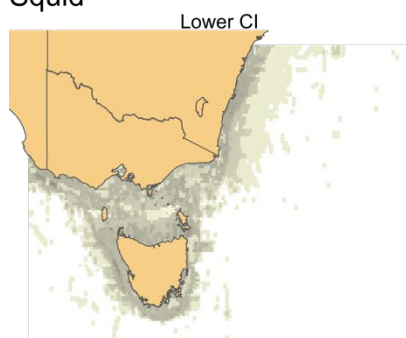
SlopeSmPredator



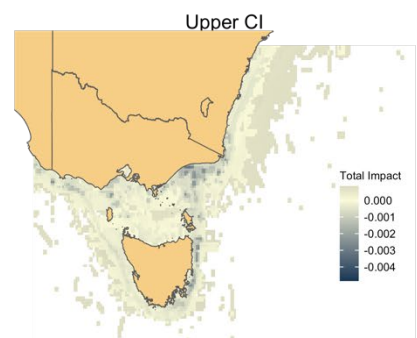
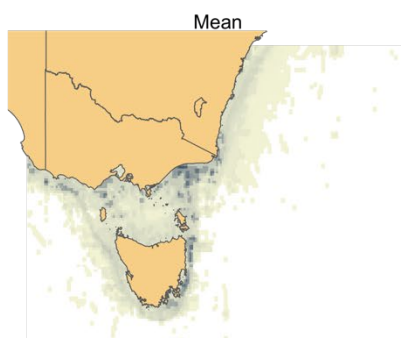
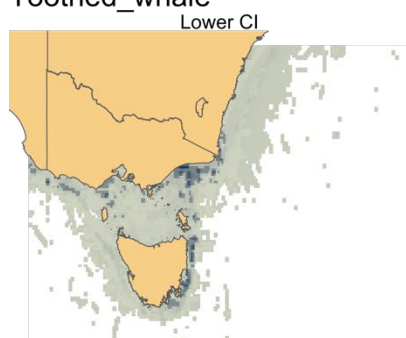
Sm_zooplankton



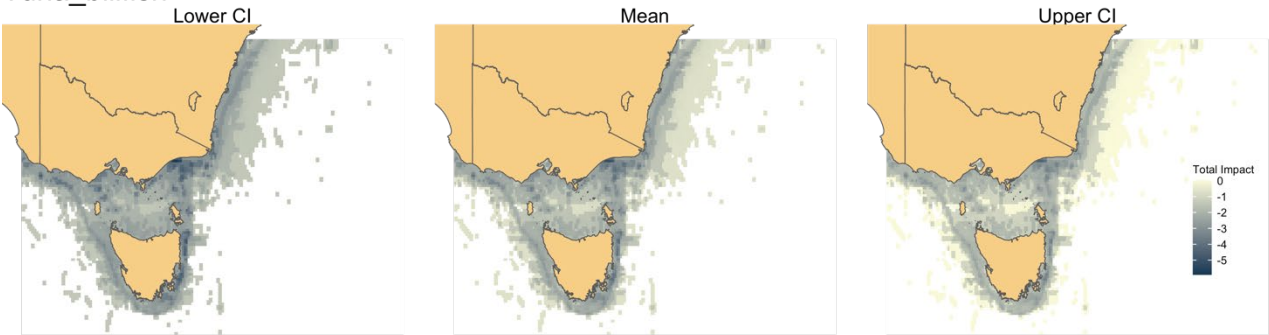
Squid



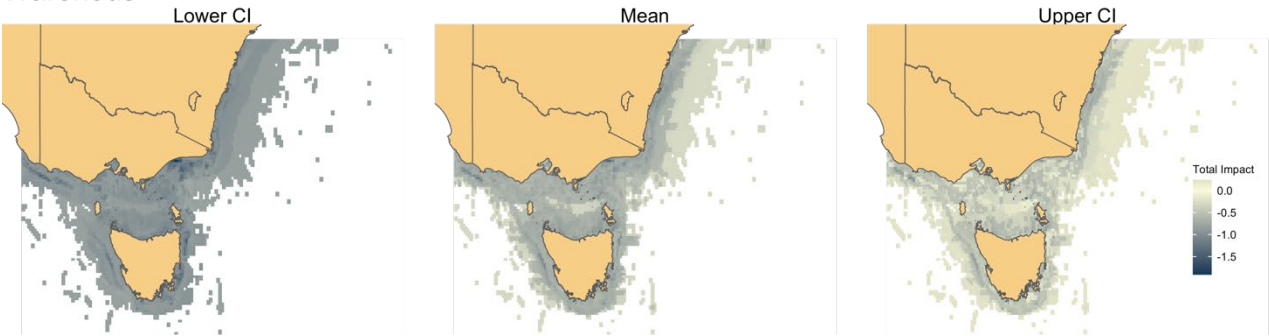
Toothed_whale



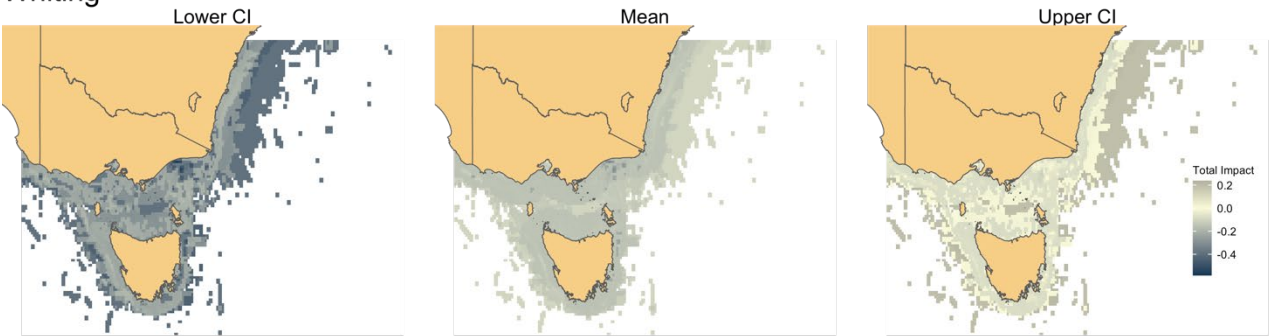
Tuna_billfish



Warehouse



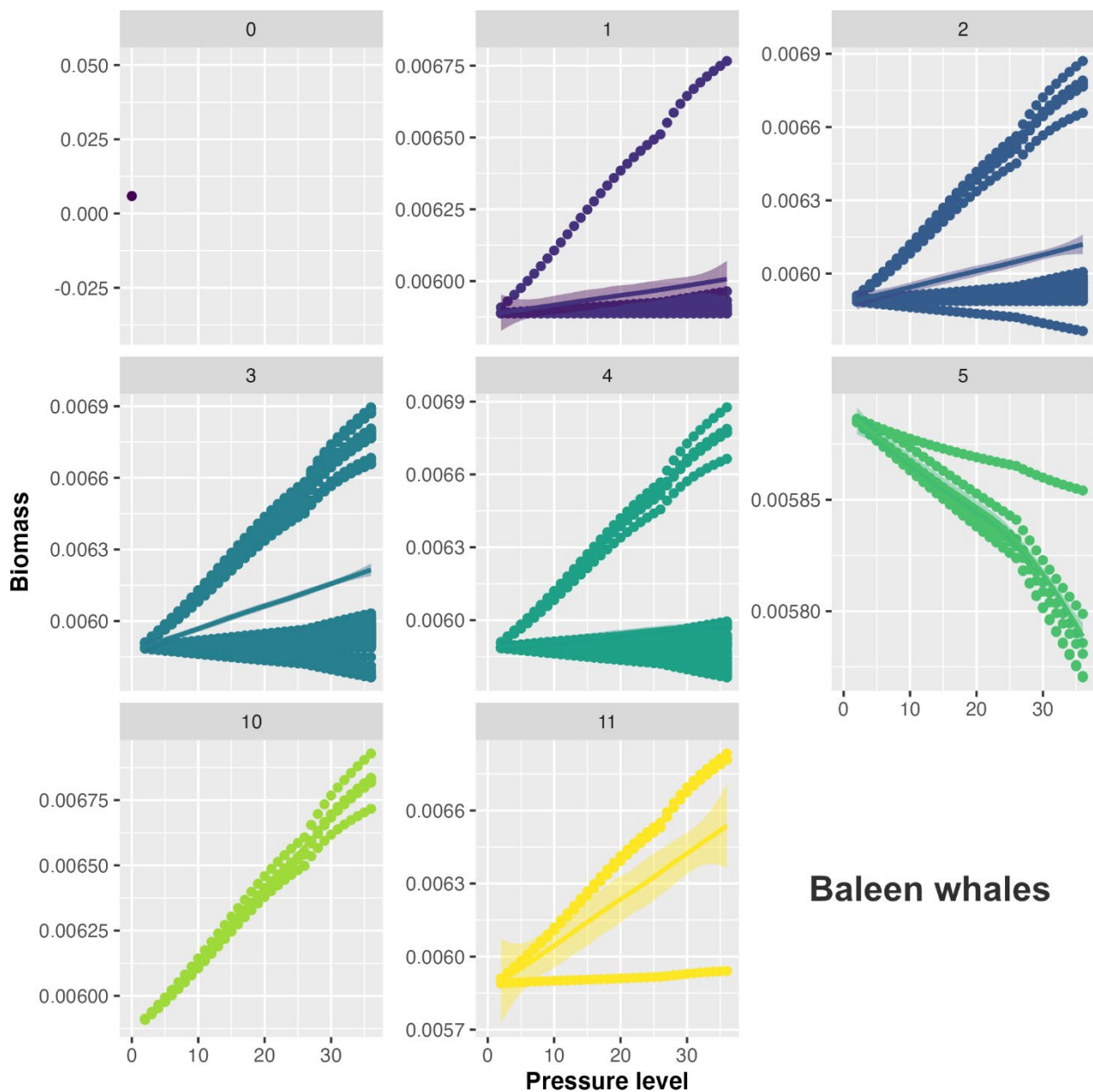
Whiting

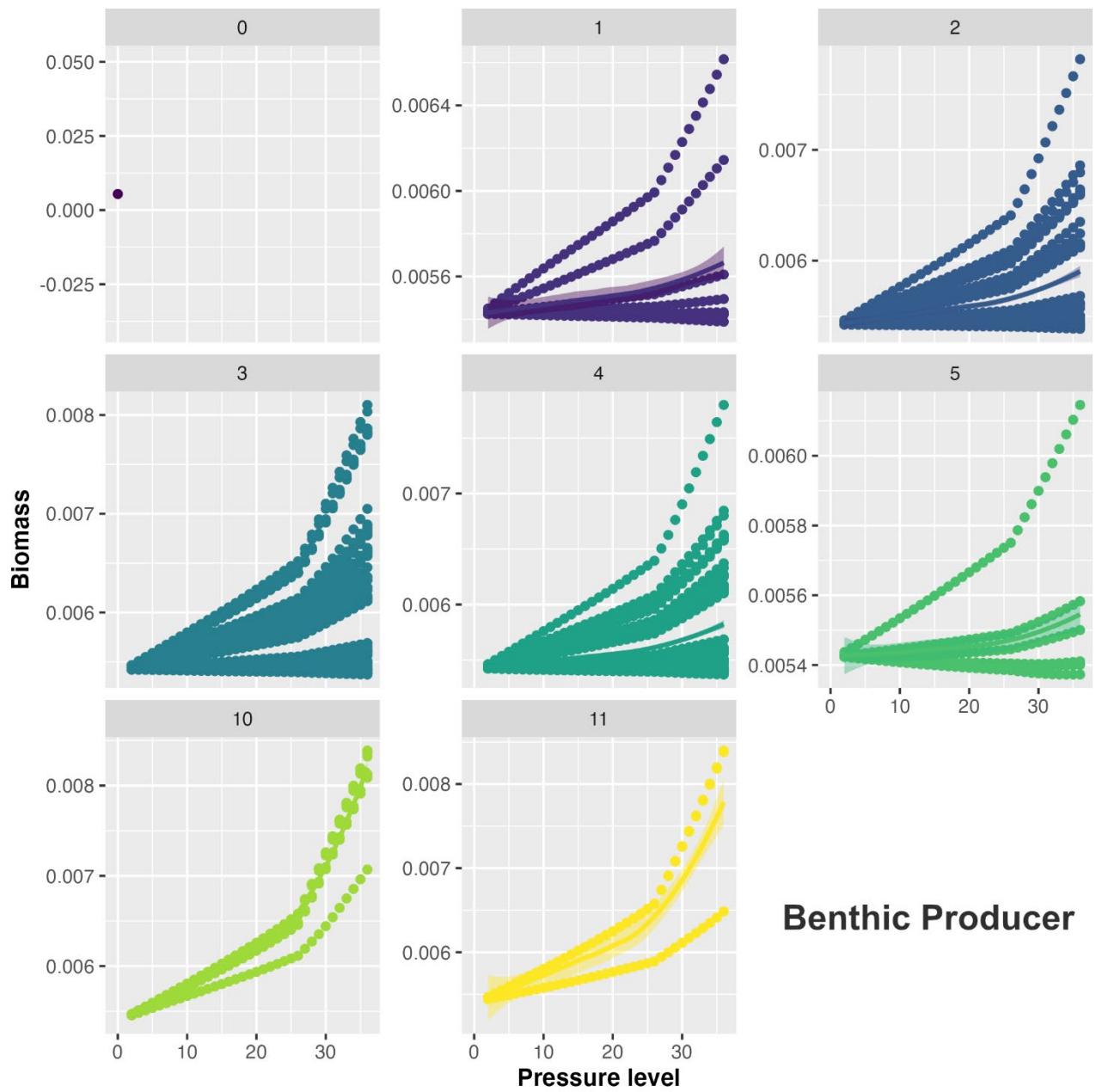


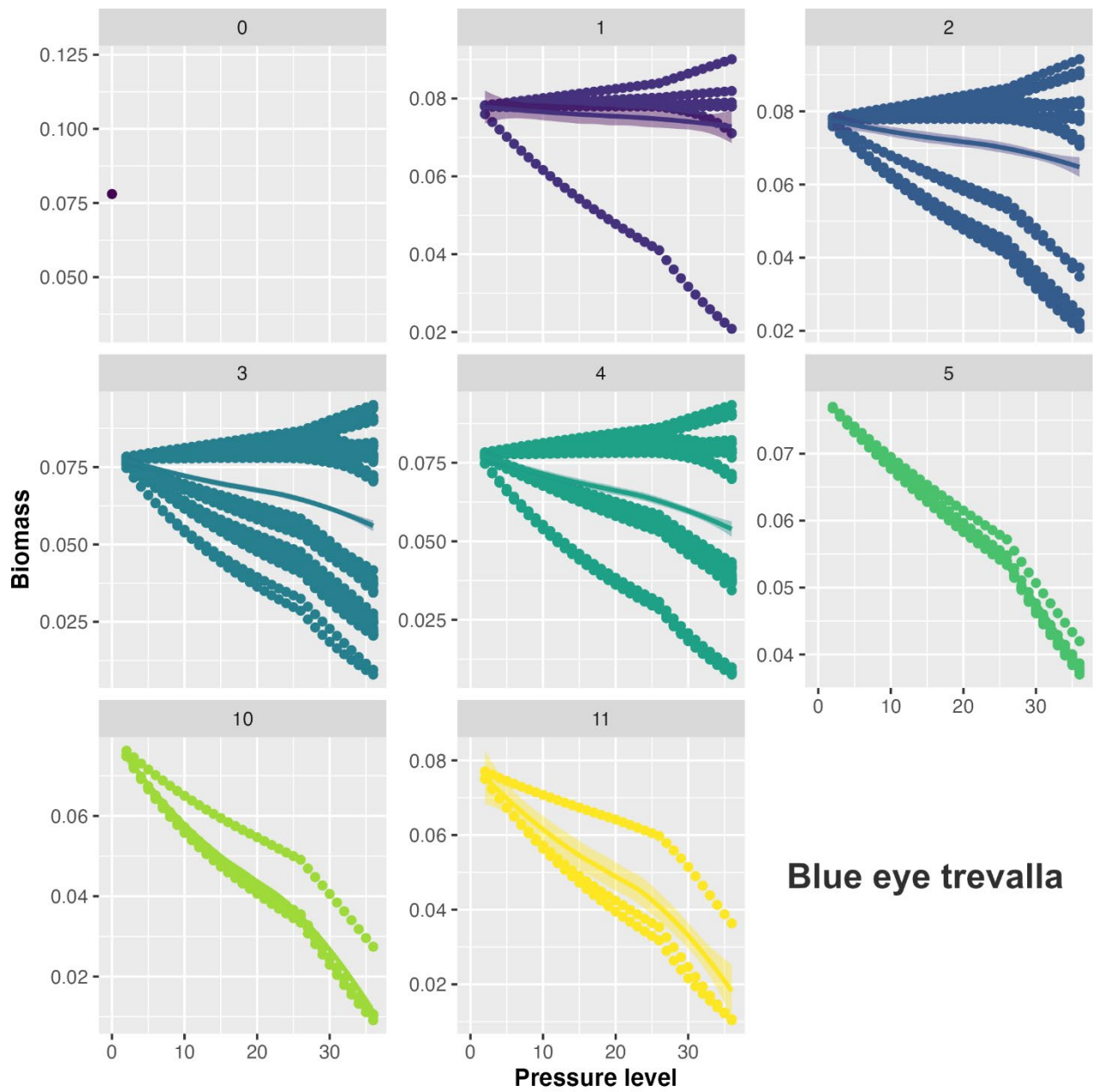
Appendix 8: Impact Response Functions Derived from EwE

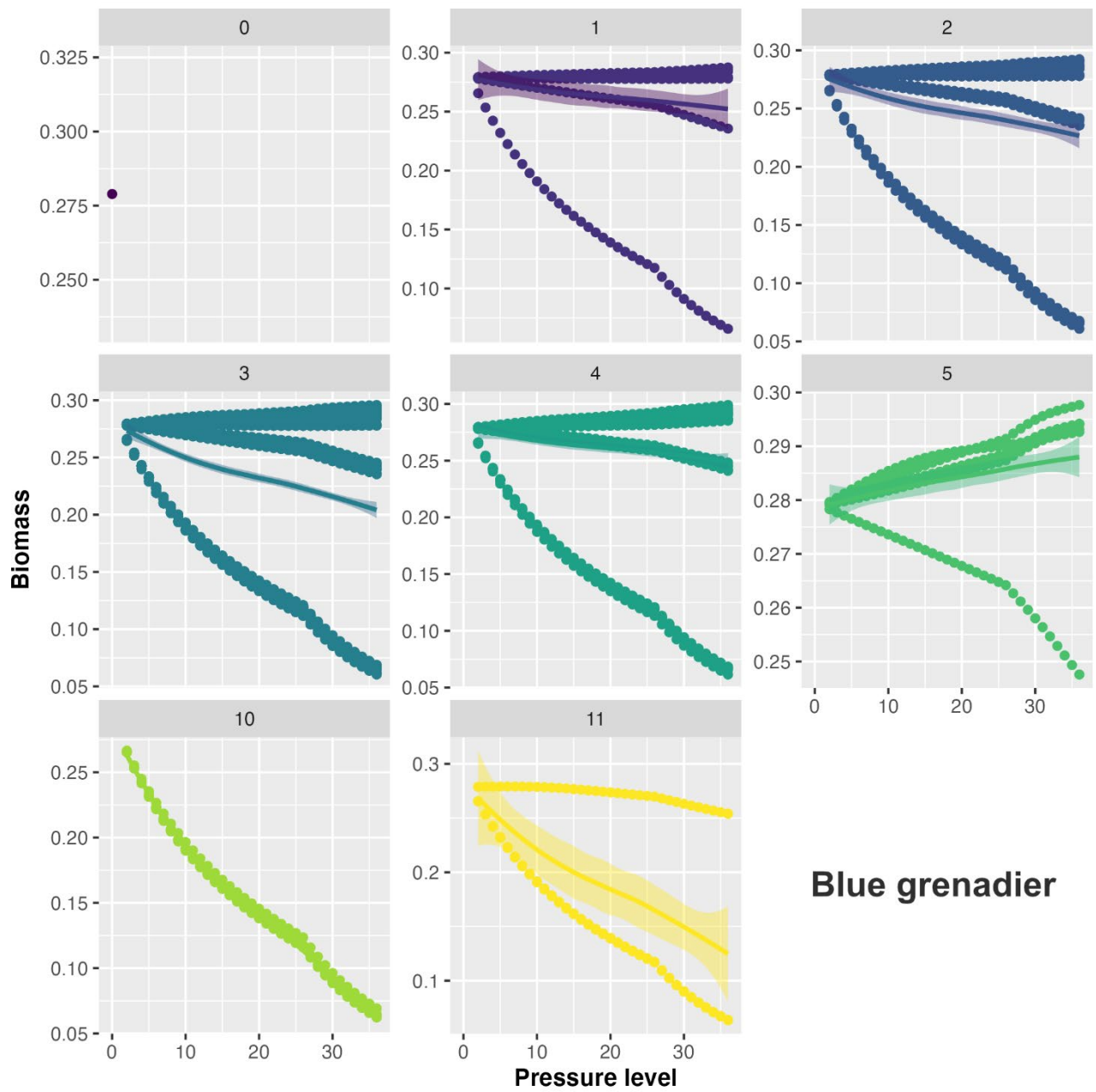
The following plots highlight the pattern of responses of each taxa to increasing pressure from an increasing number of fleets. They include all the taxa from the south east Australian EwE model of Bulman et al (2006) that are directly or indirectly influenced by fisheries (species constituting functional groups are detailed in Bulman et al (2006)). All fleet combinations are shown on the one plot for each indicator, species or functional group. In each plot the panel headings 1-11 represent the number of fleets active in the model. As we are considering risk to the species only biomass is shown and used here, but the same concept could be applied to catches and discards too.

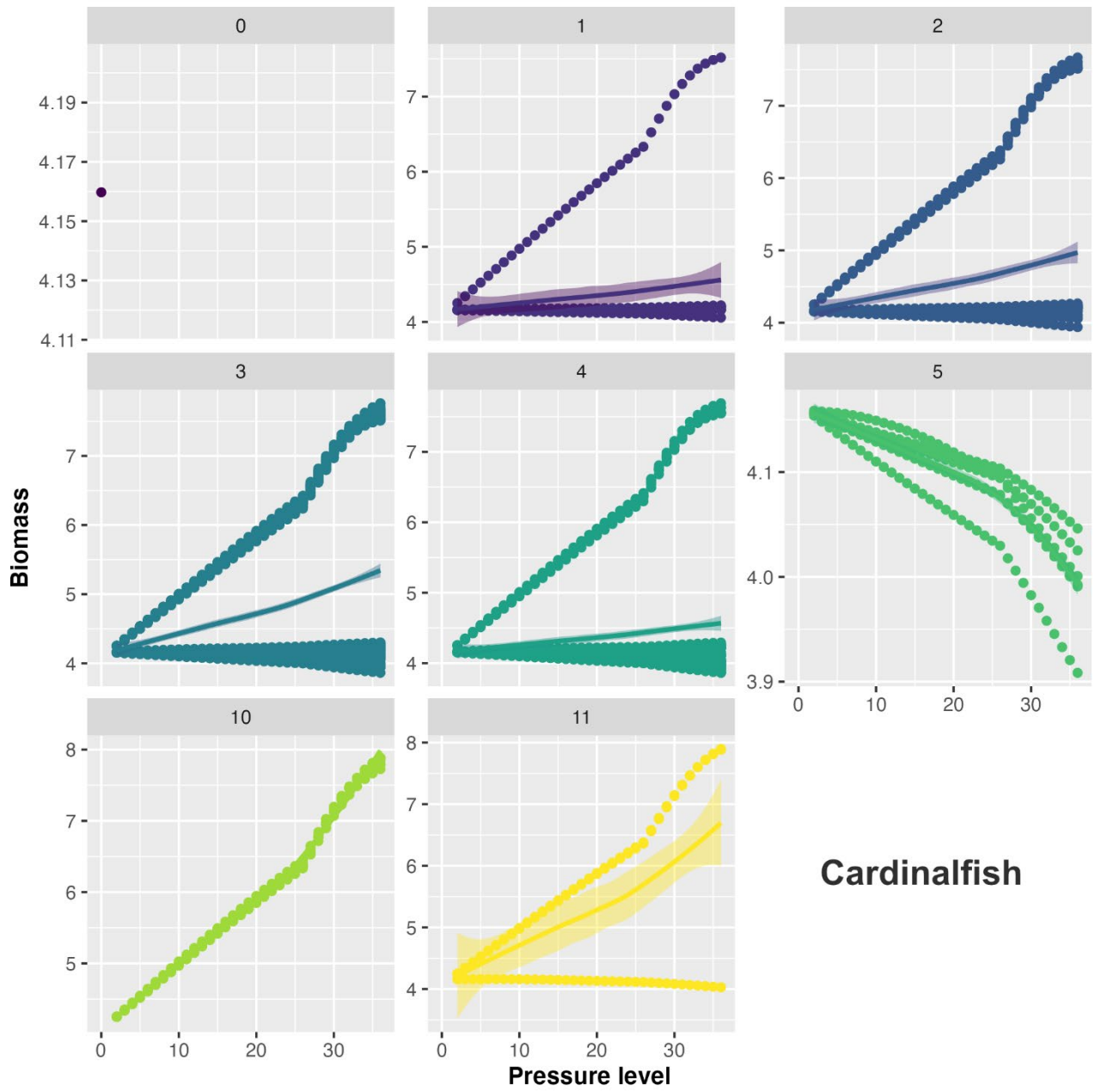
The plots are in alphabetical order.



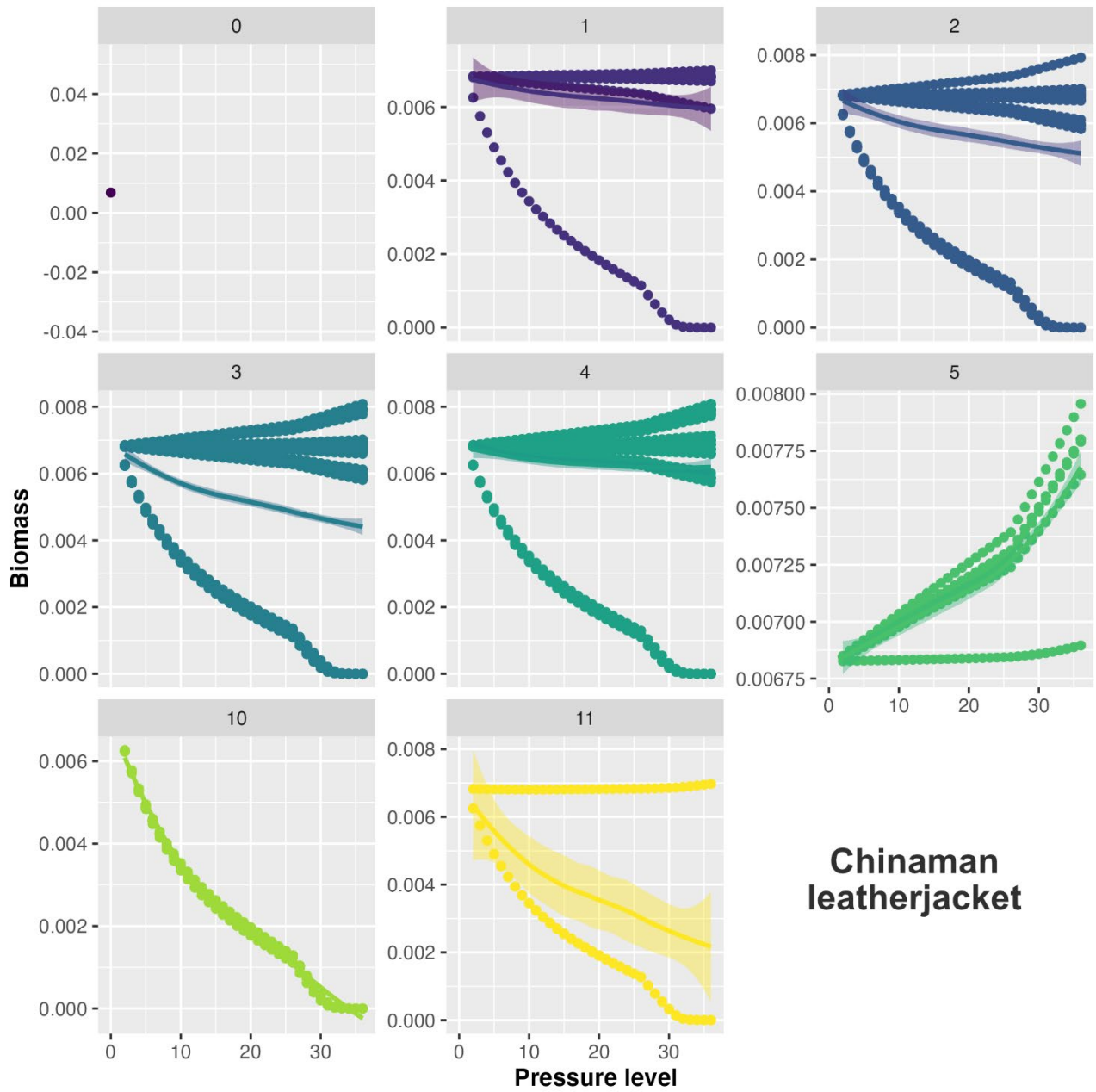




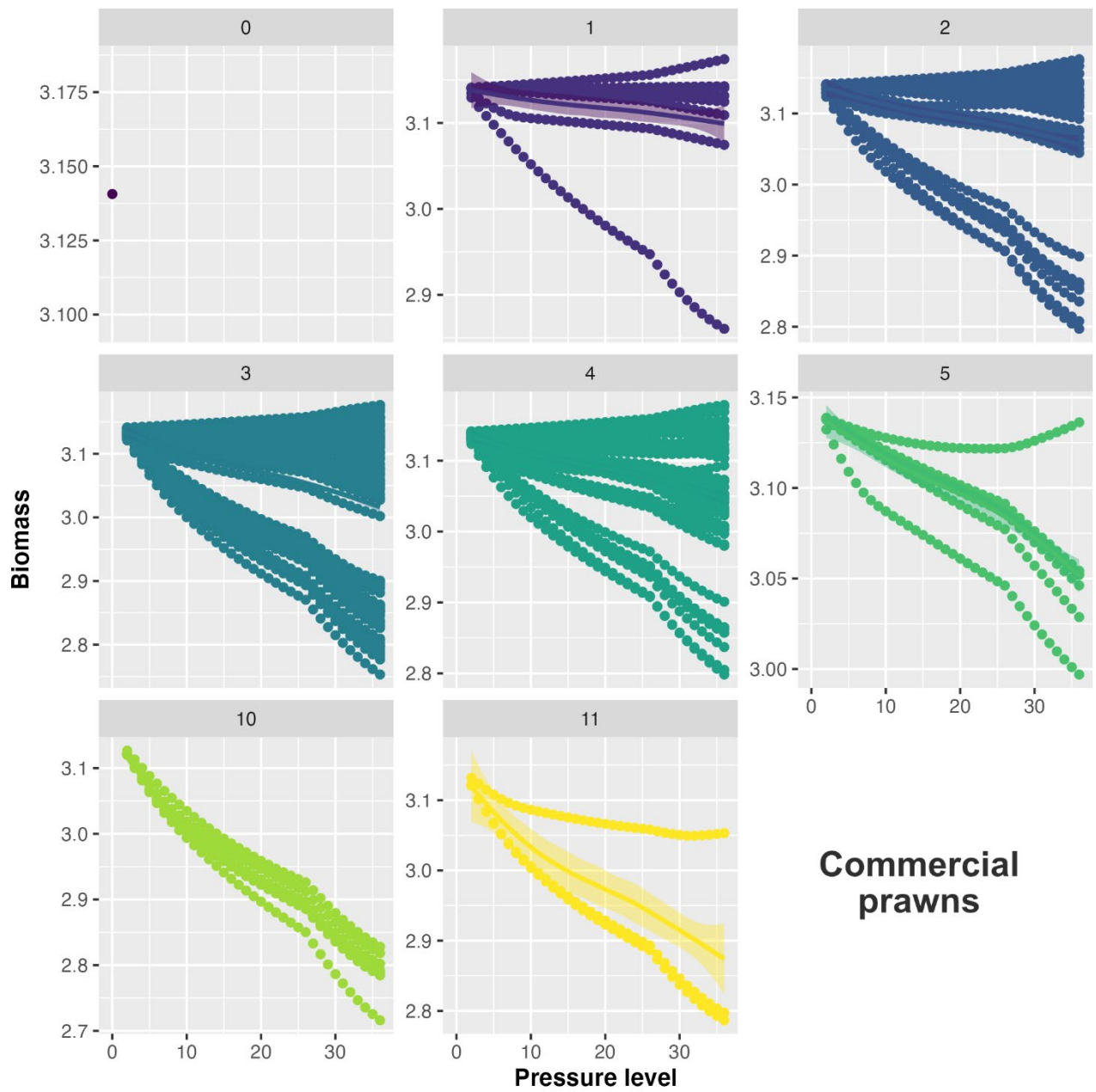


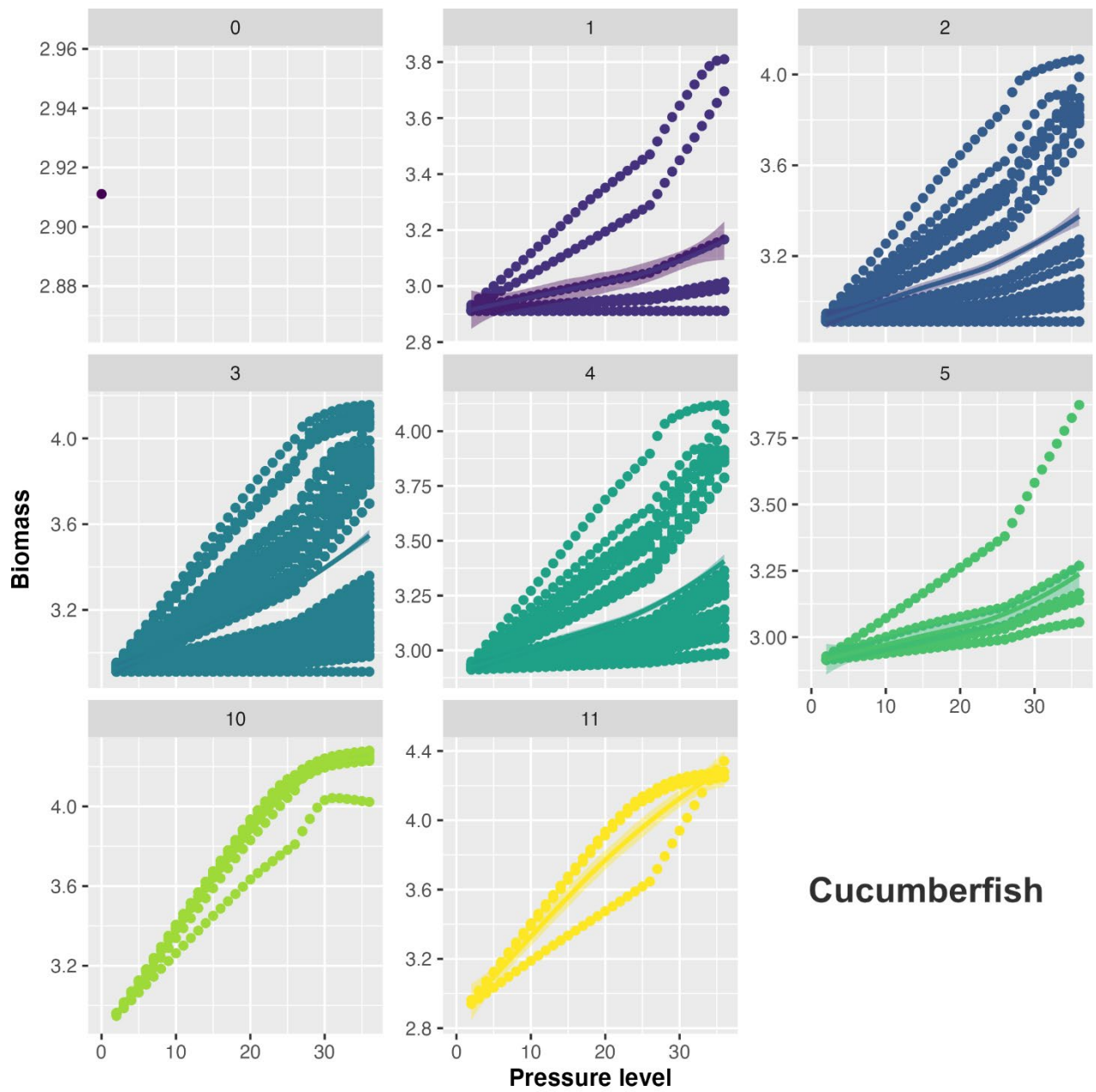


Cardinalfish

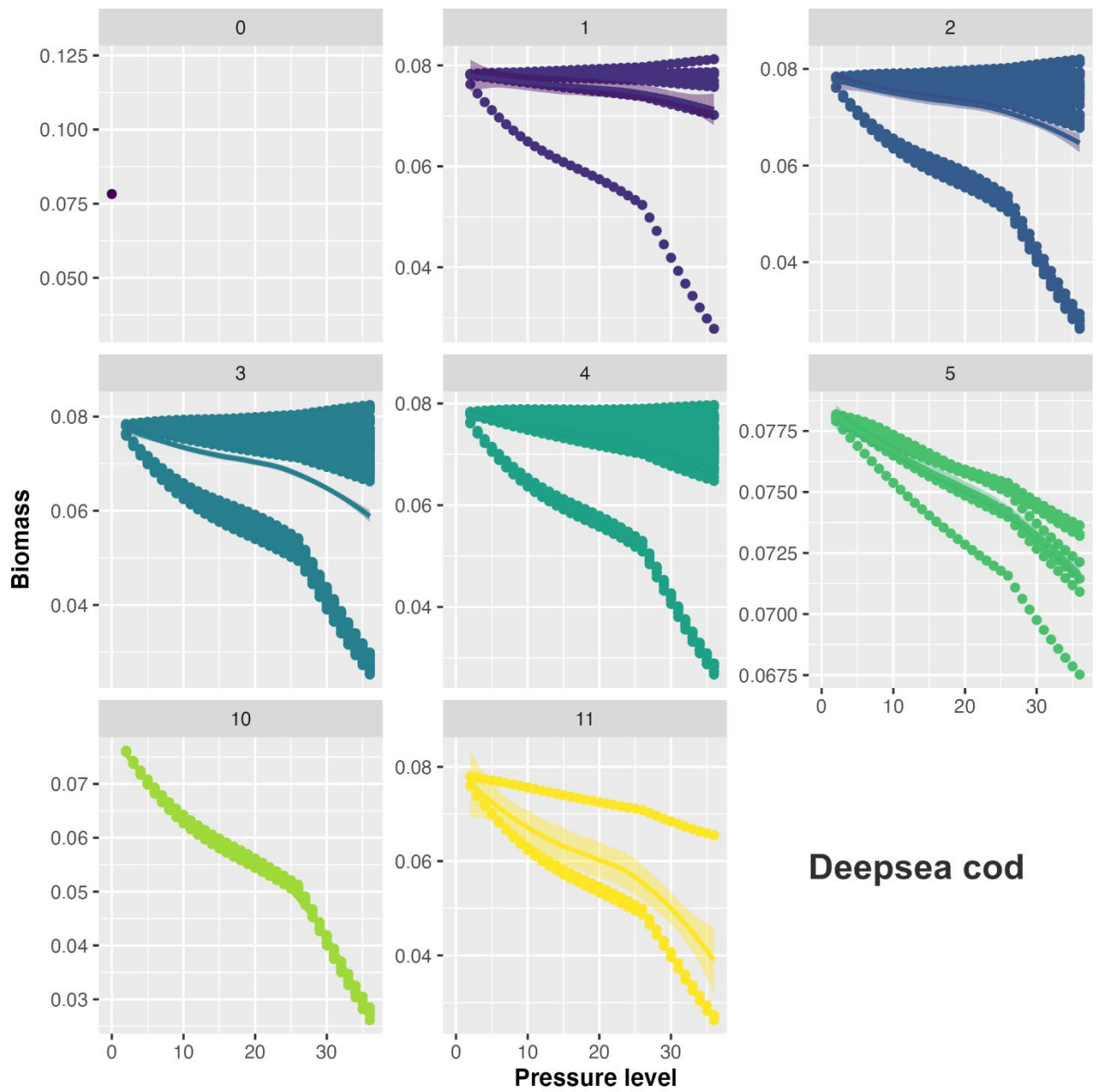


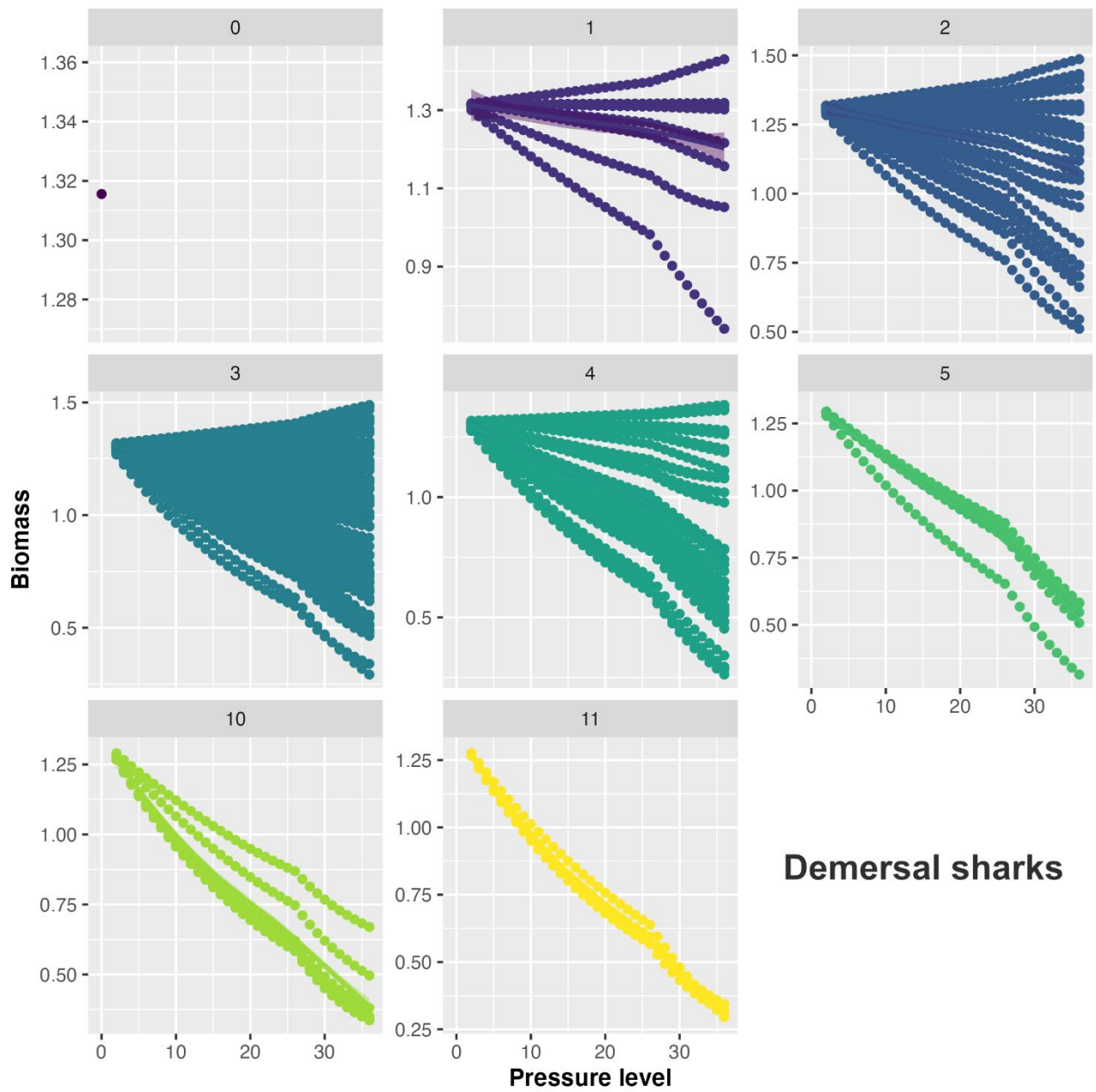
**Chinaman
leatherjacket**



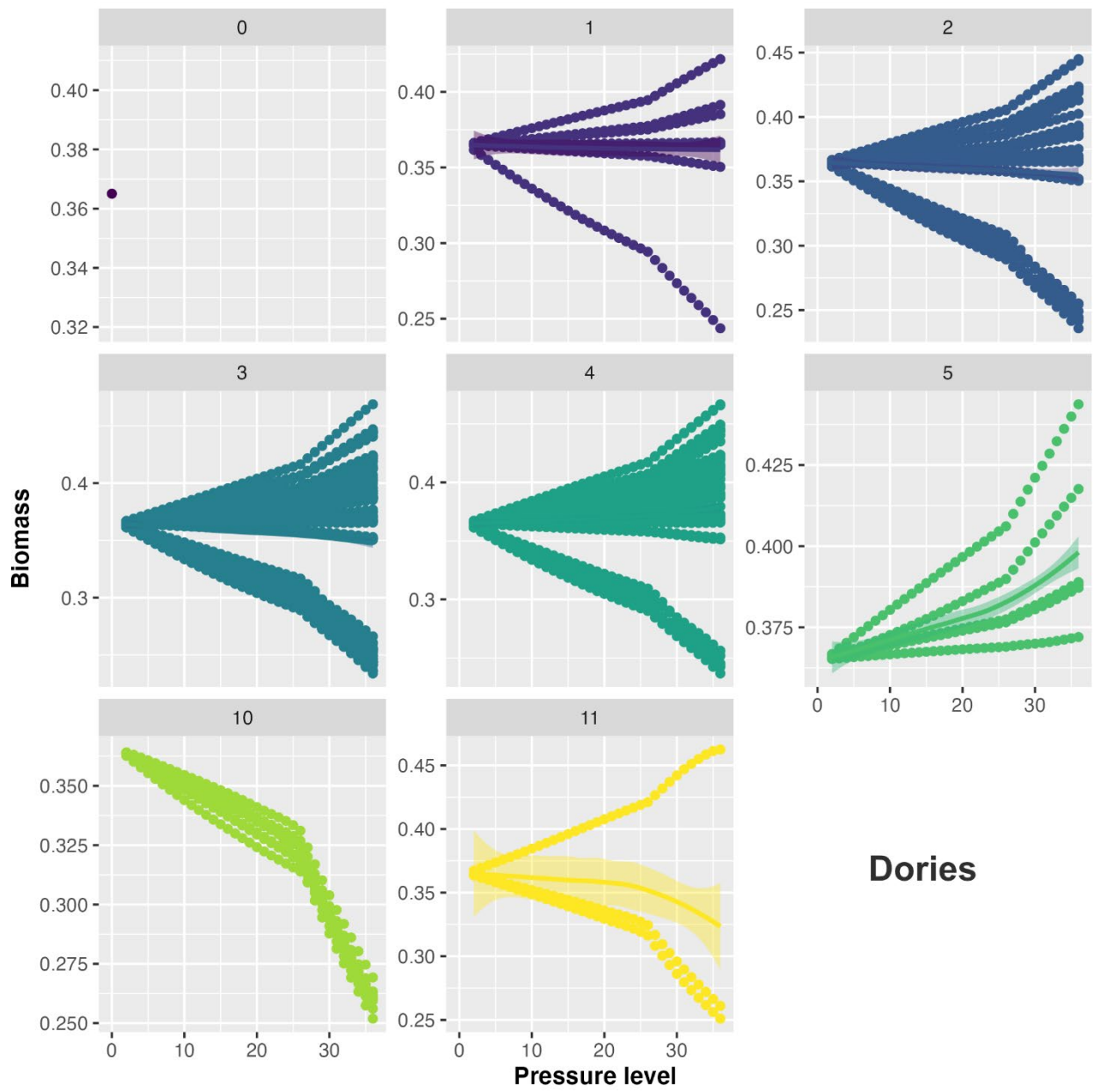


Cucumberfish

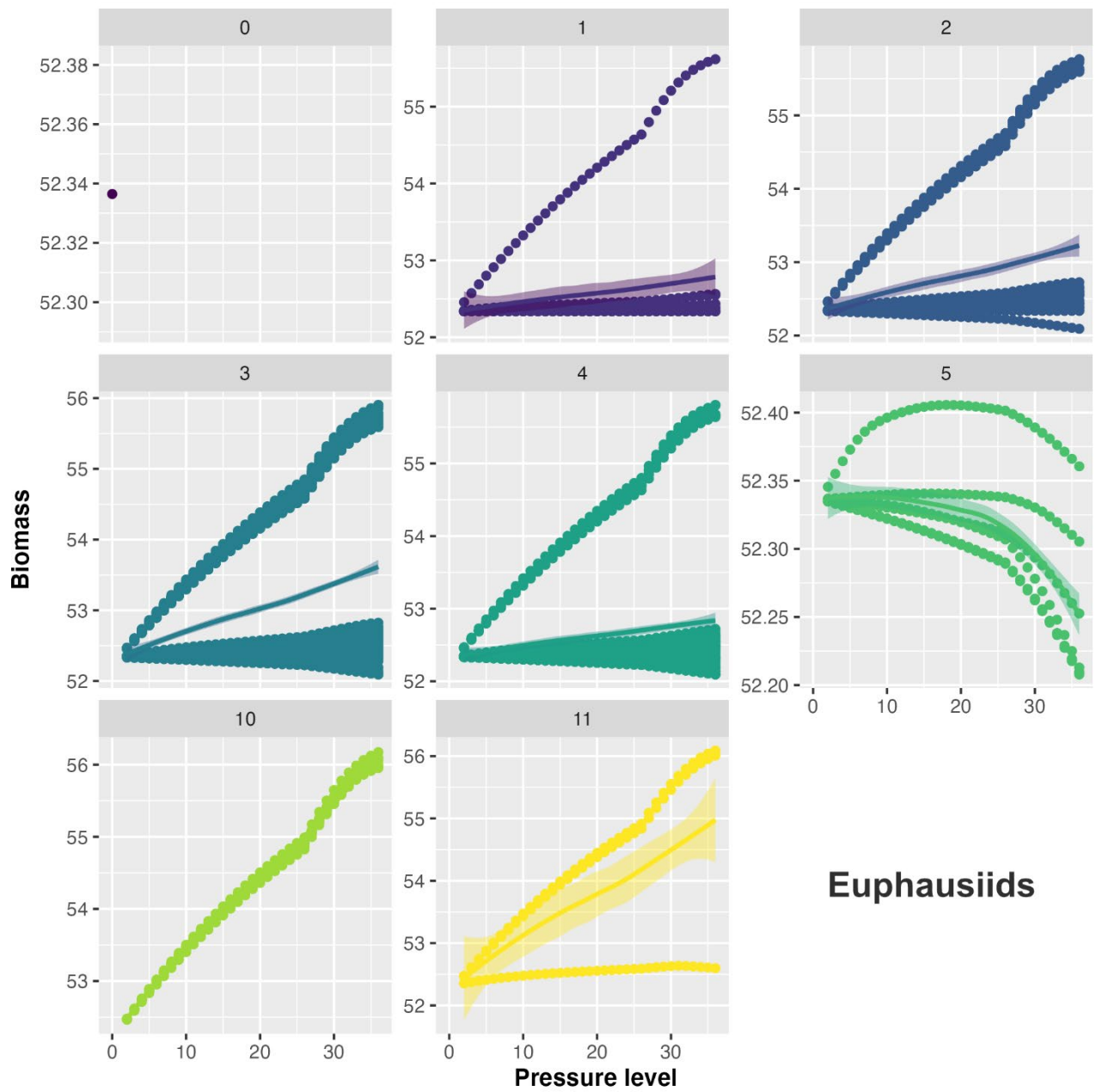


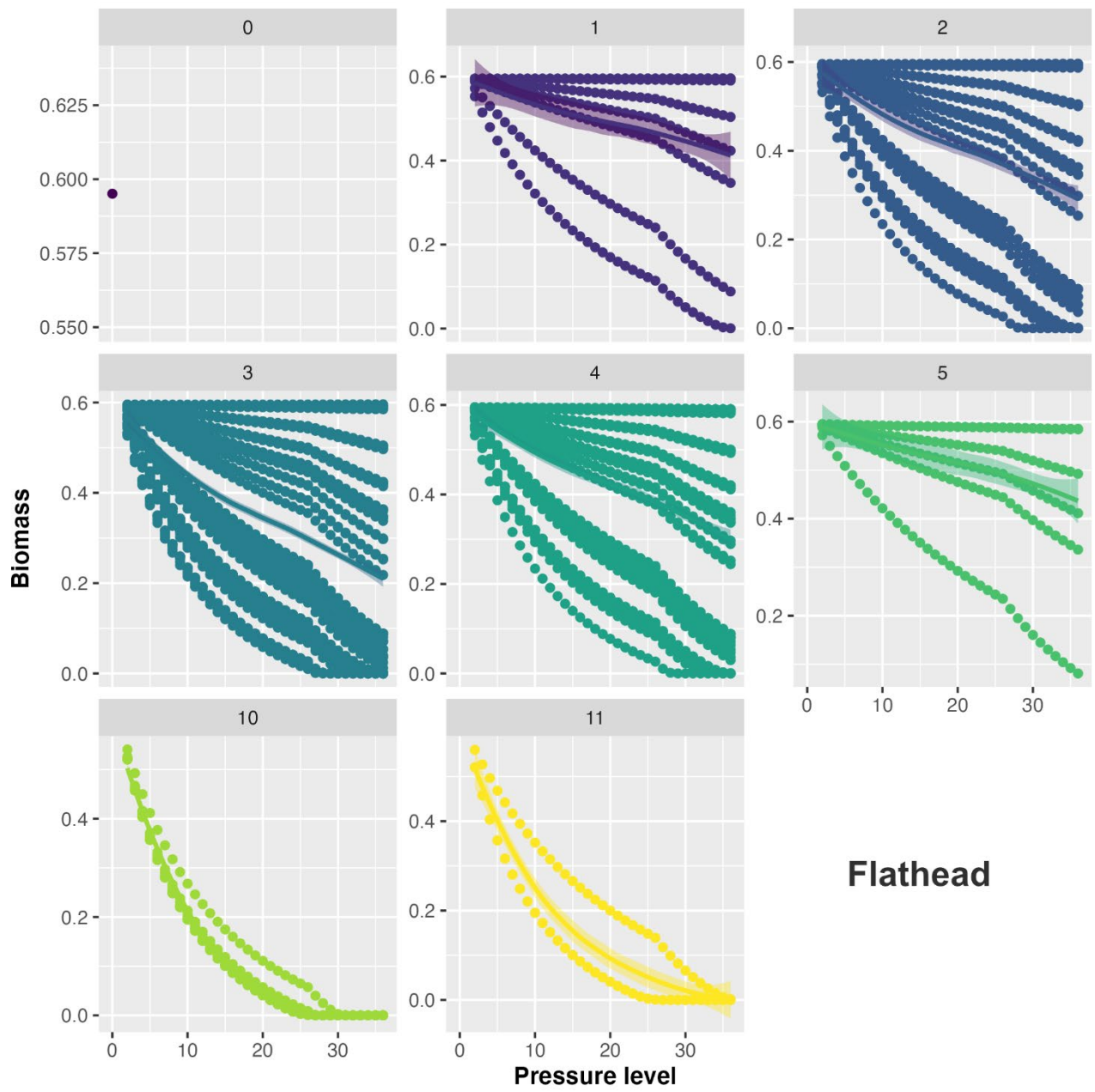


Demersal sharks

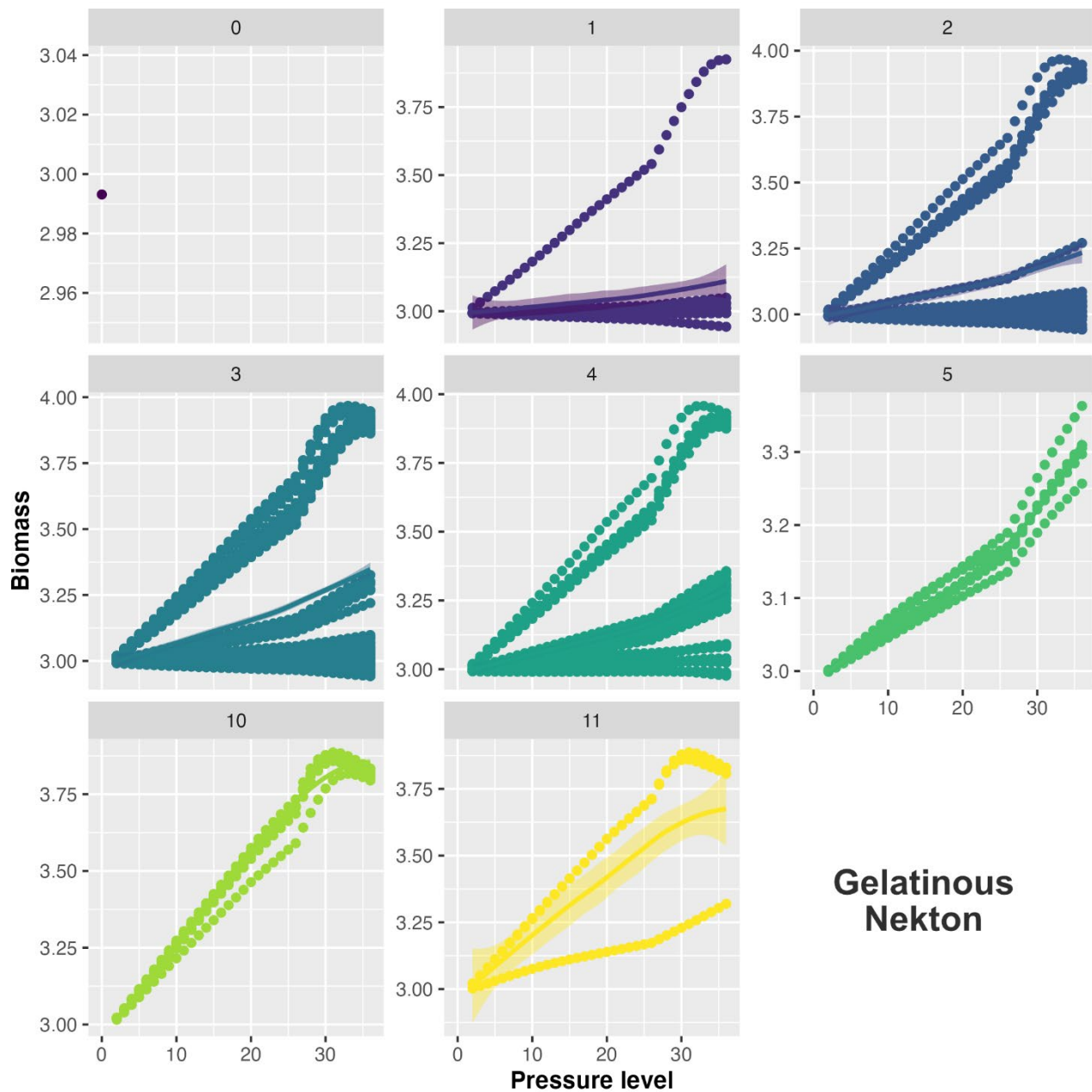


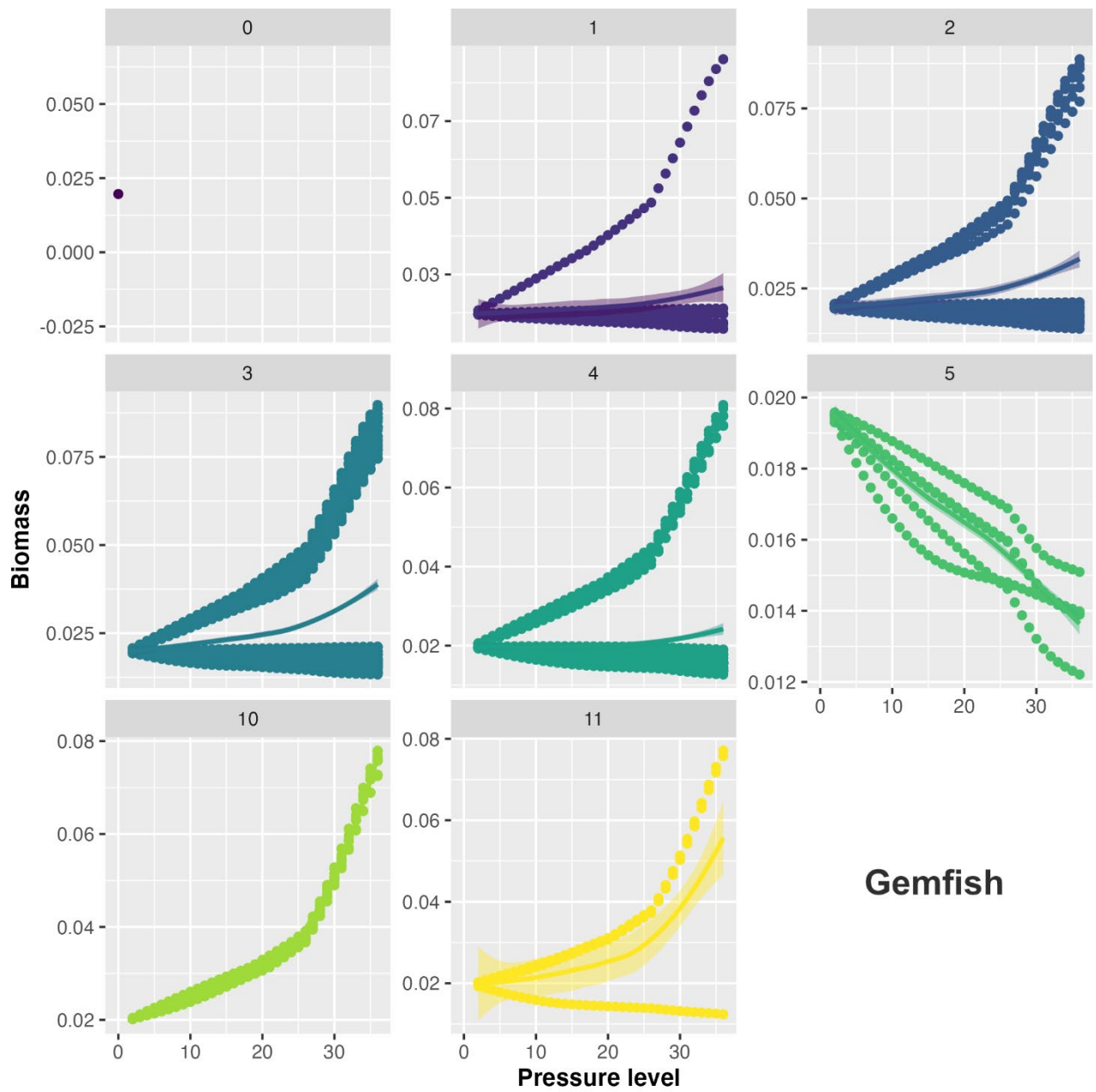
Dories



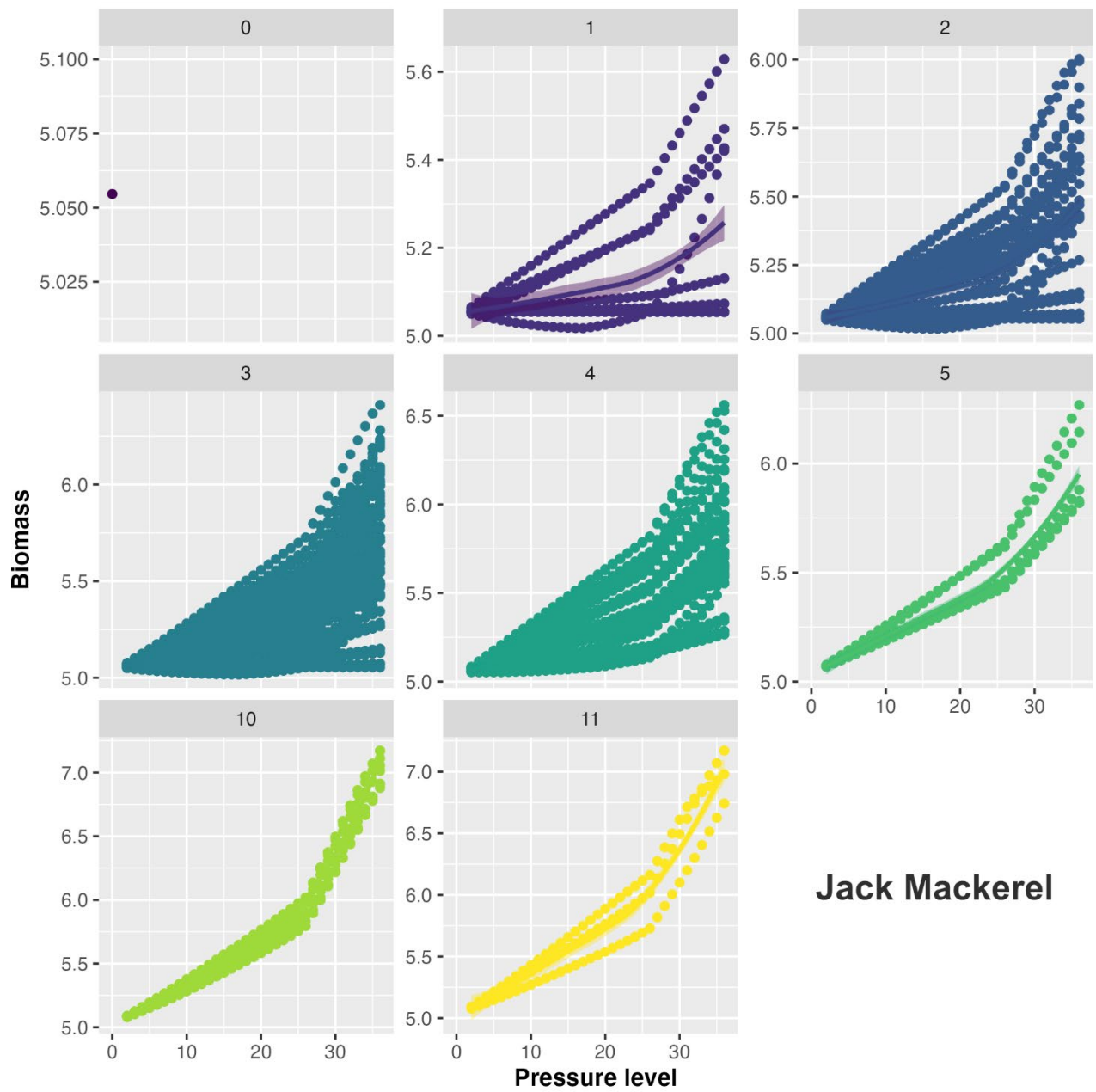


Flathead

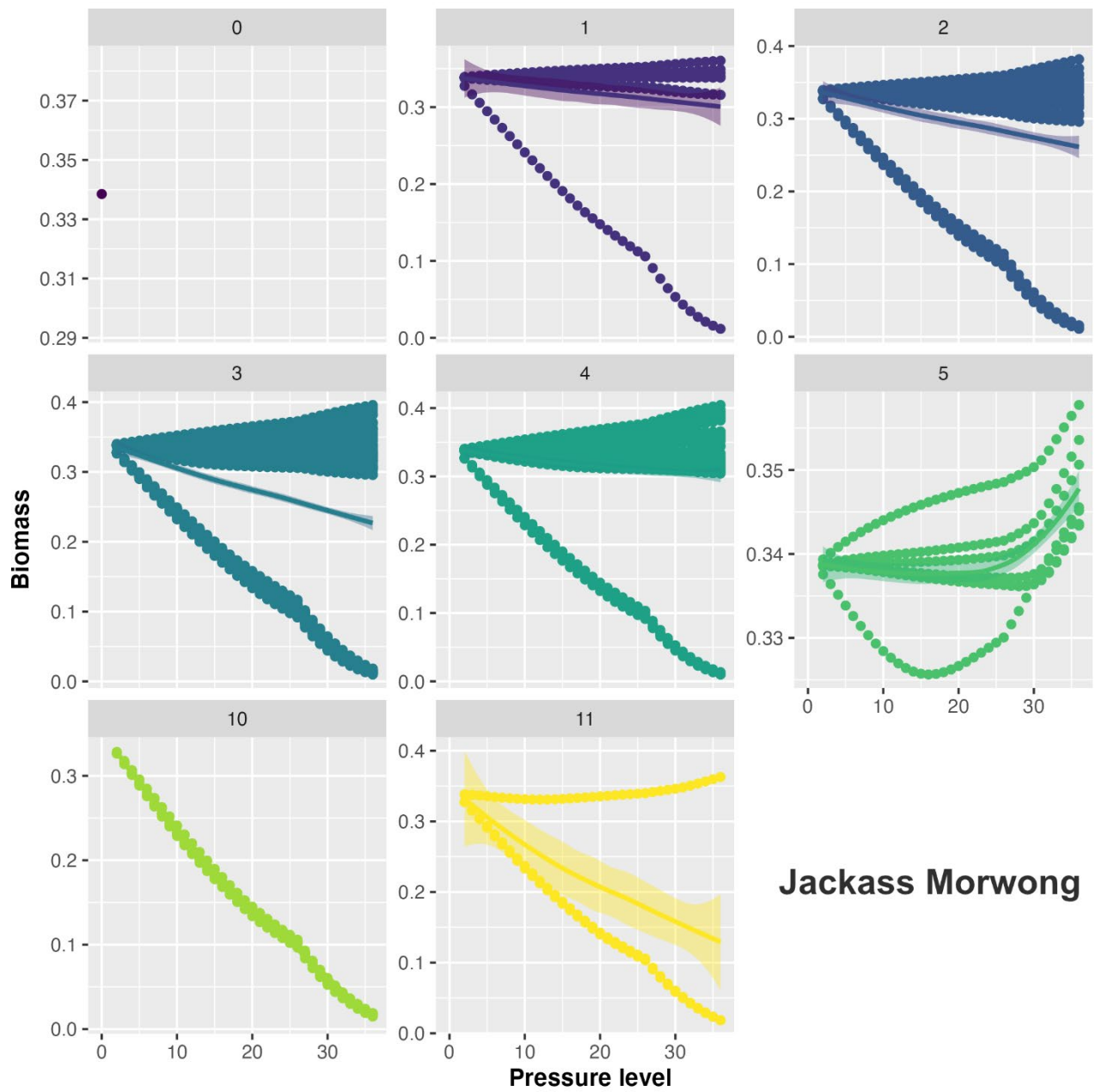




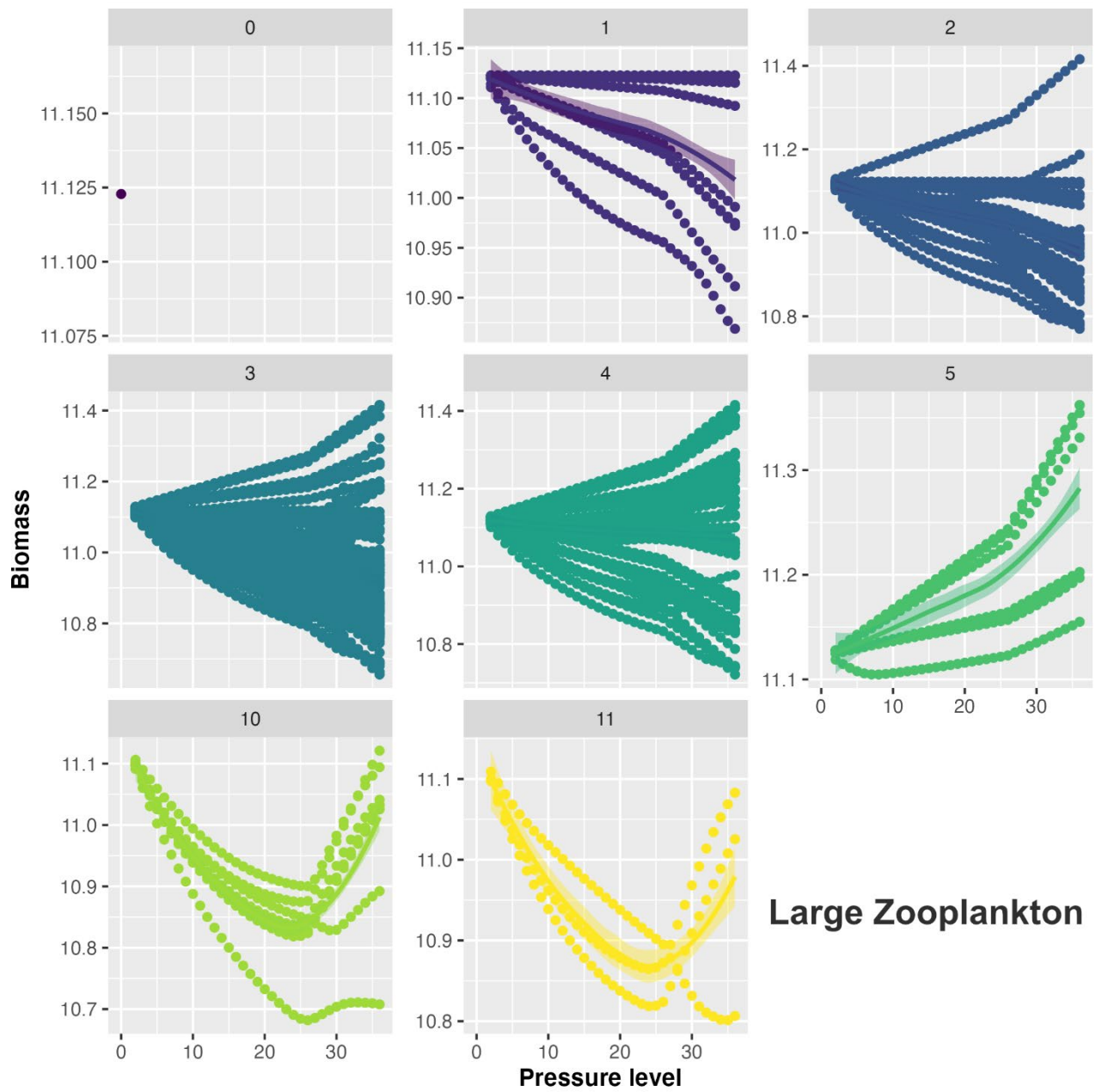
Gemfish

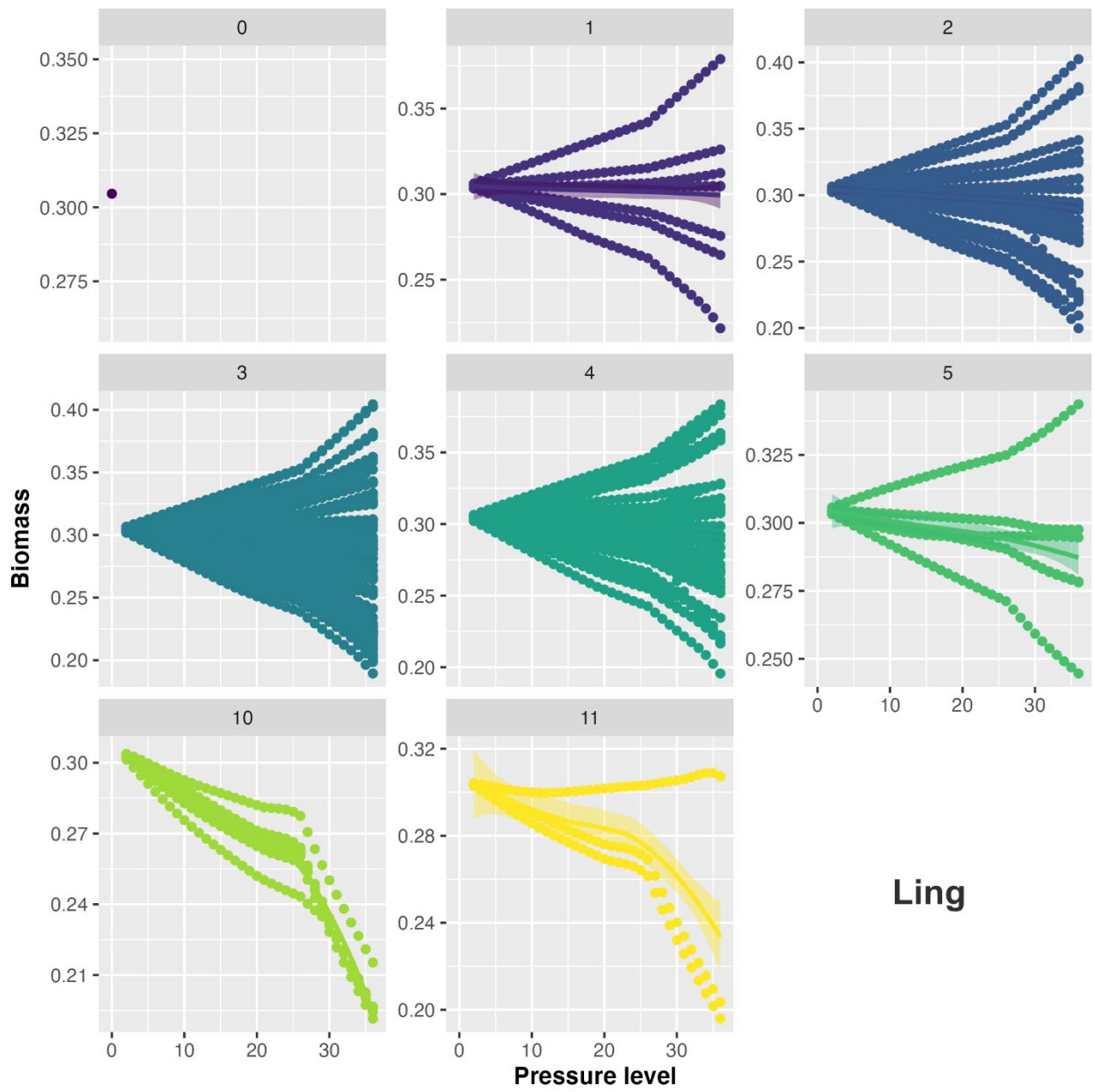


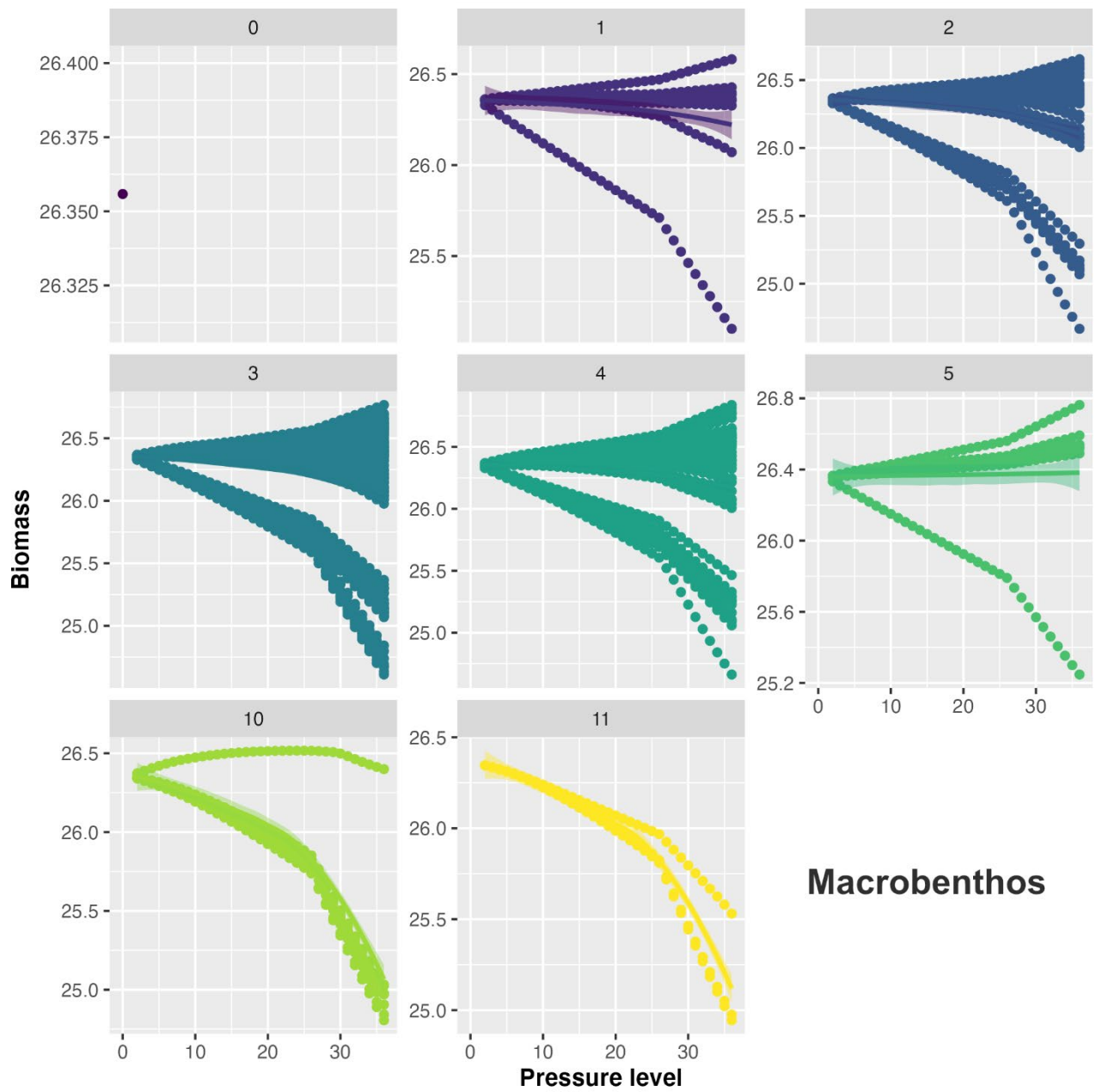
Jack Mackerel

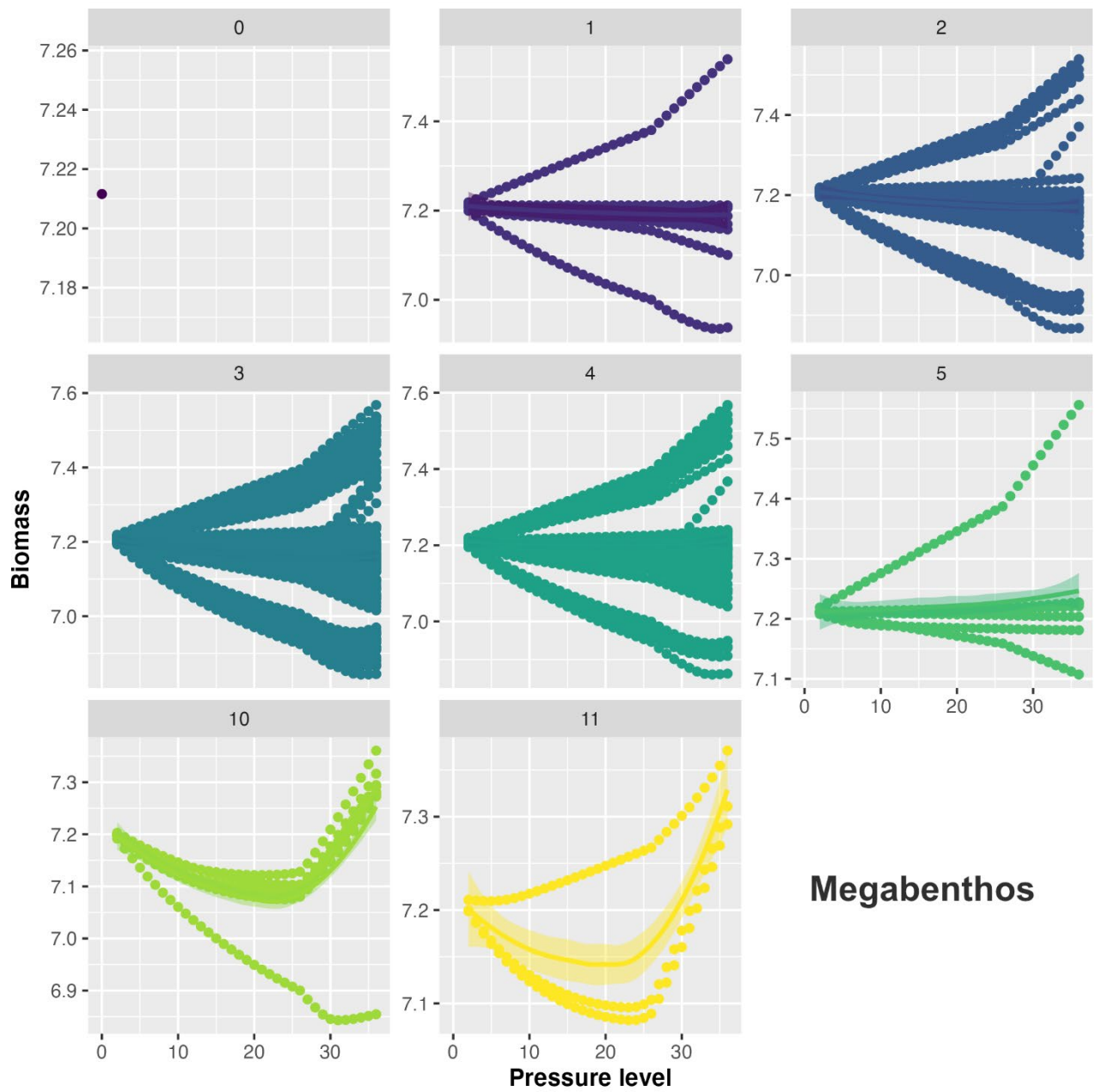


Jackass Morwong

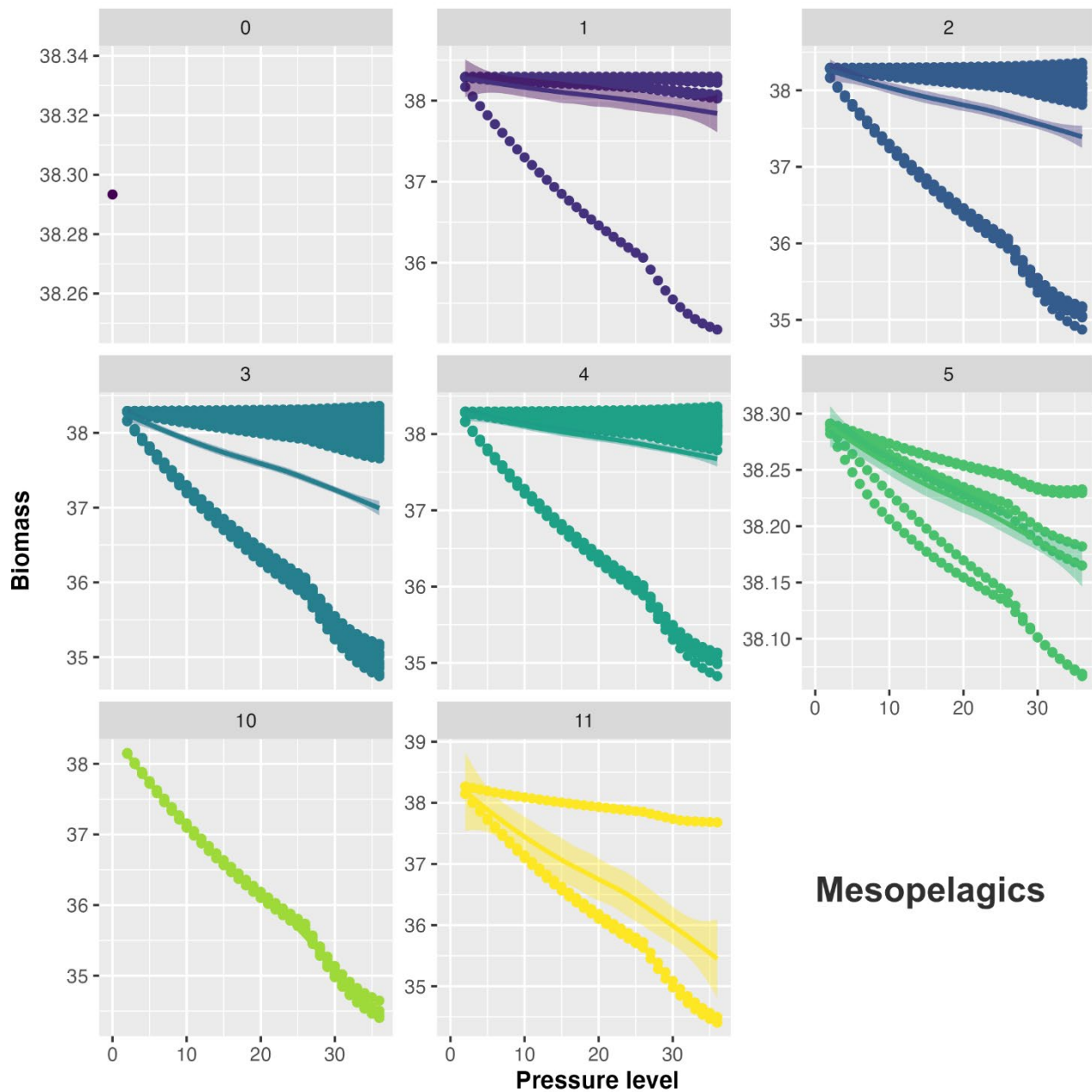


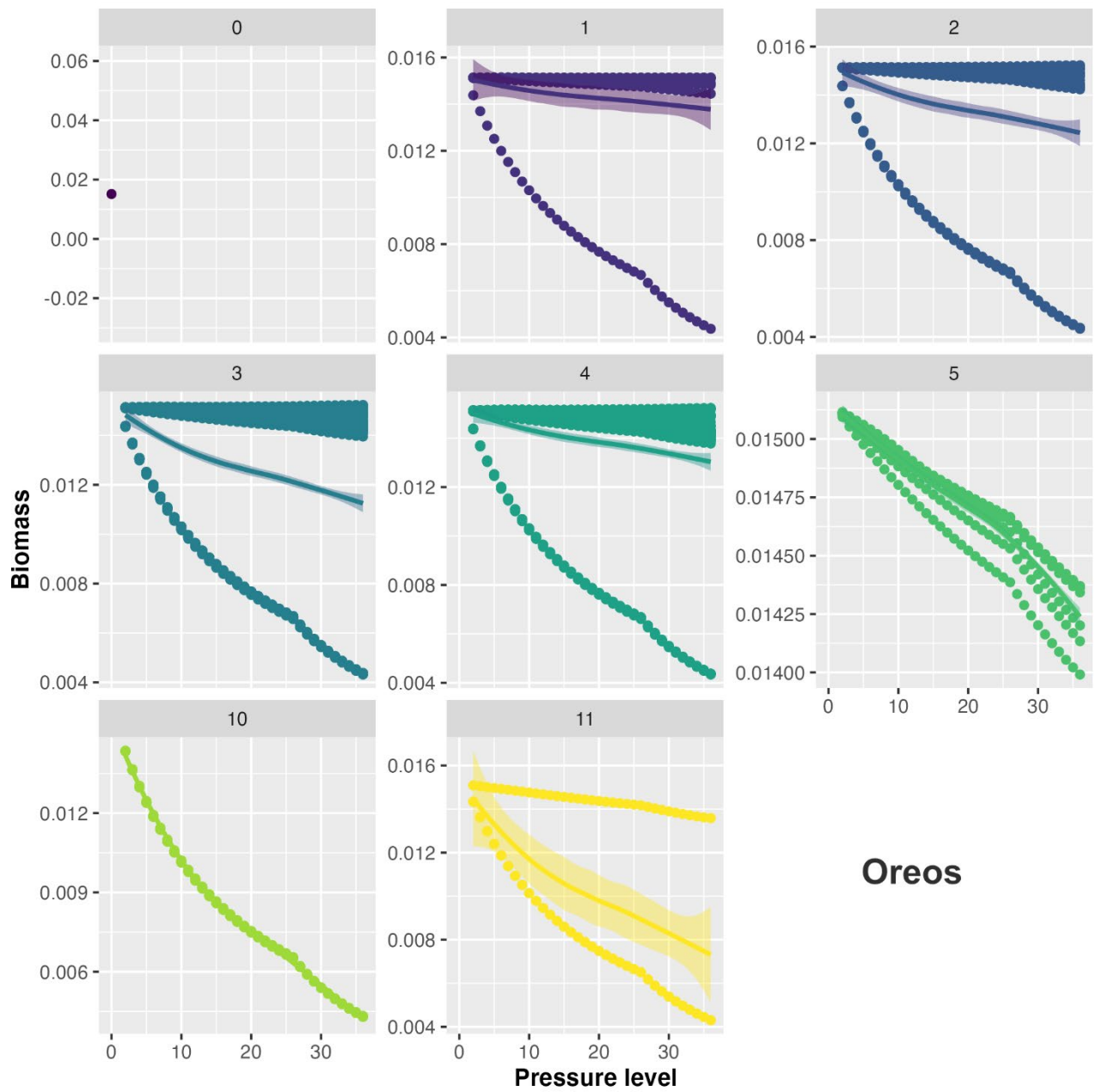




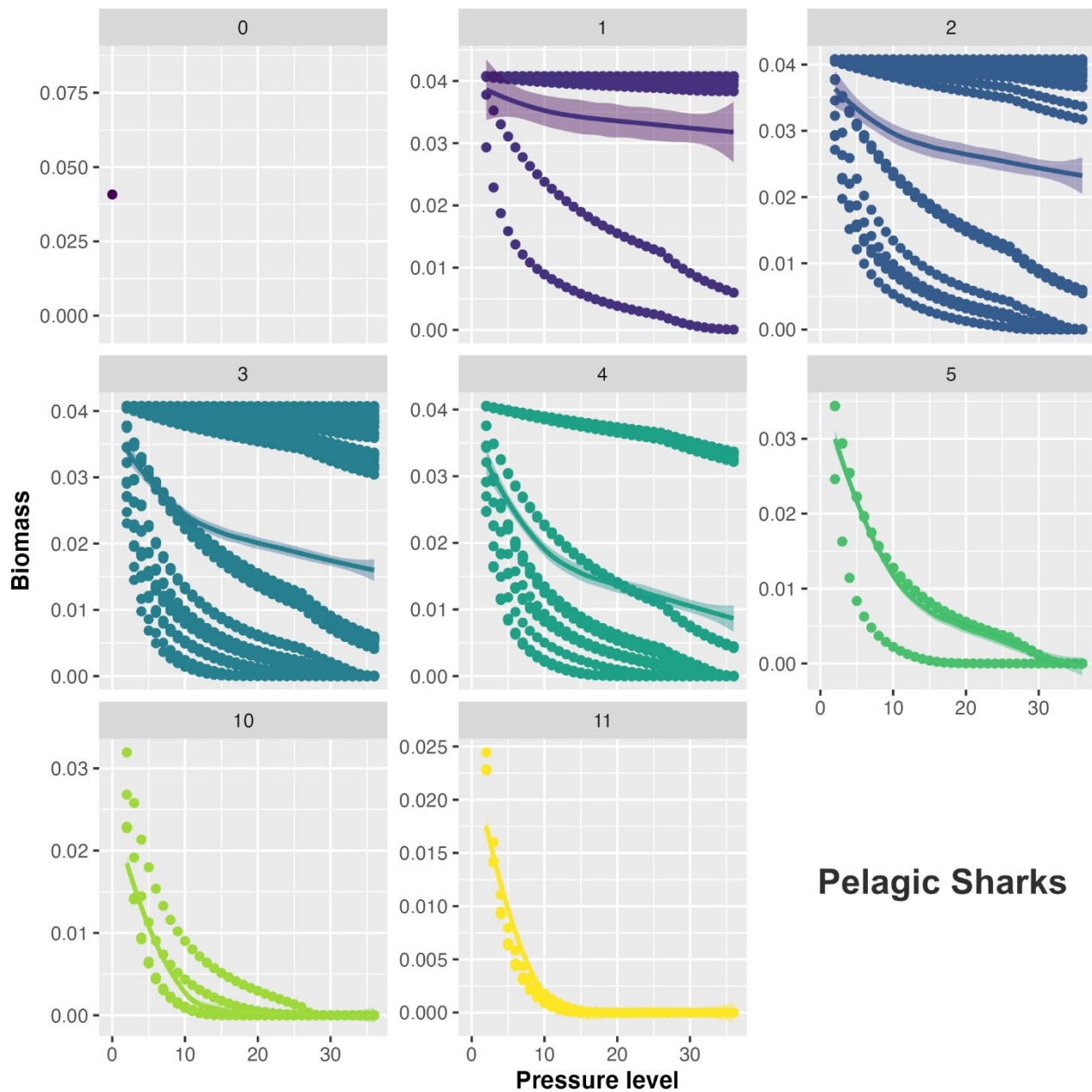


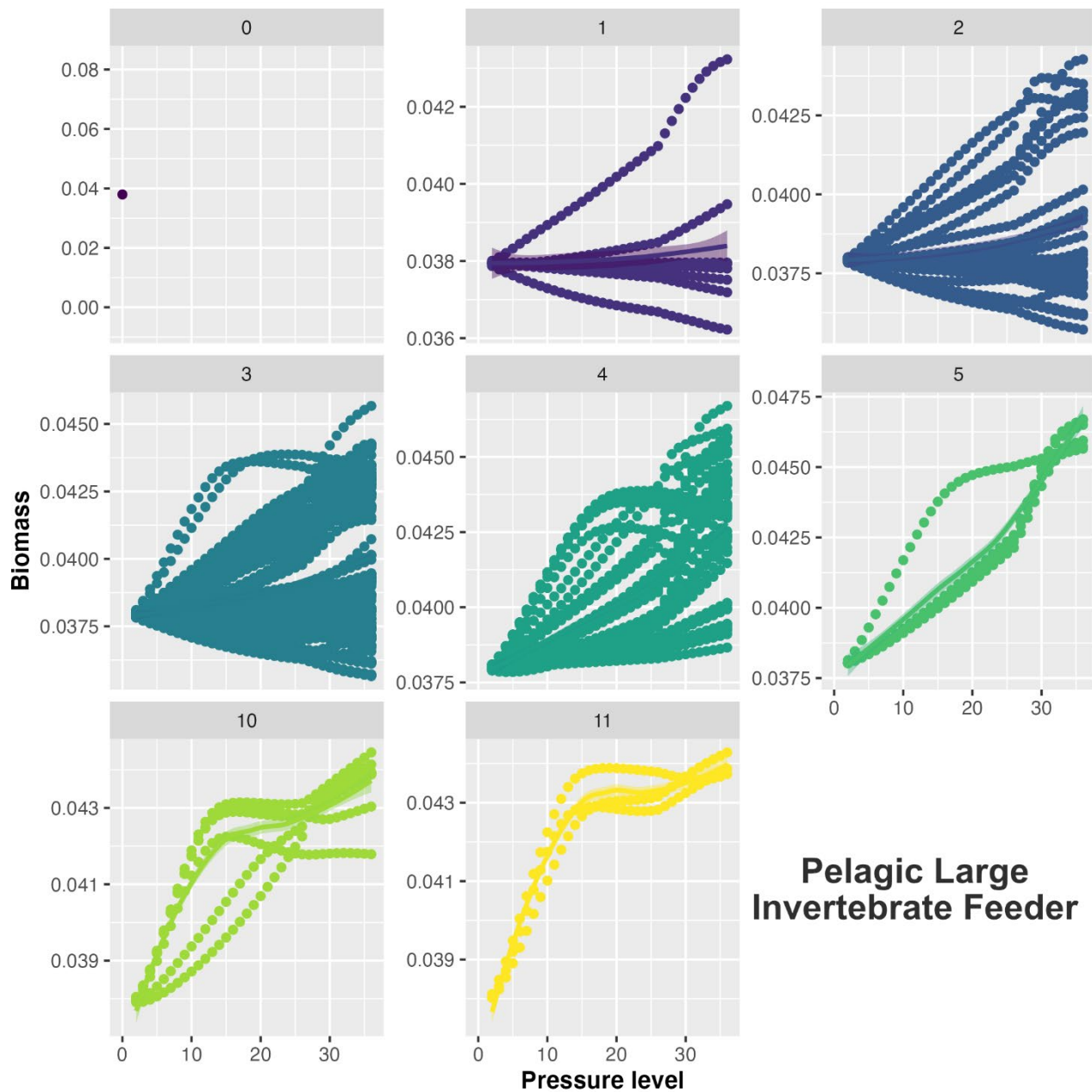
Megabenthos



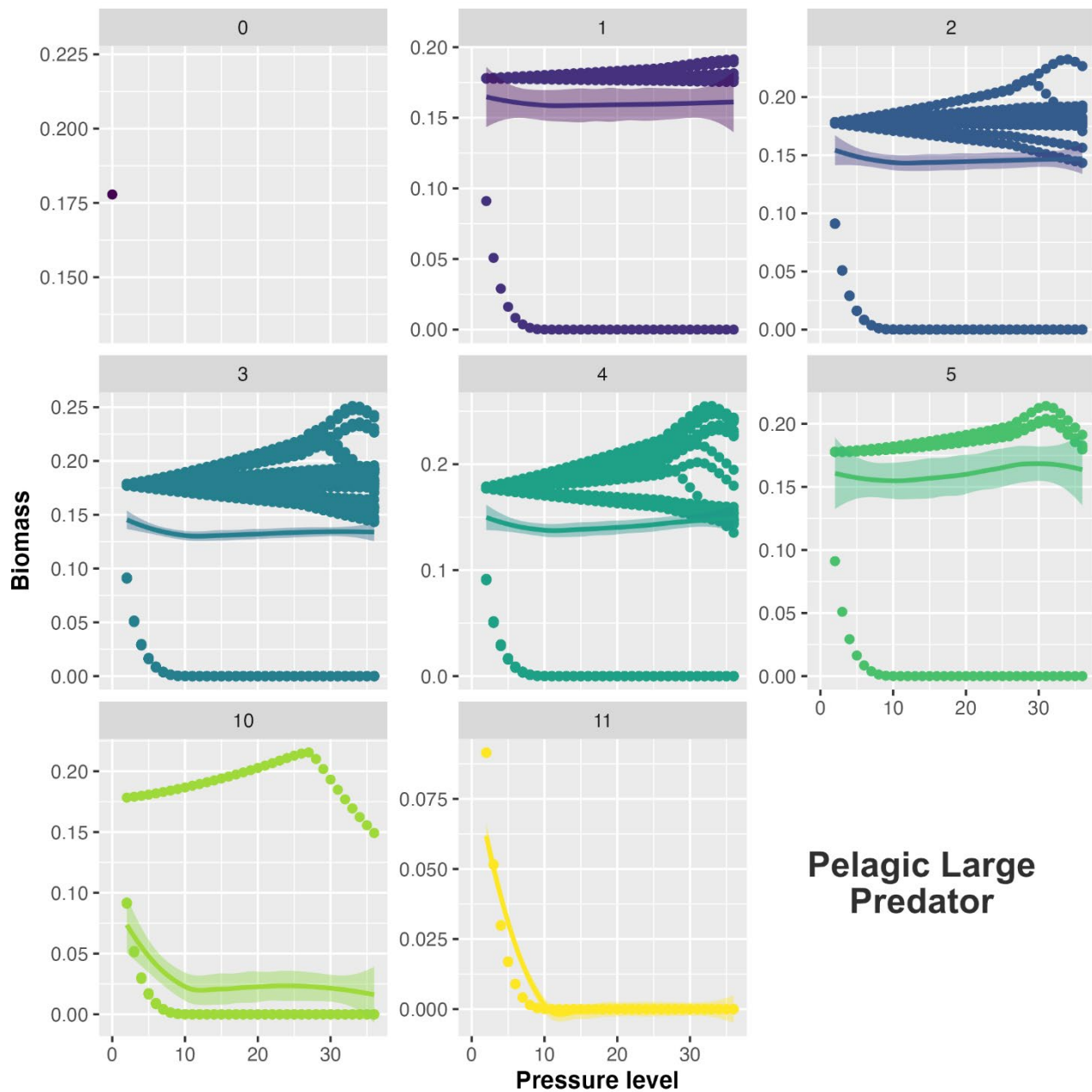


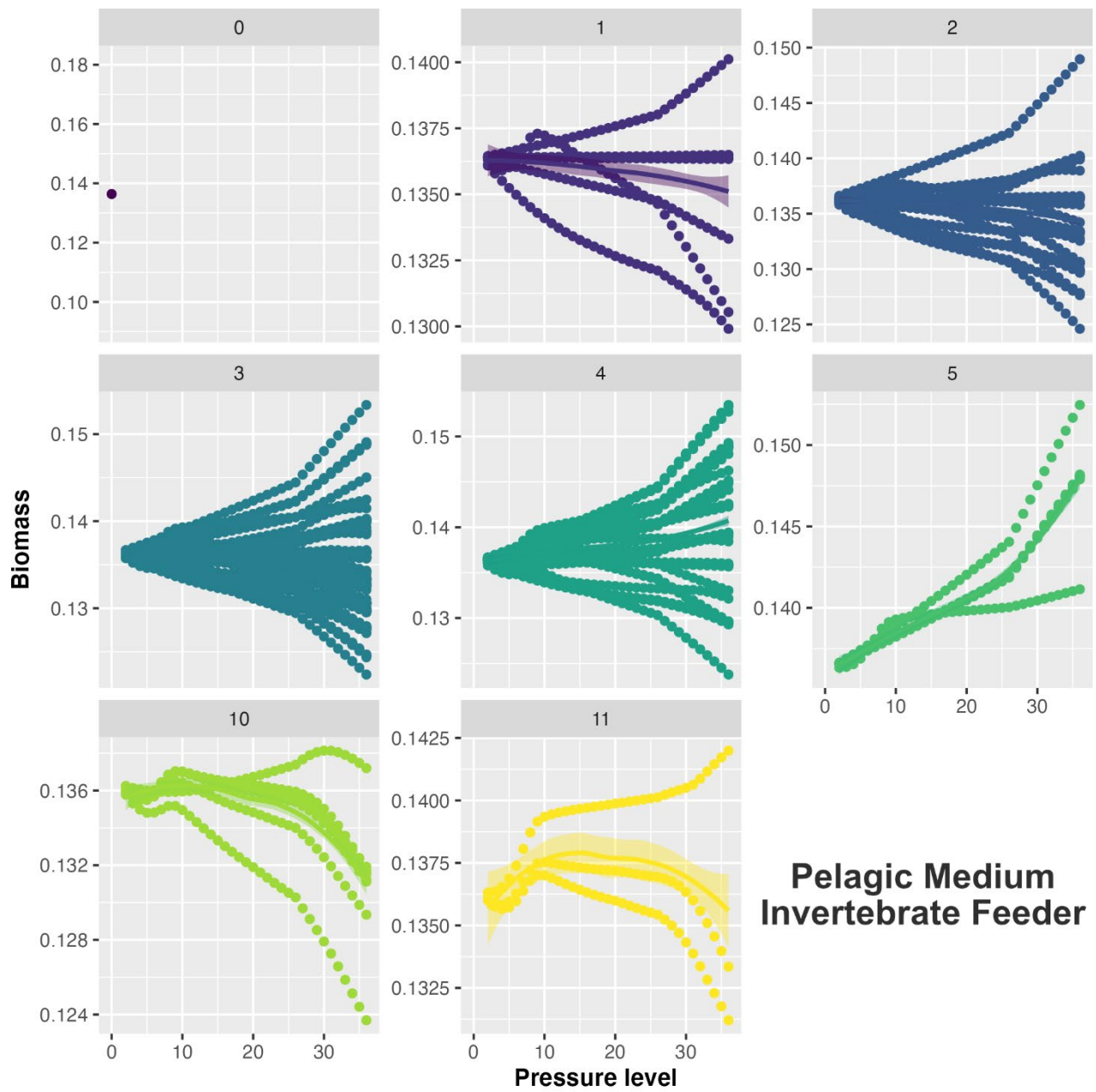
Oreos



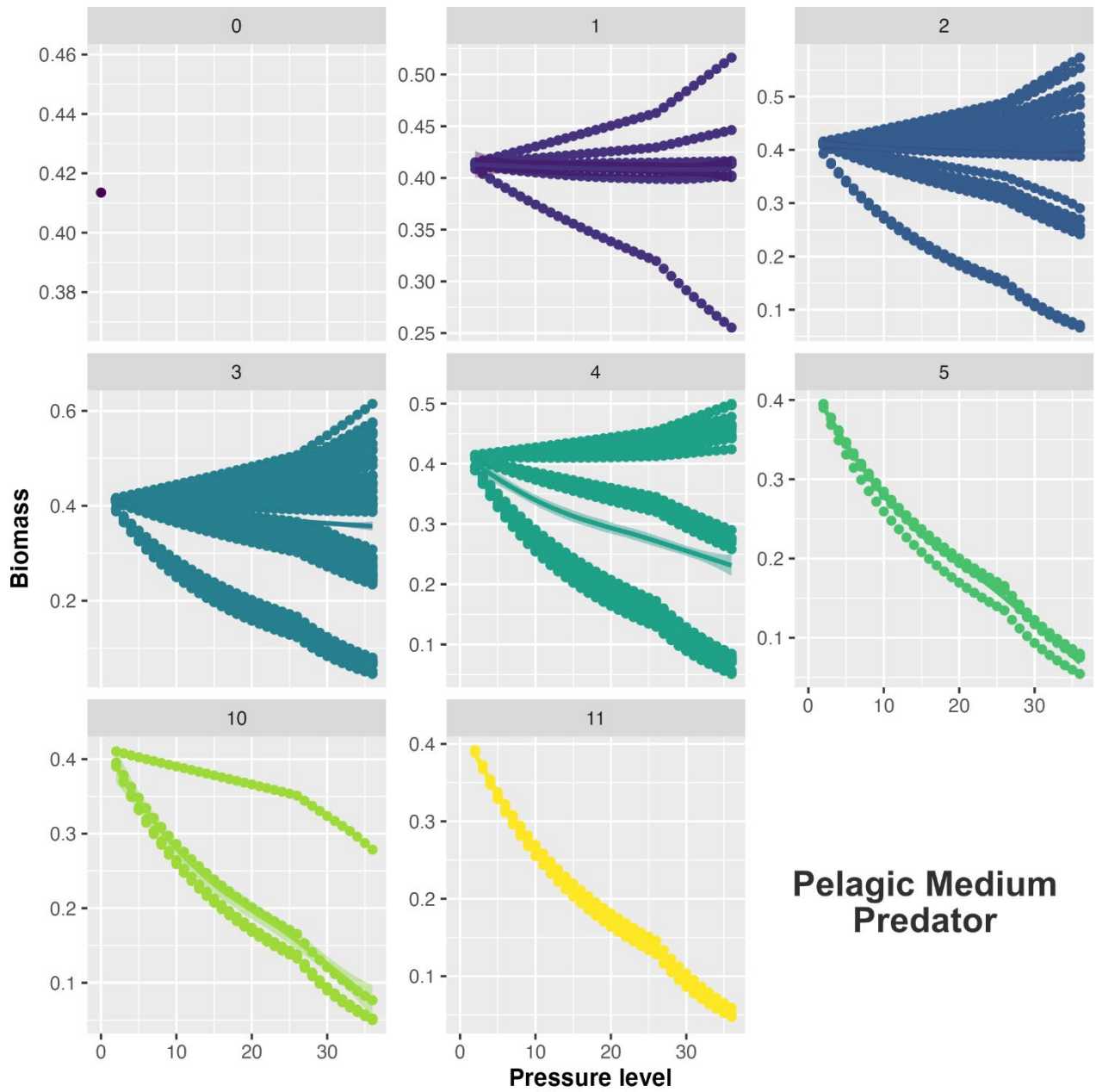


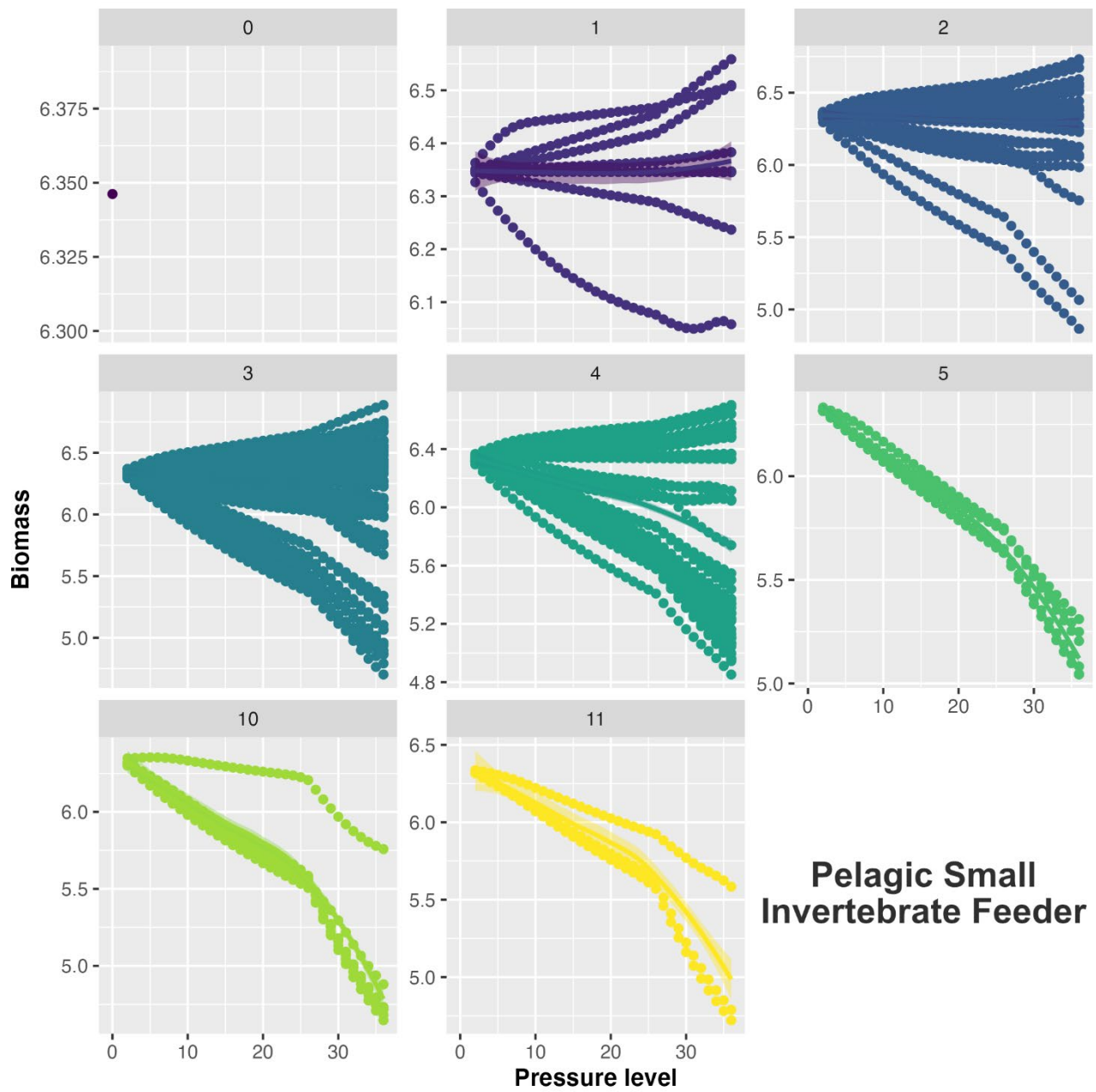
**Pelagic Large
Invertebrate Feeder**

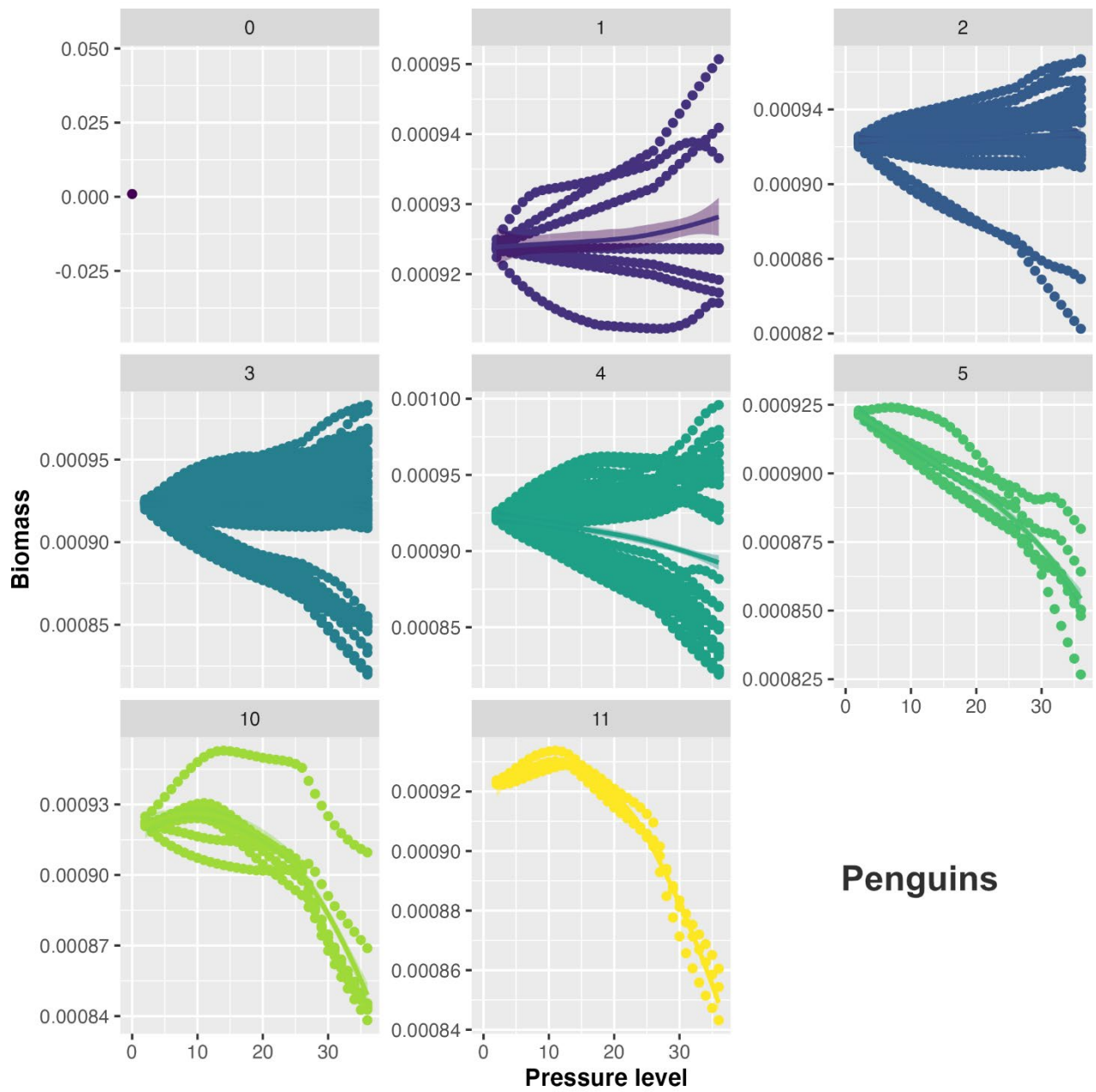




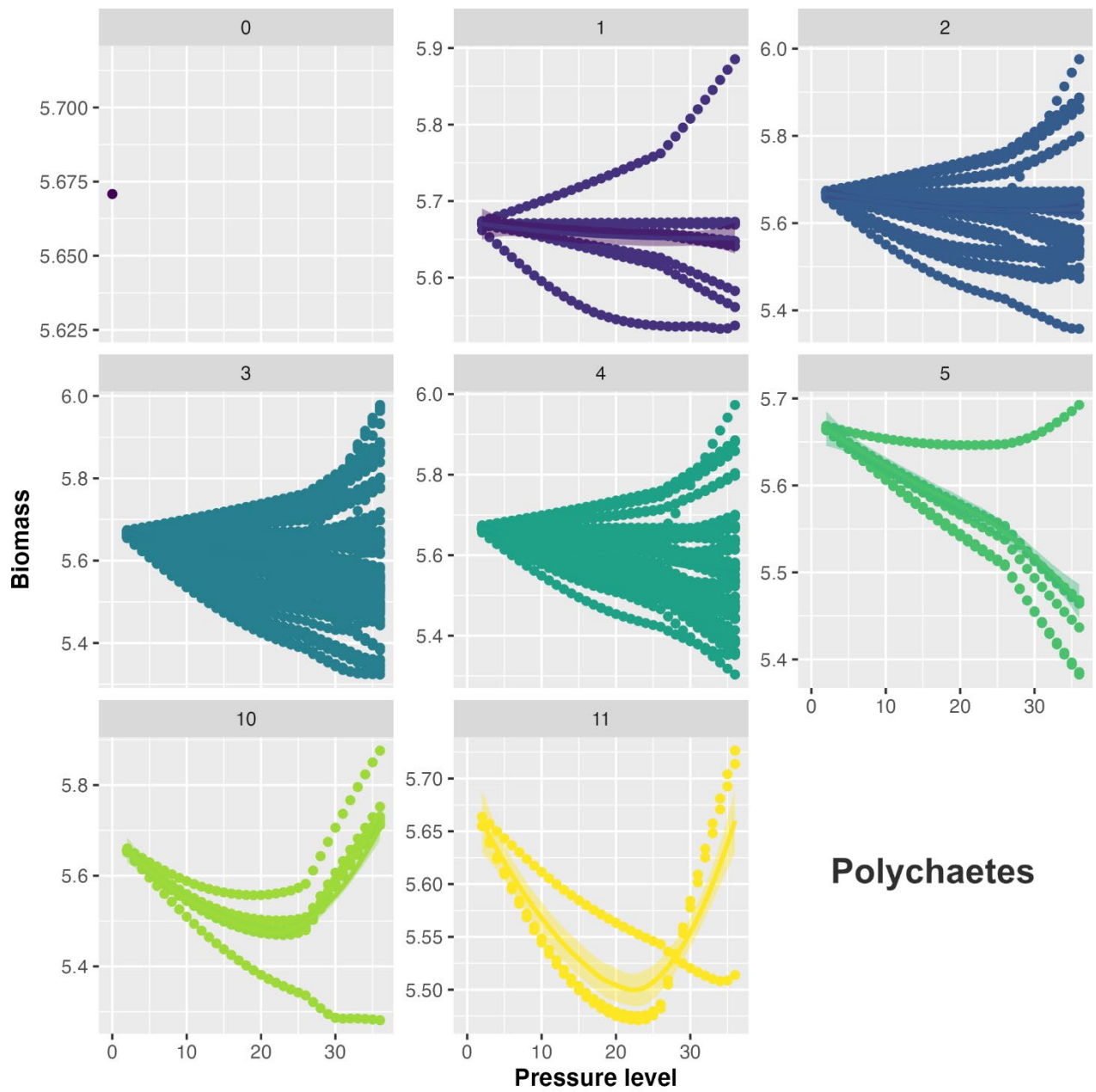
**Pelagic Medium
Invertebrate Feeder**



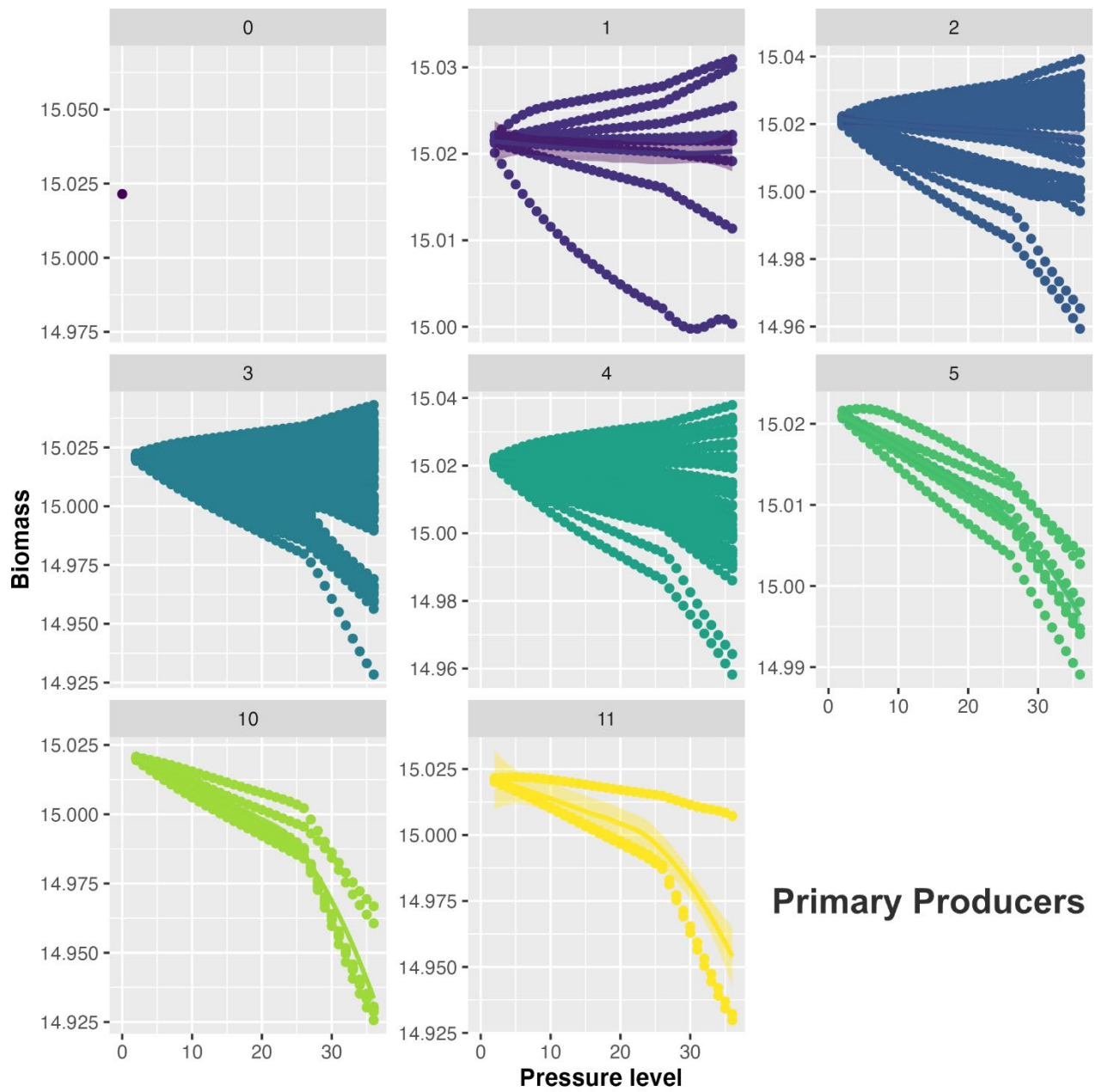


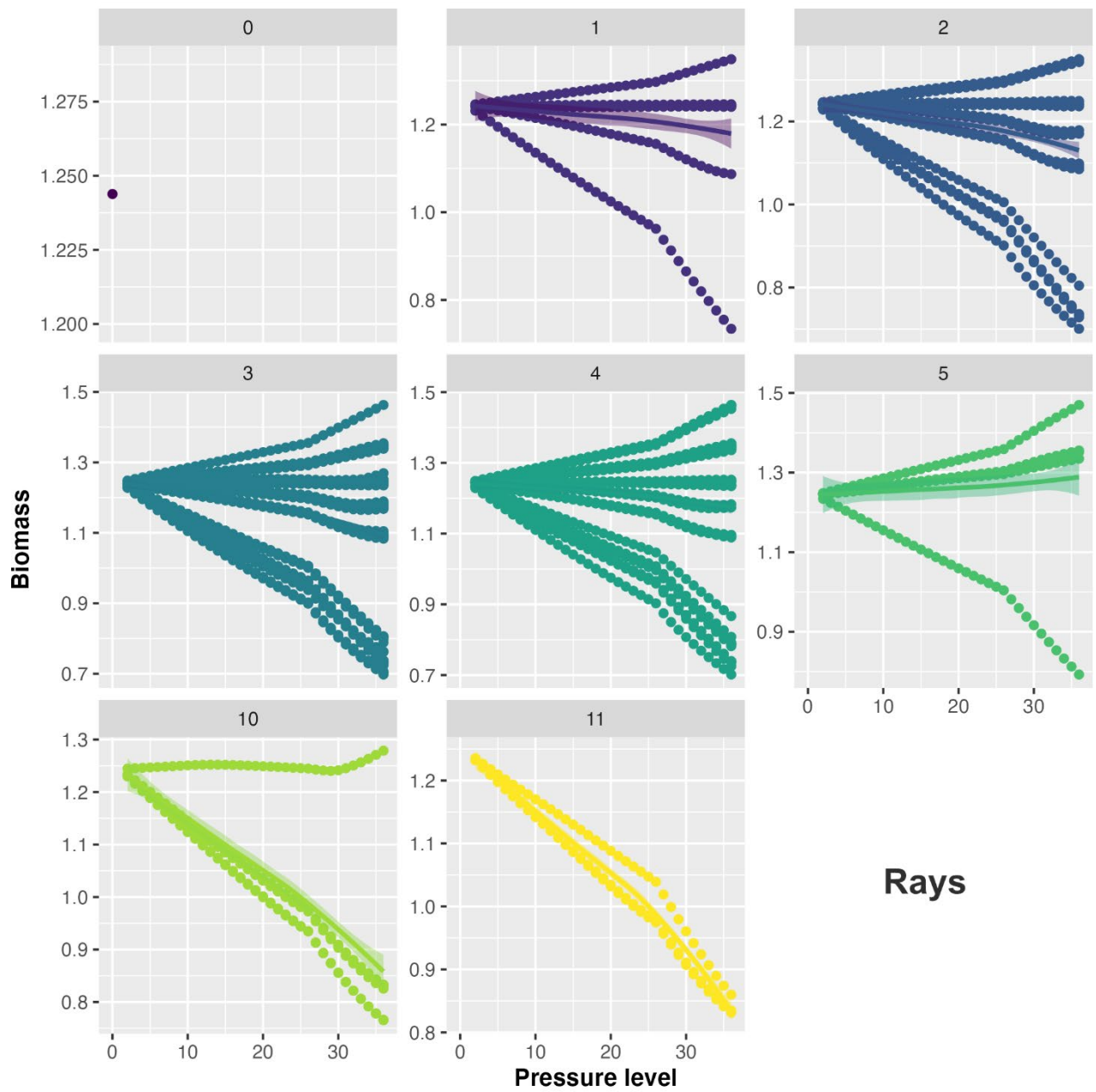


Penguins

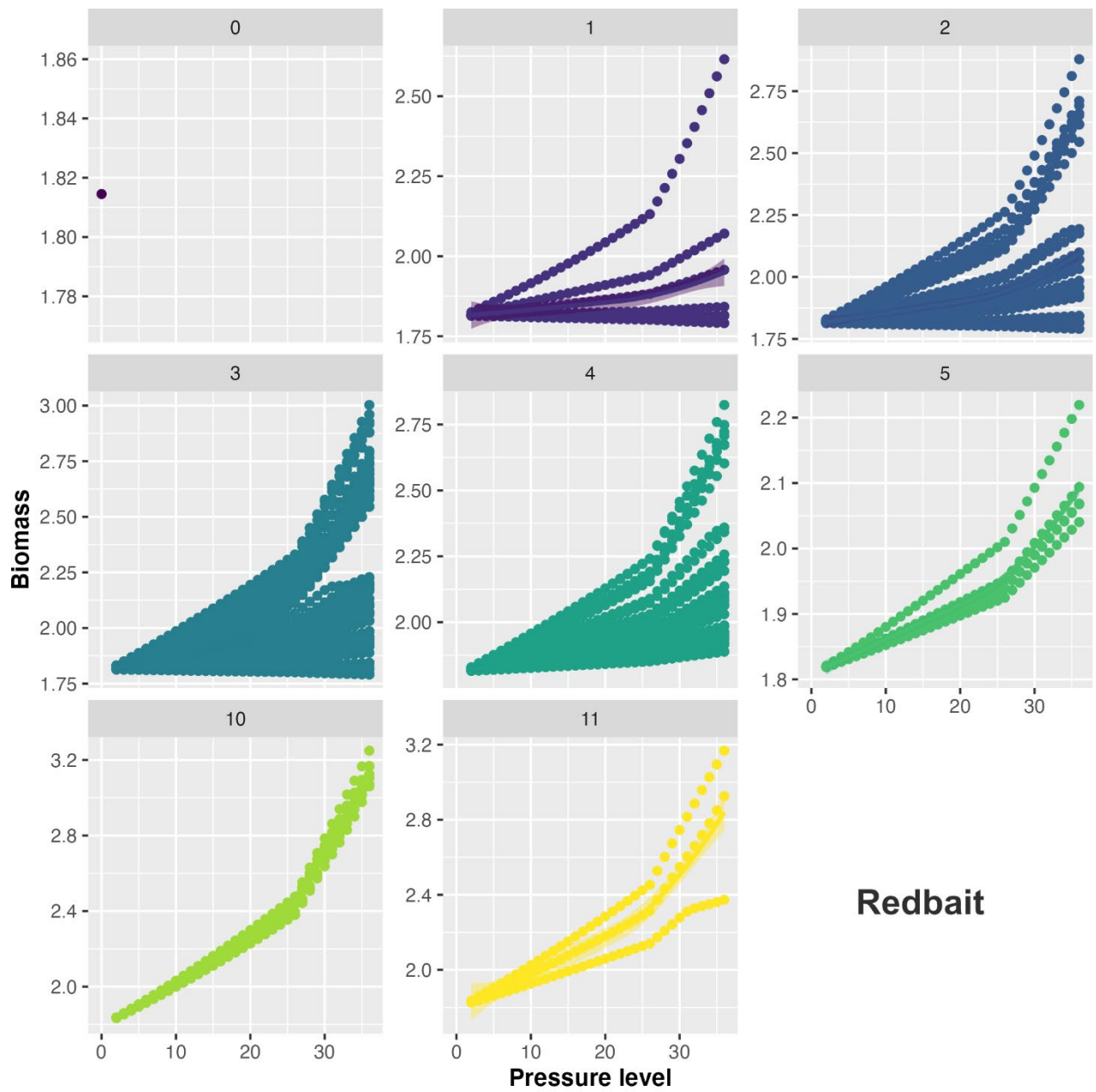


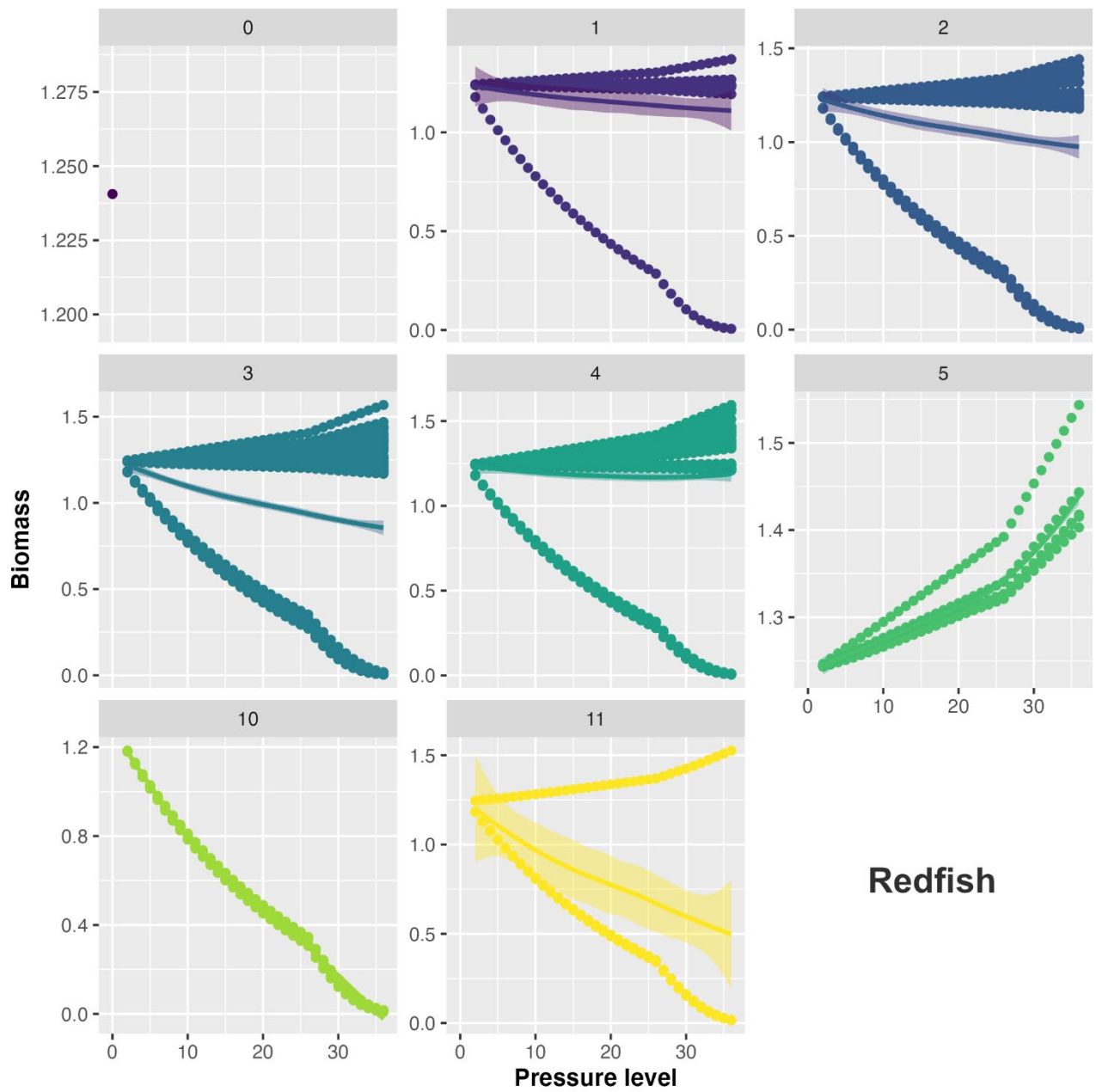
Polychaetes



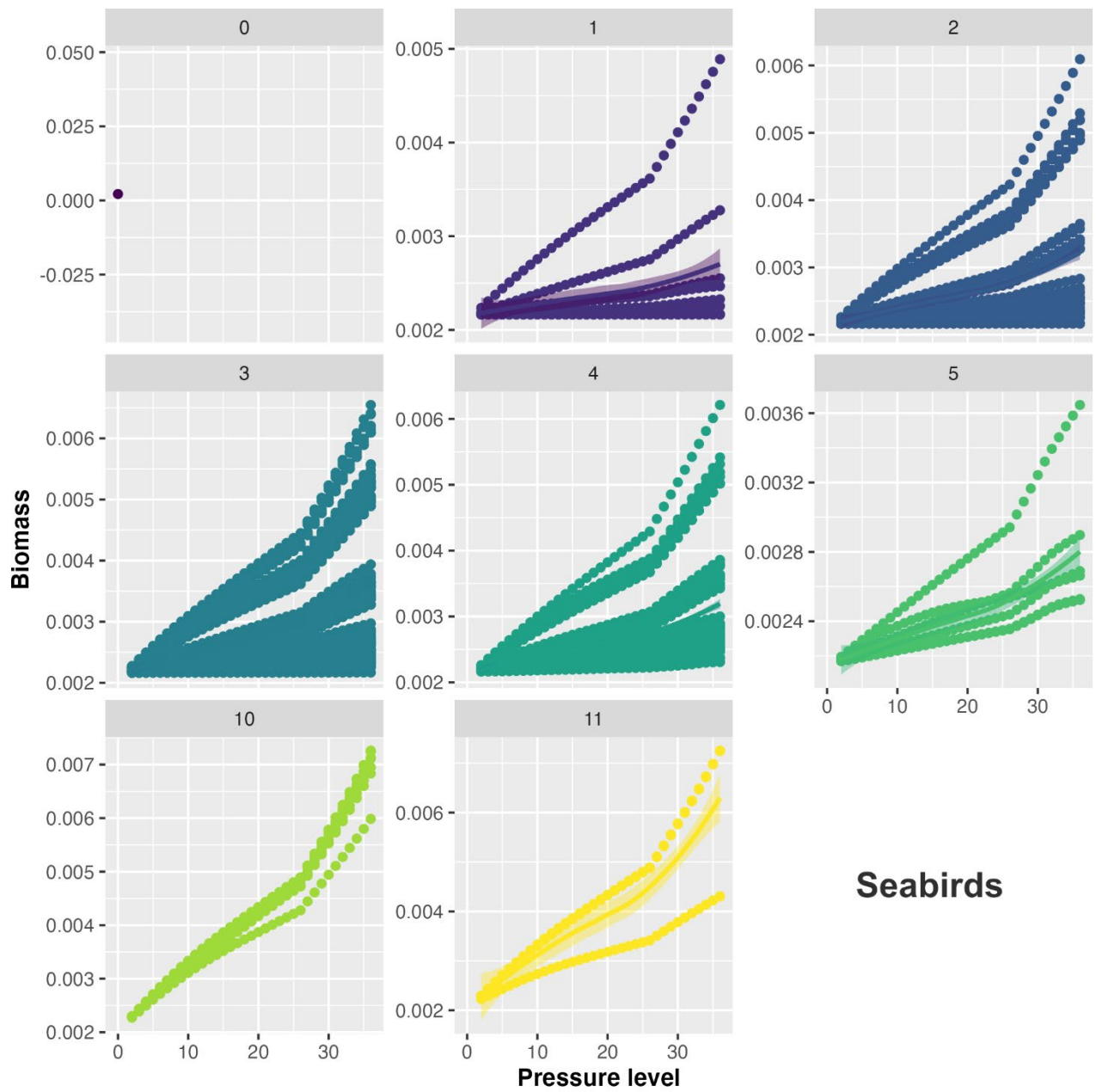


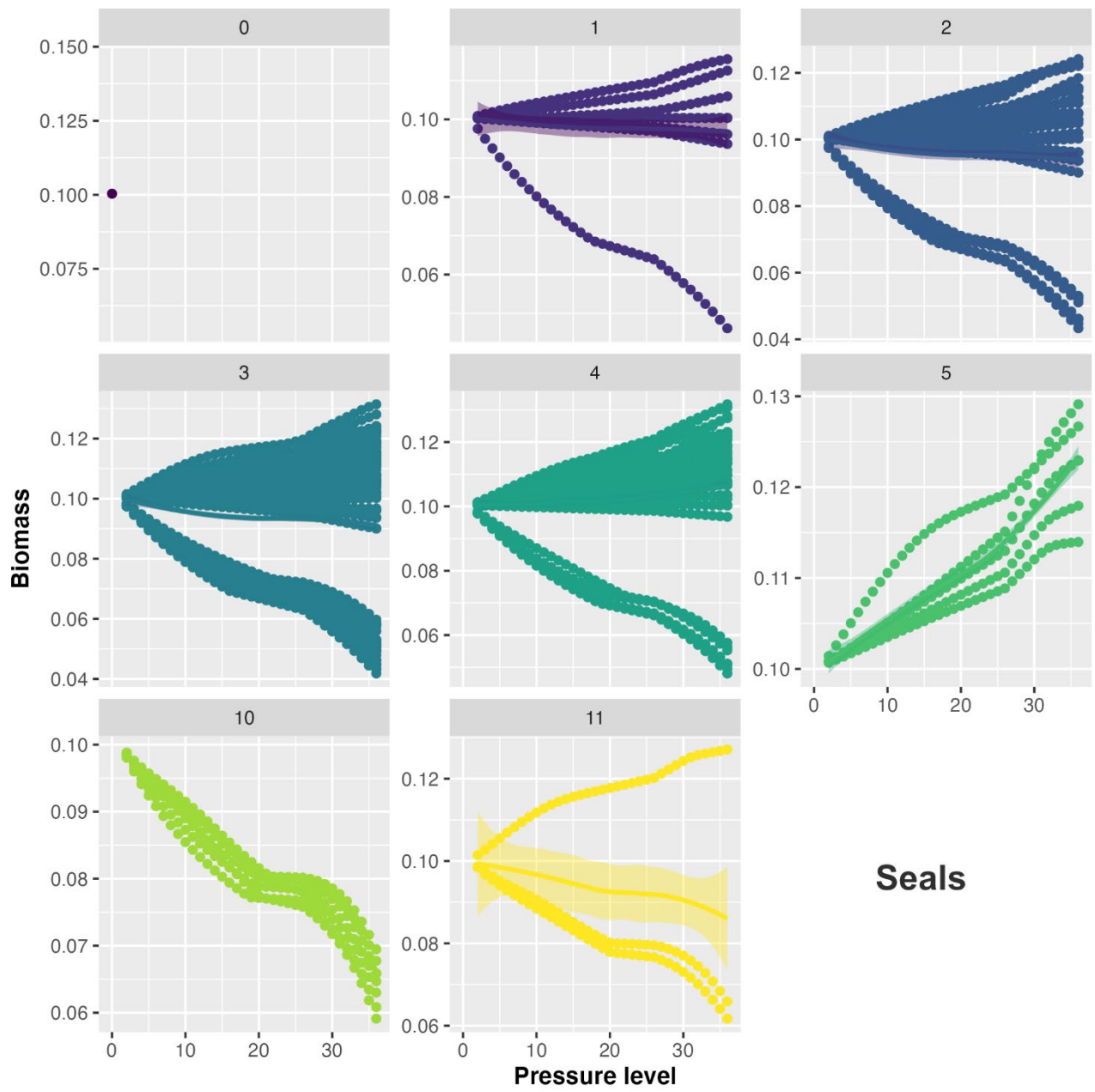
Rays



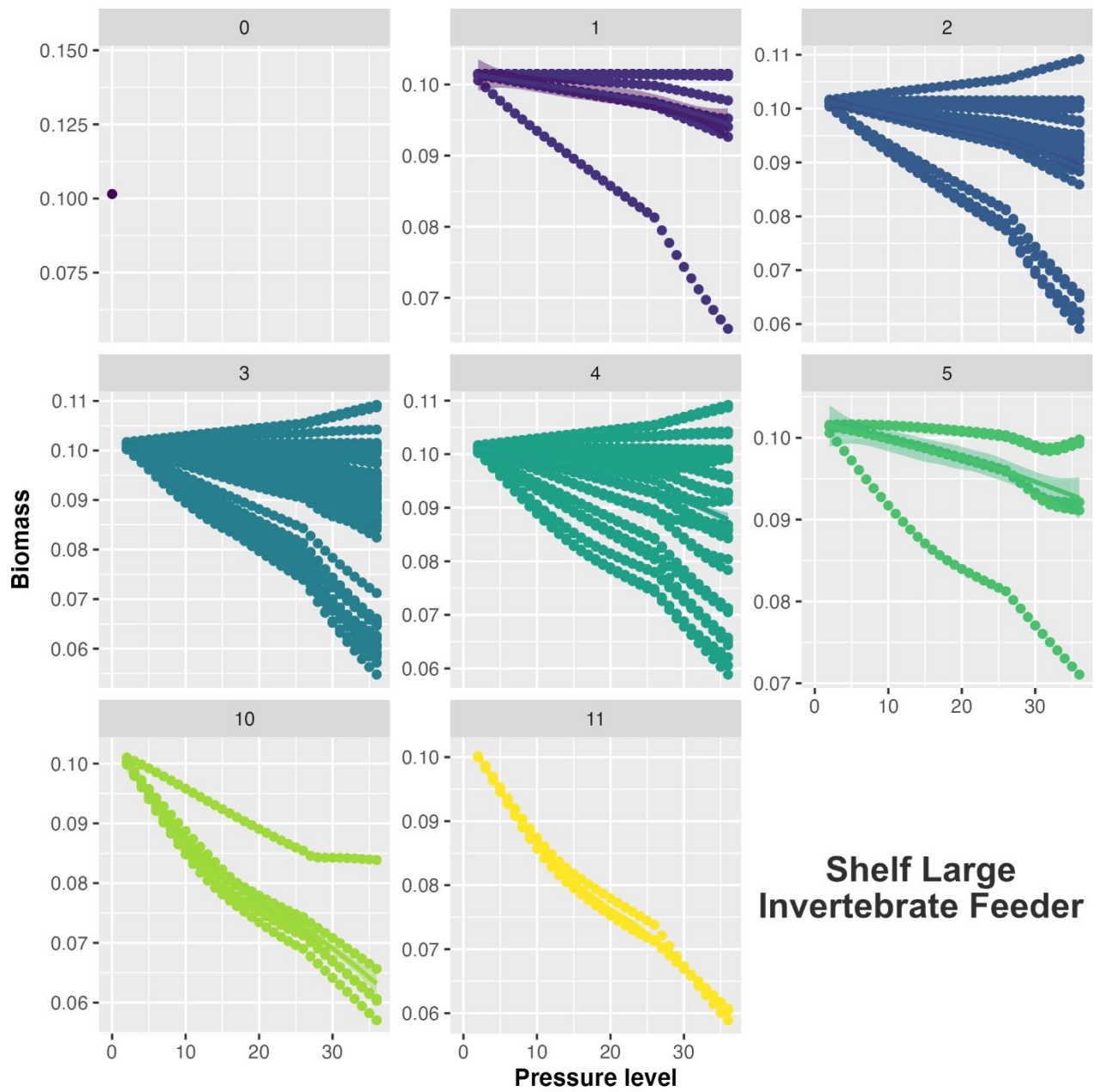


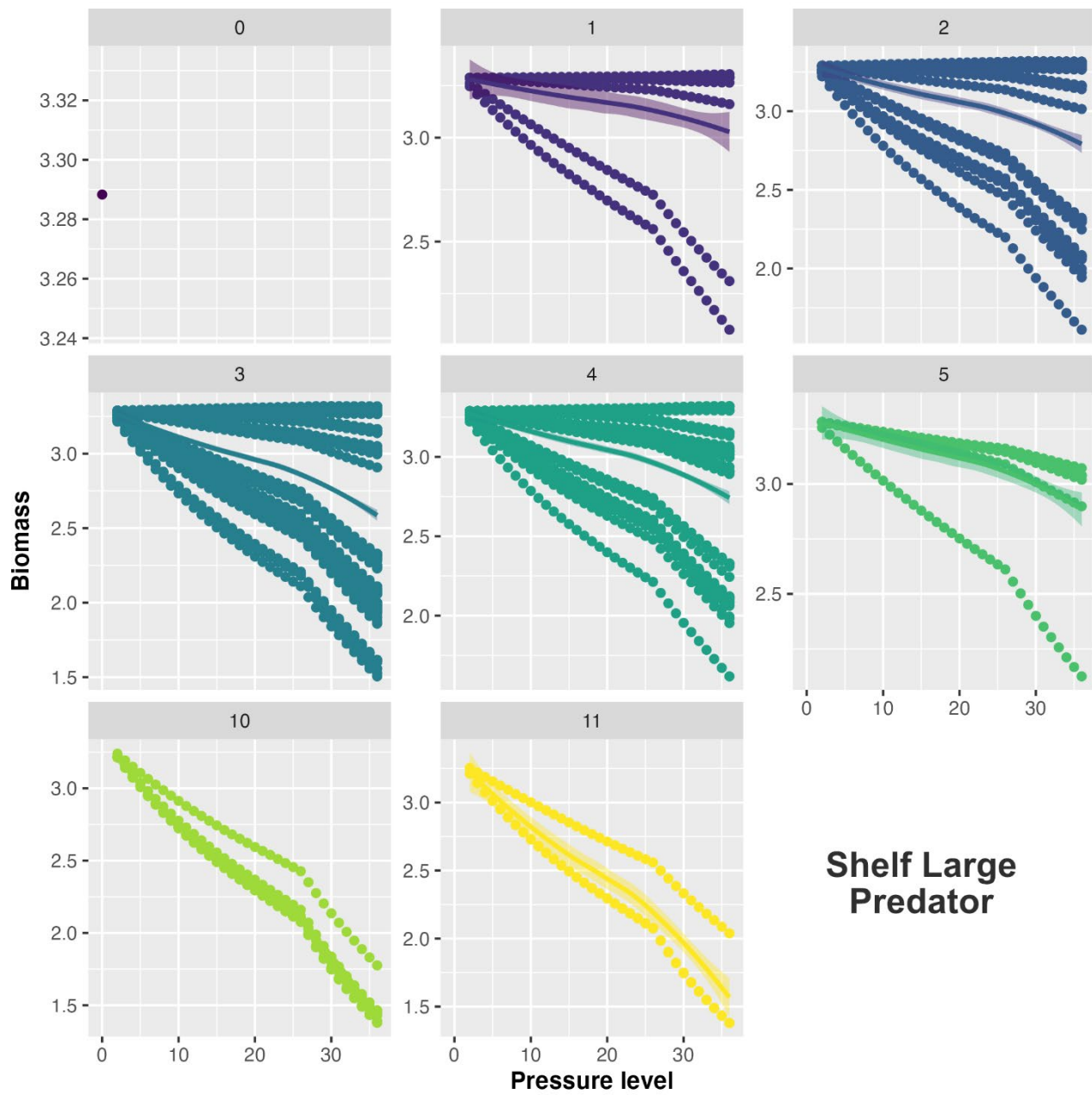
Redfish

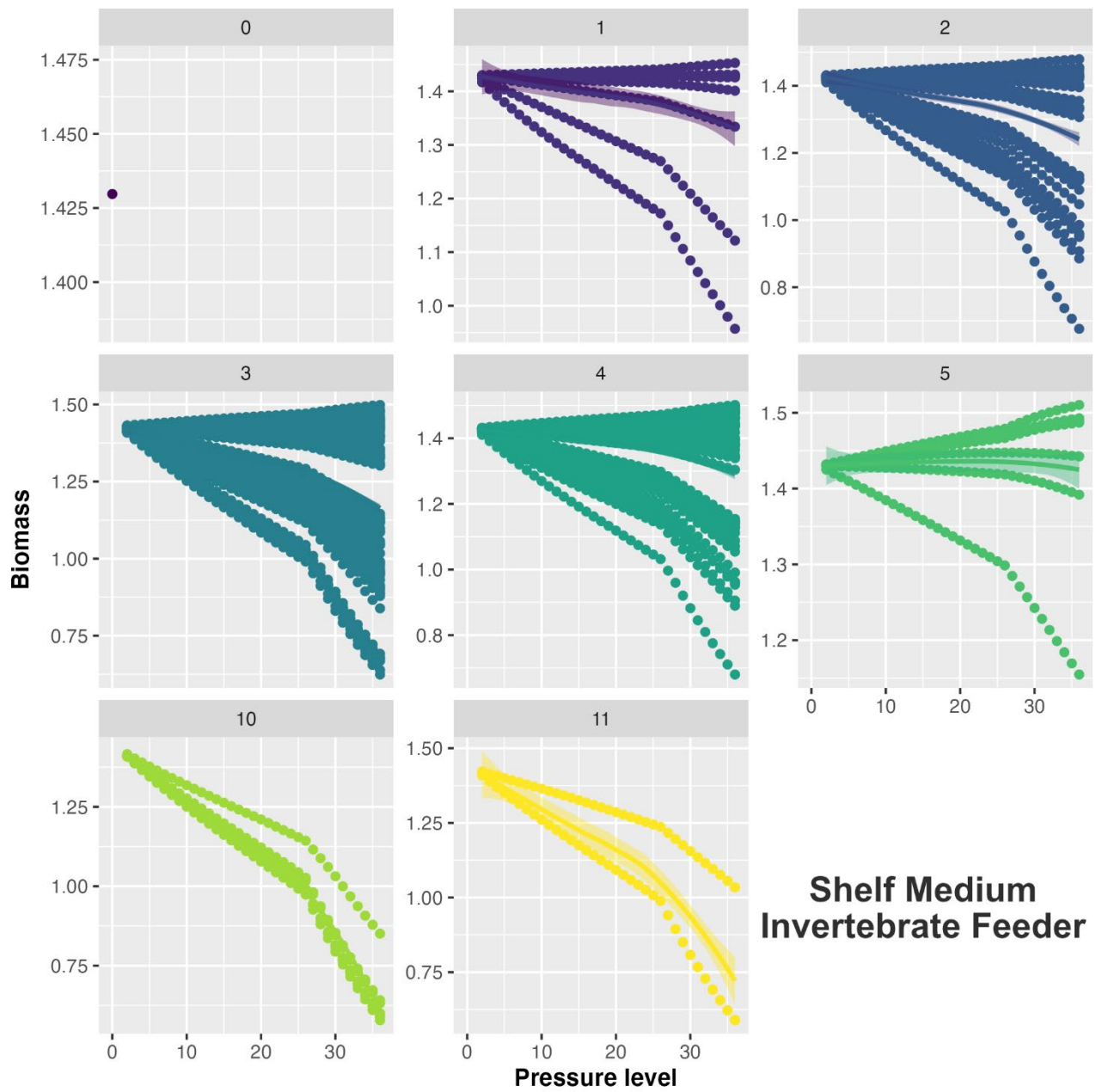


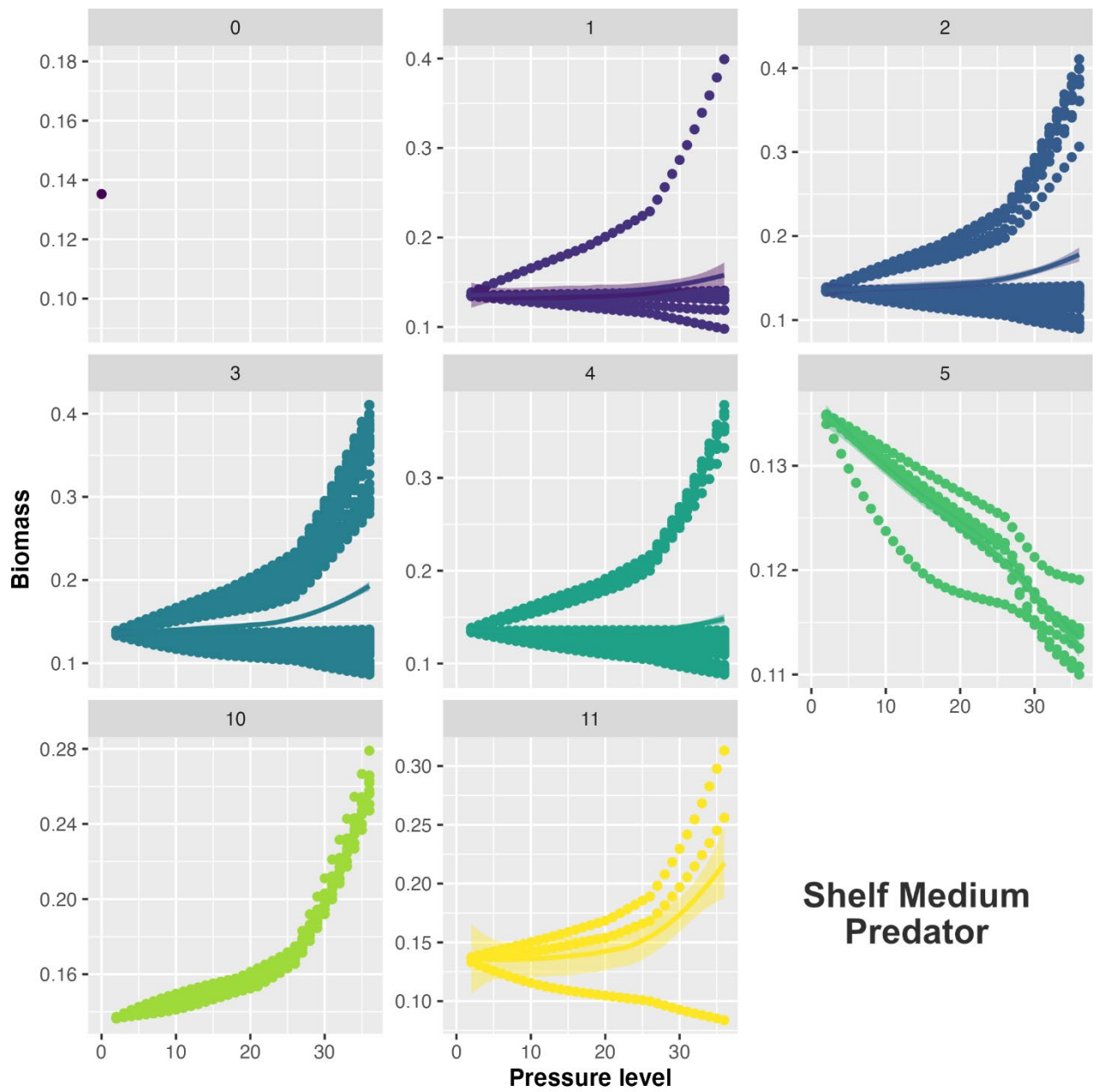


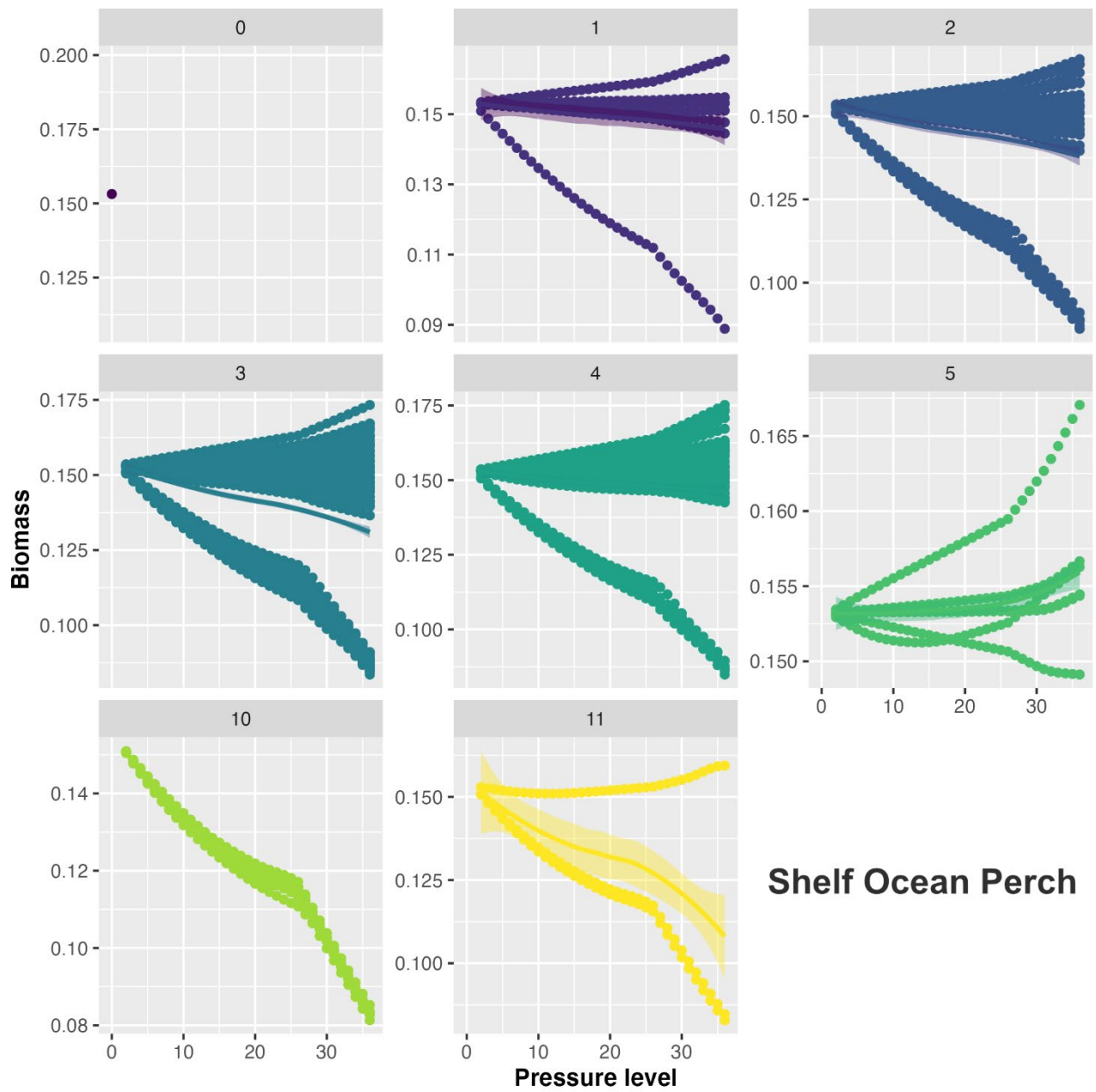
Seals



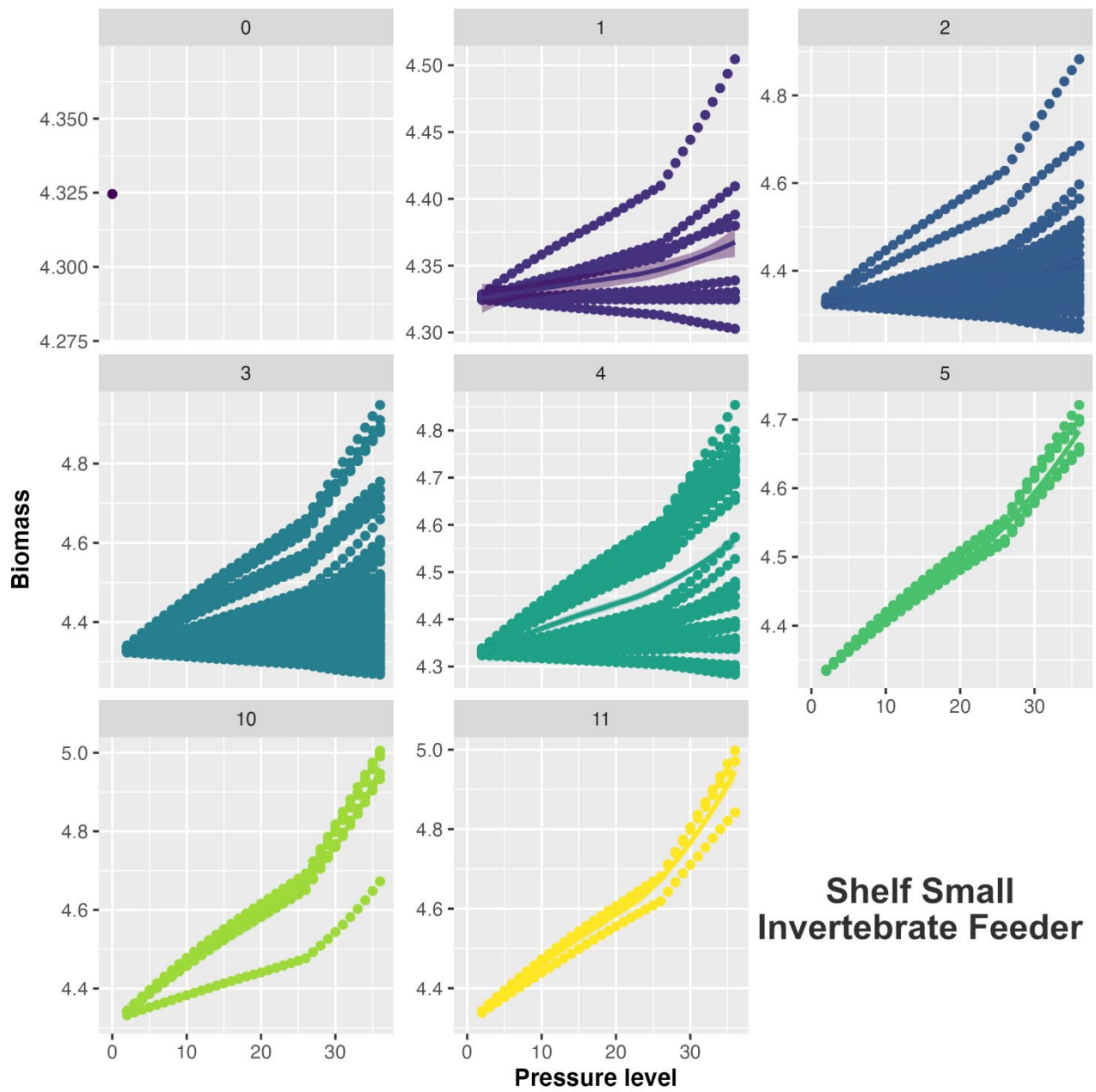


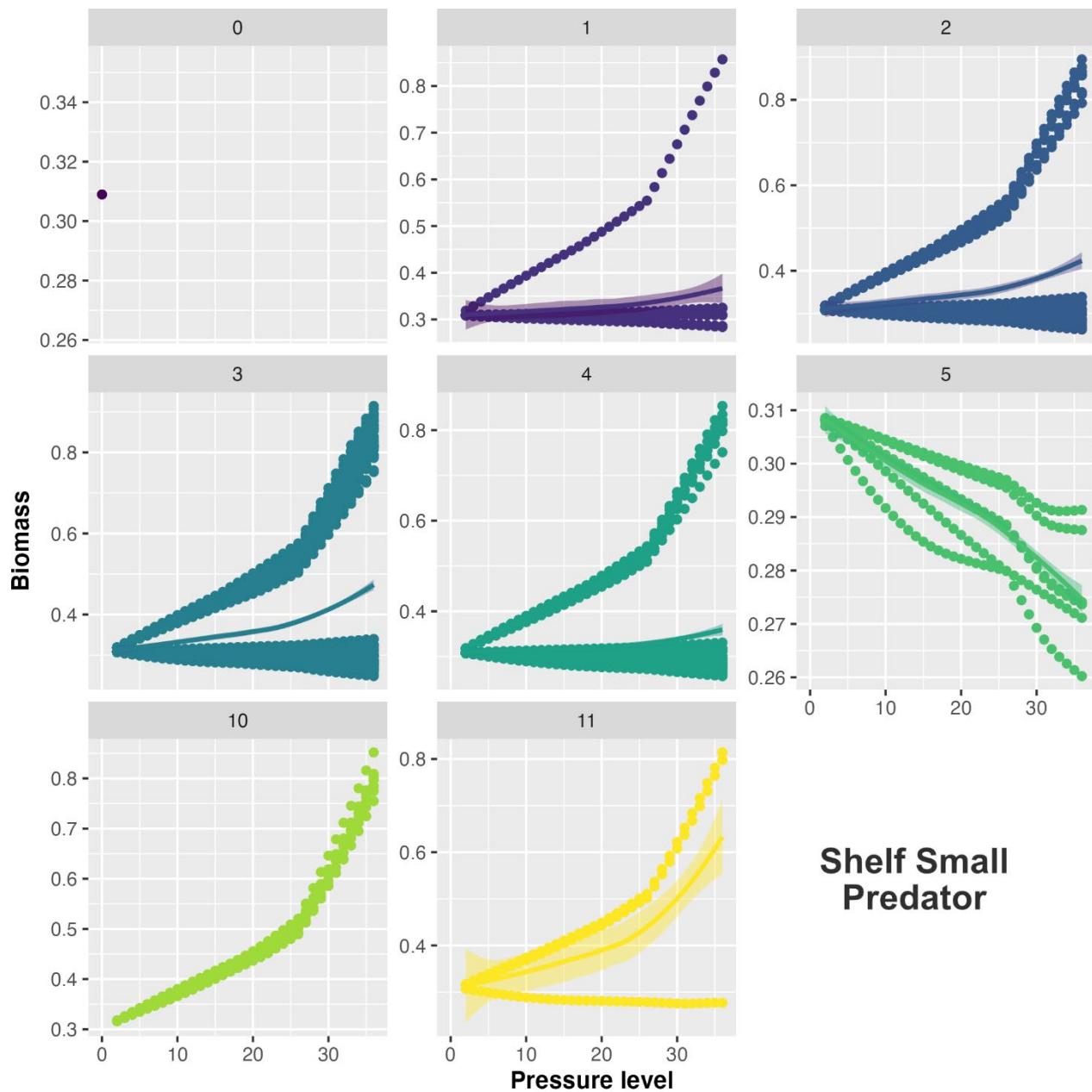


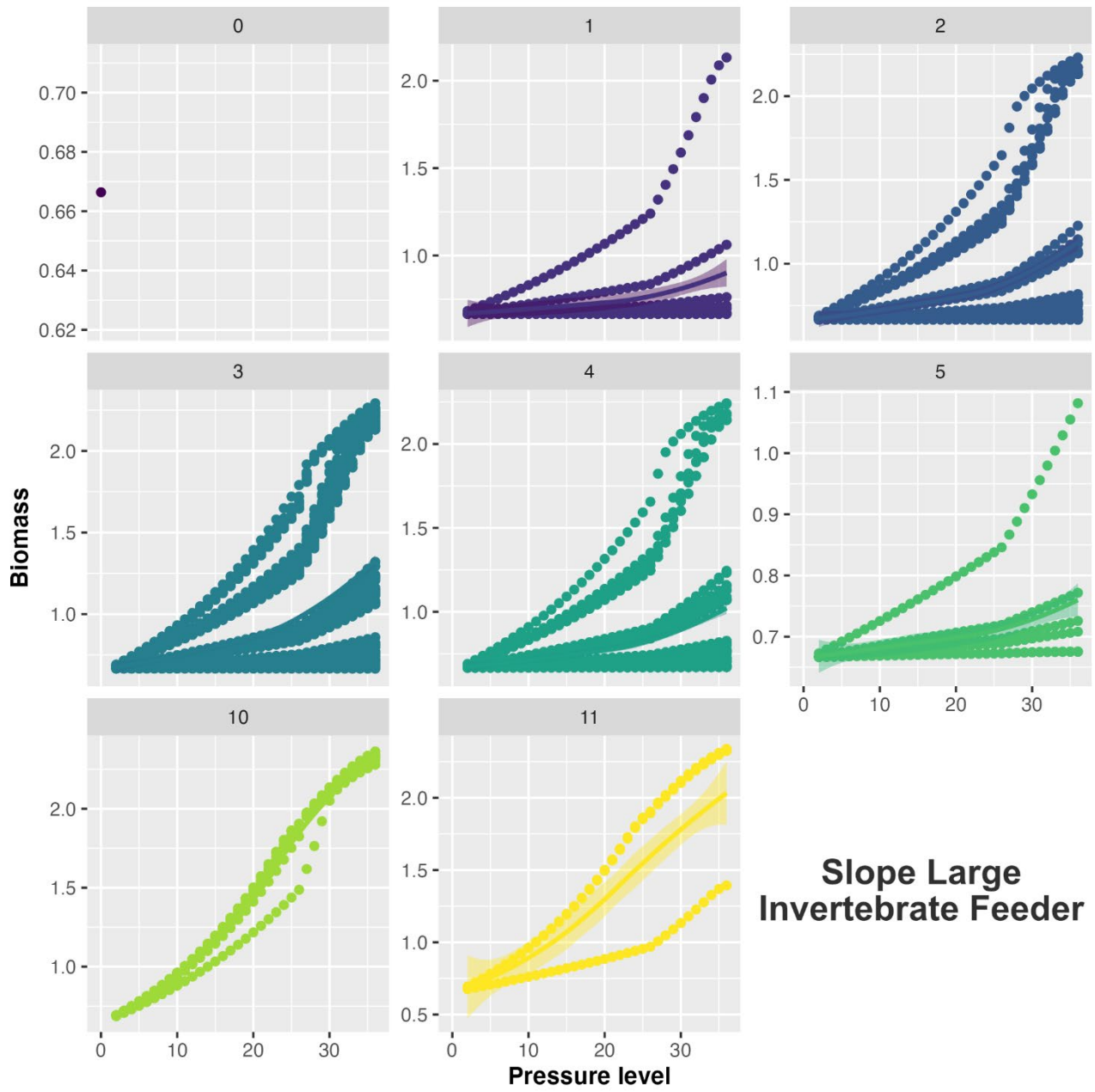


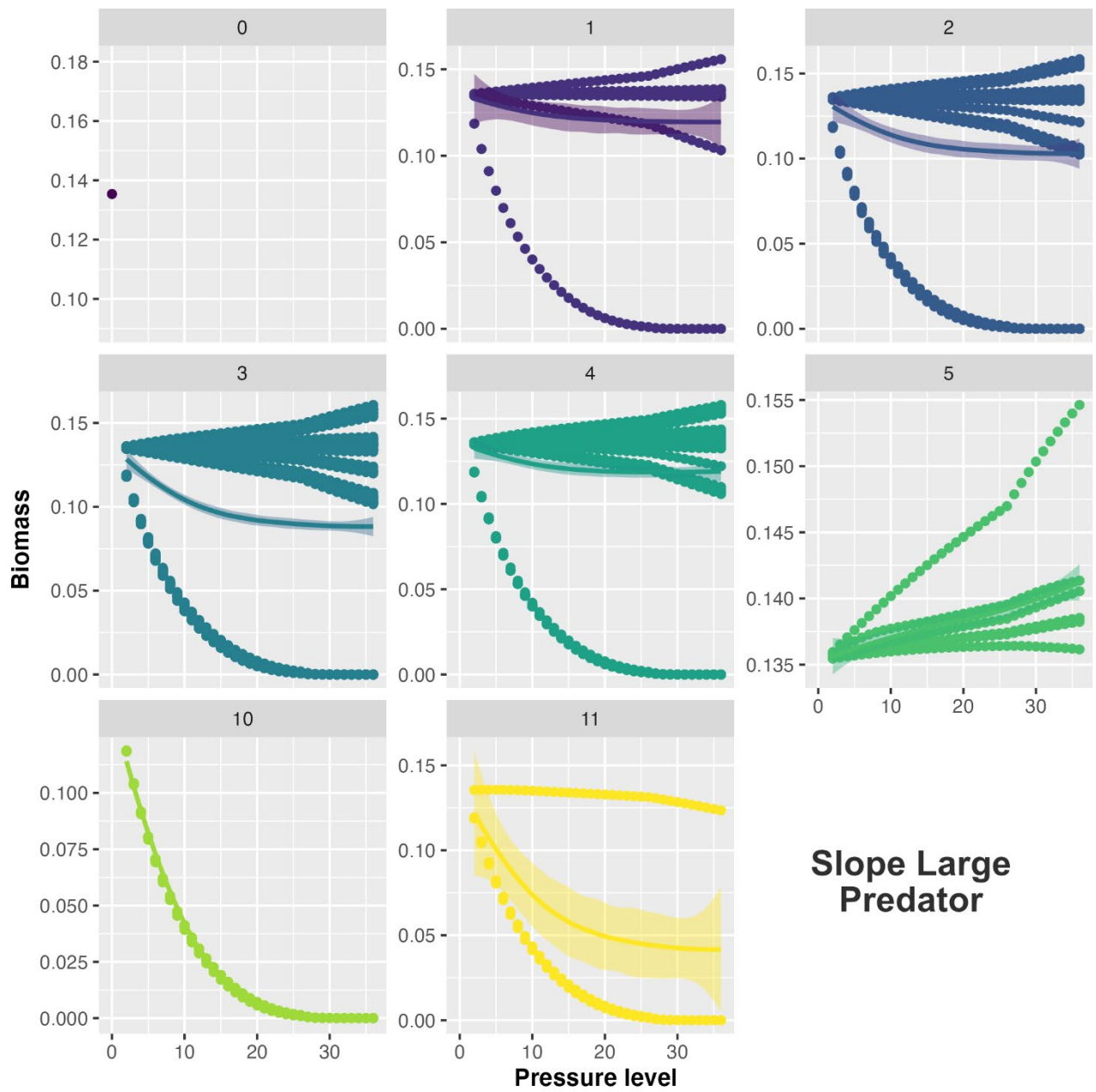


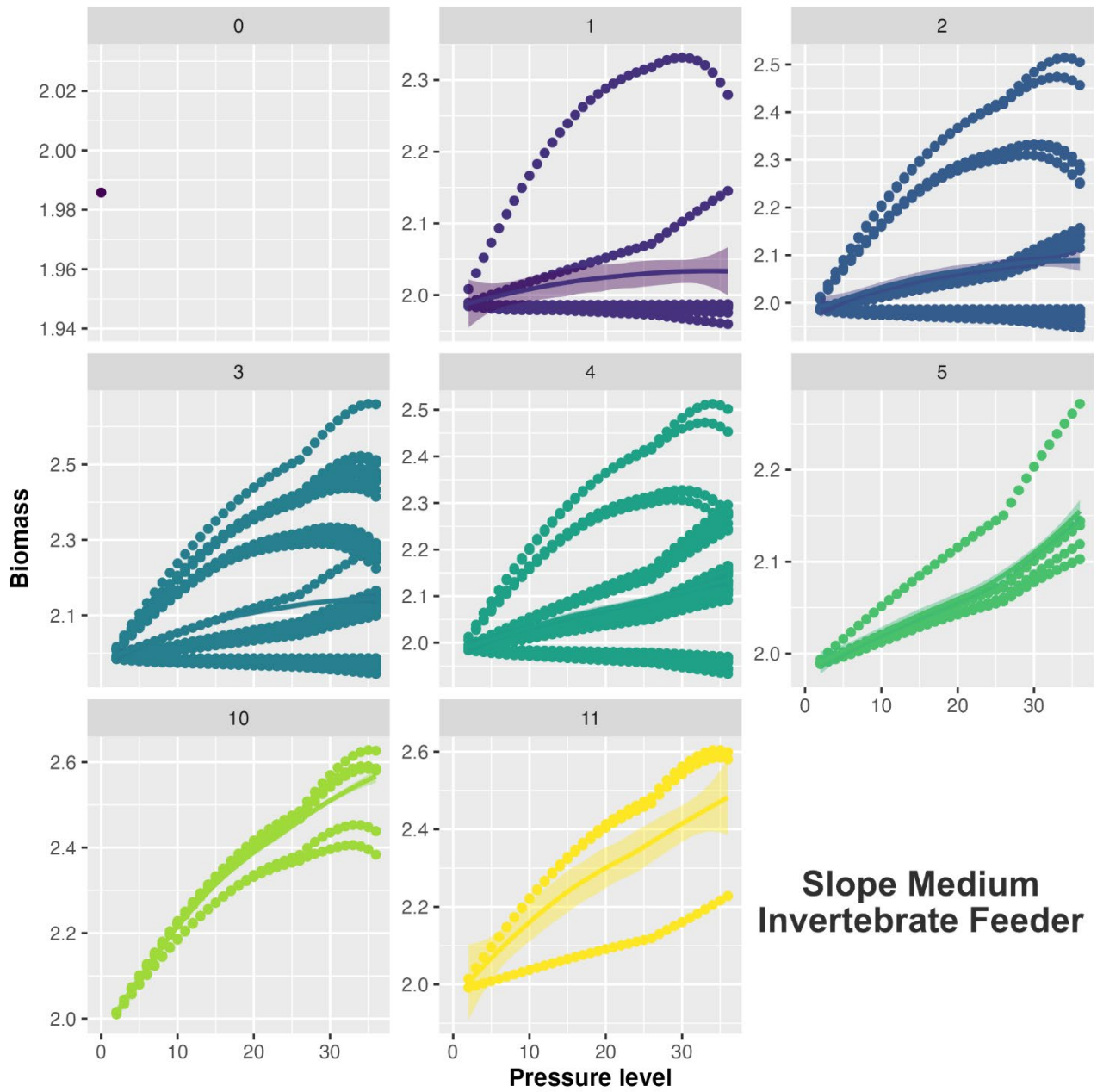
Shelf Ocean Perch

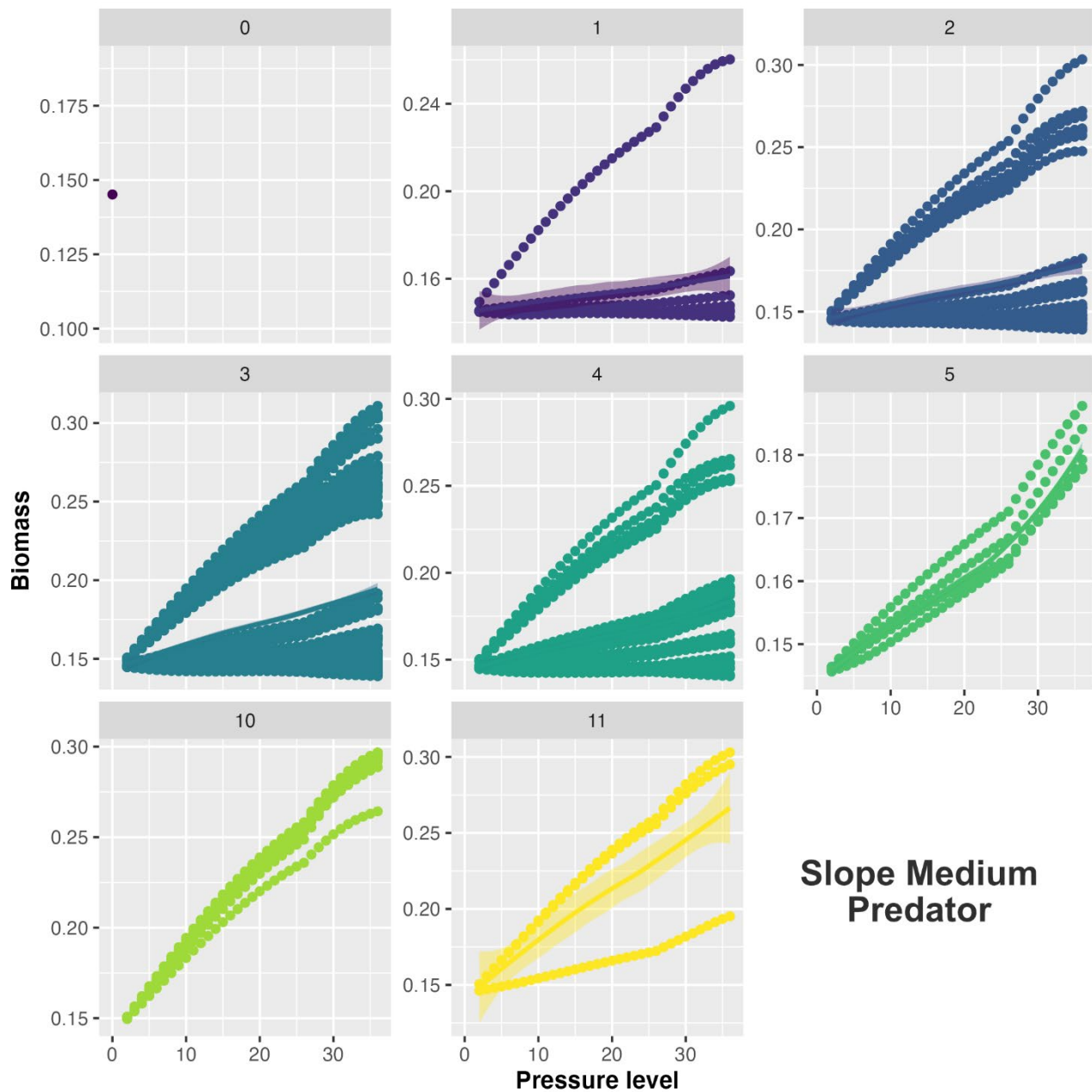


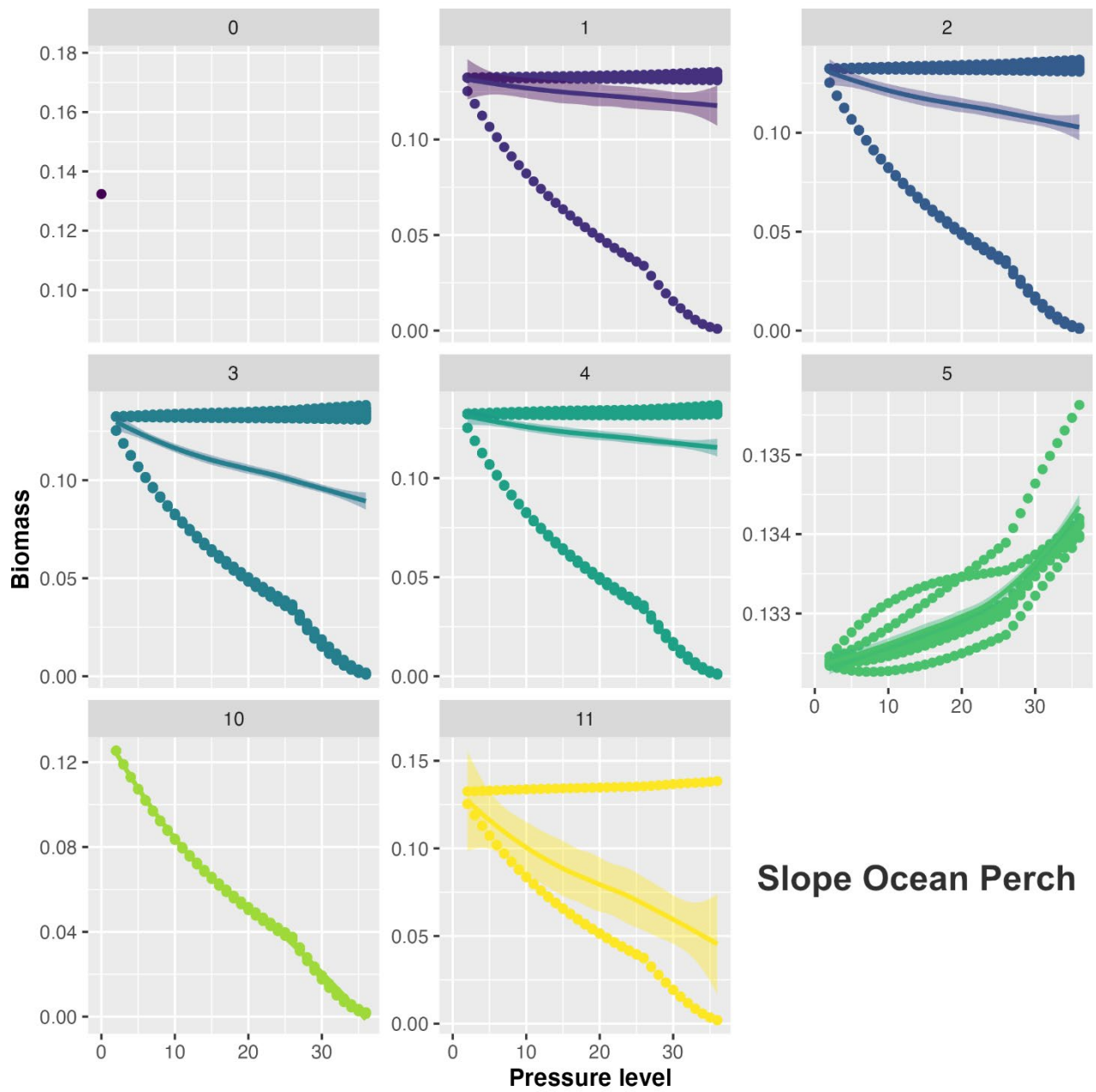




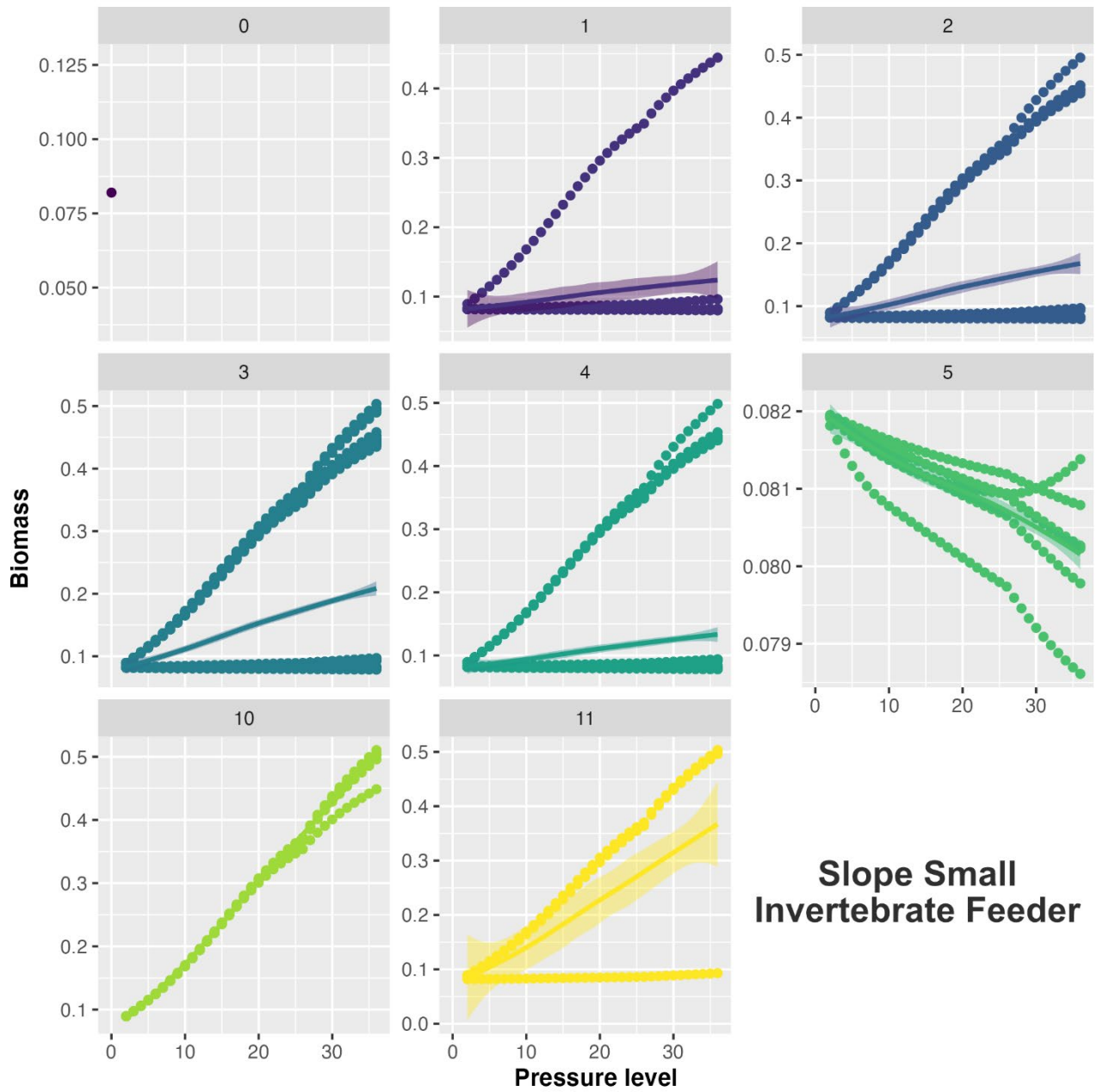


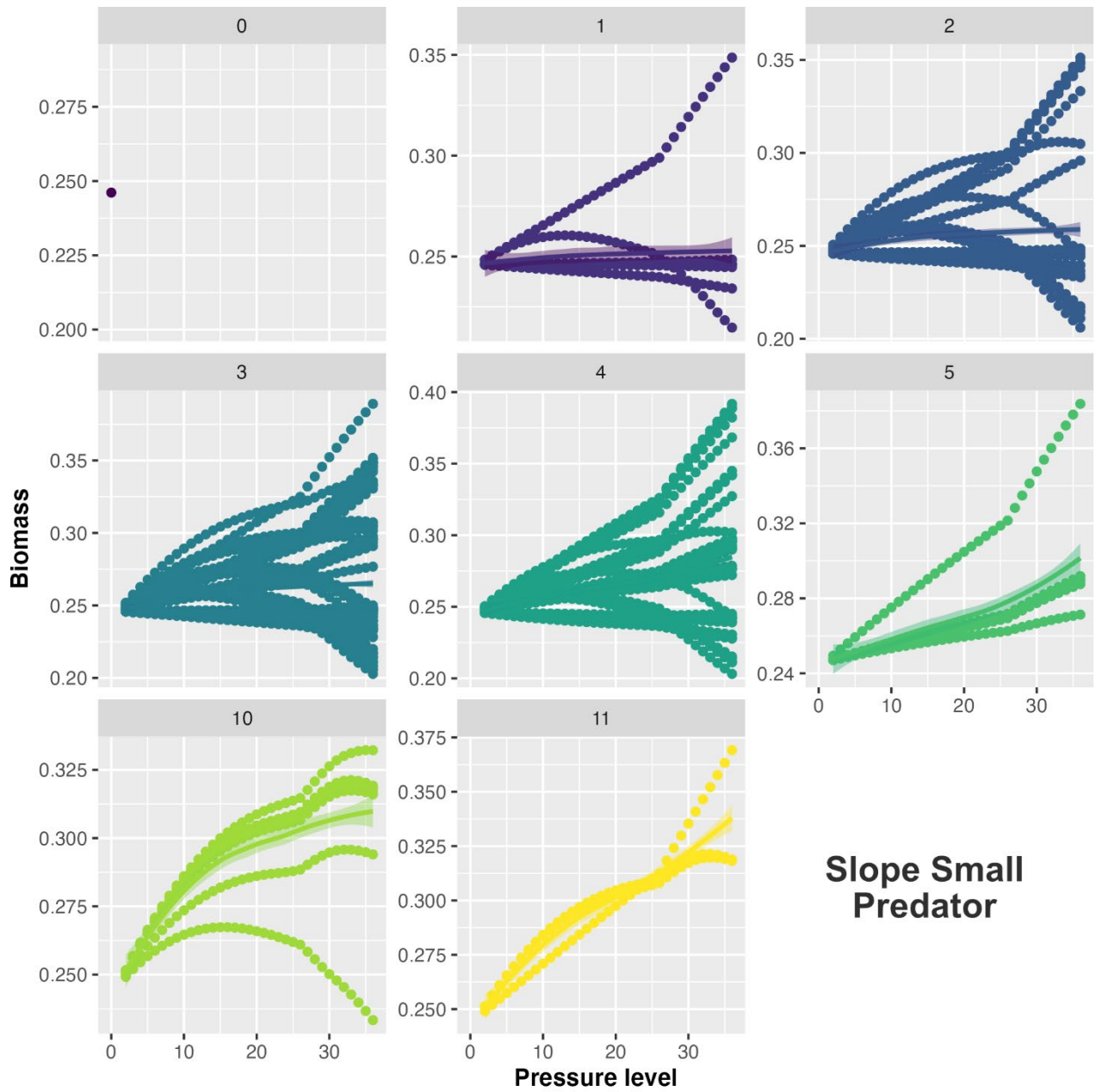


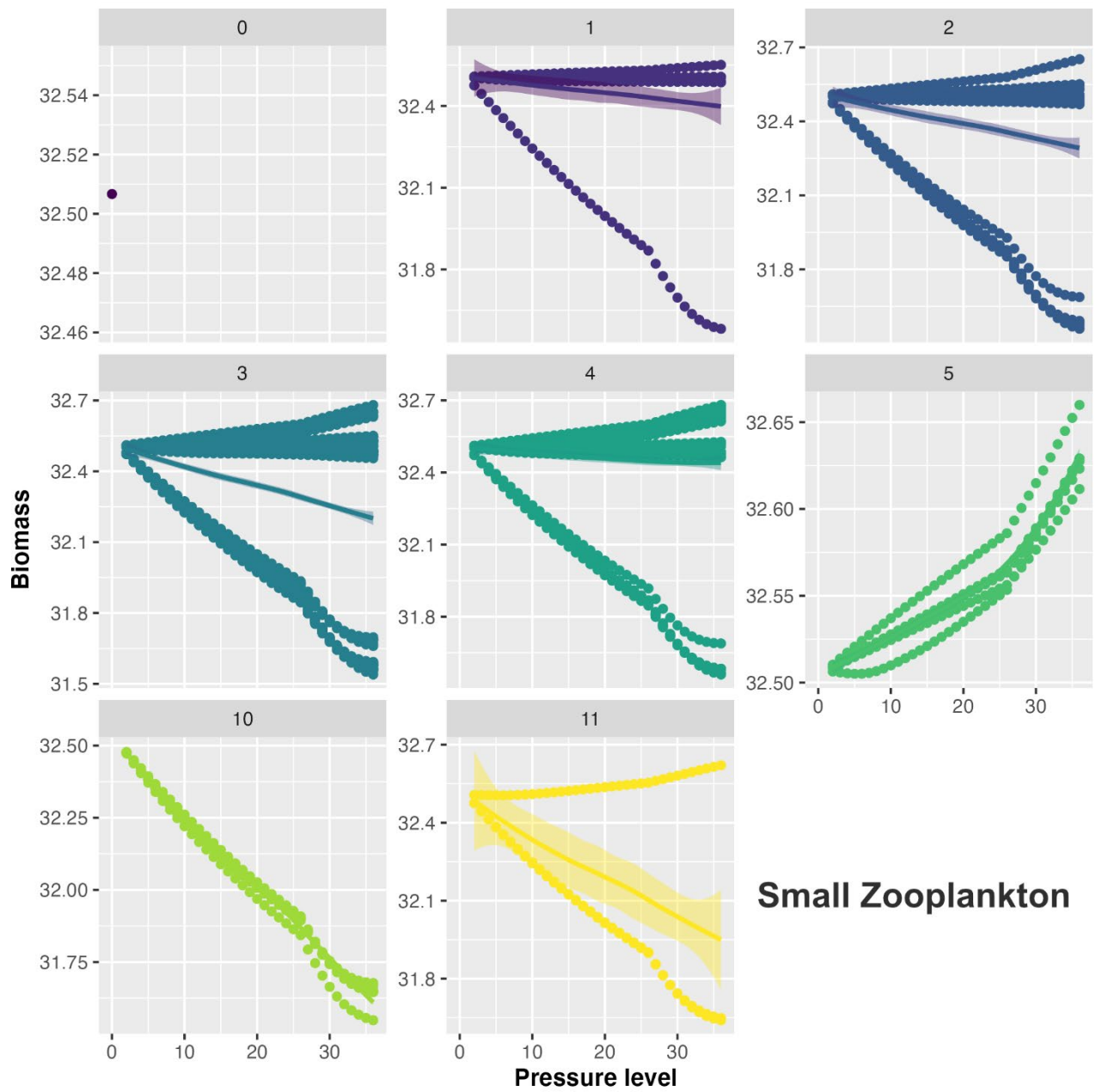




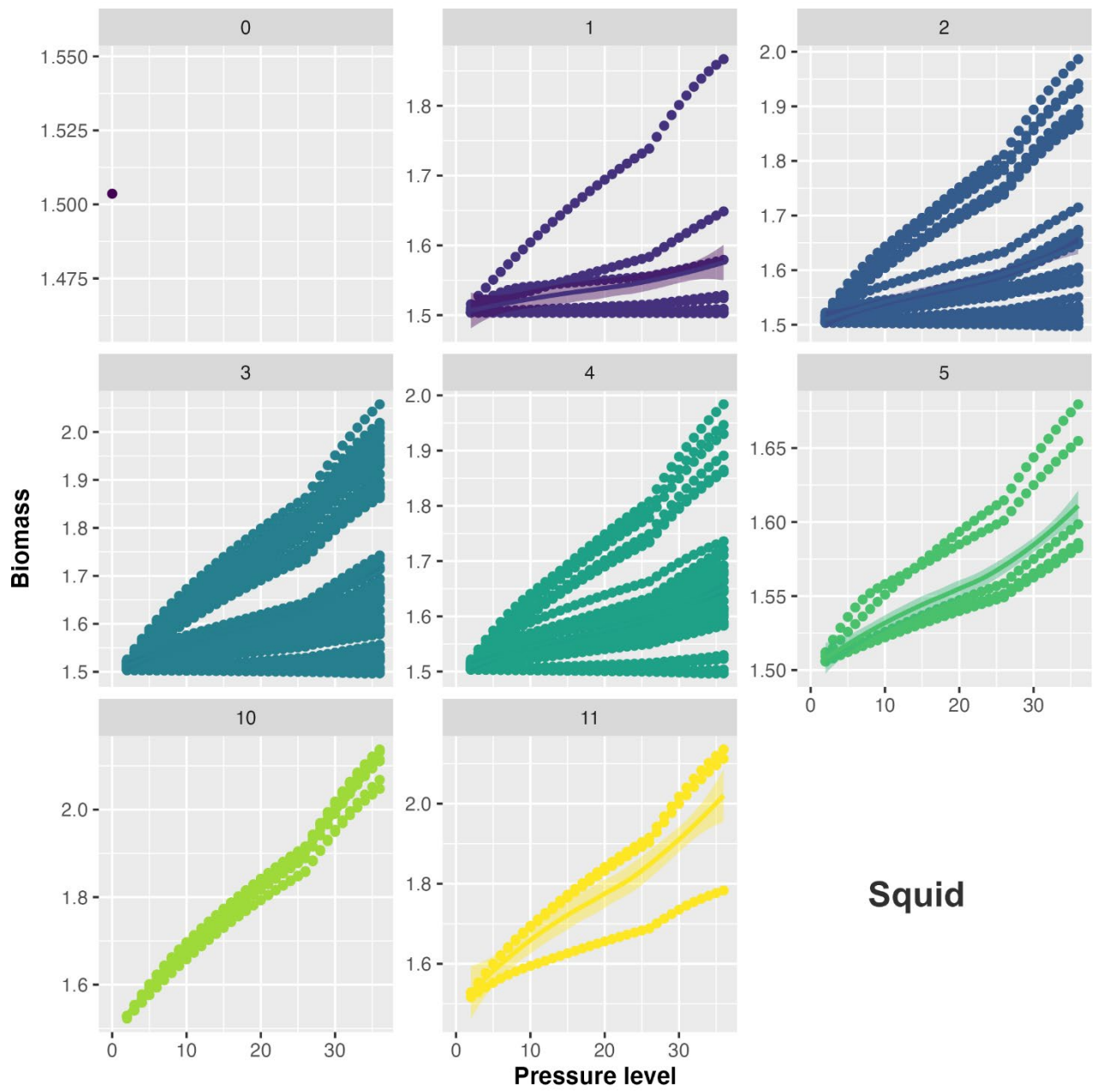
Slope Ocean Perch



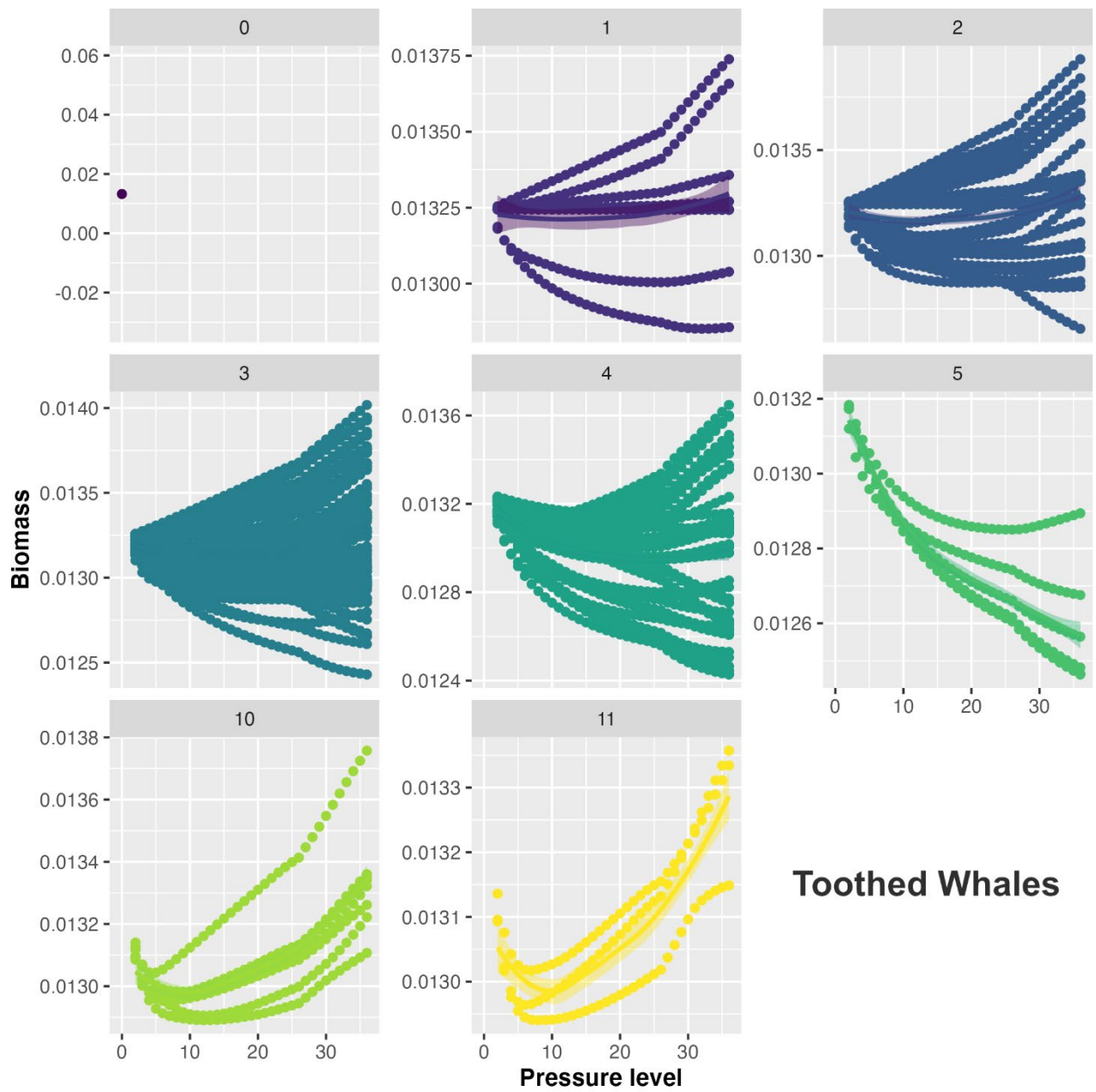




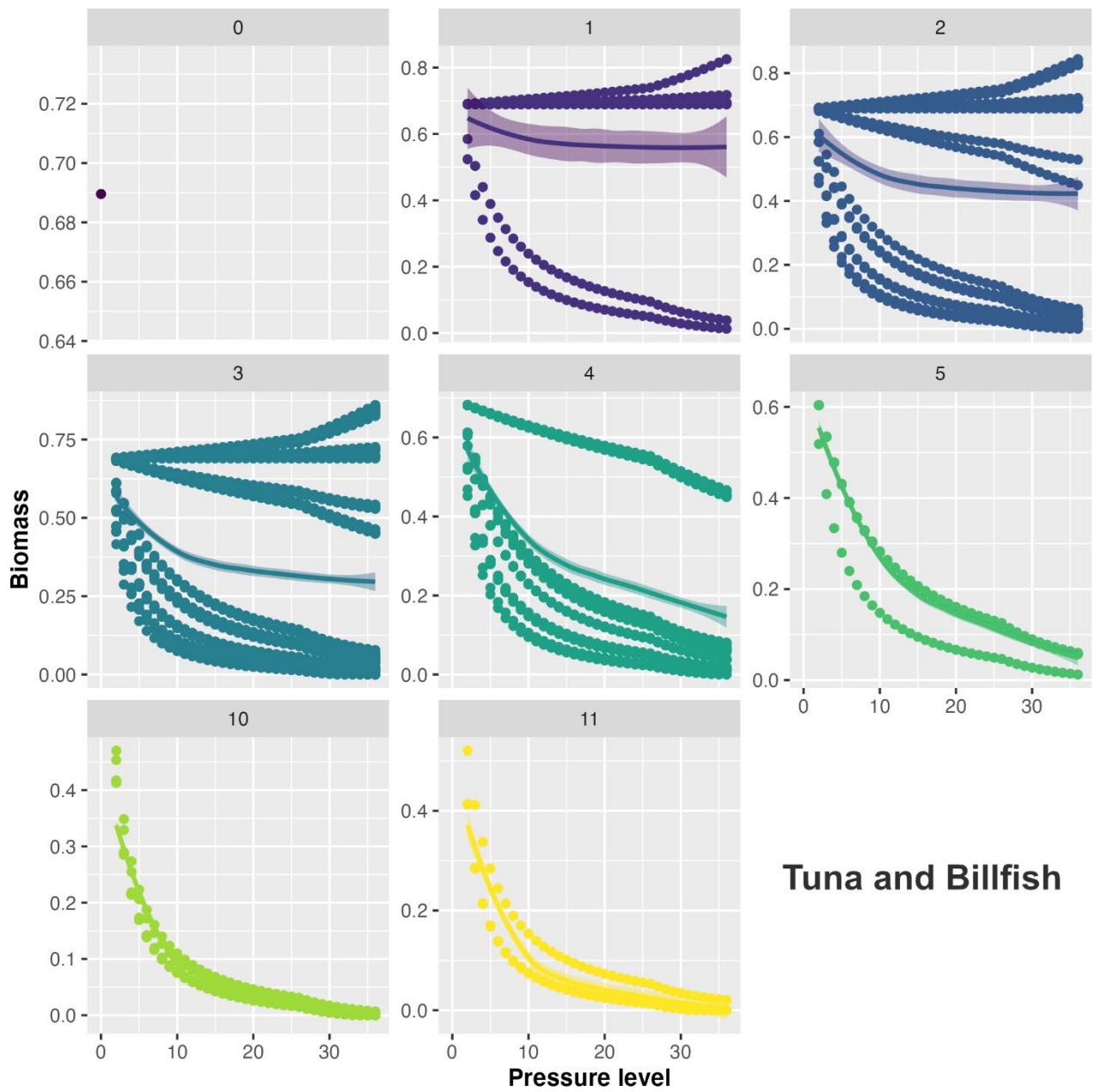
Small Zooplankton



Squid



Toothed Whales



Tuna and Billfish

