SCIENCE FOR CONSERVATION 323

Predicting the distribution and relative abundance of fishes on shallow subtidal reefs around New Zealand

Supplement 1

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Supplement 1 of:
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Supplement 1—maps of predicted abundance of reef fishes

This supplement contains 72 maps of predicted distributions and relative abundance of fishes on shallow subtidal reefs around New Zealand. The predictions were produced by applying boosted regression tree regression to dive surveys of fishes, using environmental, geographic and dive-specific variables as predictors.

The scales of relative abundance used on the maps (labelled 'abundance' in the figures) are on the same scale as the original data (i.e. 0 = absent, 1 = single (1 individual seen), 2 = few (2–10), 3 = many (11–100) and 4 = abundant (>100)). This scale broadly corresponds to a $y' = \ln(y + 1)$ transformation of the number of that species seen per dive. The predictions were the result of a modelling process using a Gaussian error distribution and, therefore, were on a continuous scale and not whole numbers like the original data (although they were scaled to remove bias and rounded to one decimal place for simplification, see section 2.2.5). They can, however, be interpreted on the same rough scale as the original data.

The best way to view the predictions in detail is to use GIS software. The data in spatial grid format are available on request from the authors for this purpose.

The top left and lower right insets on the figures show the Kermadec and Chatham Islands, respectively.

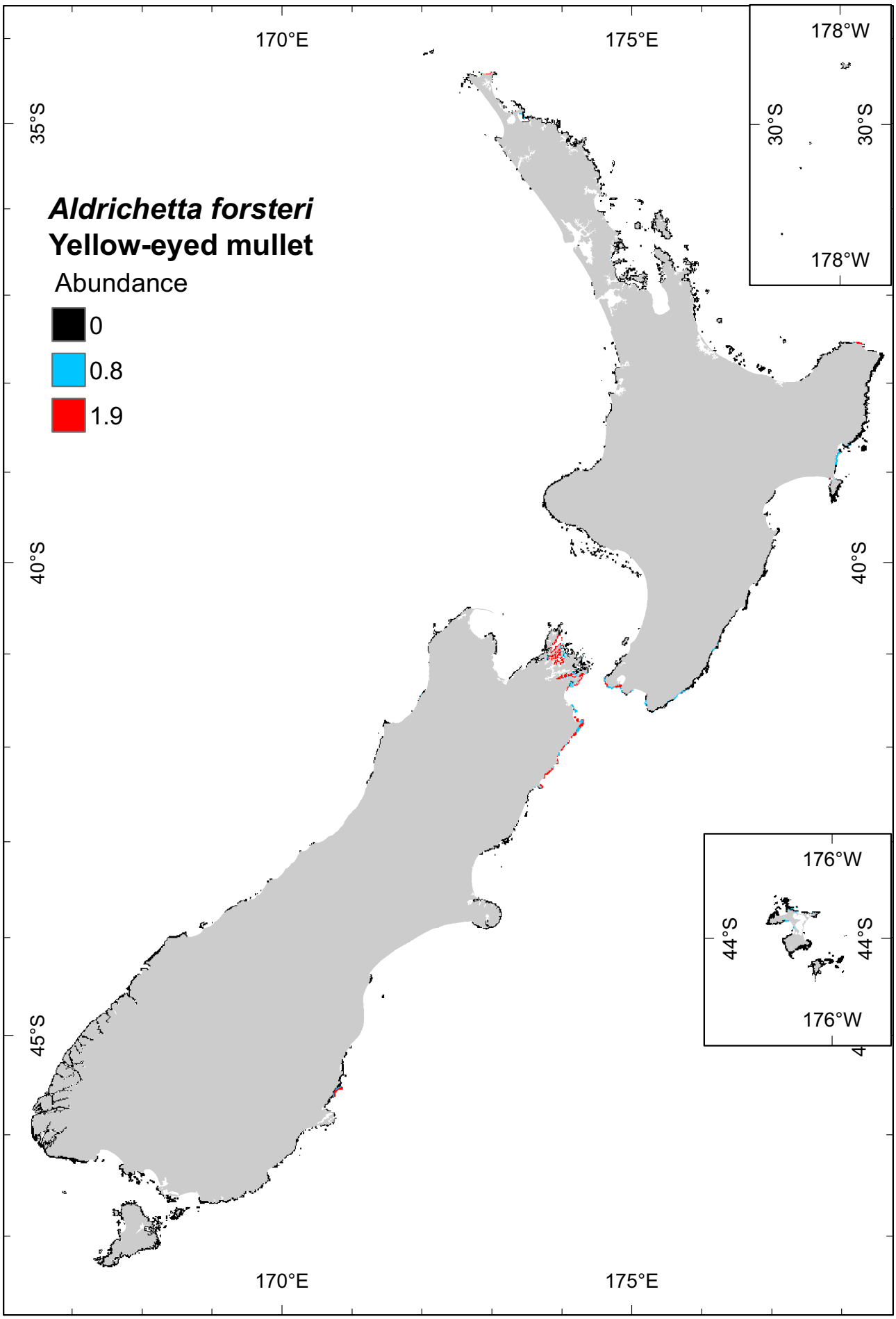

Figure S1.1. The predicted abundance of *Aldrichetta forsteri* (yellow-eyed mullet) on rocky reefs around New Zealand.

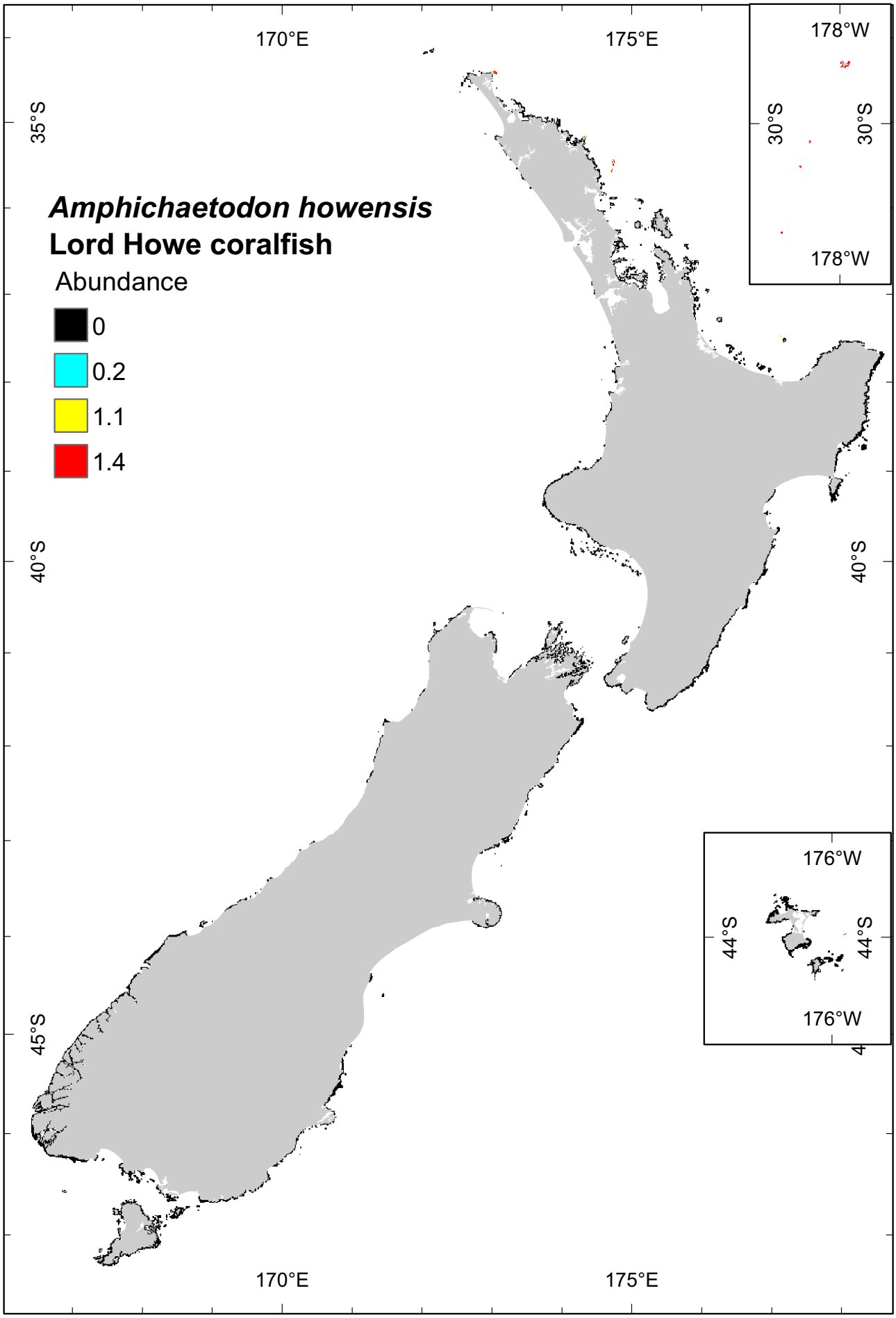

Figure S1.2. The predicted abundance of *Amphichaetodon howensis* (Lord Howe coralfish) on rocky reefs around New Zealand.

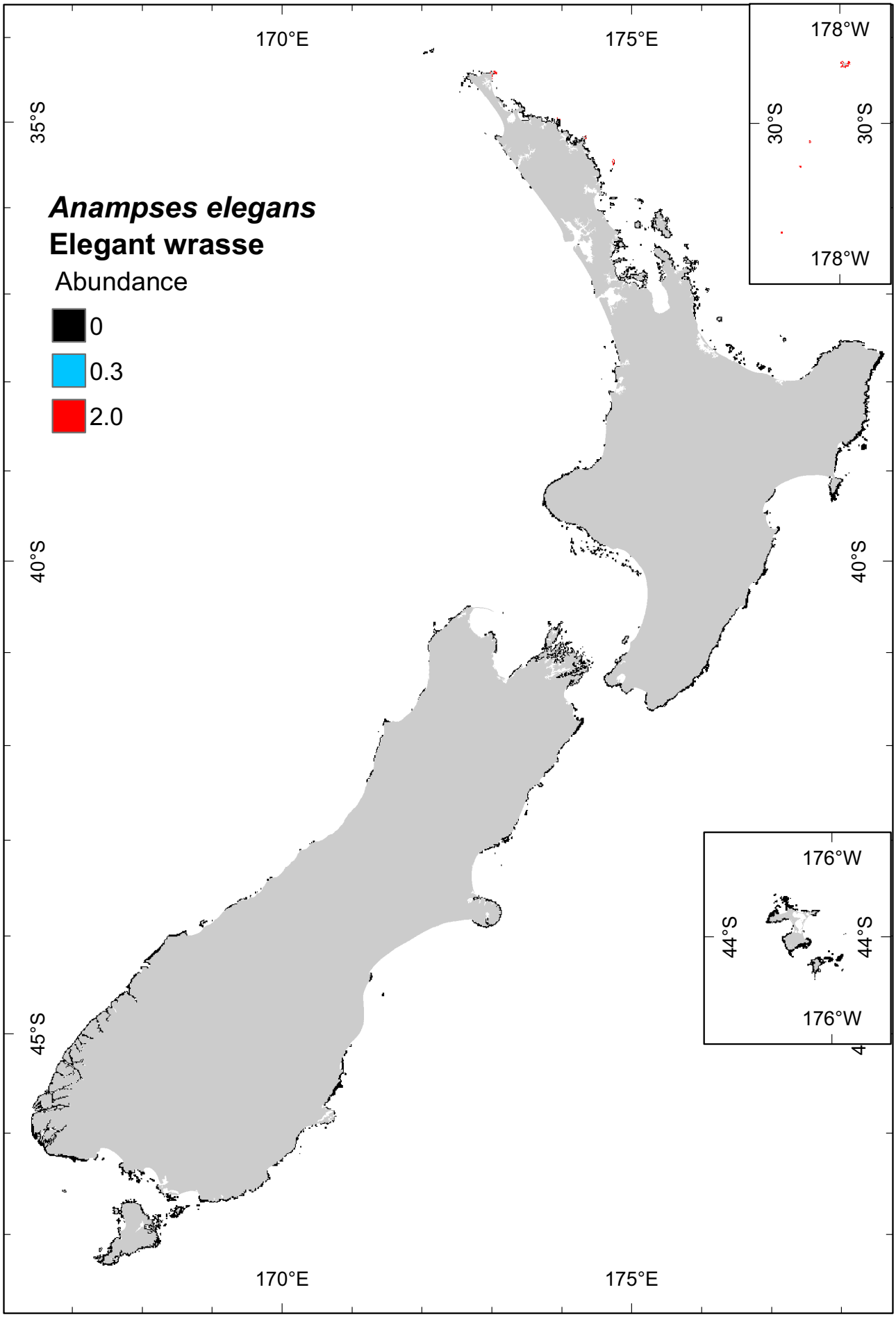

Figure S1.3. The predicted abundance of *Anampses elegans* (elegant wrasse) on rocky reefs around New Zealand.

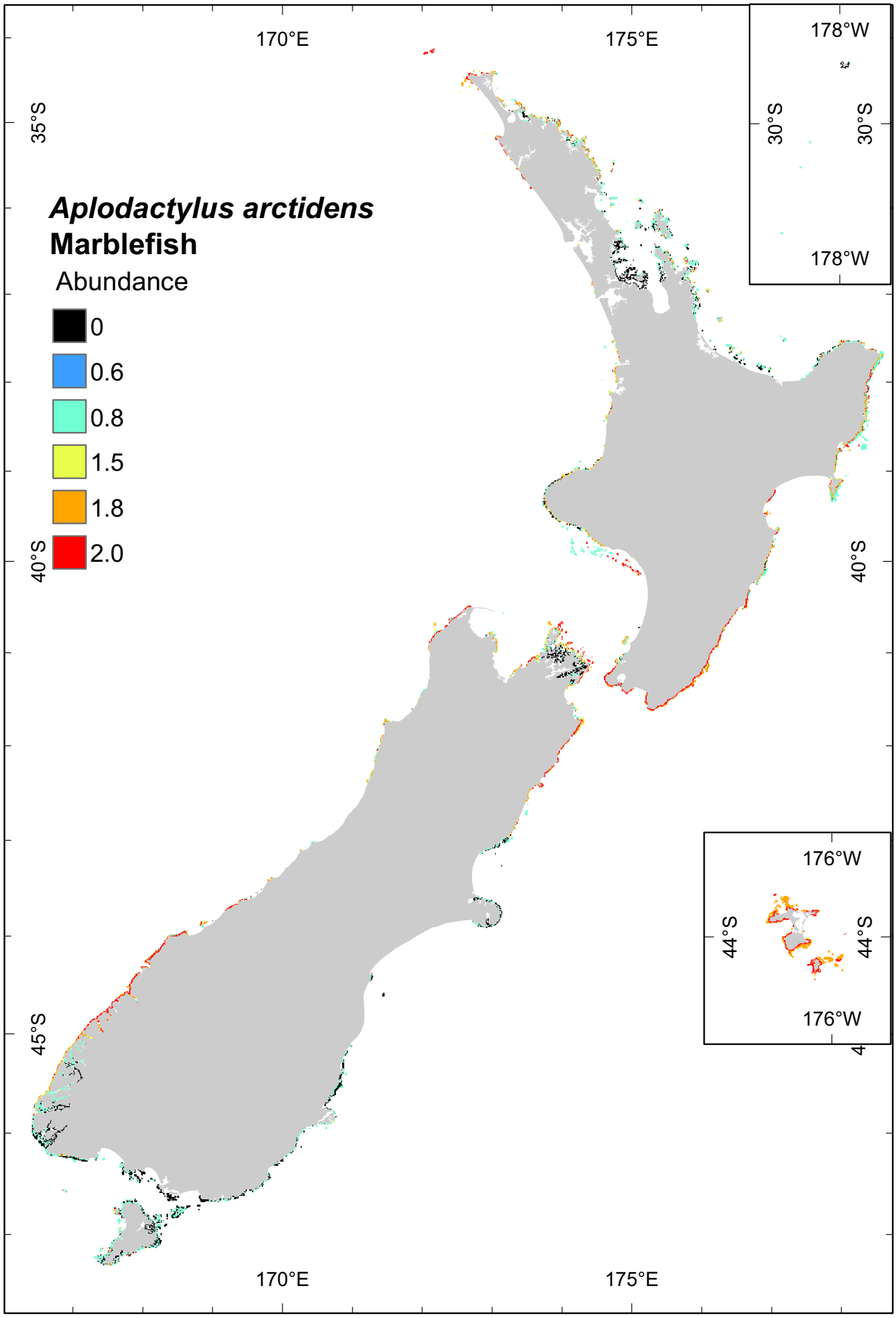

Figure S1.4. The predicted abundance of *Aplodactylus arctidens* (marblefish) on rocky reefs around New Zealand.

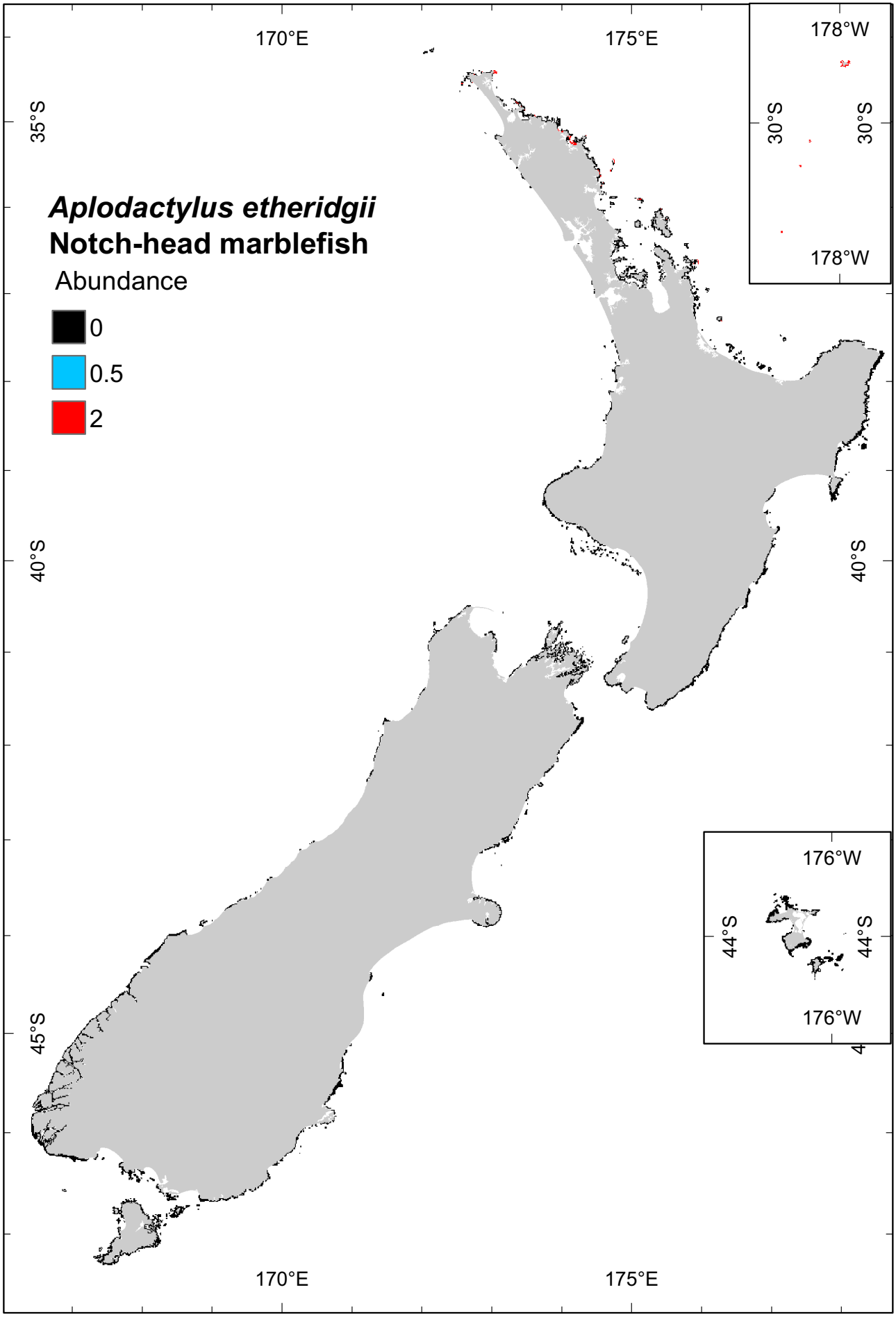

Figure S1.5. The predicted abundance of *Aplodactylus etheridgii* (notch-head marblefish) on rocky reefs around New Zealand.

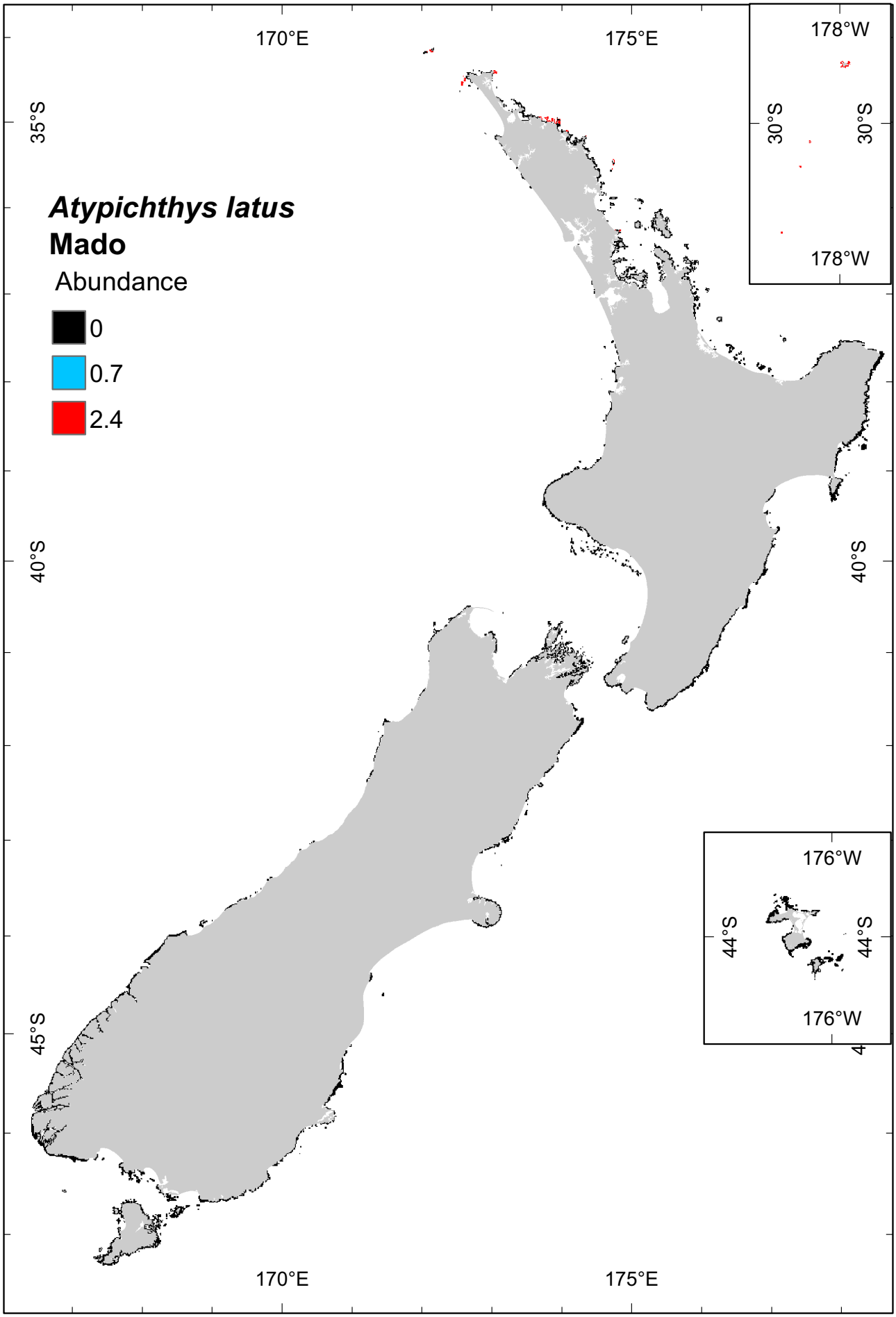

Figure S1.6. The predicted abundance of *Atypichthys latus* (mado) on rocky reefs around New Zealand.

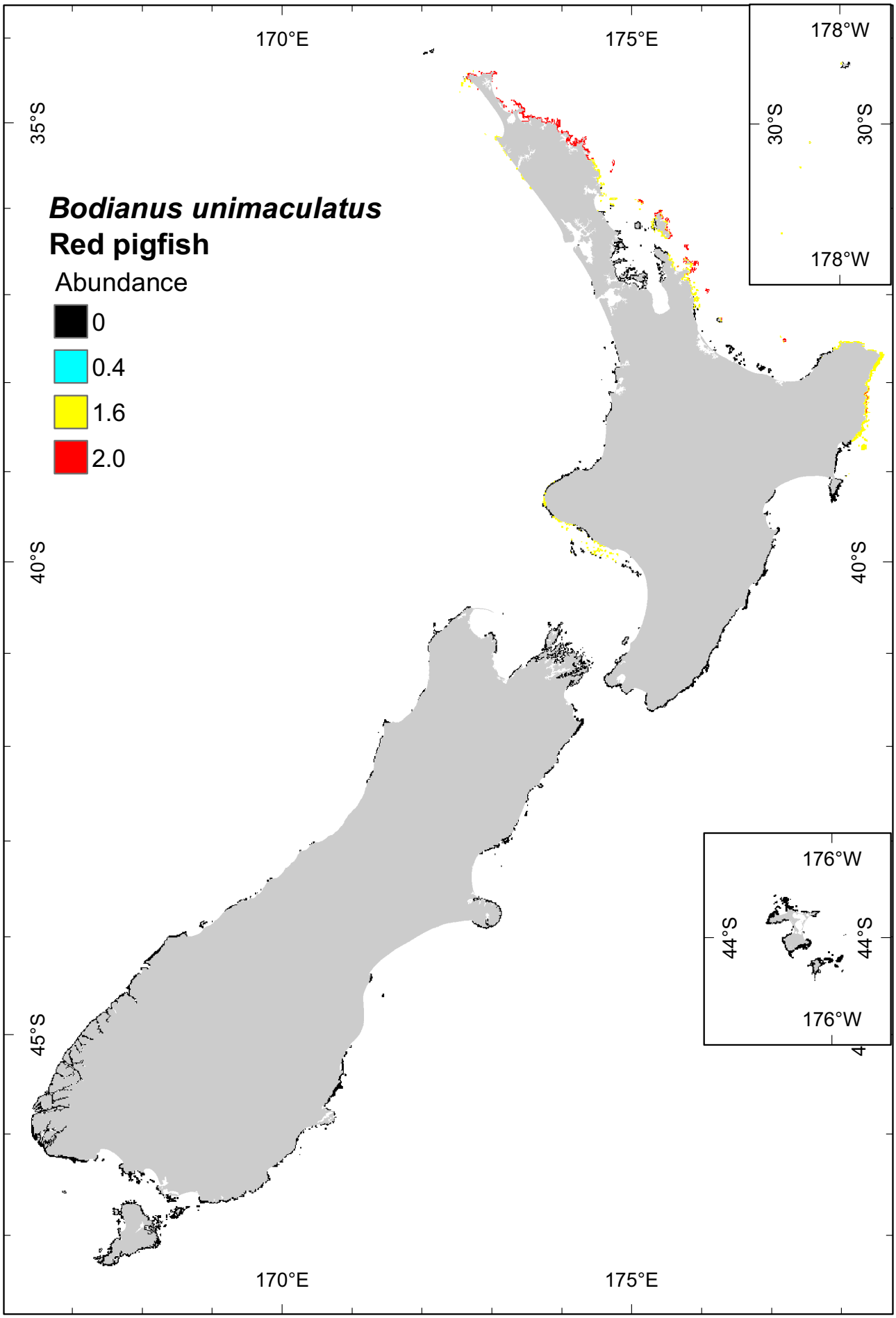

Figure S1.7. The predicted abundance of *Bodianus unimaculatus* (red pigfish) on rocky reefs around New Zealand.

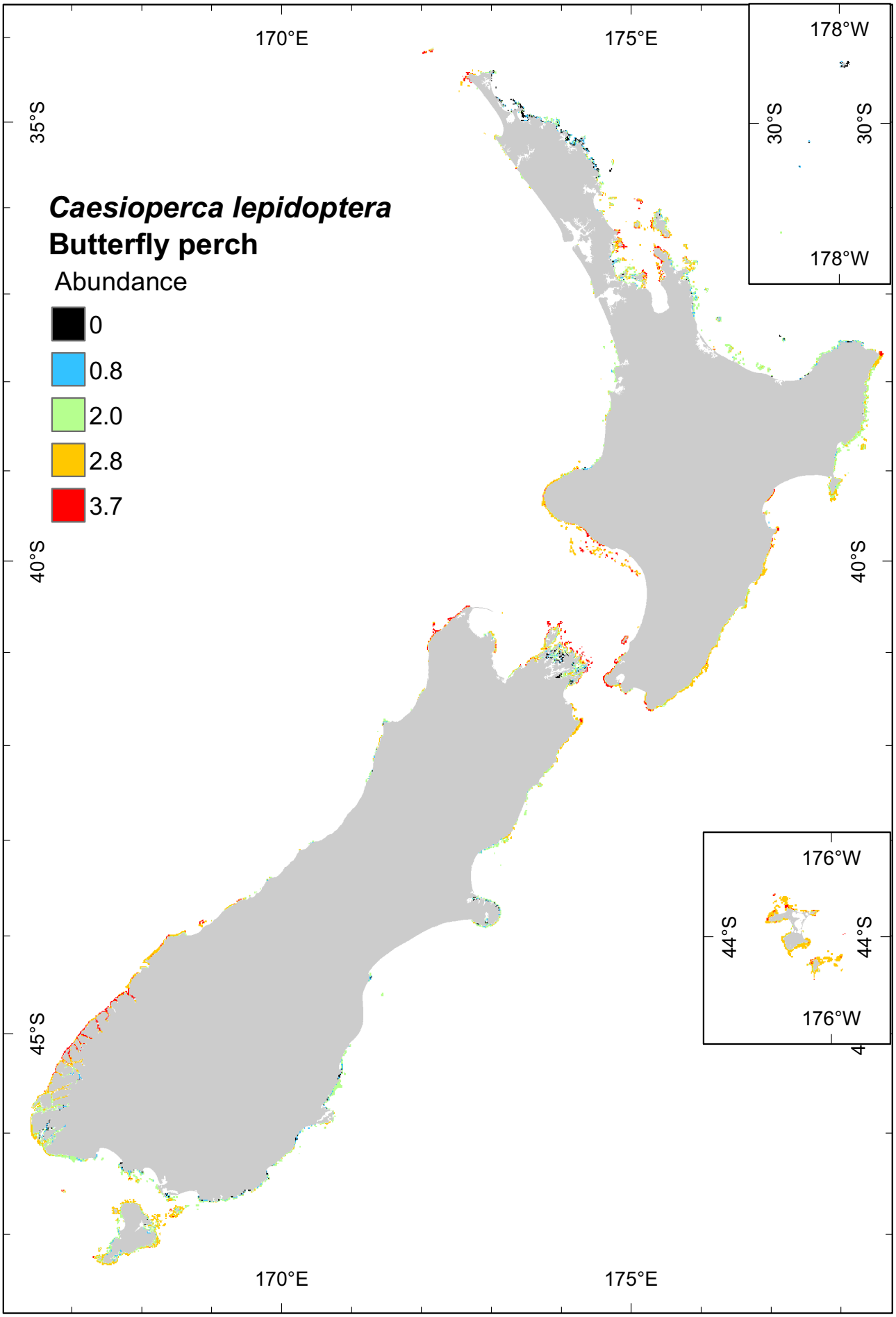

Figure S1.8. The predicted abundance of *Caesioperca lepidoptera* (butterfly perch) on rocky reefs around New Zealand.

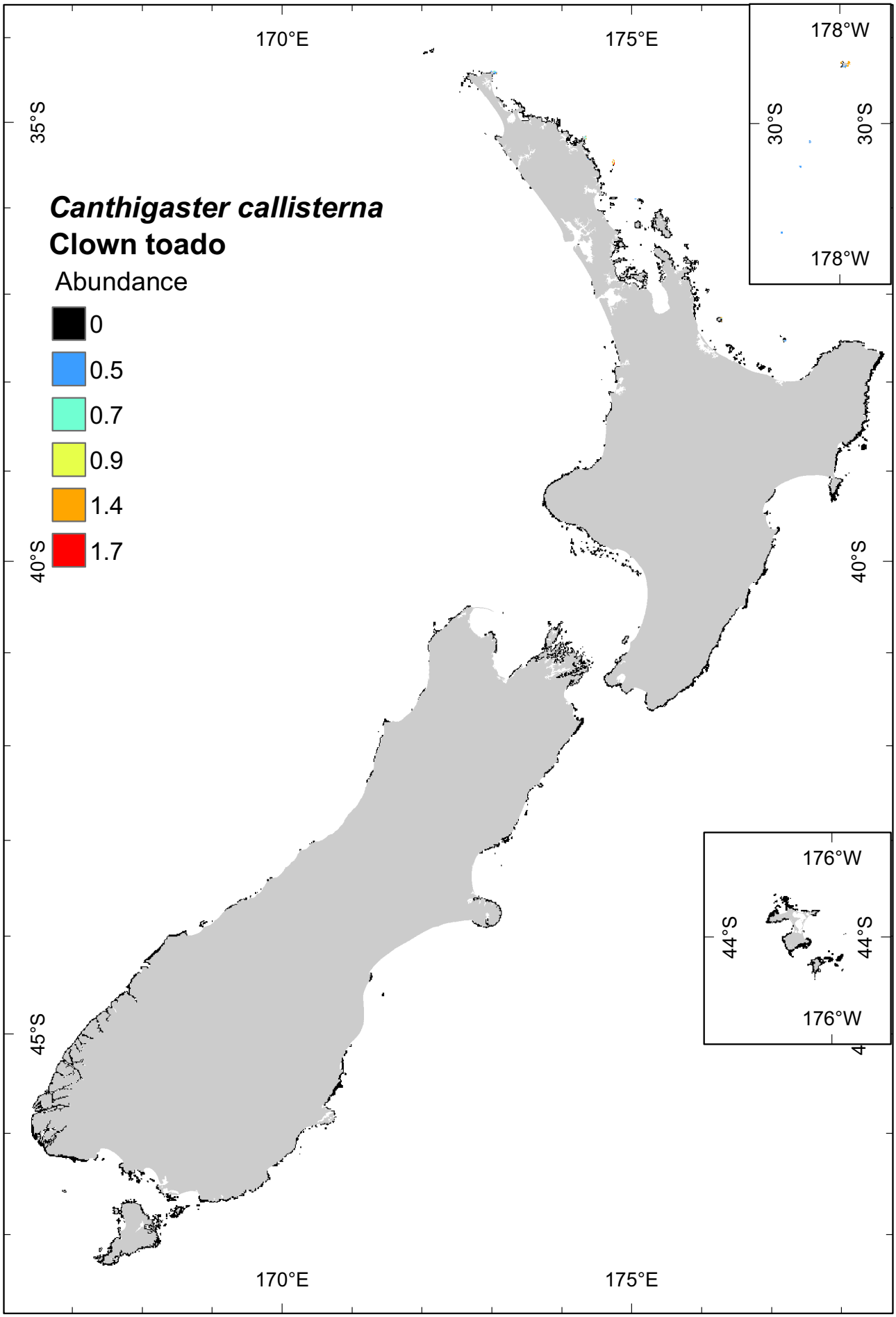

Figure S1.9. The predicted abundance of *Canthigaster callisterna* (clown toado) on rocky reefs around New Zealand.

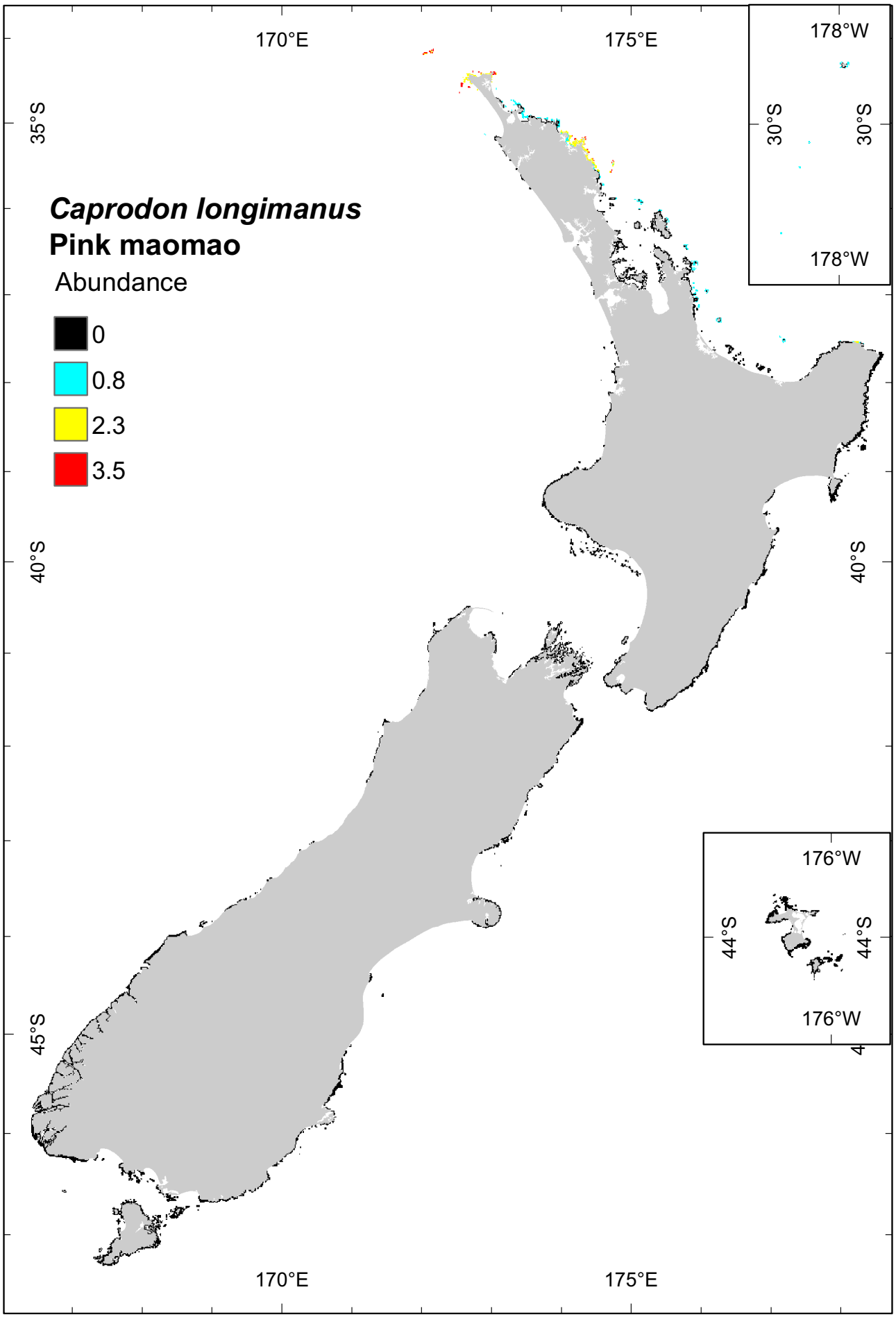

Figure S1.10. The predicted abundance of *Caprodon longimanus* (pink maomao) on rocky reefs around New Zealand.

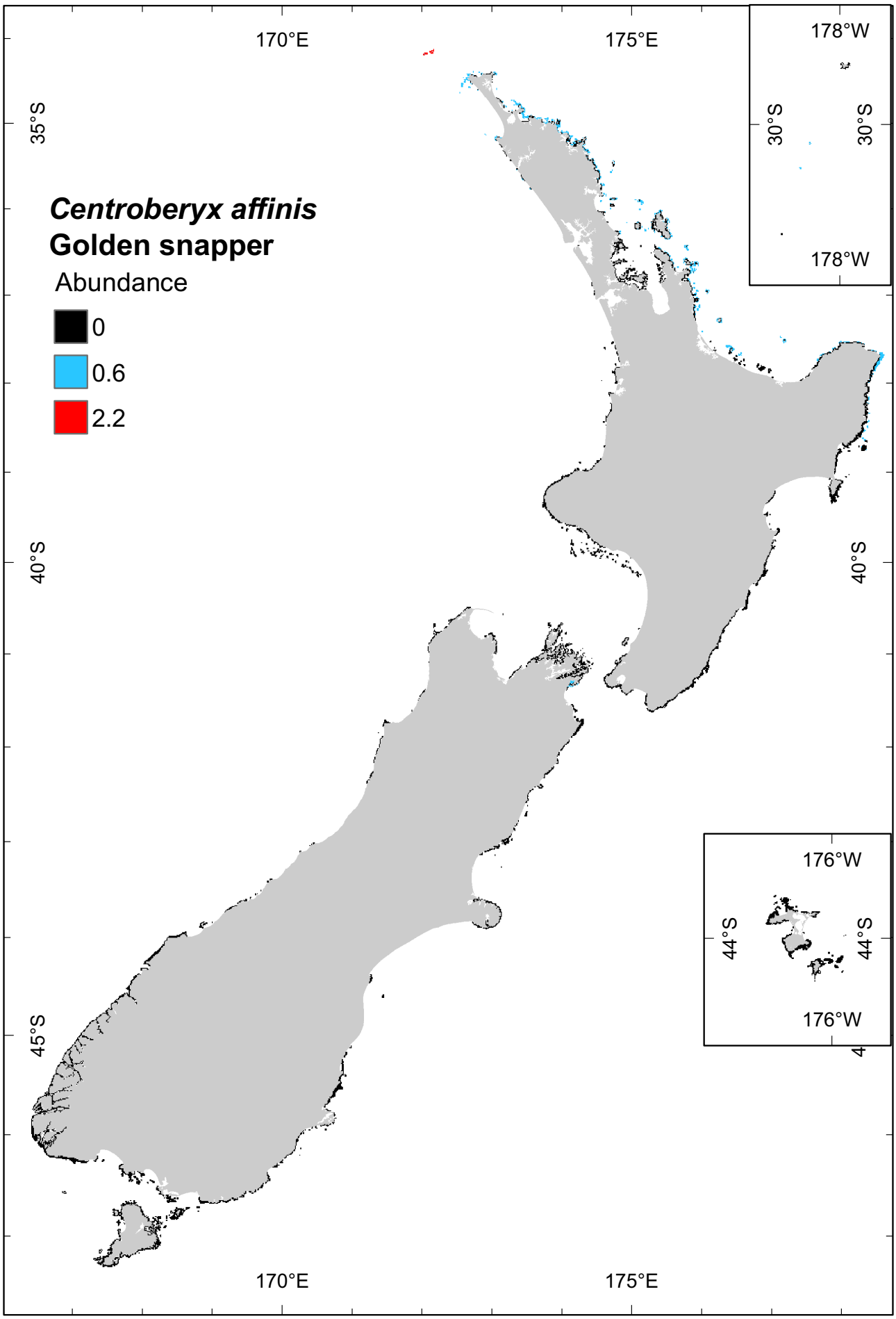

Figure S1.11. The predicted abundance of *Centroberyx affinis* (golden snapper) on rocky reefs around New Zealand.

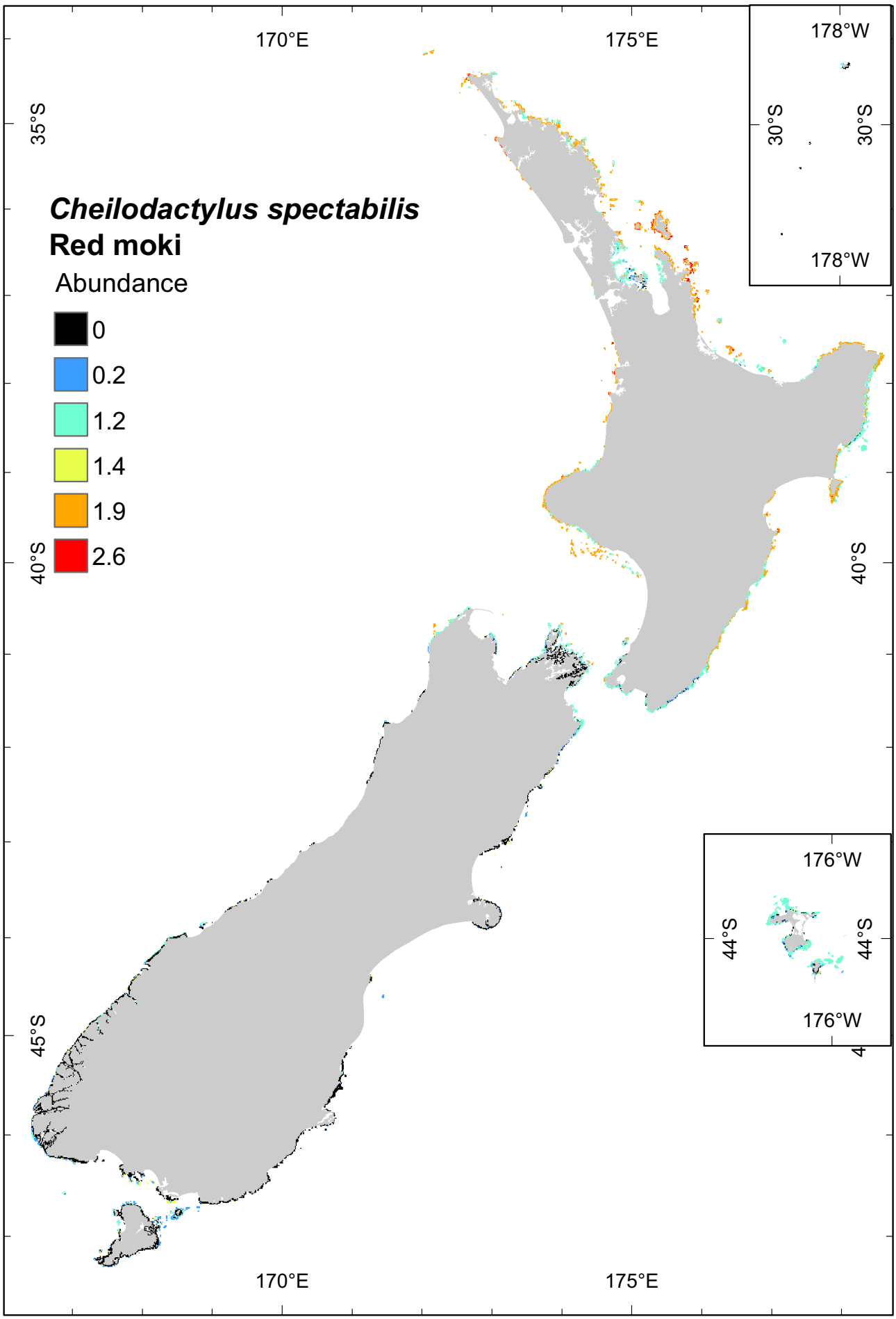

Figure S1.12. The predicted abundance of *Cheilodactylus spectabilis* (red moki) on rocky reefs around New Zealand.

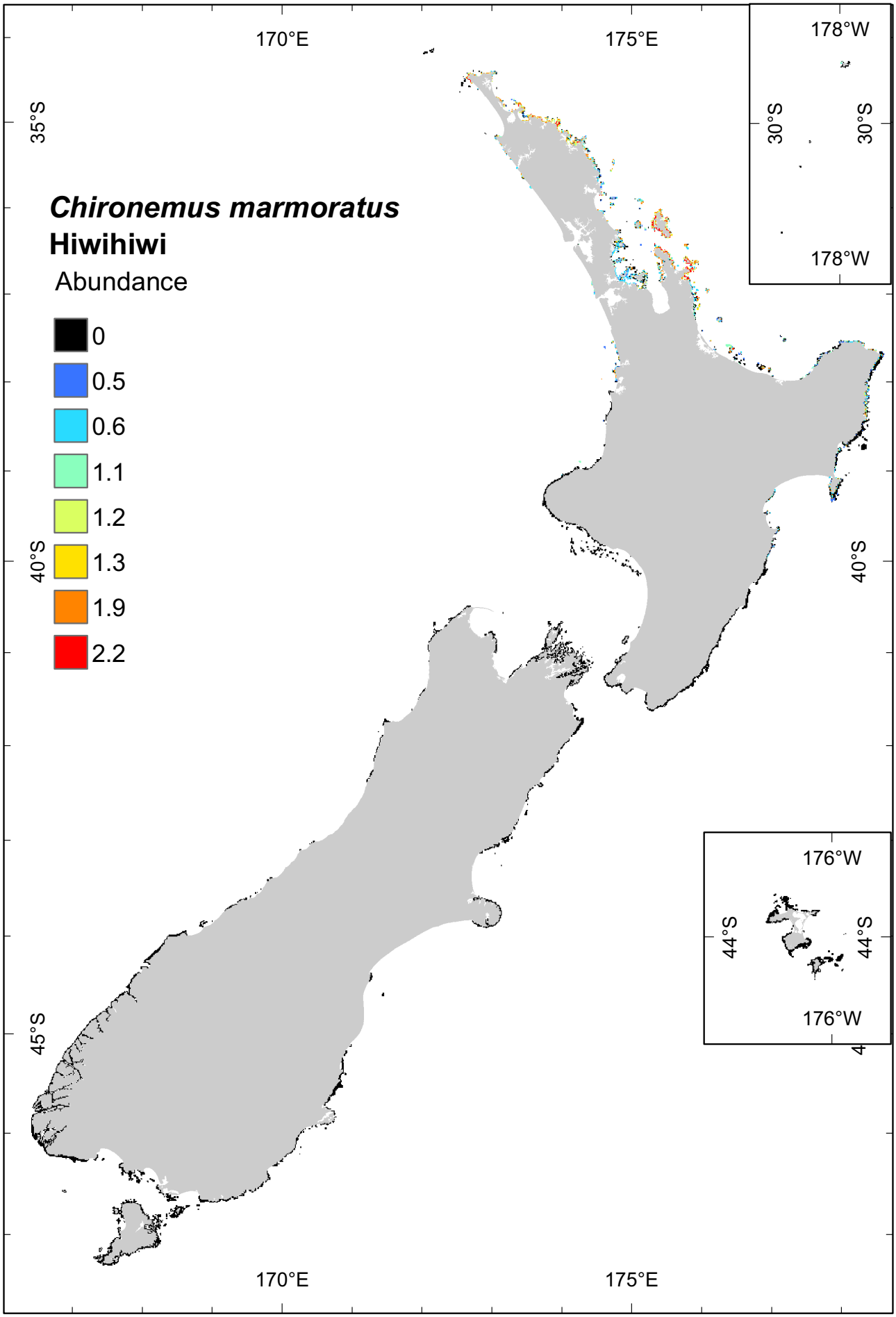

Figure S1.13. The predicted abundance of *Chironemus marmoratus* (hiwihiwi) on rocky reefs around New Zealand.

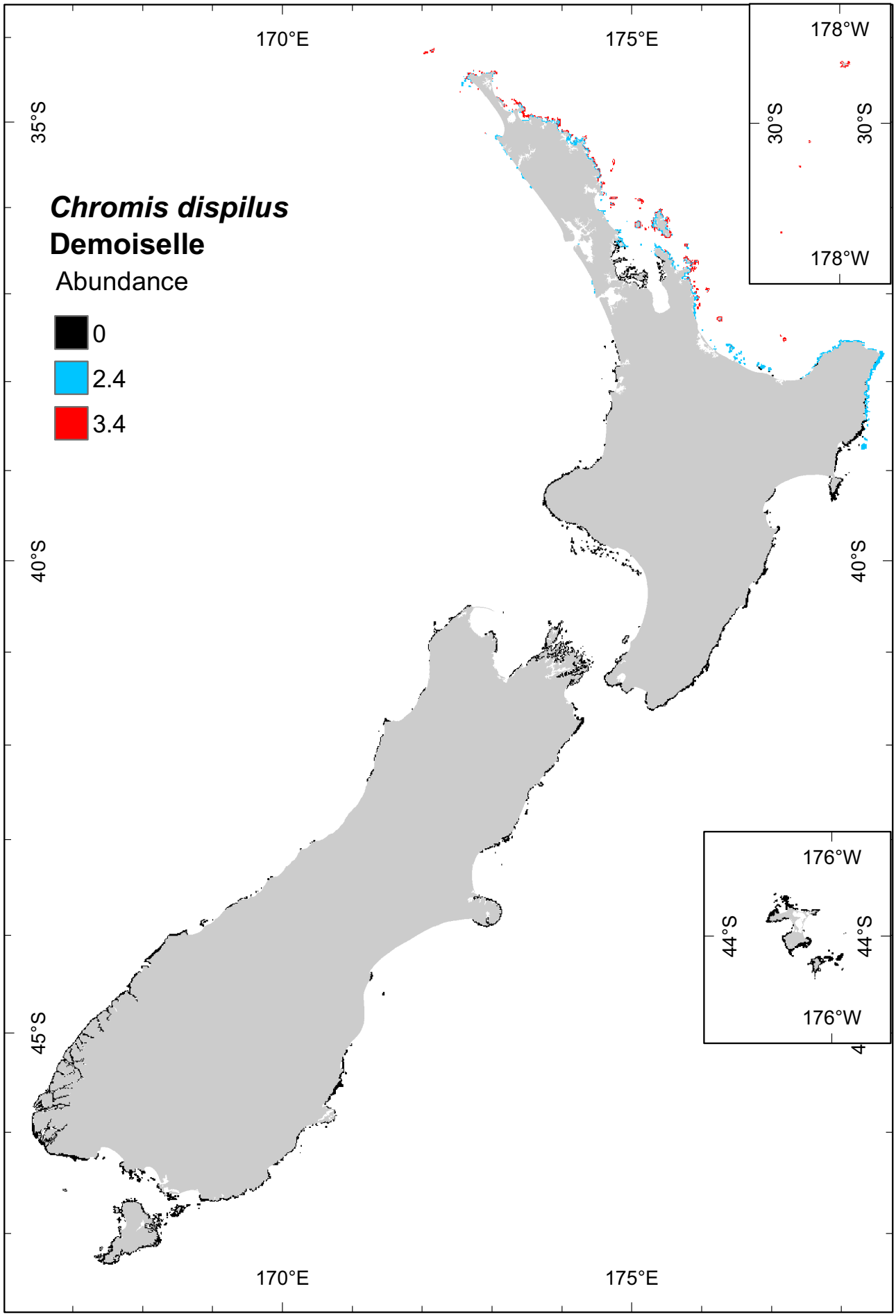

Figure S1.14. The predicted abundance of *Chromis dispilus* (demoiselle) on rocky reefs around New Zealand.

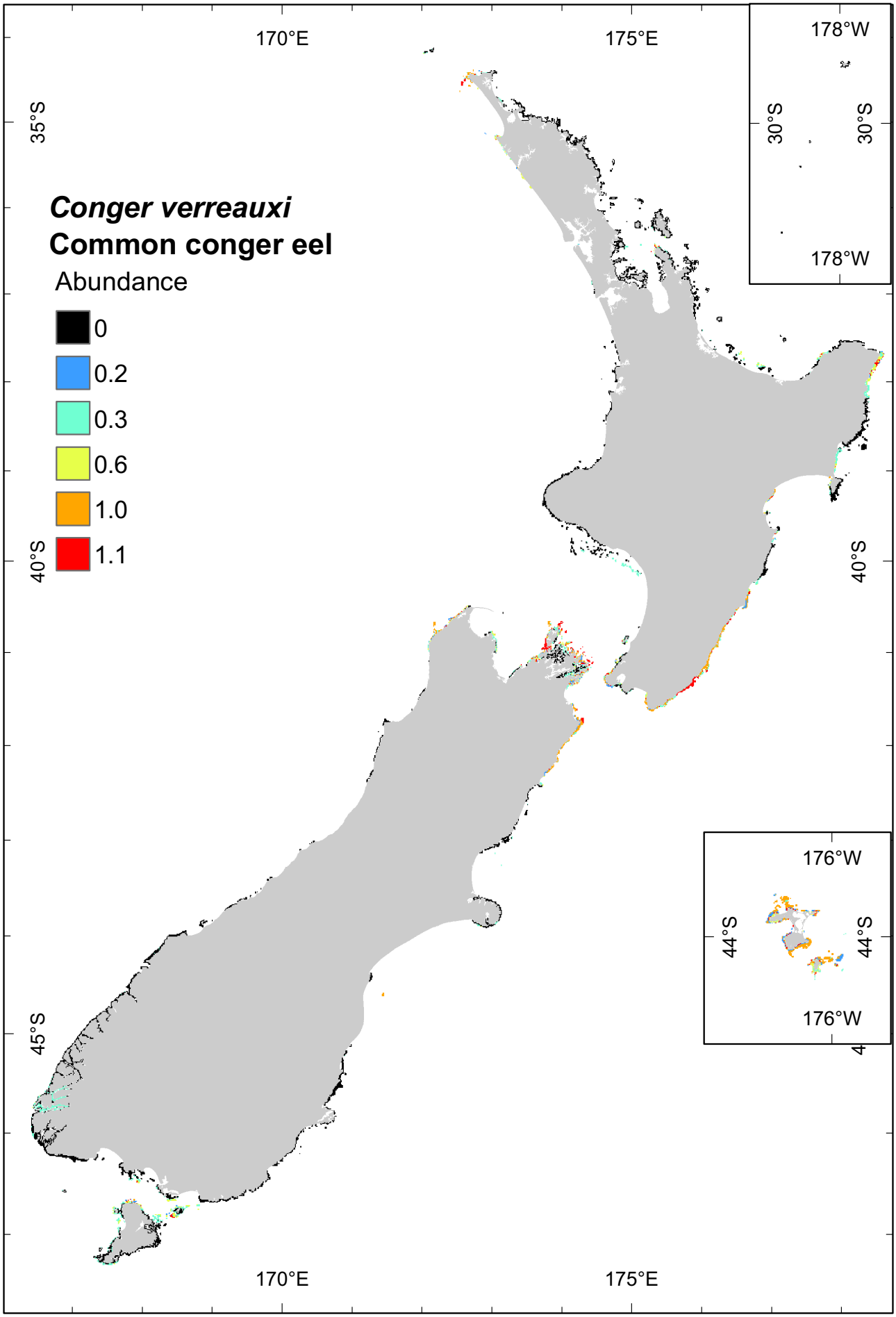

Figure S1.15. The predicted abundance of *Conger verreauxi* (common conger eel) on rocky reefs around New Zealand.

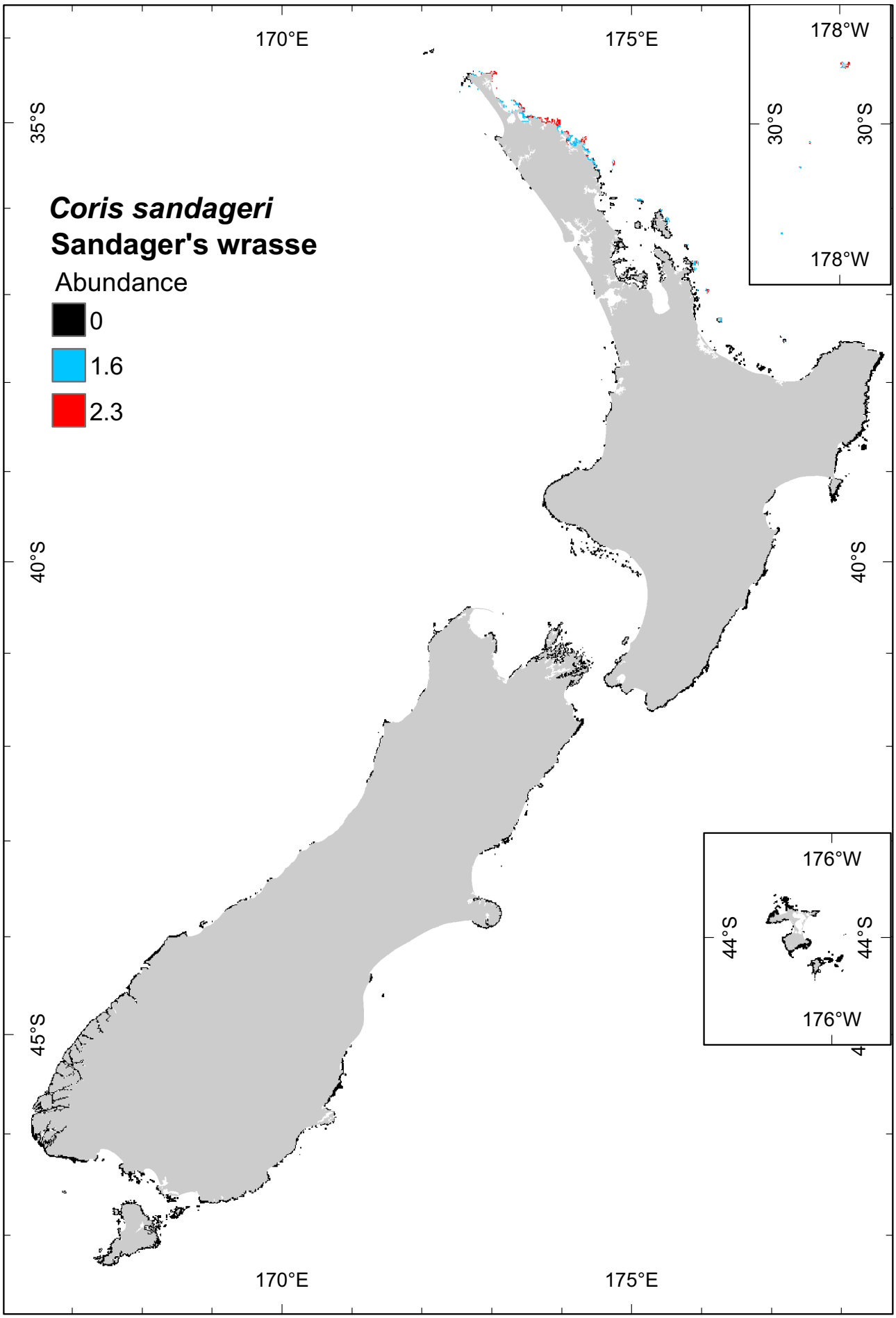

Figure S1.16. The predicted abundance of *Coris sandageri* (Sandager's wrasse) on rocky reefs around New Zealand.

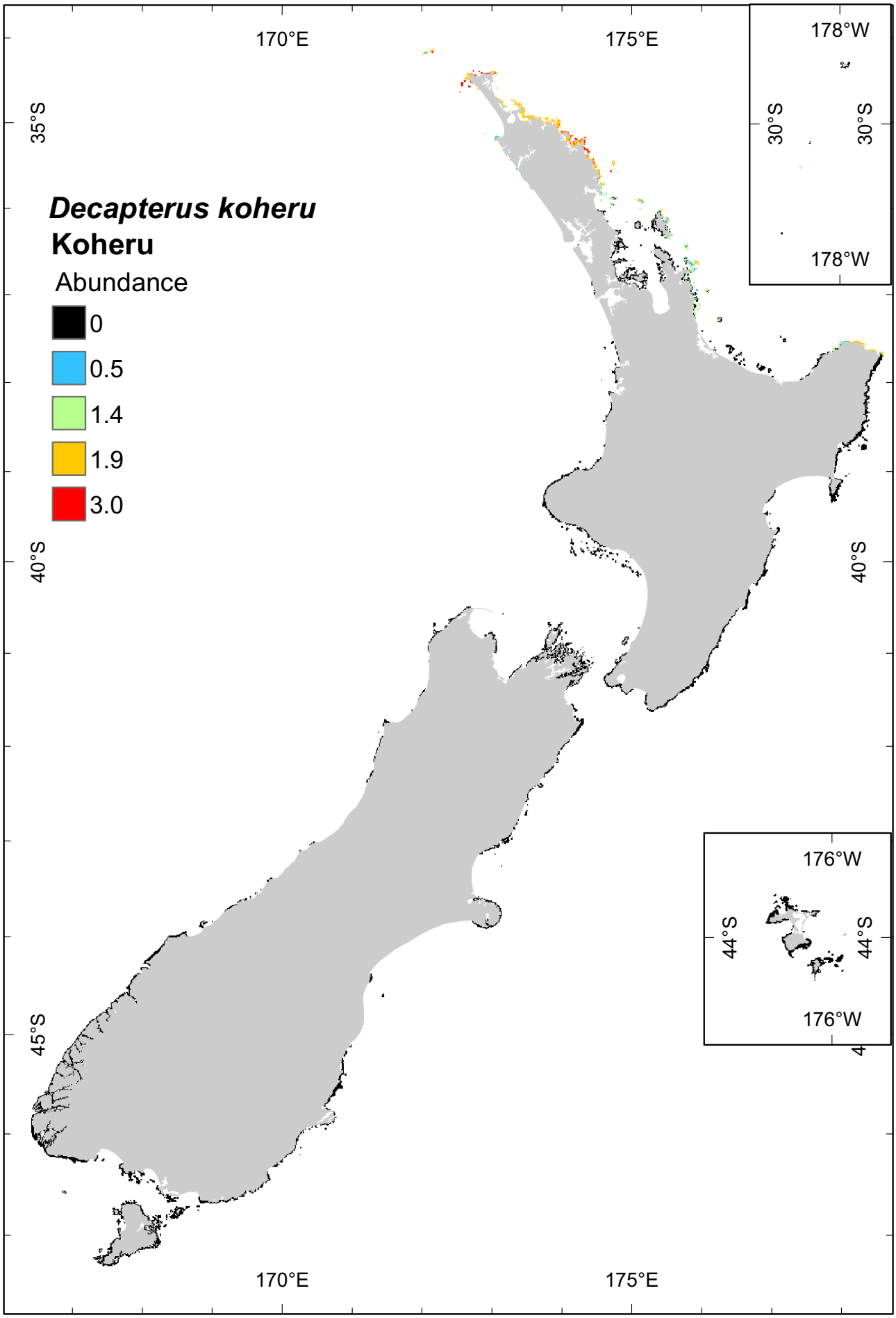

Figure S1.17. The predicted abundance of *Decapterus koheru* (koheru) on rocky reefs around New Zealand.

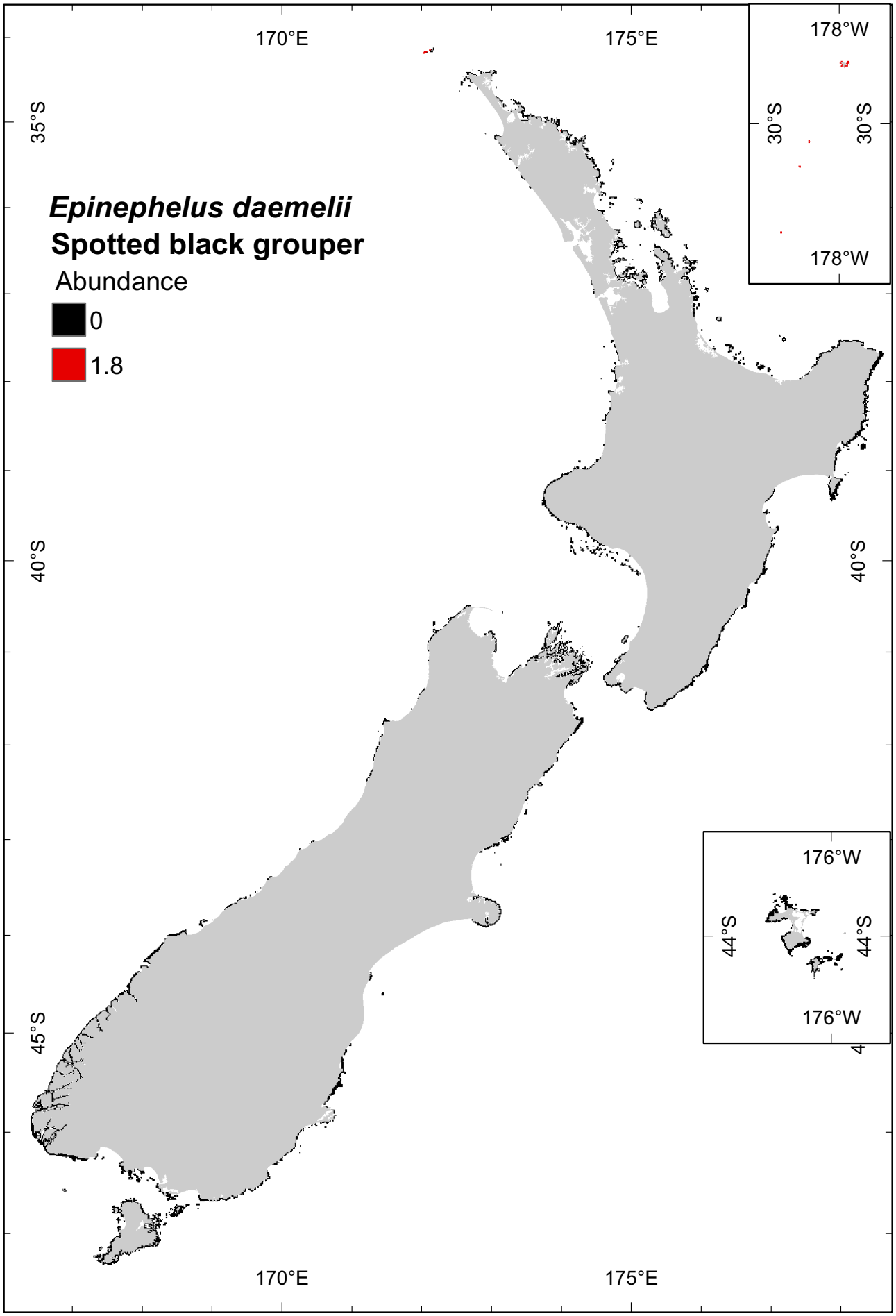

Figure S1.18. The predicted abundance of *Epinephelus daemelii* (spotted black grouper) on rocky reefs around New Zealand.

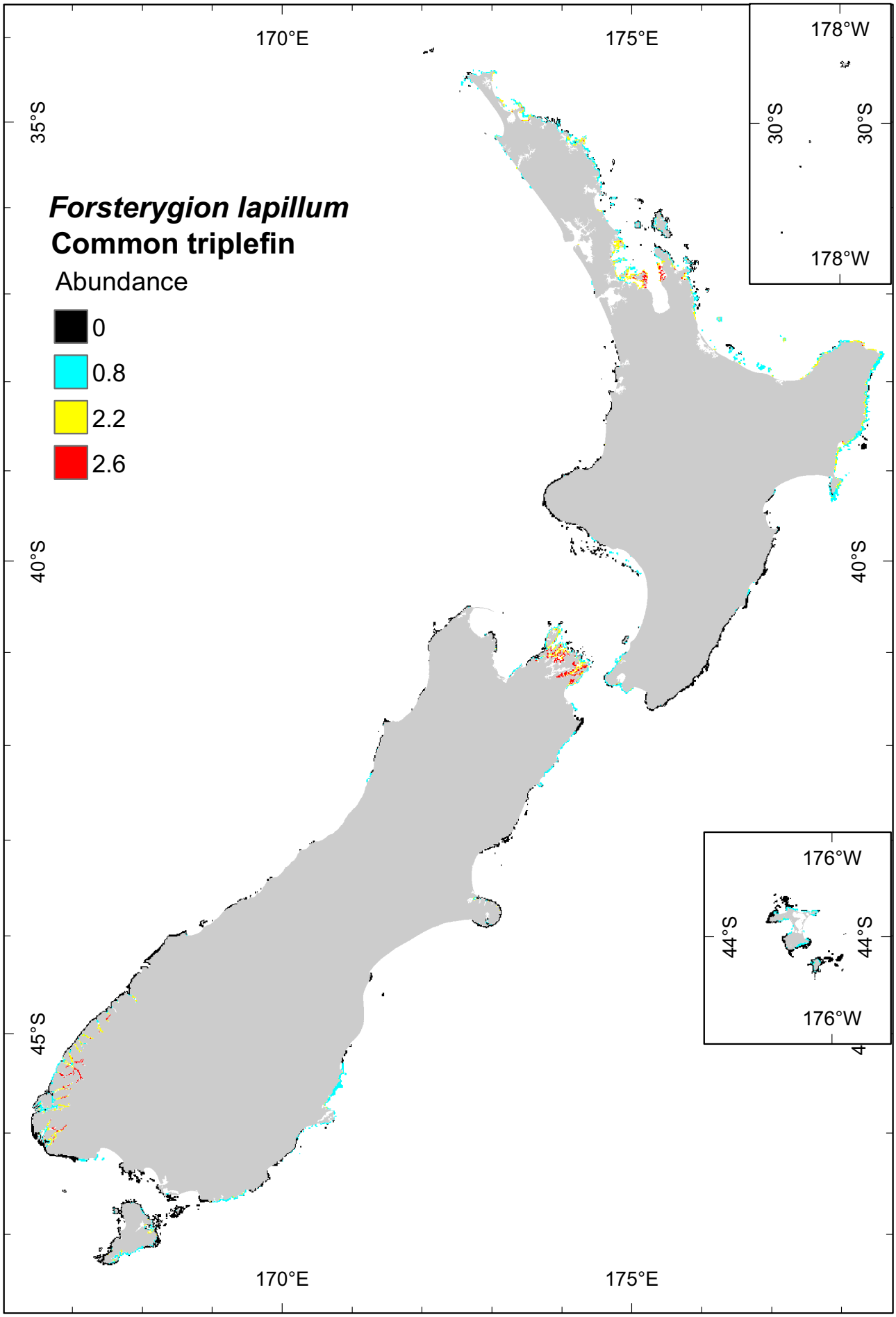

Figure S1.19. The predicted abundance of *Forsterygion lapillum* (common triplefin) on rocky reefs around New Zealand.

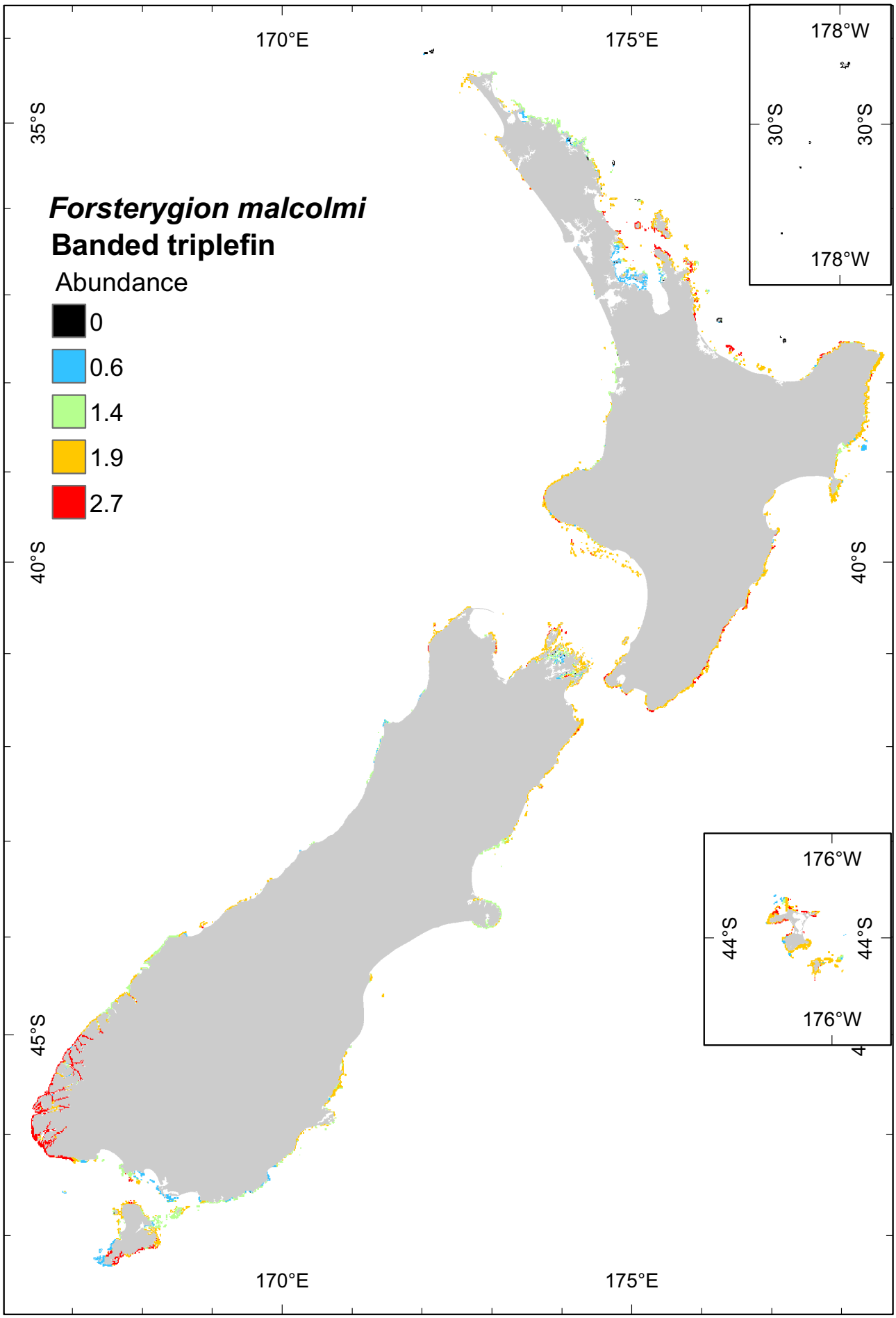

Figure S1.20. The predicted abundance of *Forsterygion malcolmi* (banded triplefin) on rocky reefs around New Zealand.

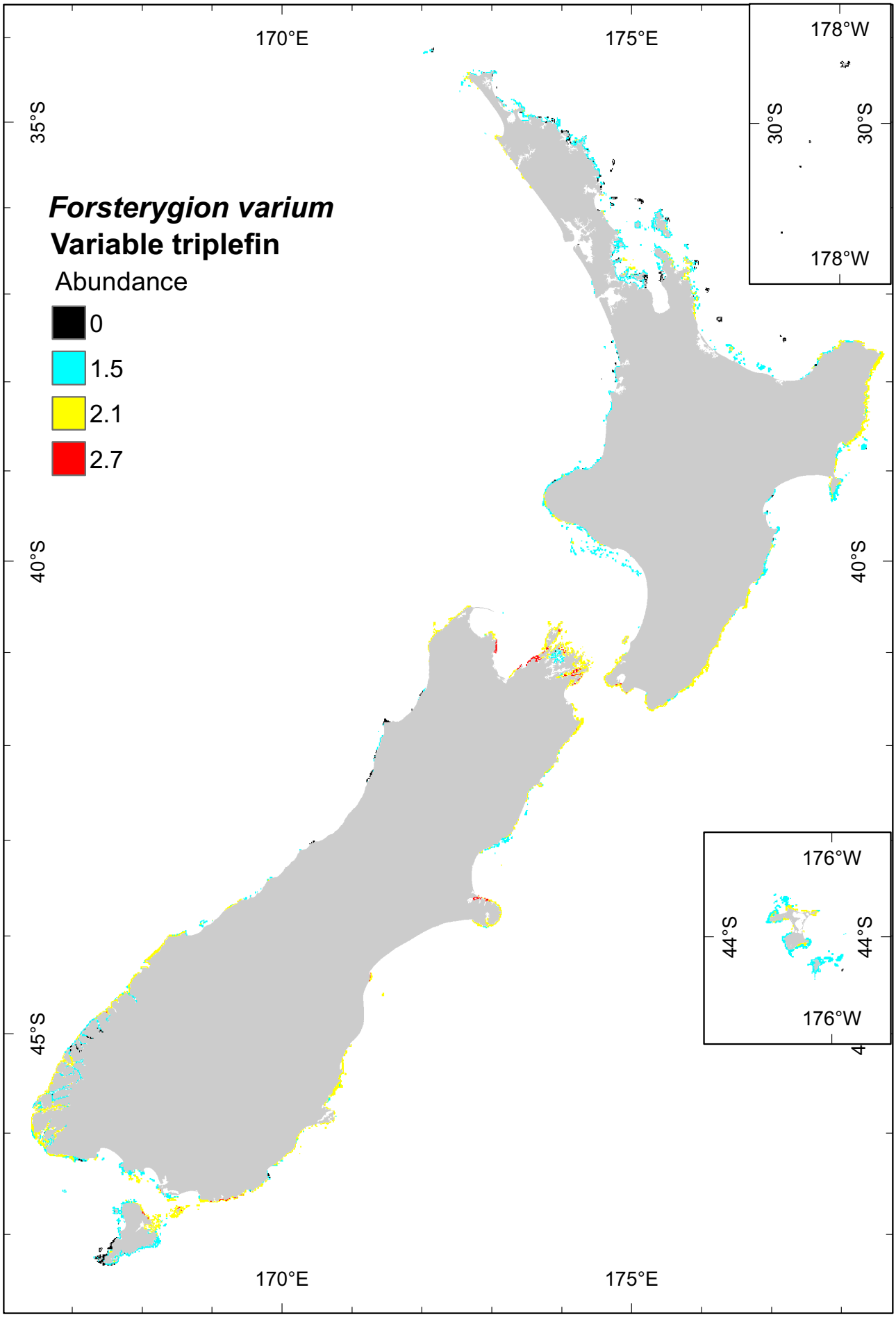

Figure S1.21. The predicted abundance of *Forsterygion varium* (variable triplefin) on rocky reefs around New Zealand.

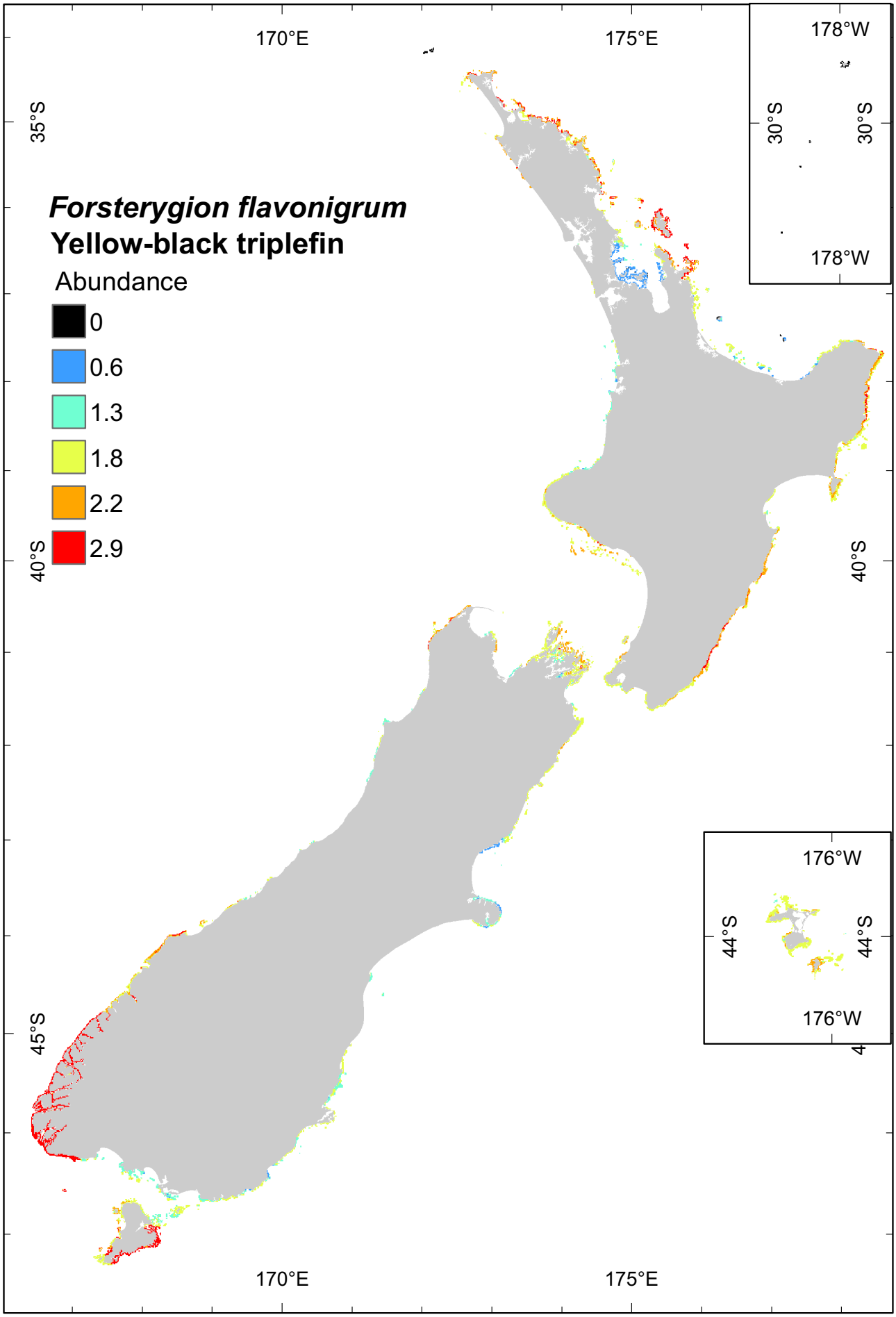

Figure S1.22. The predicted abundance of *Forsterygion flavonigrum* (yellow-black triplefin) on rocky reefs around New Zealand.

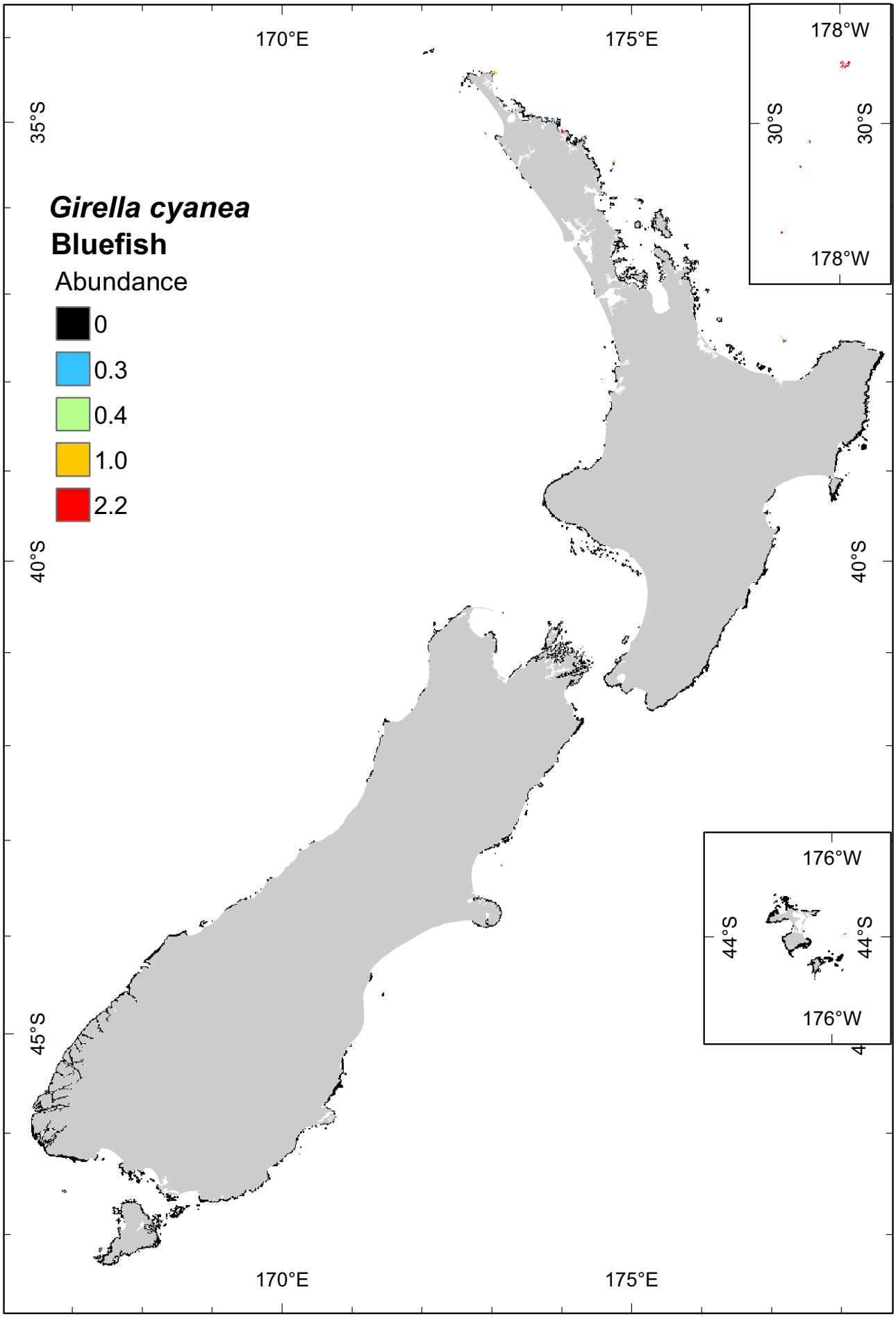

Figure S1.23. The predicted abundance of *Girella cyanea* (bluefish) on rocky reefs around New Zealand.

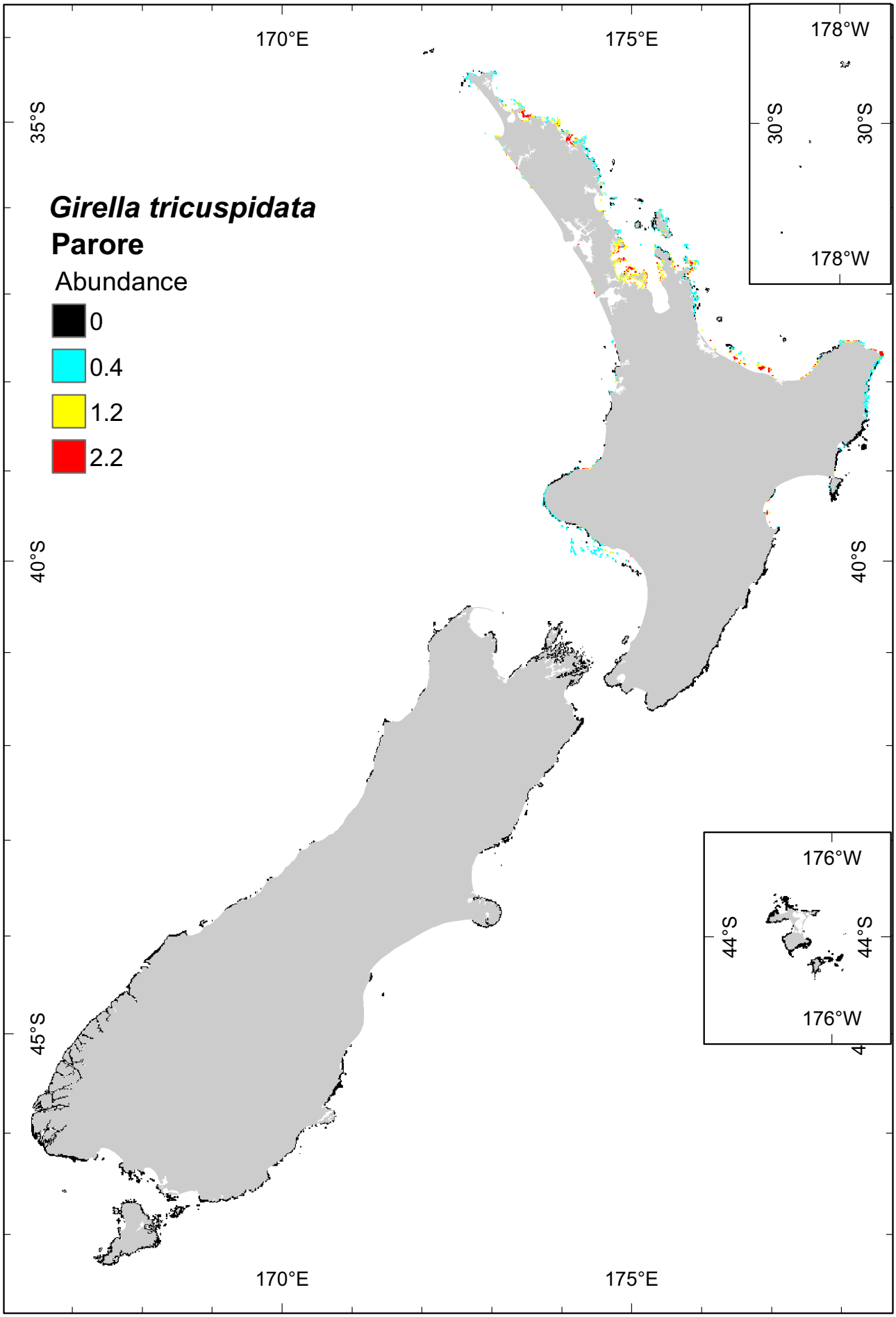

Figure S1.24. The predicted abundance of *Girella tricuspidata* (parore) on rocky reefs around New Zealand.

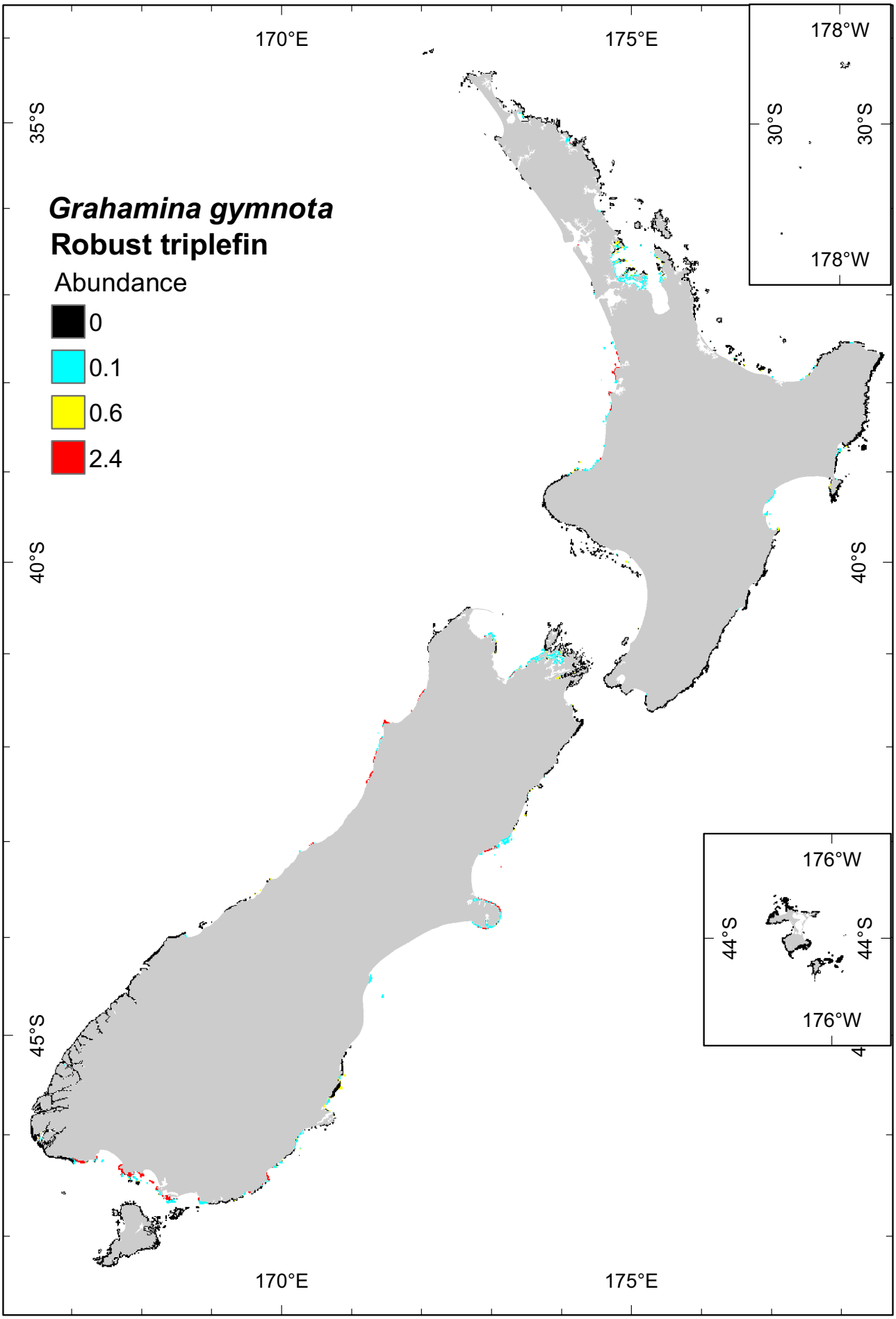

Figure S1.25 The predicted abundance of *Grahamina gymnota* (robust triplefin) on rocky reefs around New Zealand.

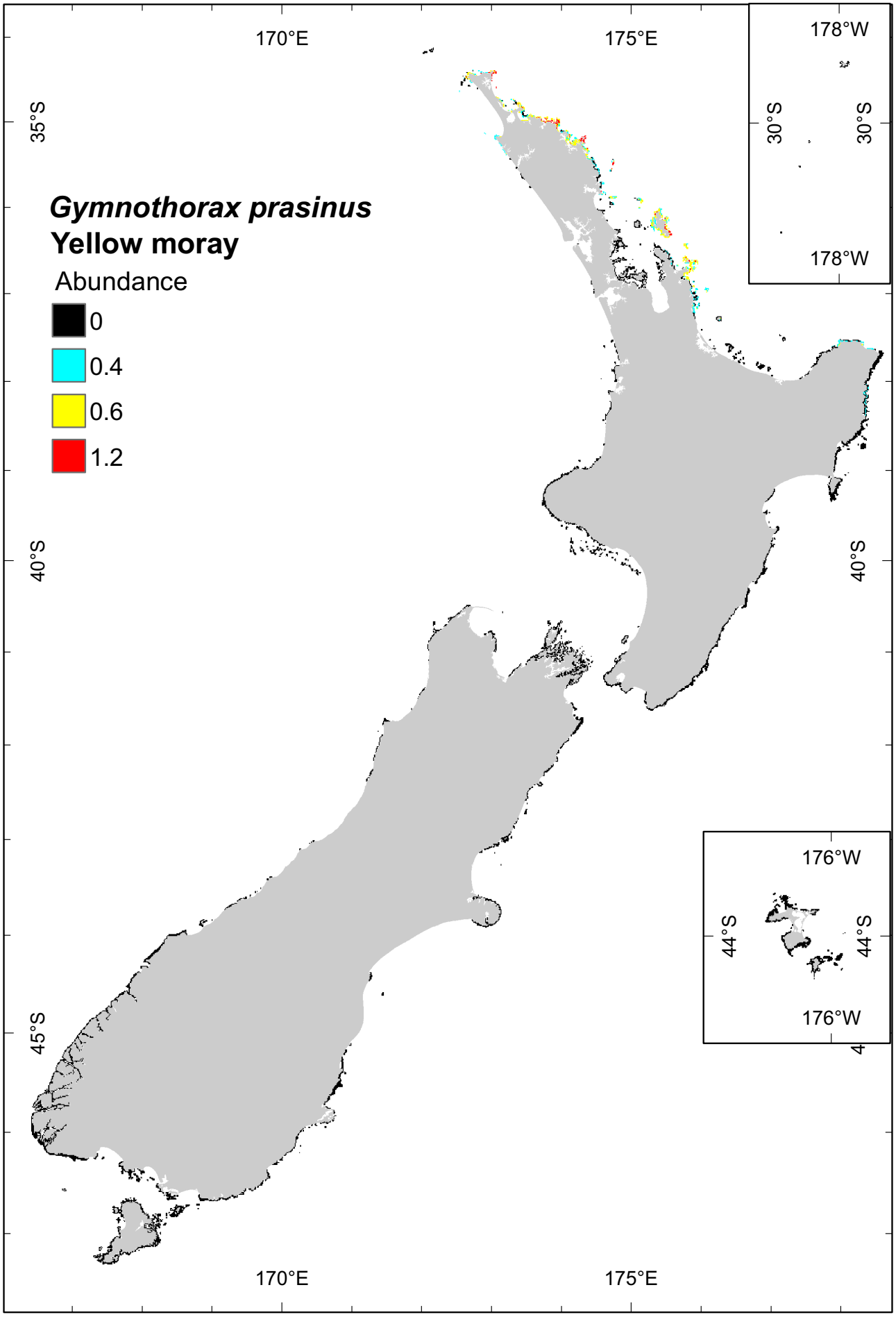

Figure S1.26. The predicted abundance of *Gymnothorax prasinus* (yellow moray) on rocky reefs around New Zealand.

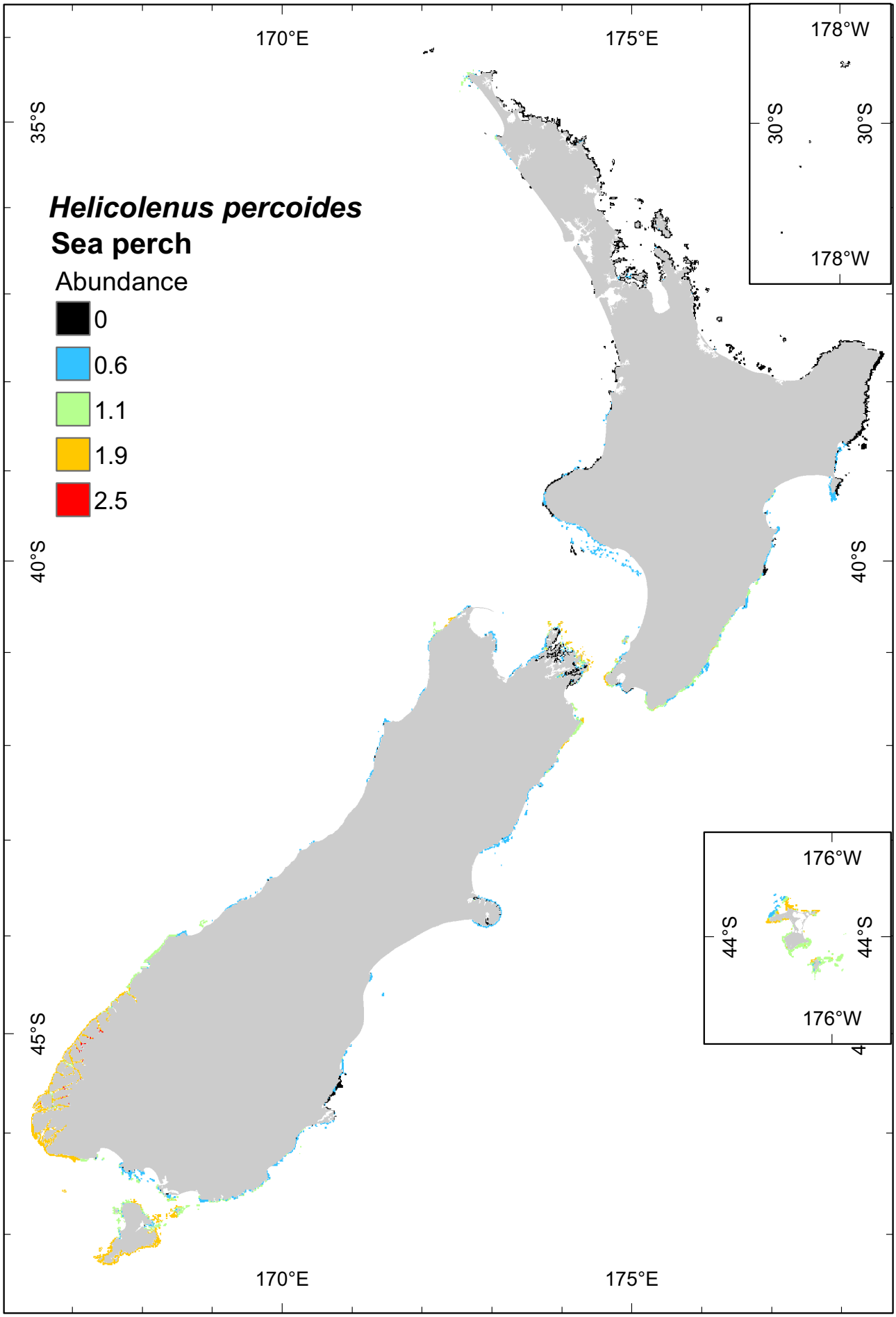

Figure S1.27. The predicted abundance of *Helicolenus percoides* (sea perch) on rocky reefs around New Zealand.

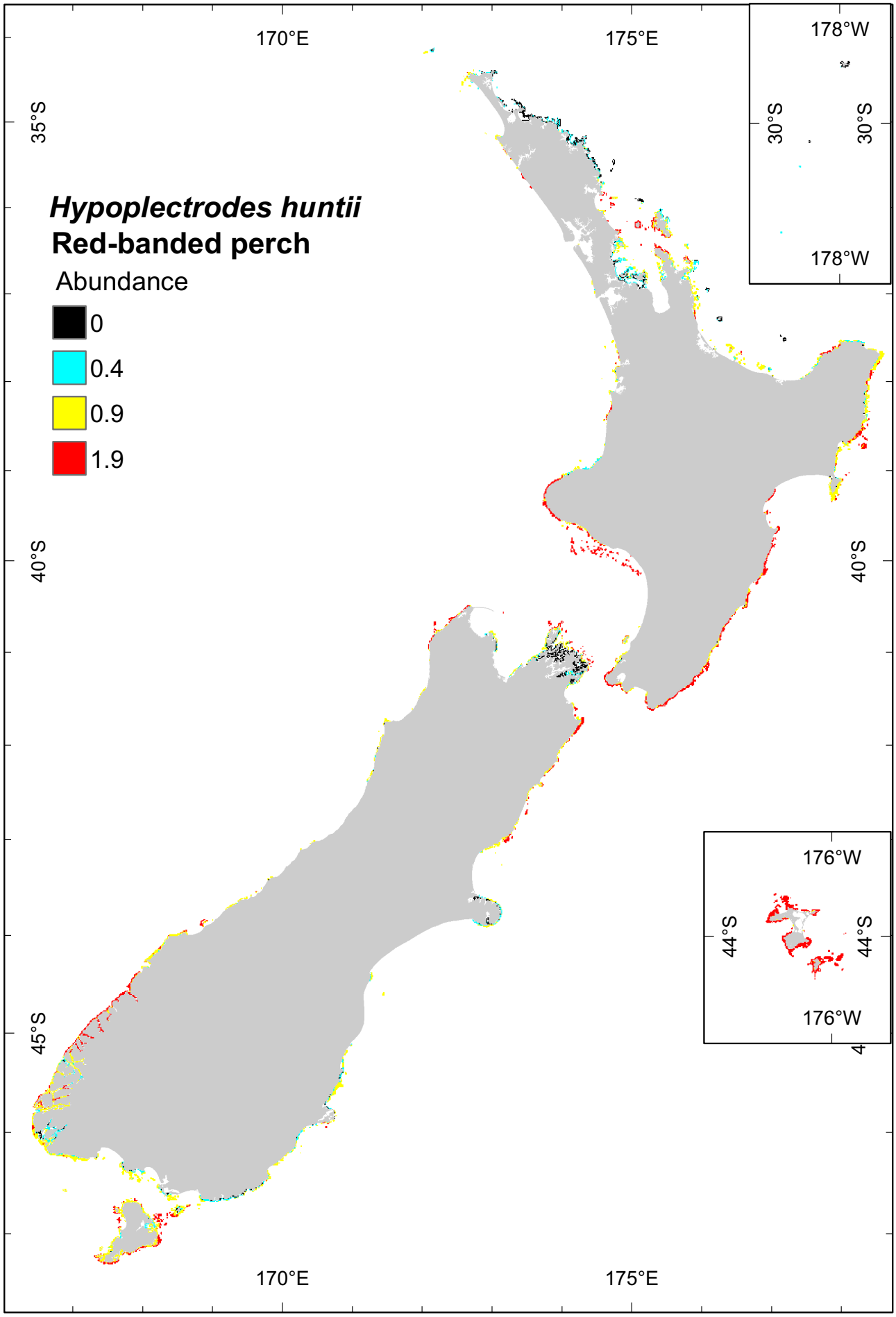

Figure S1.28. The predicted abundance of *Hypoplectrodes huntii* (red-banded perch) on rocky reefs around New Zealand.

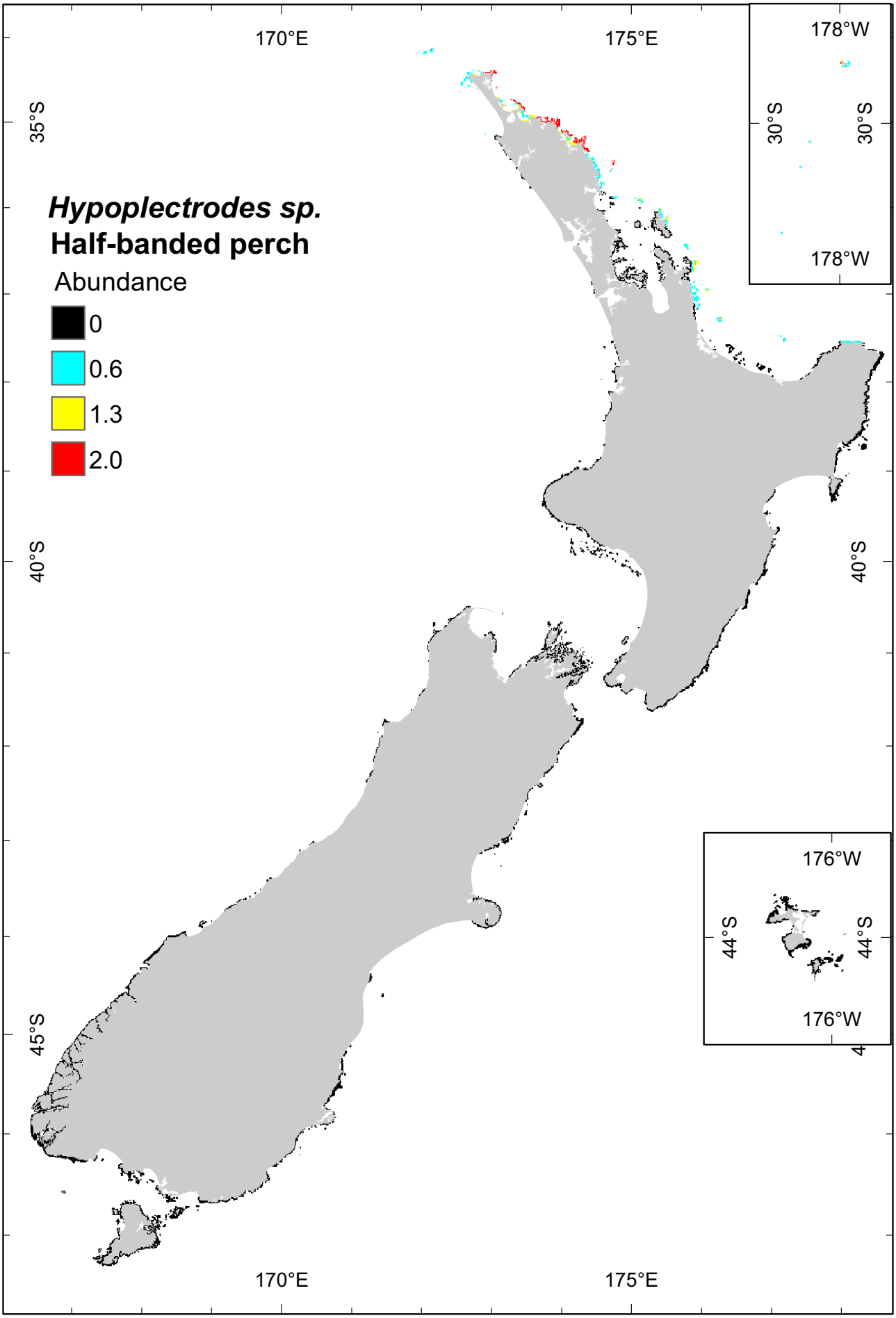

Figure S1.29. The predicted abundance of *Hypoplectrodes* sp. (half-banded perch) on rocky reefs around New Zealand.

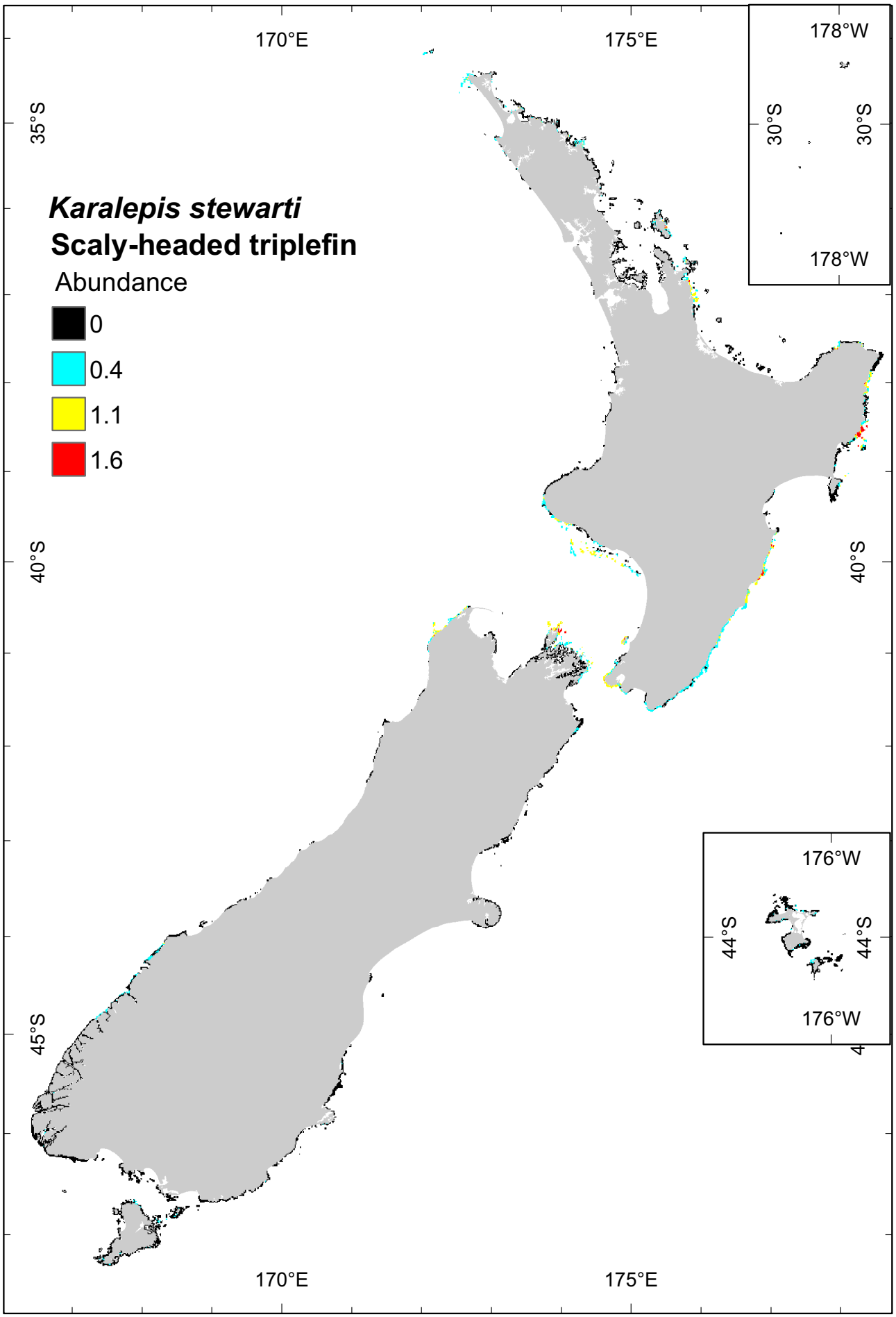

Figure S1.30. The predicted abundance of *Hypoplectrodes huntii* (scaly-headed triplefin) on rocky reefs around New Zealand.

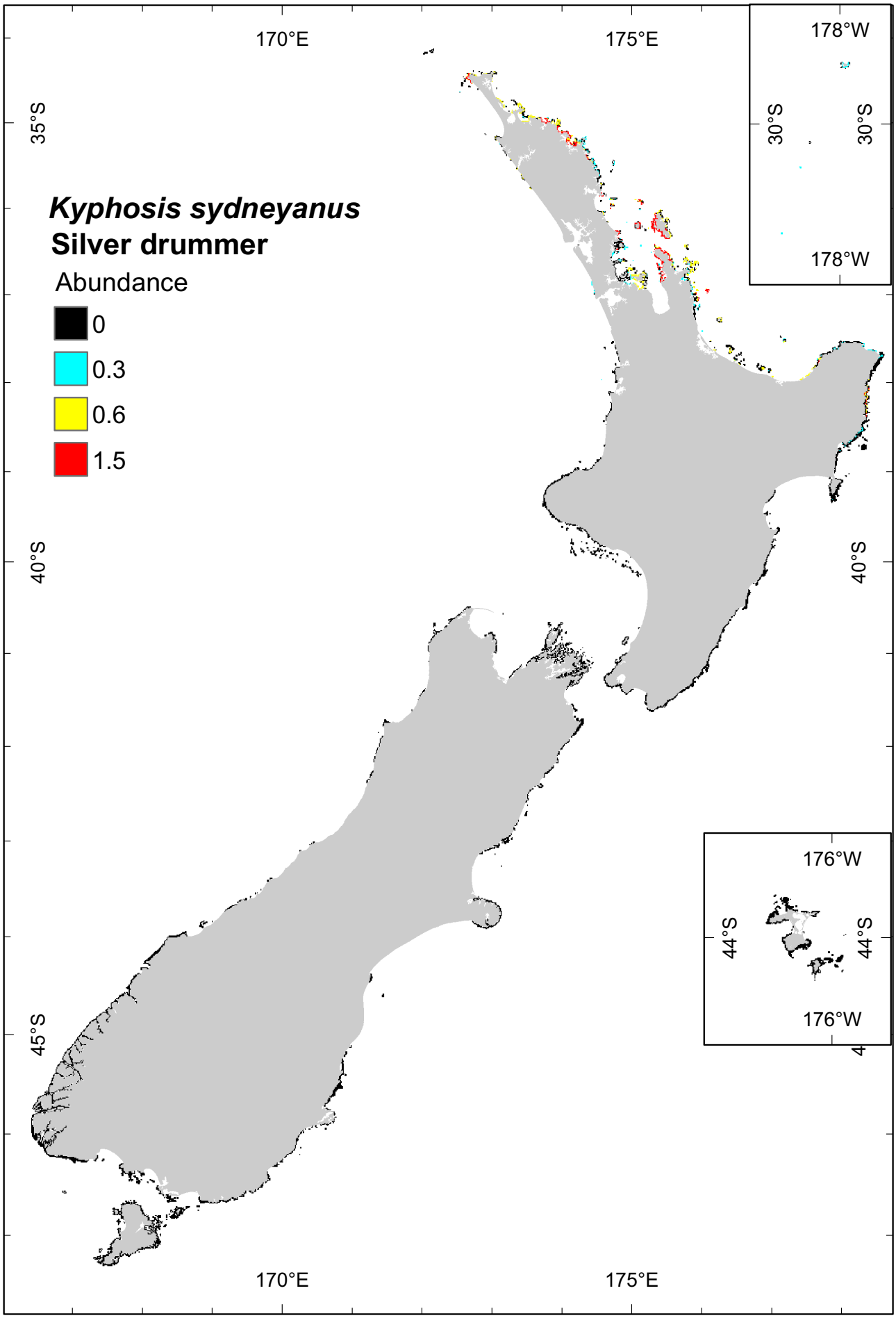

Figure S1.31. The predicted abundance of *Kyphosis sydneyanus* (siver drummer) on rocky reefs around New Zealand.

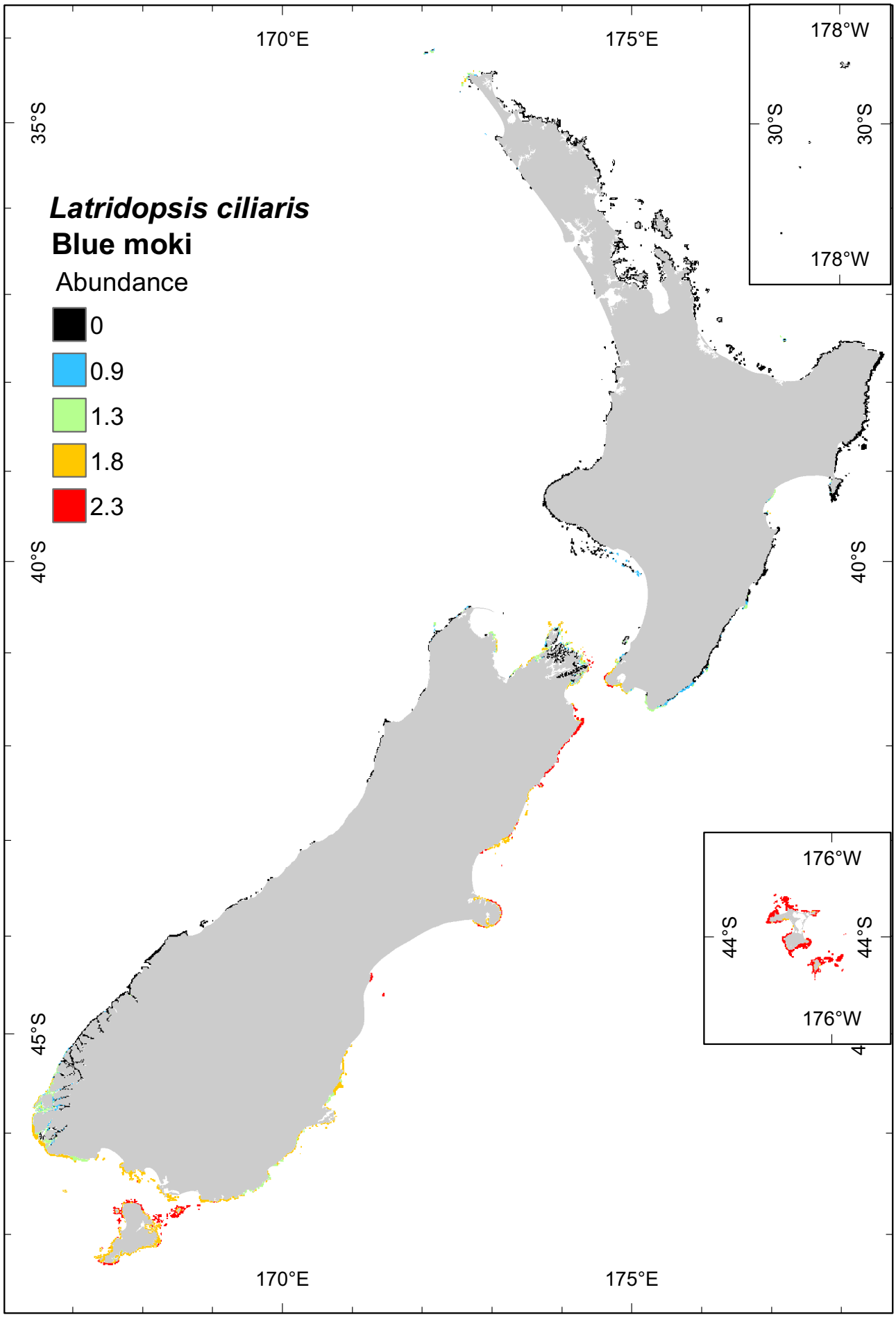

Figure S1.32. The predicted abundance of *Latridopsis ciliaris* (blue moki) on rocky reefs around New Zealand.

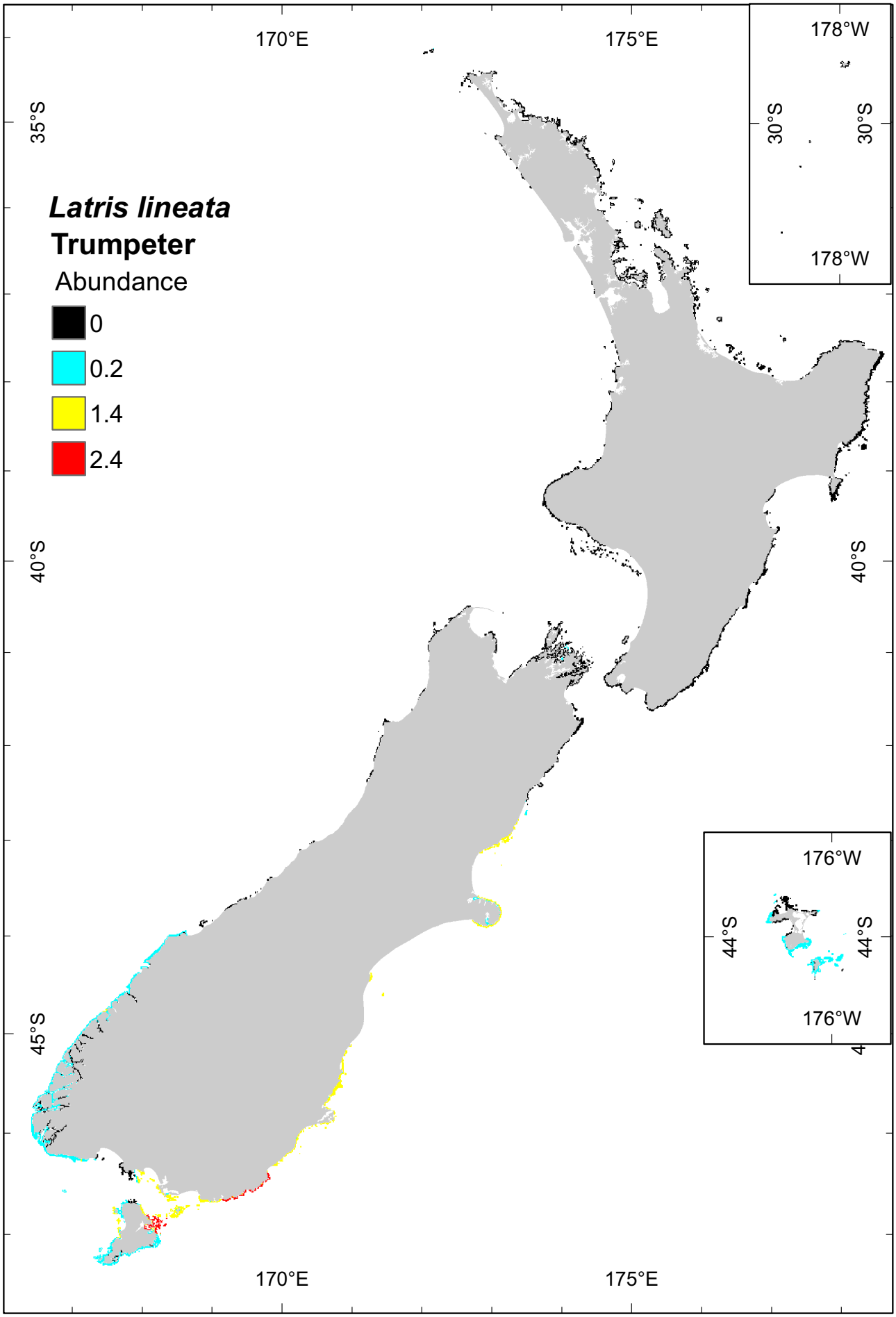

Figure S1.33. The predicted abundance of *Latris lineata* (trumpeter) on rocky reefs around New Zealand.

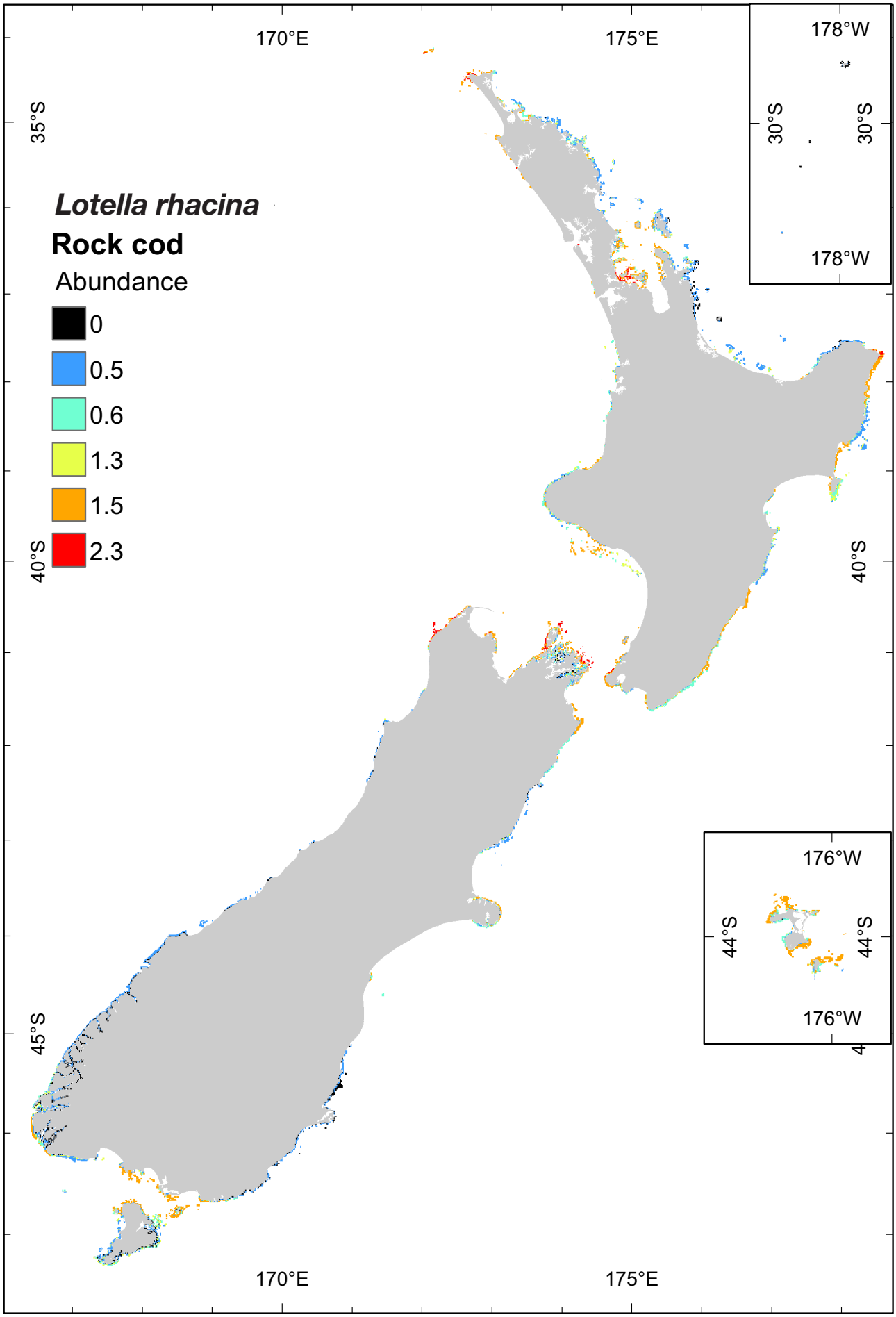

Figure S1.34. The predicted abundance of *Lotella rhacina* (rock cod) on rocky reefs around New Zealand.

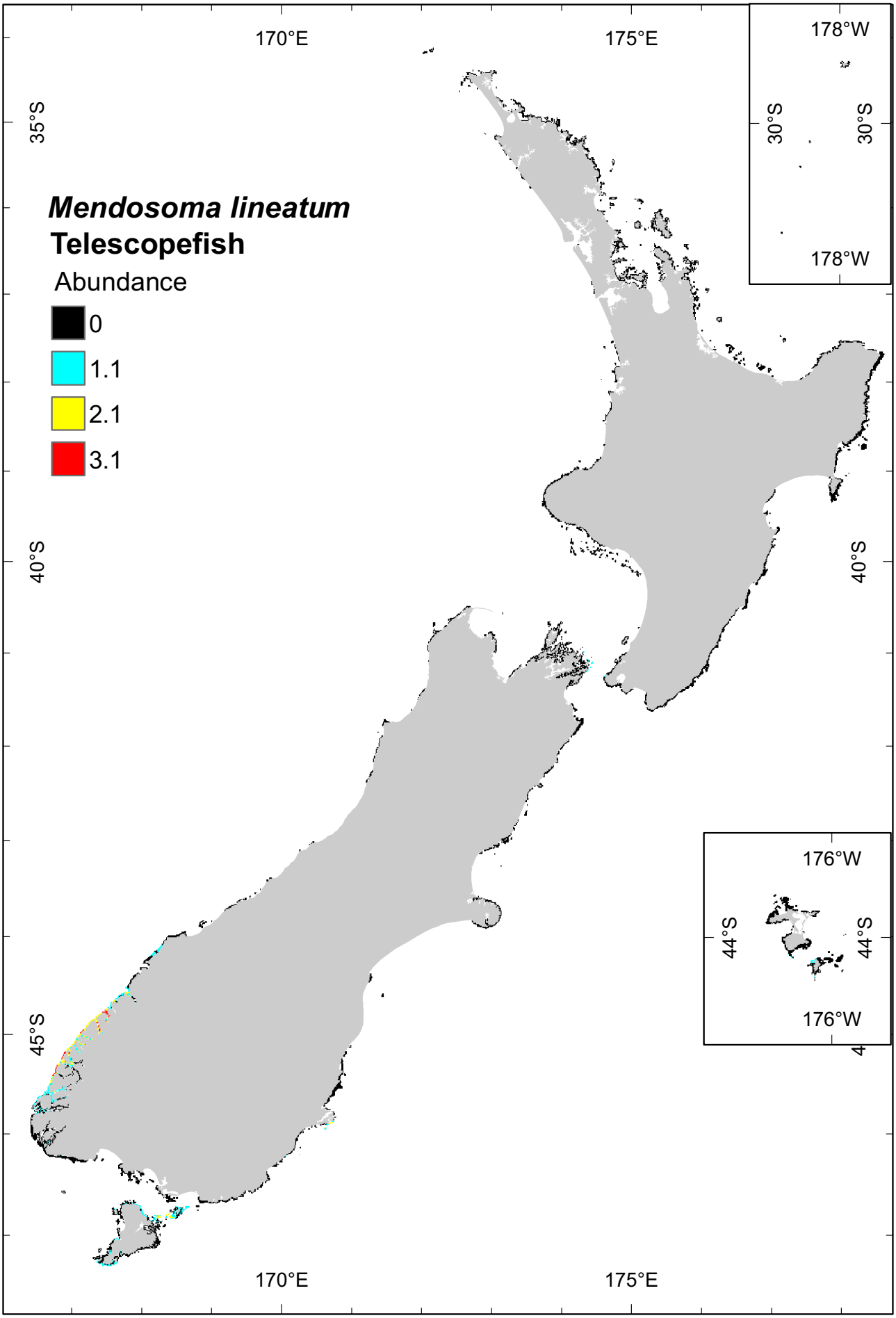

Figure S1.35. The predicted abundance of *Mendosoma lineatum* (telescope fish) on rocky reefs around New Zealand.

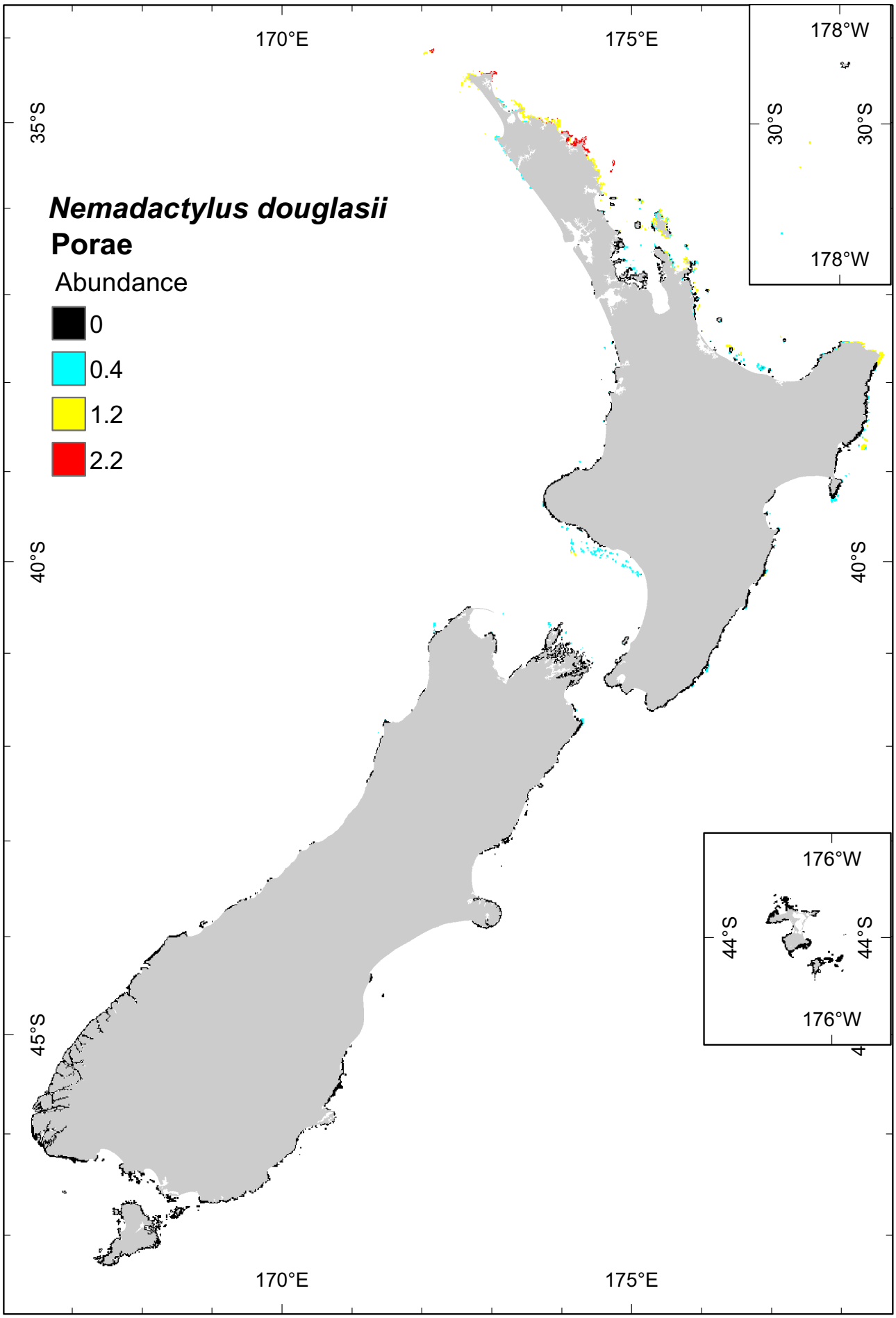

Figure S1.36. The predicted abundance of *Nemadactylus douglasii* (porae) on rocky reefs around New Zealand.

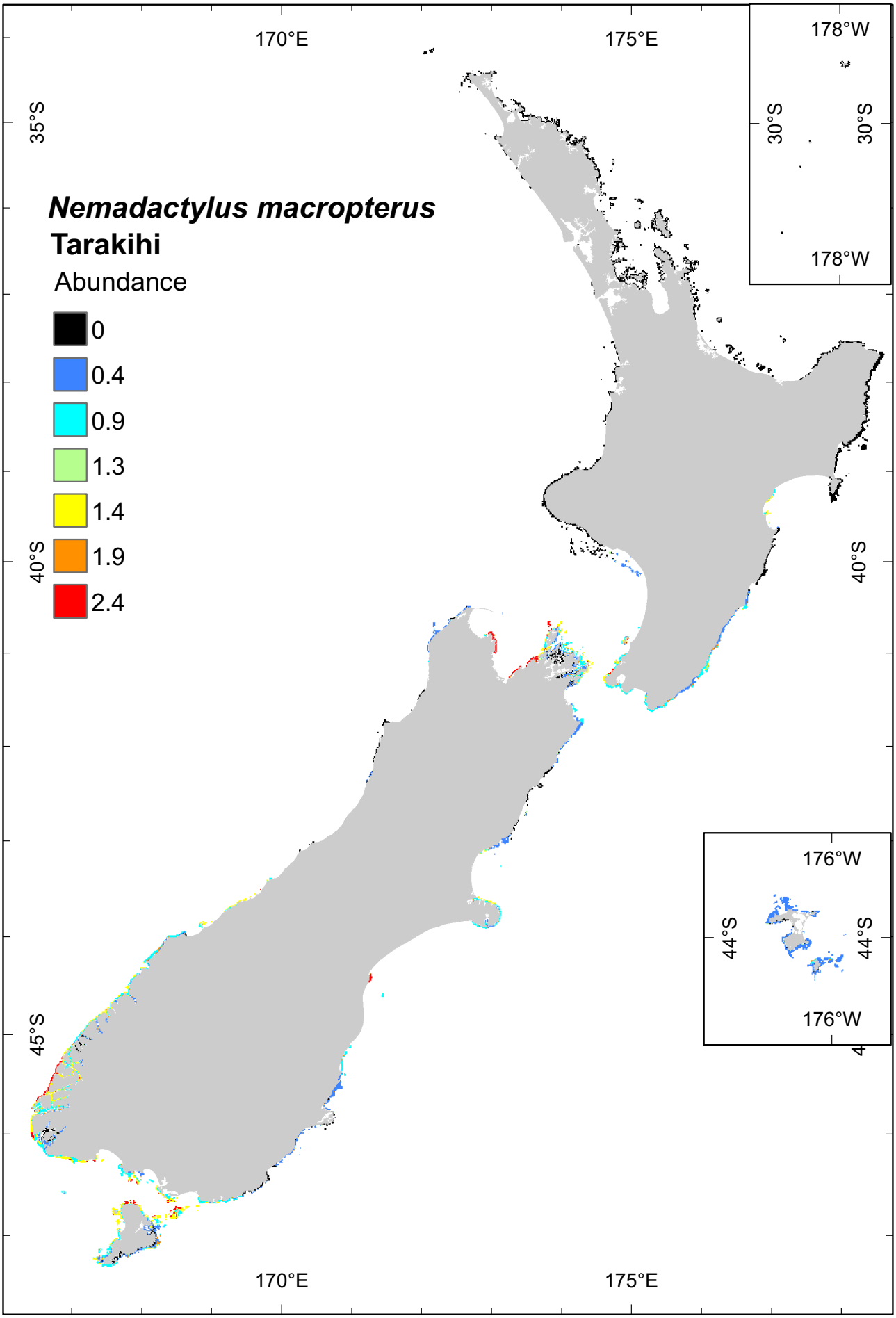

Figure S1.37. The predicted abundance of *Nemadactylus macropterus* (tarakihi) on rocky reefs around New Zealand.

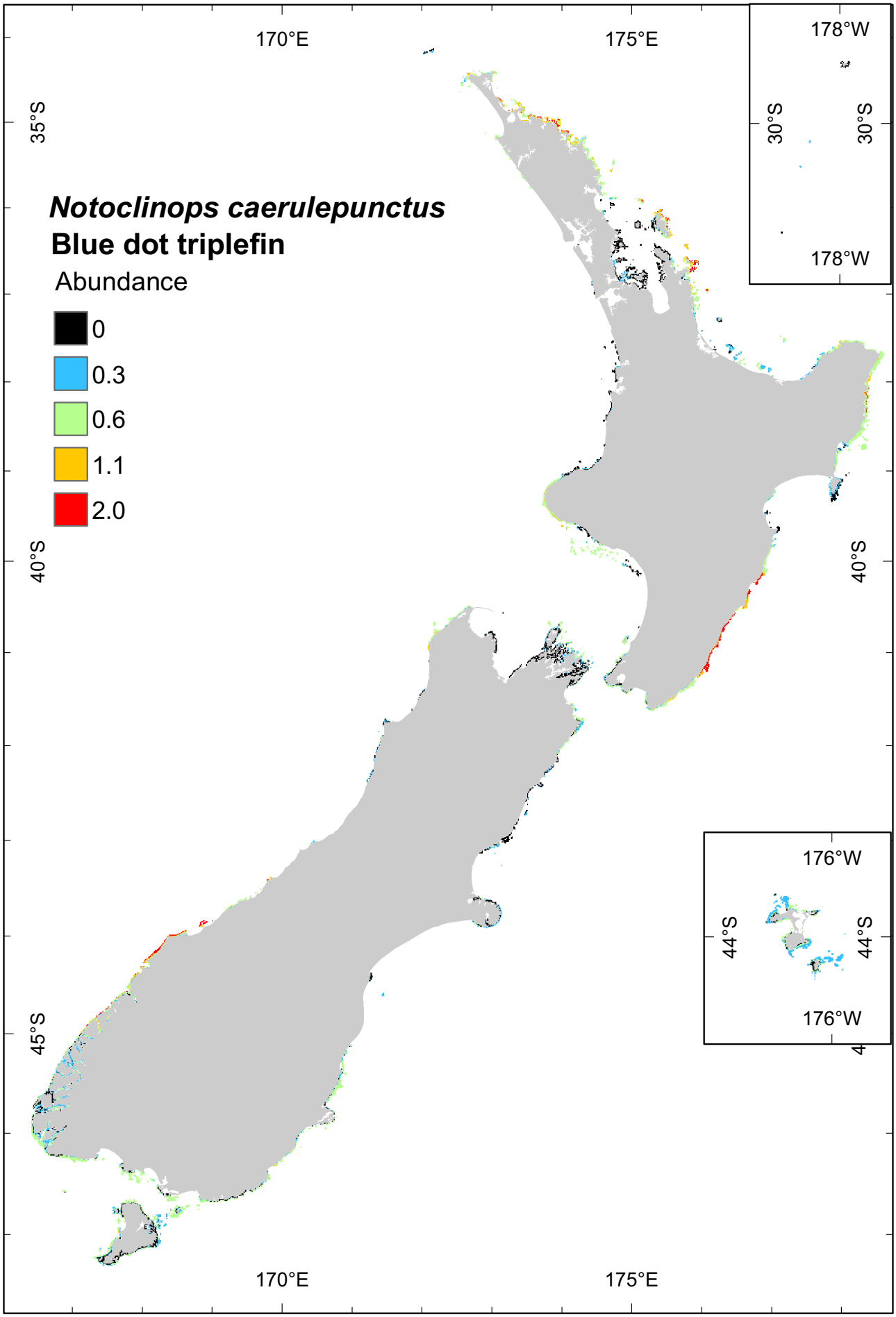

Figure S1.38. The predicted abundance of *Notoclinops caerulepunctus* (blue dot triplefin) on rocky reefs around New Zealand.

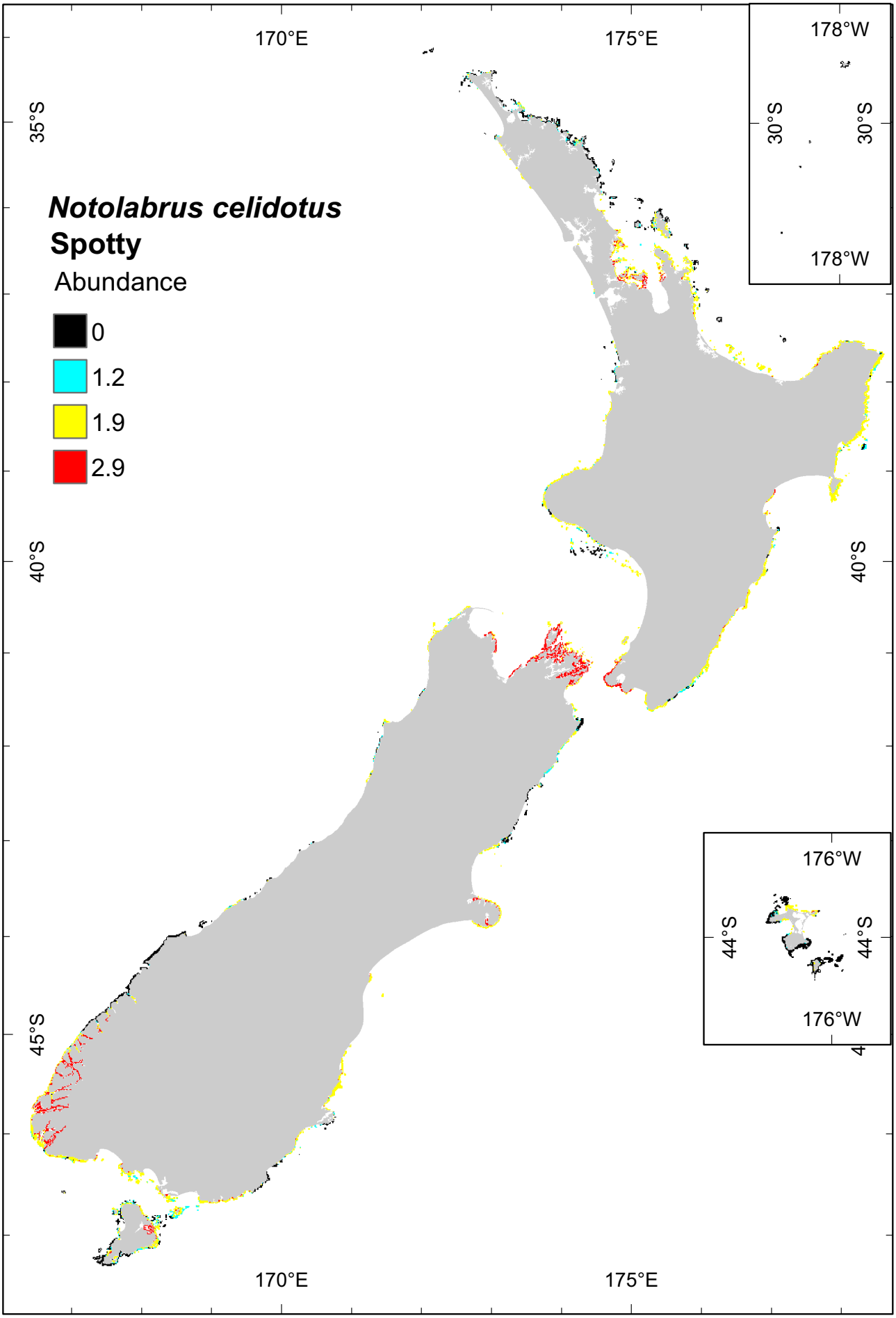

Figure S1.39. The predicted abundance of *Notolabrus celidotus* (spotty) on rocky reefs around New Zealand.

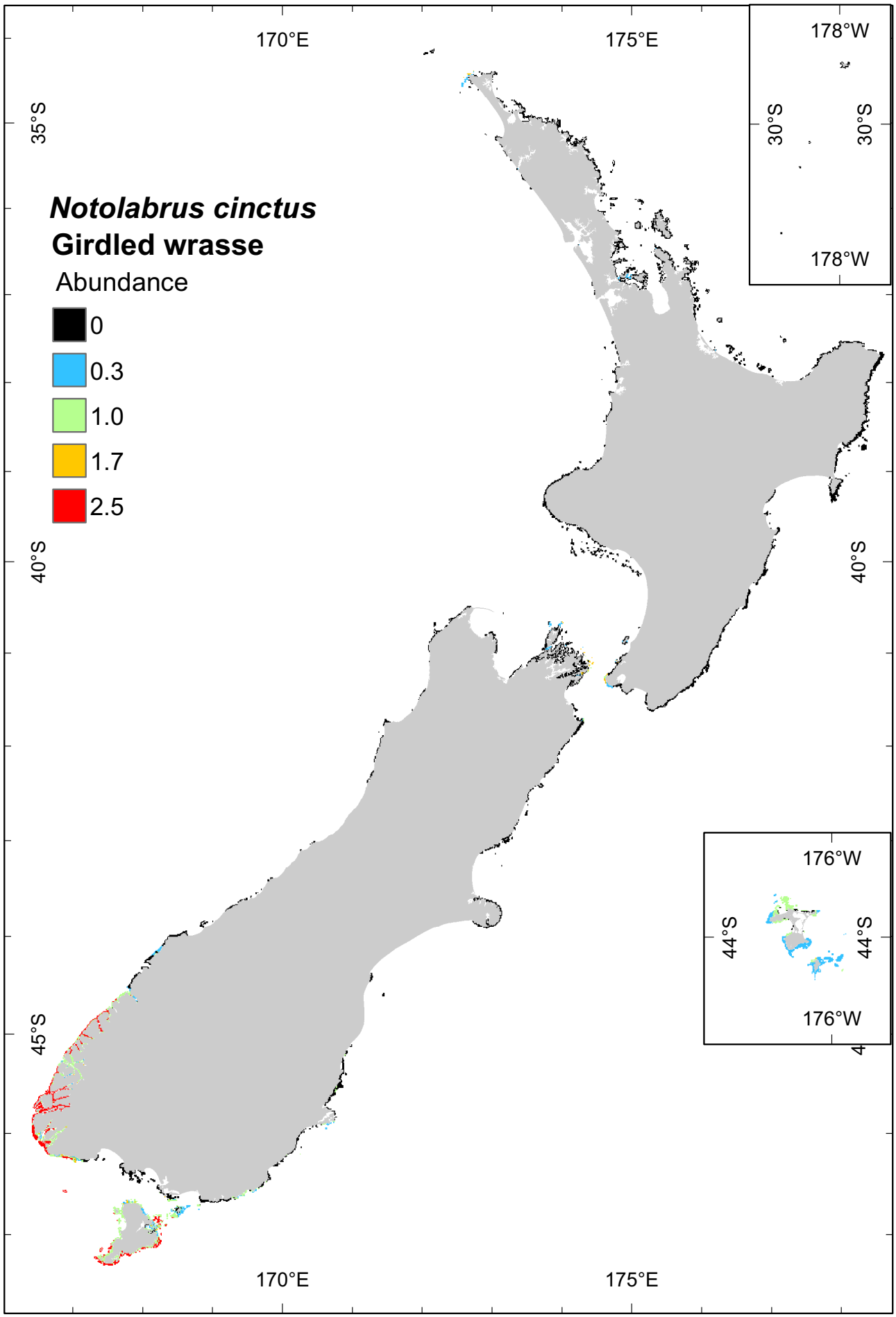

Figure S1.40. The predicted abundance of *Notolabrus cinctus* (girdled wrasse) on rocky reefs around New Zealand.

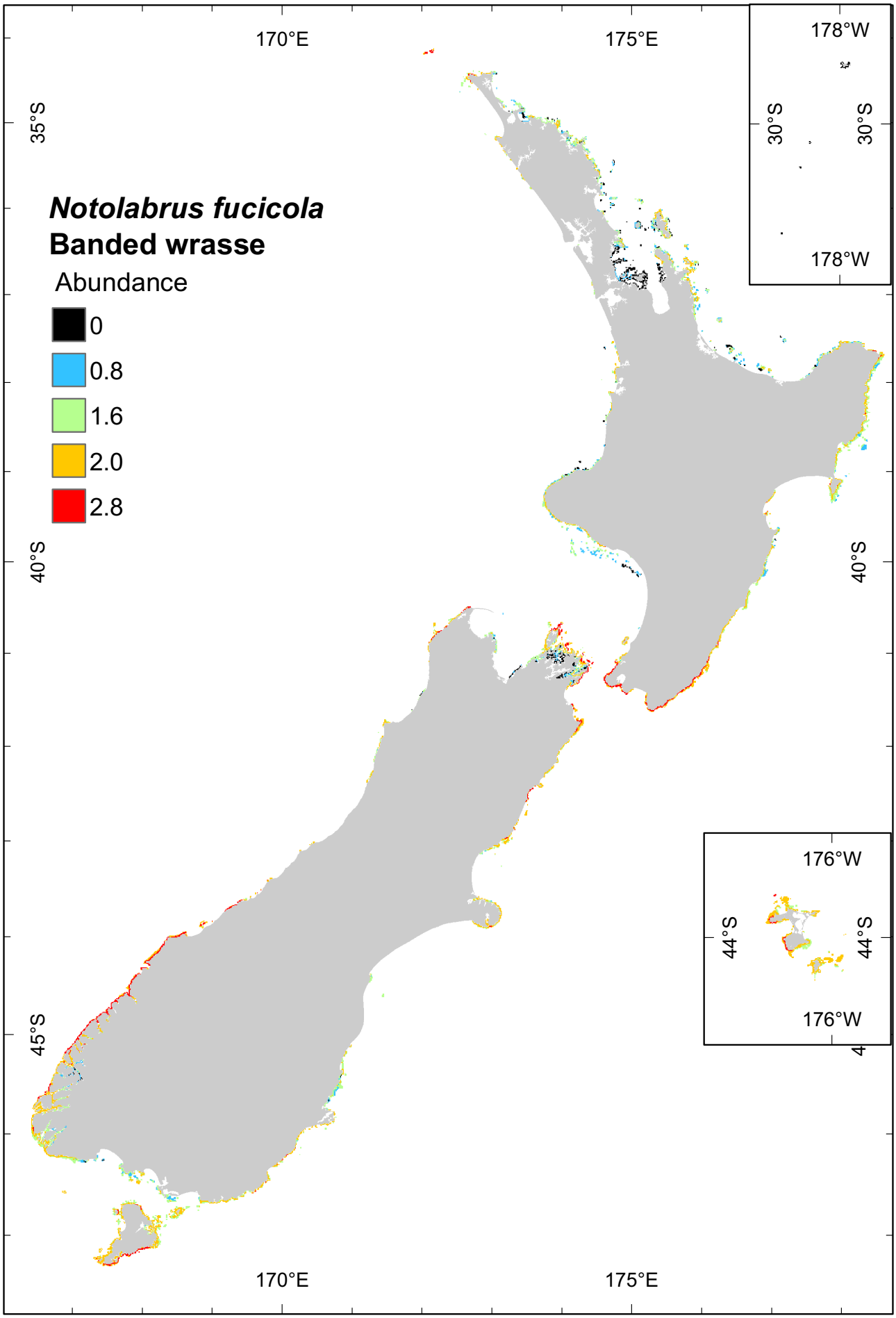

Figure S1.41. The predicted abundance of *Notolabrus fucicola* (banded wrasse) on rocky reefs around New Zealand.

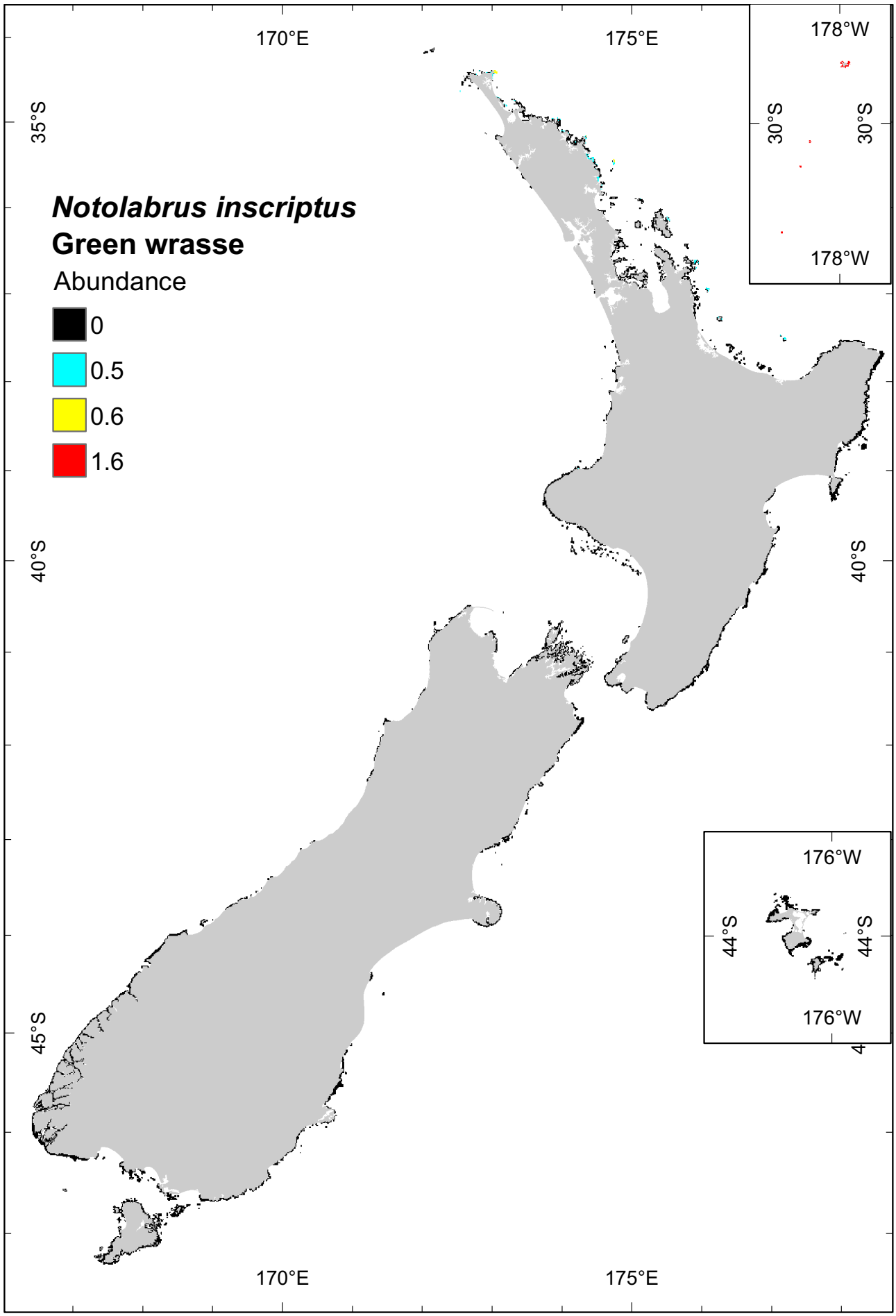

Figure S1.42. The predicted abundance of *Notolabrus inscriptus* (green wrasse) on rocky reefs around New Zealand.

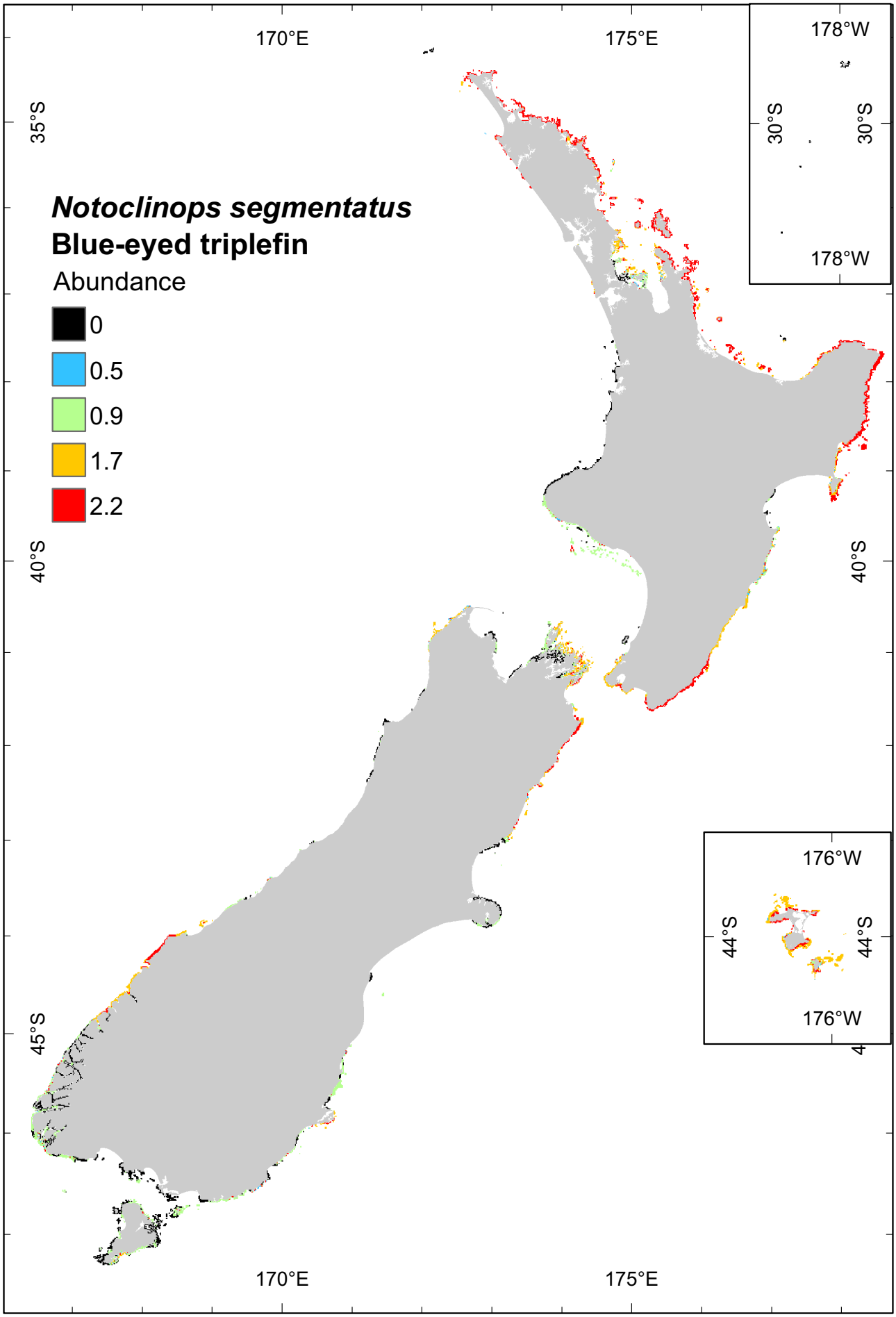

Figure S1.43. The predicted abundance of *Notoclinops segmentatus* (blue-eyed triplefin) on rocky reefs around New Zealand.

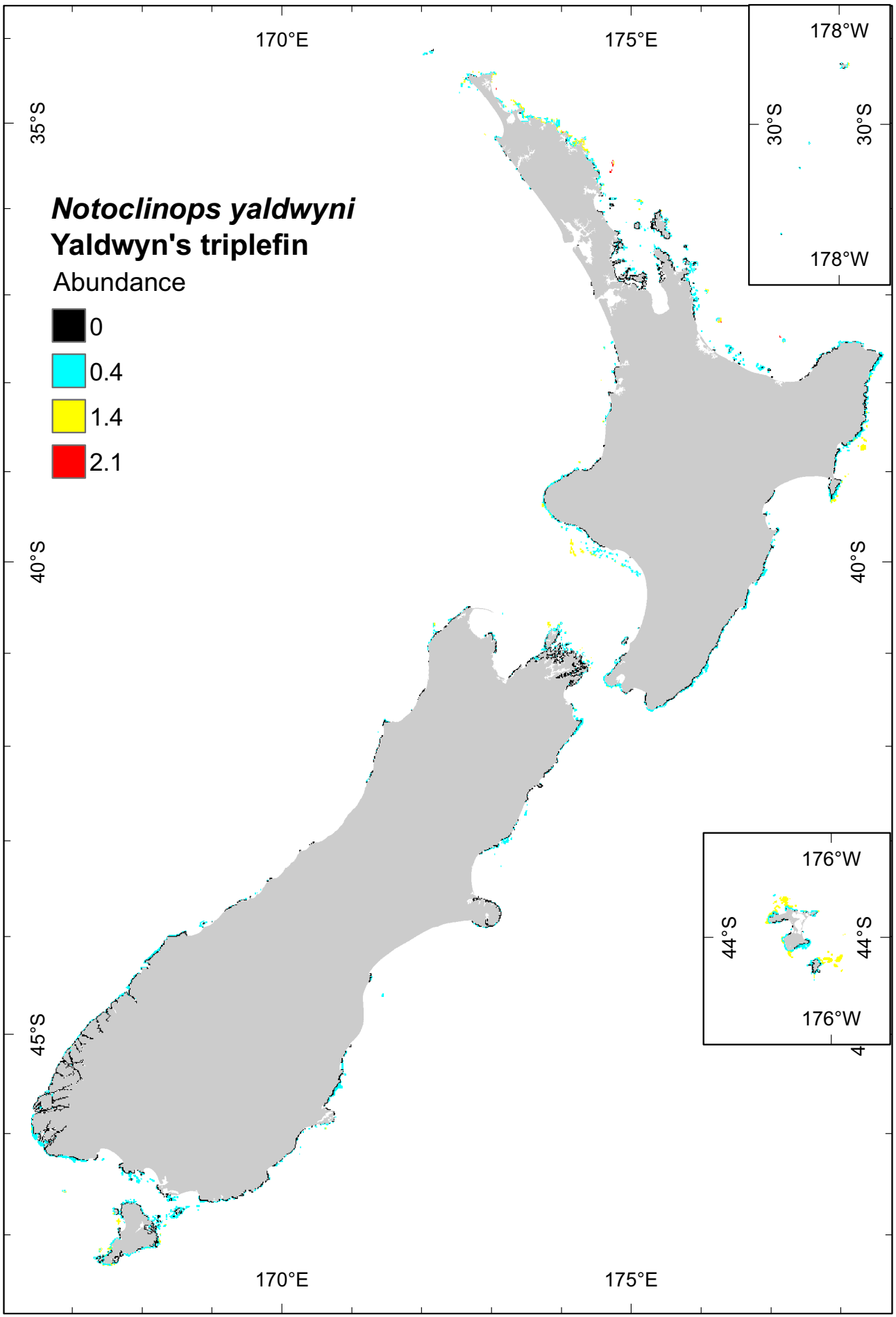

Figure S1.44. The predicted abundance of *Notoclinops yaldwyni* (Yaldwyn's triplefin) on rocky reefs around New Zealand.

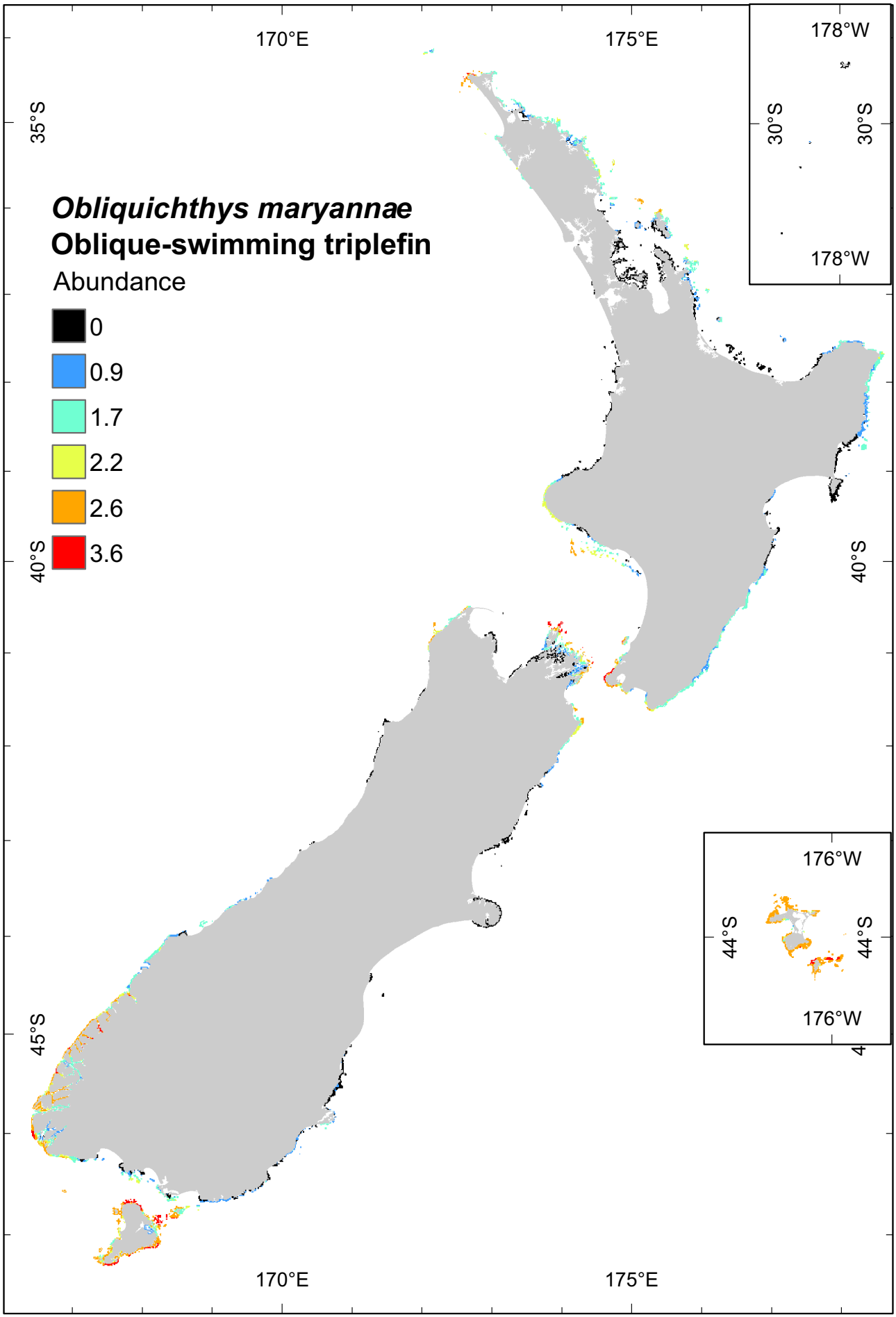

Figure S1.45. The predicted abundance of *Obliquichthys maryannae* (oblique-swimming triplefin) on rocky reefs around New Zealand.

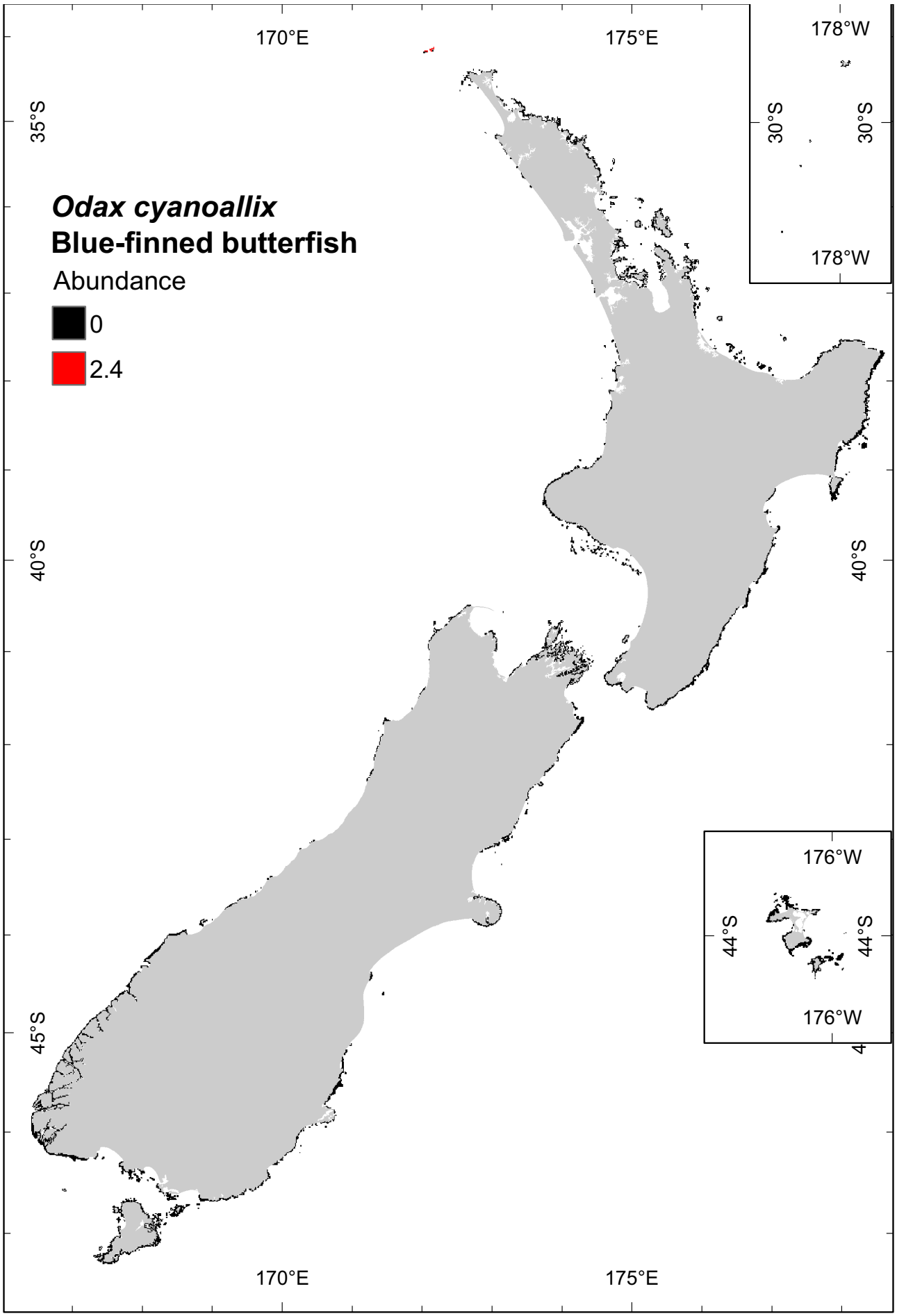

Figure S1.46. The predicted abundance of *Odax cyanoallix* (blue-finned butterfish) on rocky reefs around New Zealand.

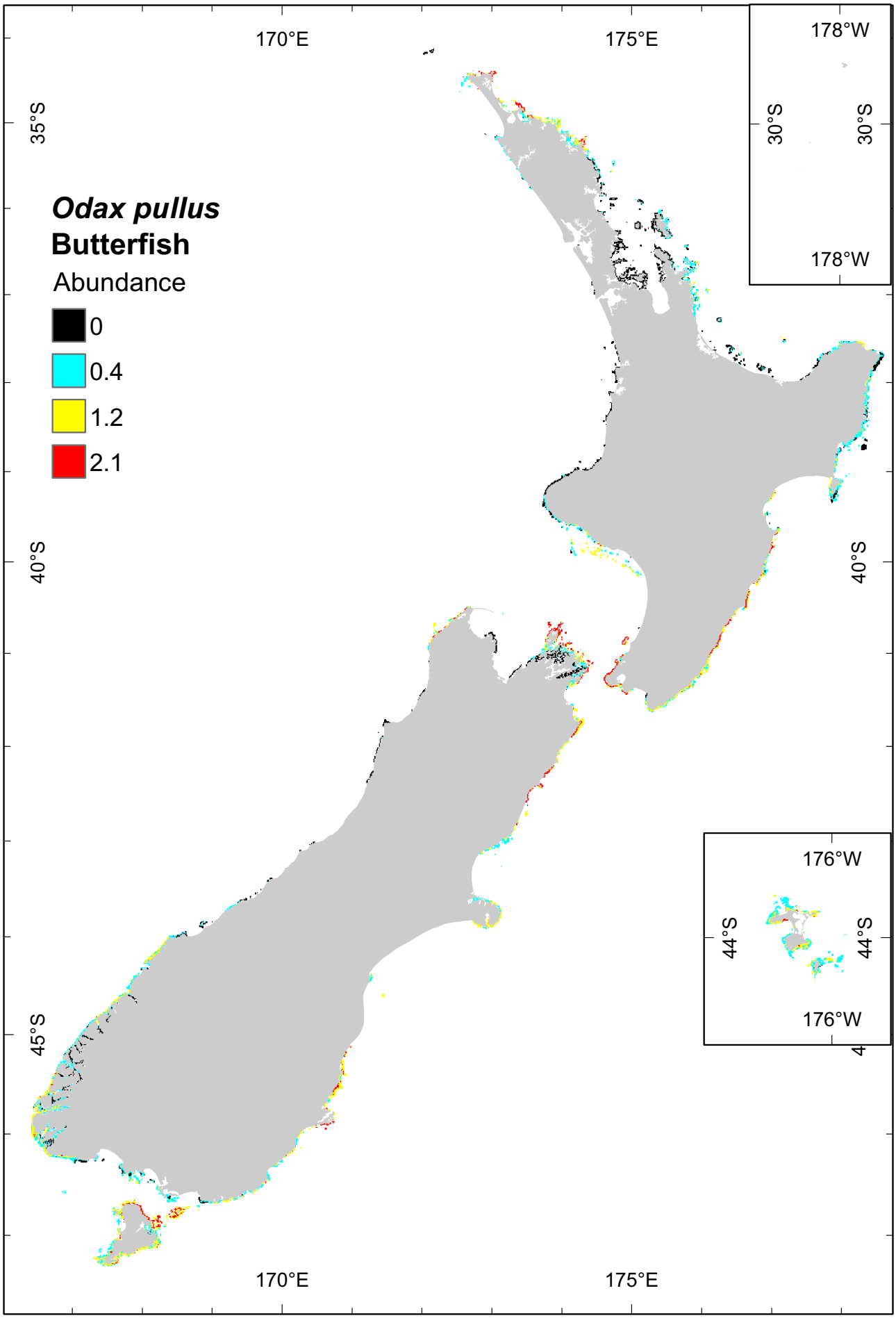

Figure S1.47. The predicted abundance of *Odax pullus* (butterfish) on rocky reefs around New Zealand.

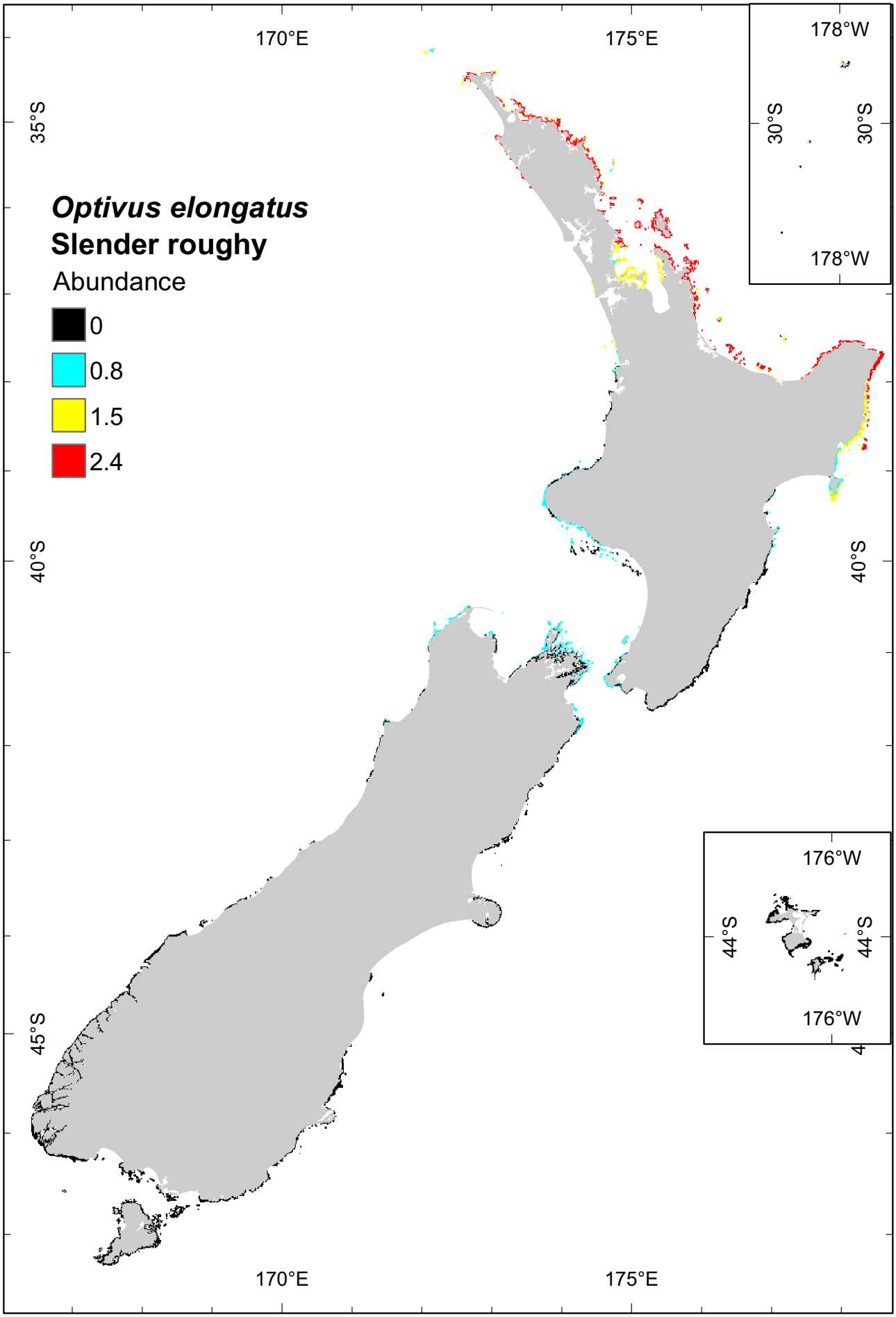

Figure S1.48. The predicted abundance of *Optivus elongatus* (slender roughy) on rocky reefs around New Zealand.

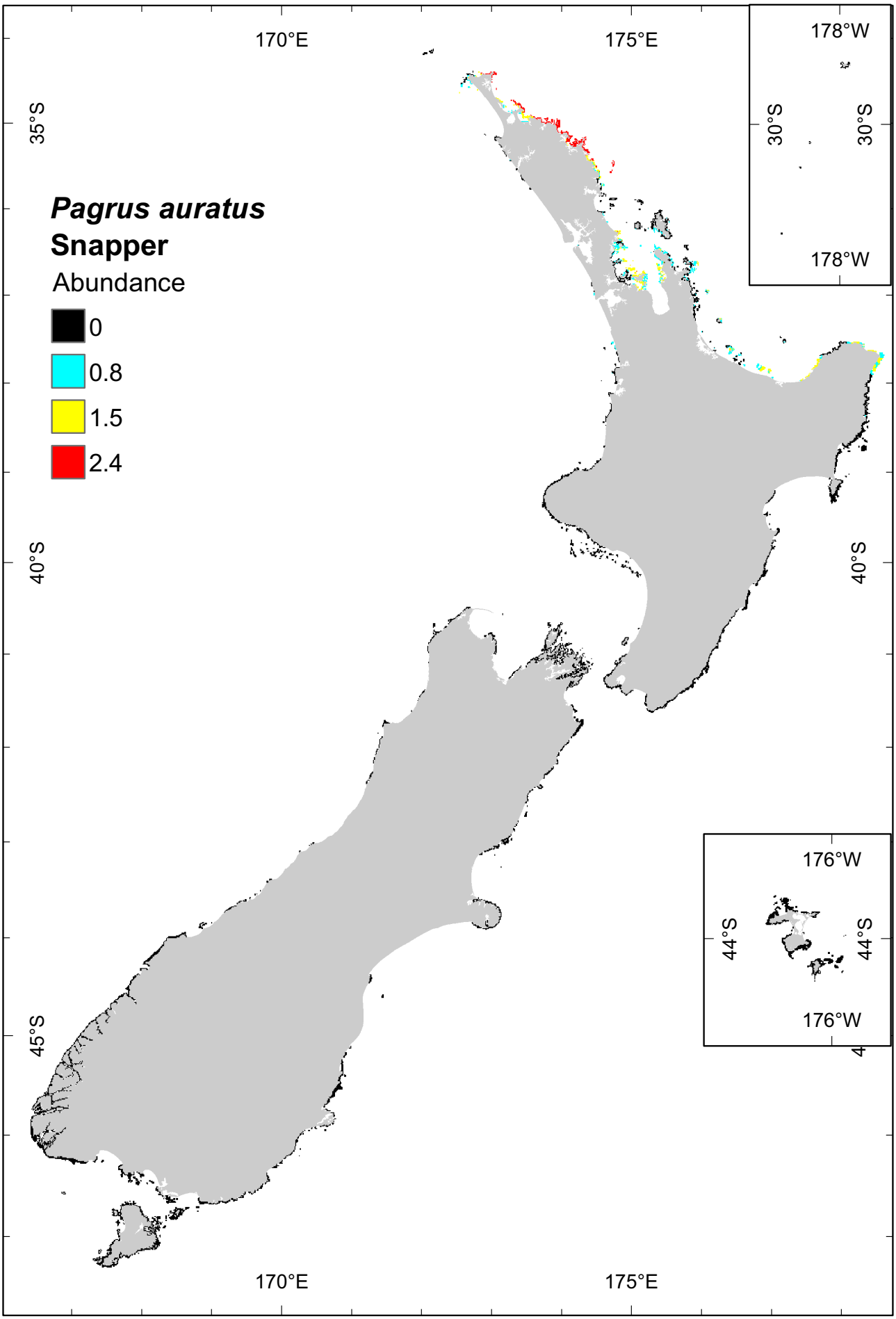

Figure S1.49. The predicted abundance of *Pagrus auratus* (snapper) on rocky reefs around New Zealand.

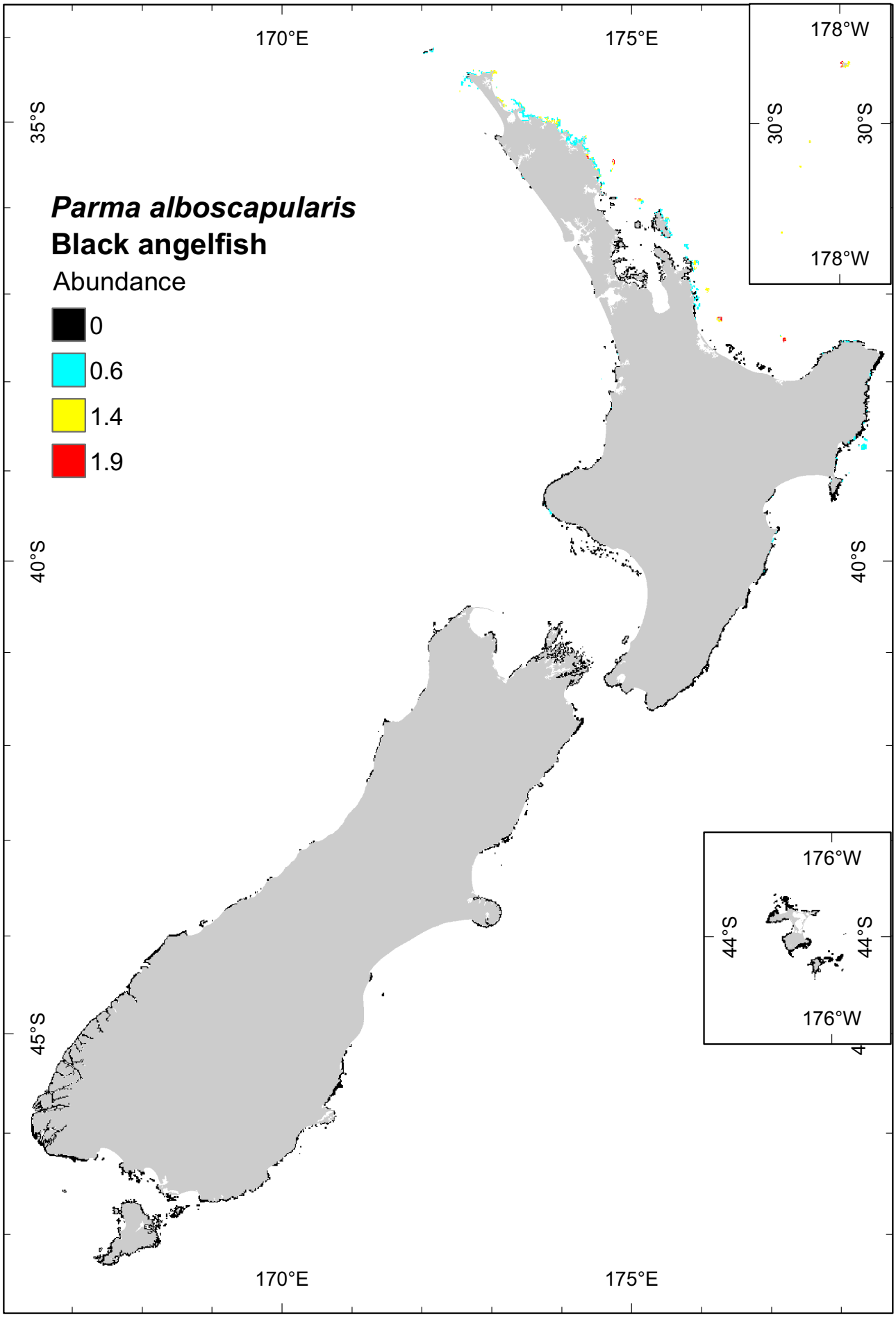

Figure S1.50. The predicted abundance of *Parma alboscapularis* (black angelfish) on rocky reefs around New Zealand.

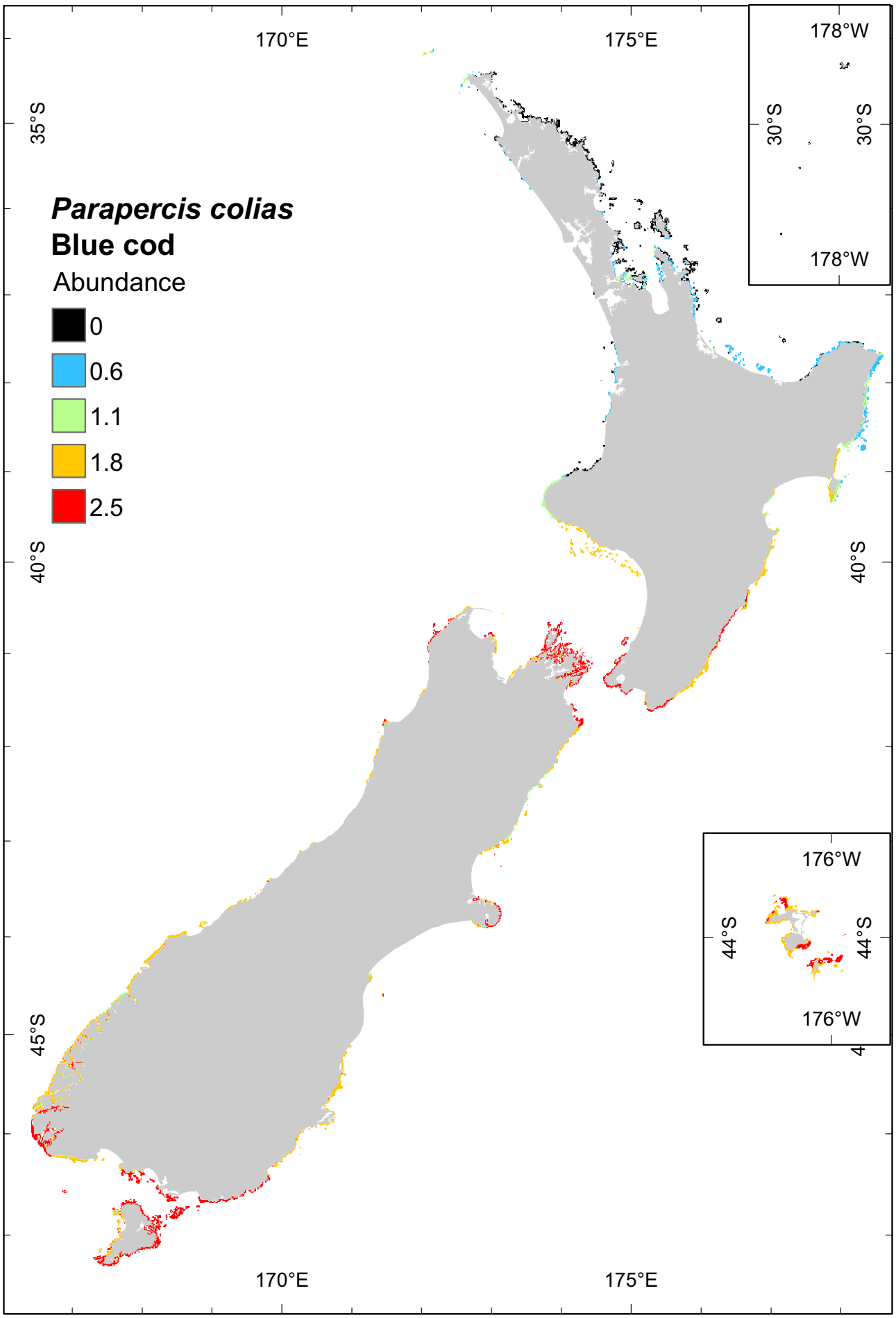

Figure S1.51. The predicted abundance of *Parapercis colias* (blue cod) on rocky reefs around New Zealand.

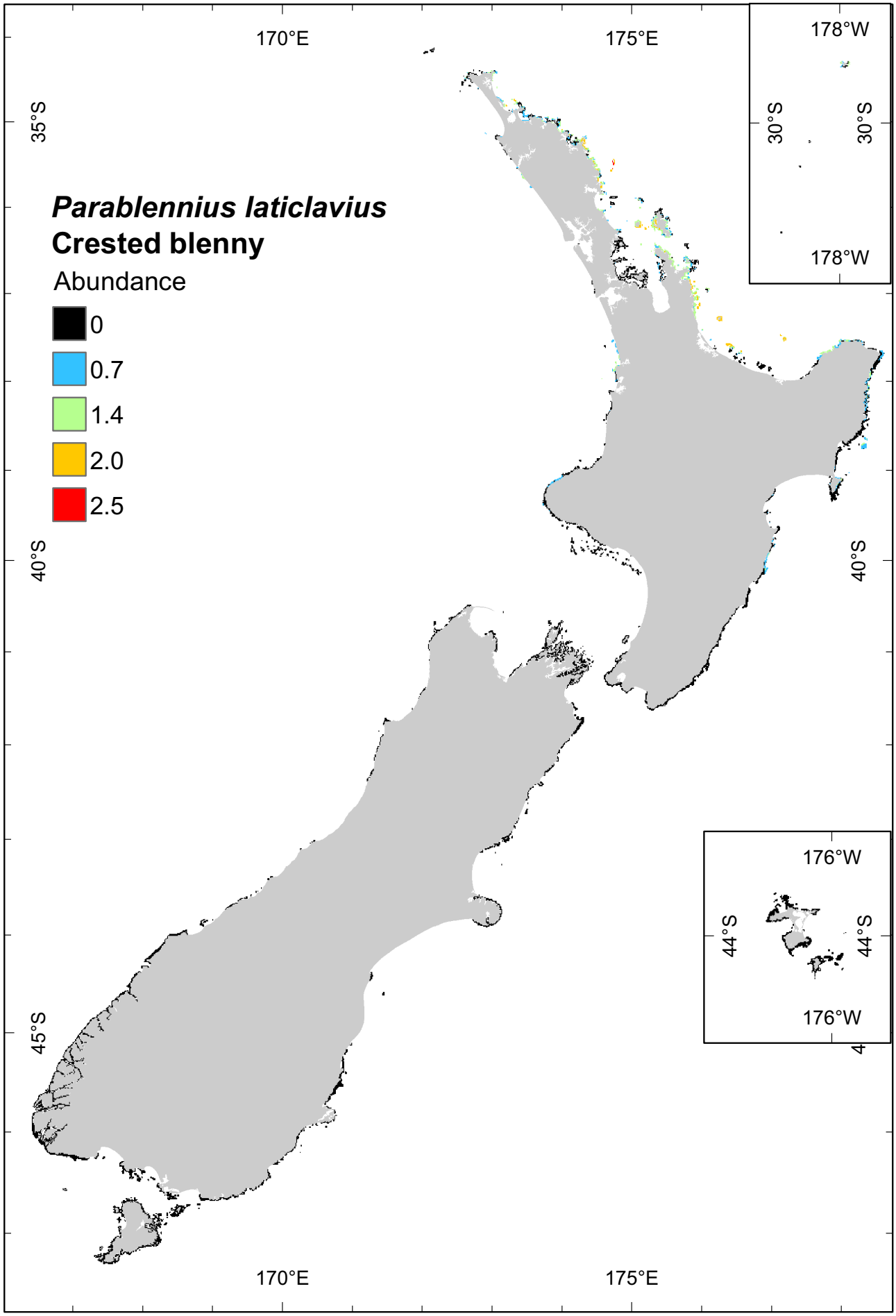

Figure S1.52. The predicted abundance of *Parablennius laticlavius* (crested blenny) on rocky reefs around New Zealand.

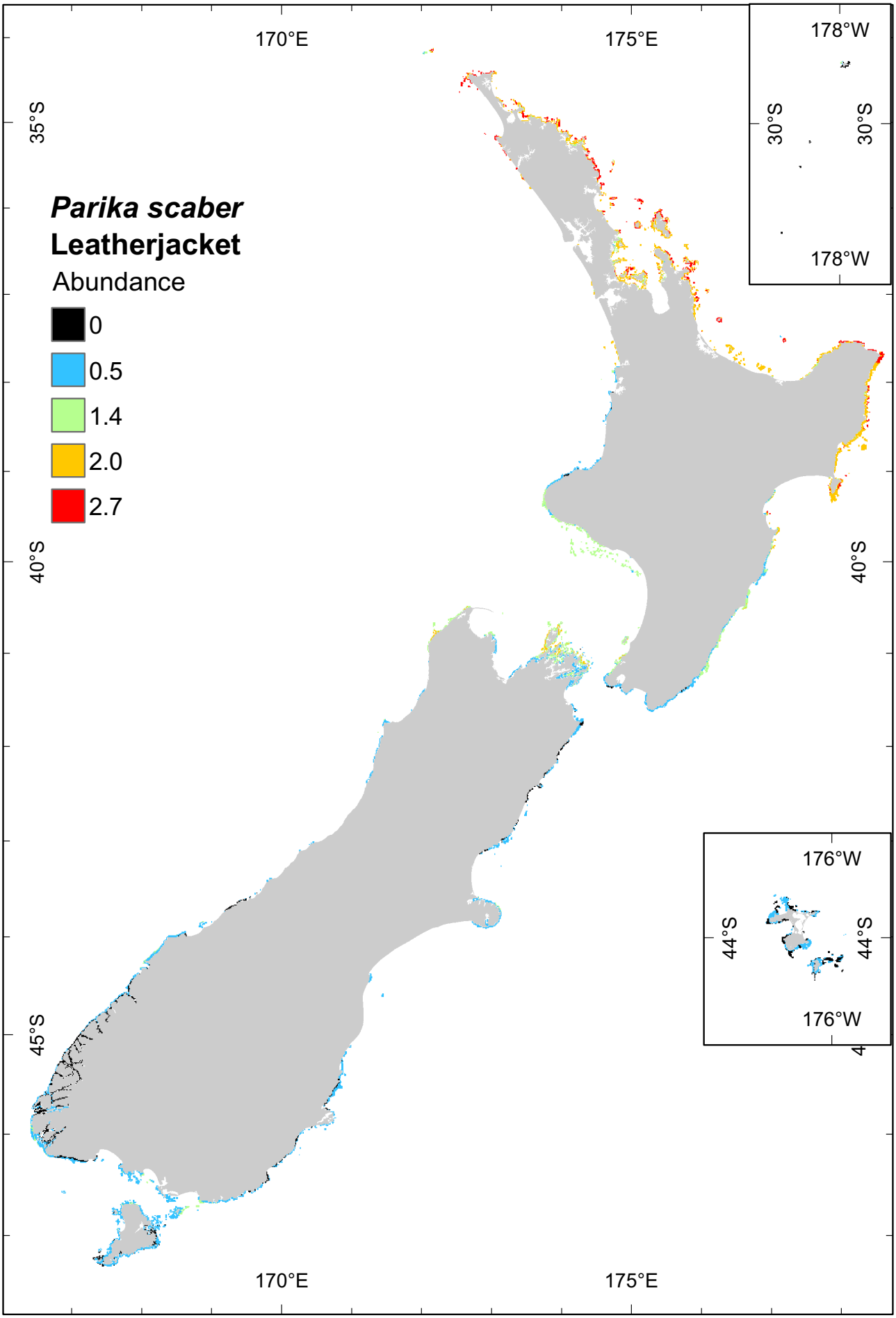

Figure S1.53. The predicted abundance of *Parika scaber* (leatherjacket) on rocky reefs around New Zealand.

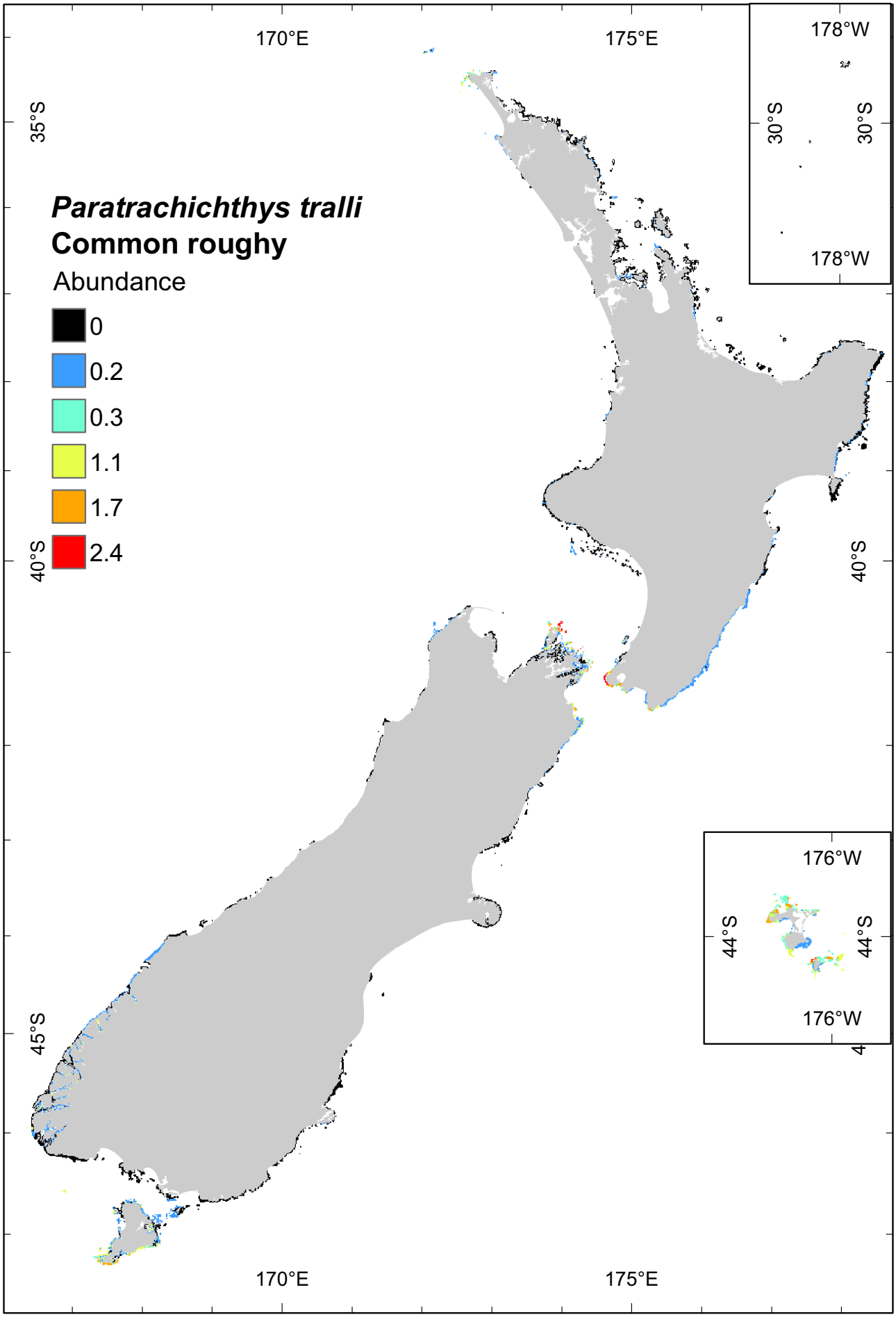

Figure S1.54. The predicted abundance of *Paratrachichthys tralli* (common roughy) on rocky reefs around New Zealand.

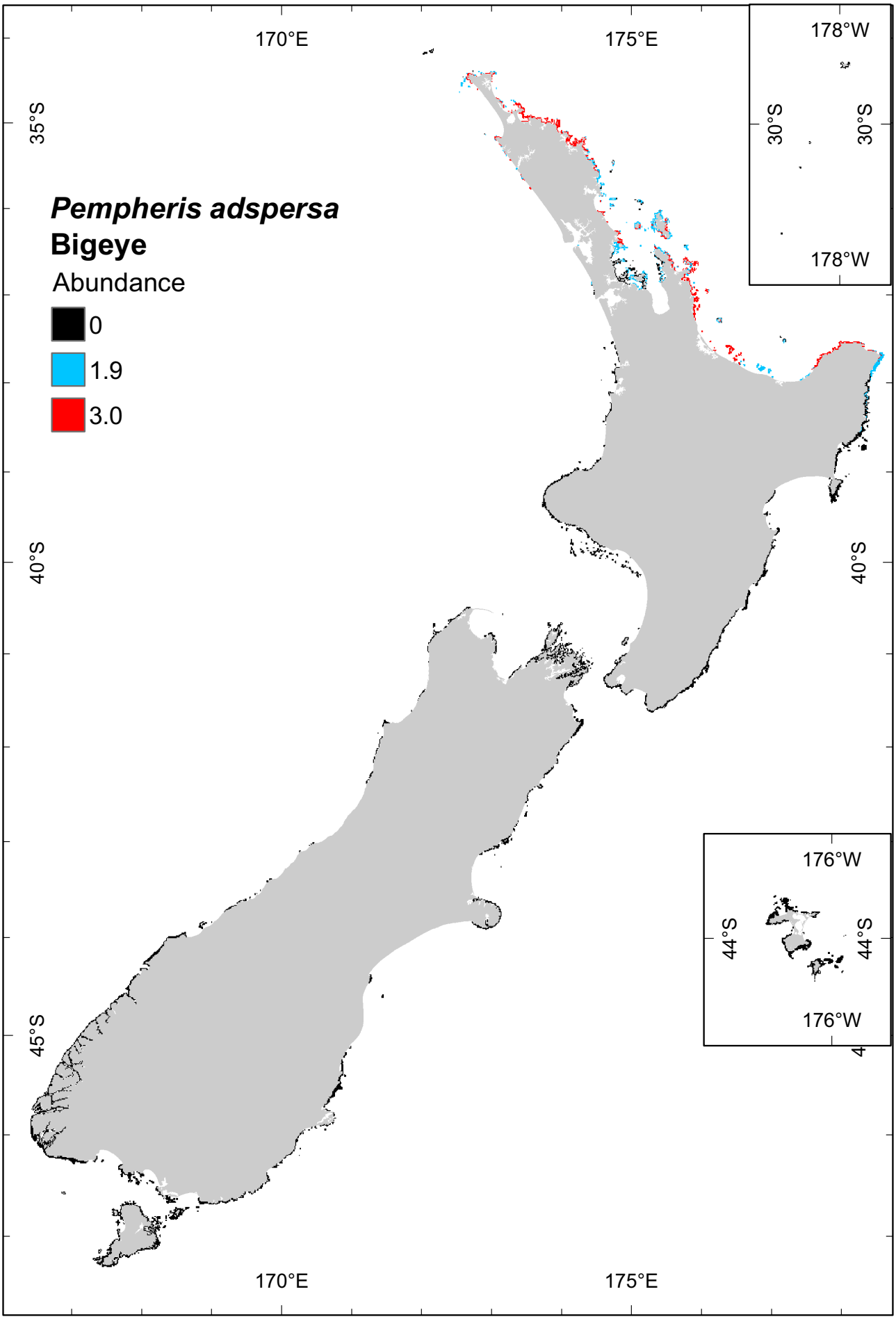

Figure S1.55. The predicted abundance of *Pempheris adspersa* (bigeye) on rocky reefs around New Zealand.

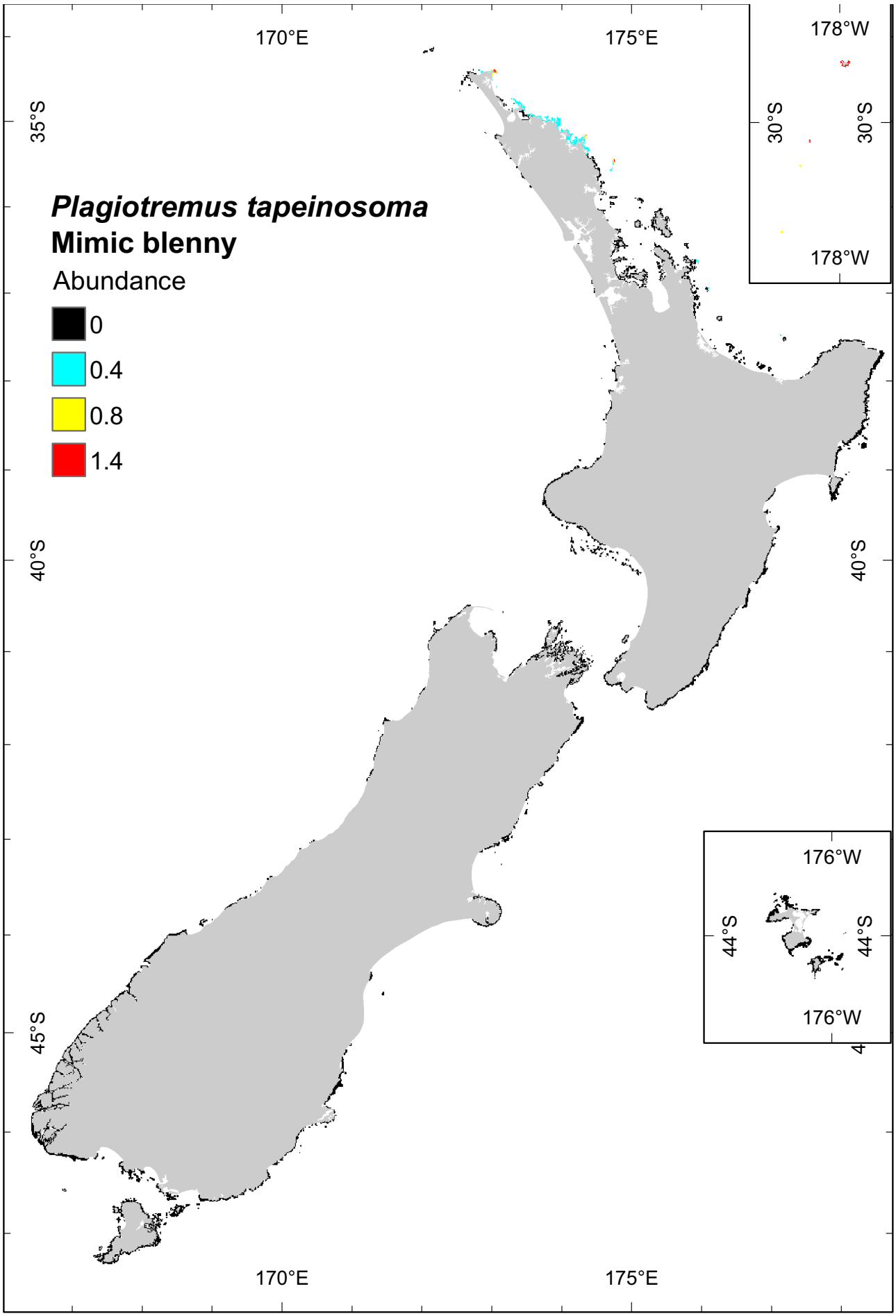

Figure S1.56. The predicted abundance of *Plagiotremus tapeinosoma* (mimic blenny) on rocky reefs around New Zealand.

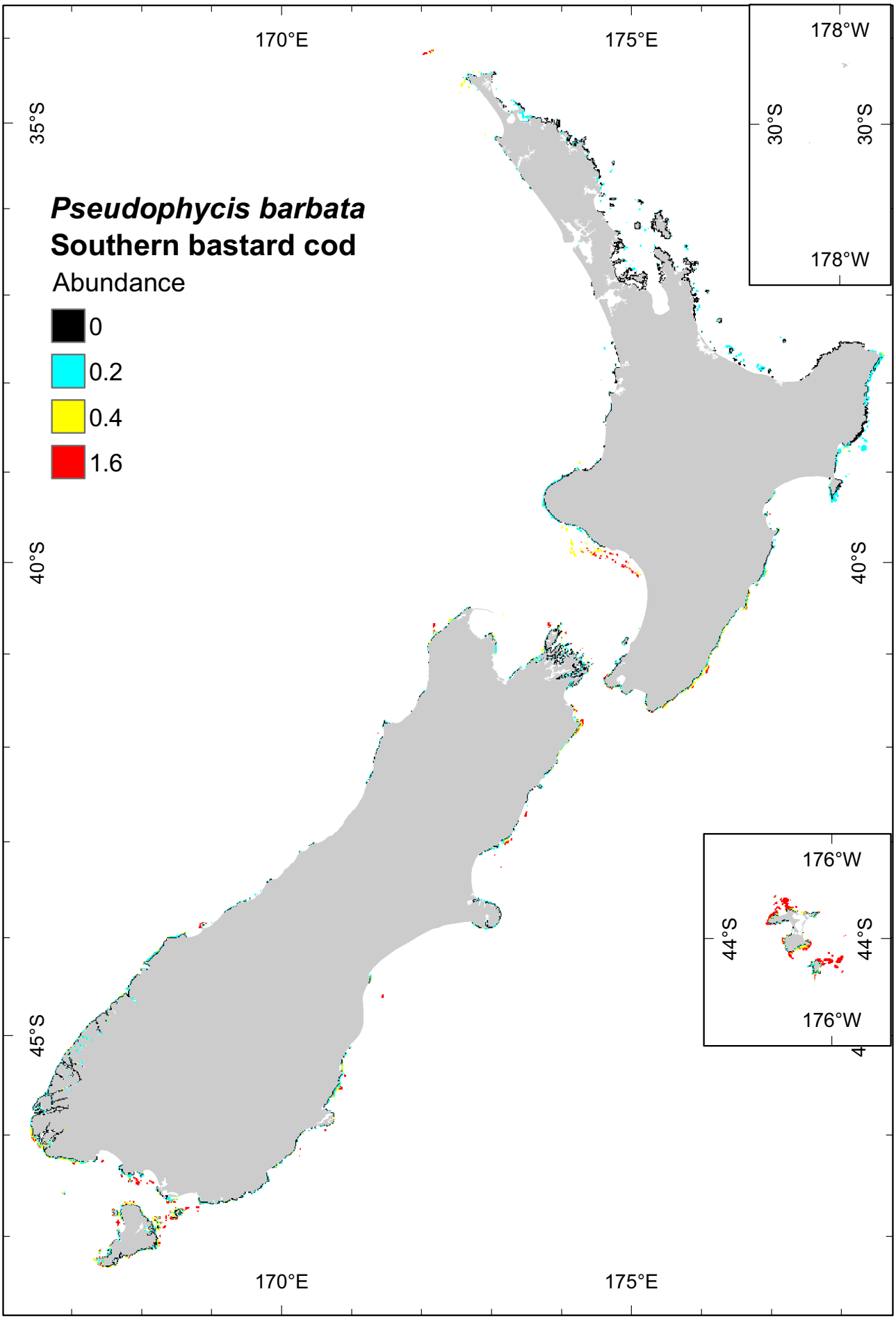

Figure S1.57. The predicted abundance of *Pseudophycis barbata* (southern bastard cod) on rocky reefs around New Zealand.

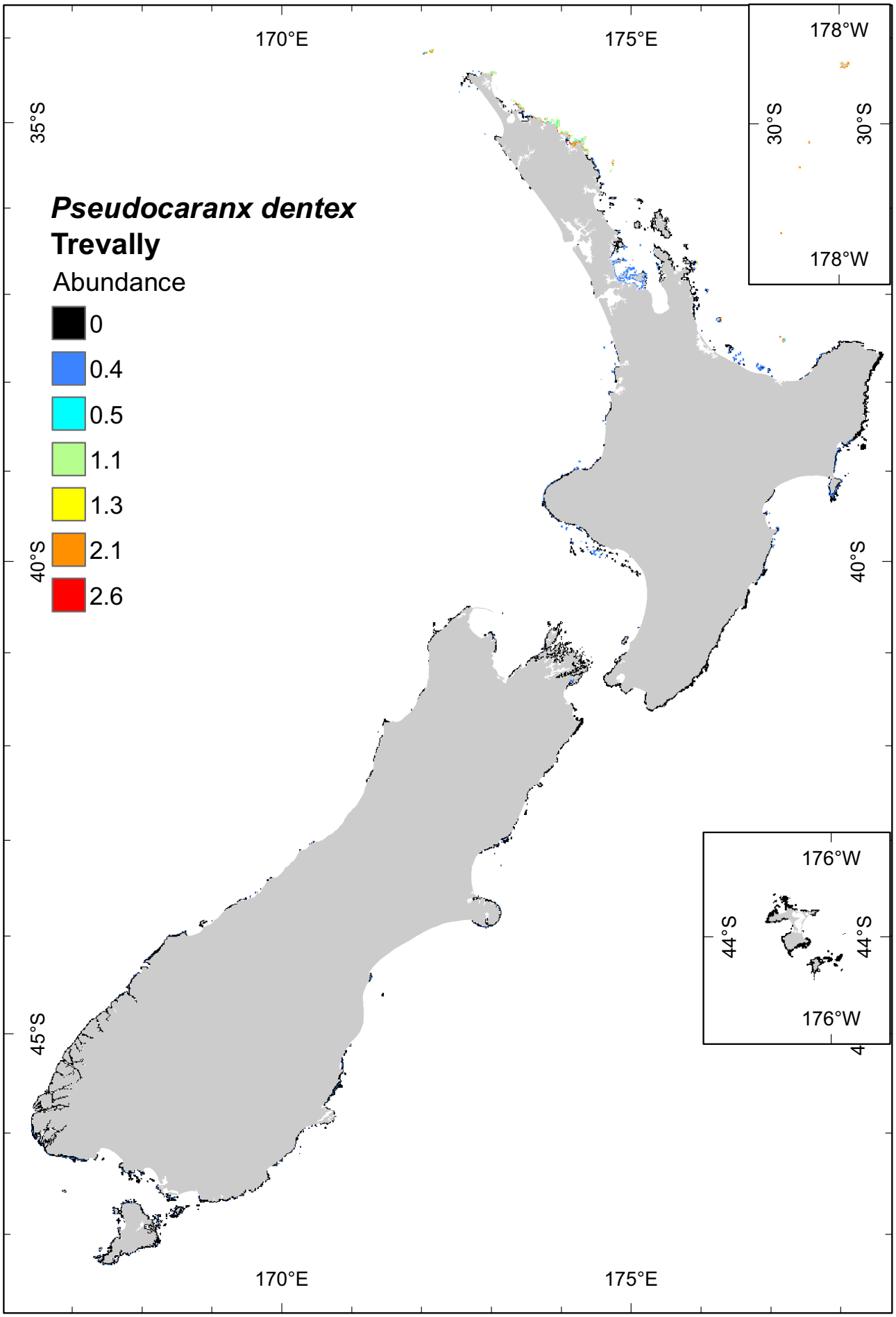

Figure S1.58. The predicted abundance of *Pseudocaranx dentex* (trevally) on rocky reefs around New Zealand.

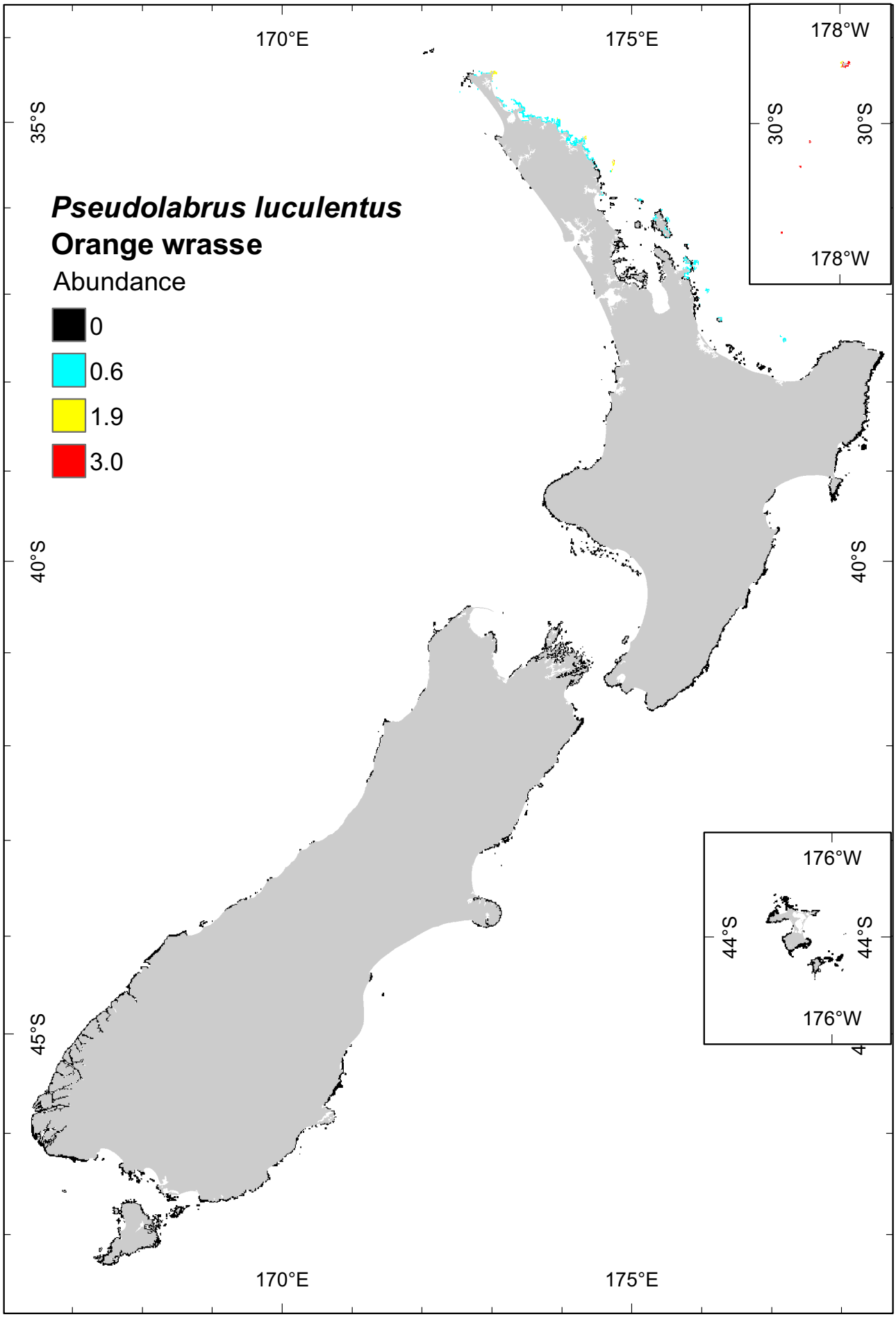

Figure S1.59. The predicted abundance of *Pseudolabrus luculentus* (orange wrasse) on rocky reefs around New Zealand.

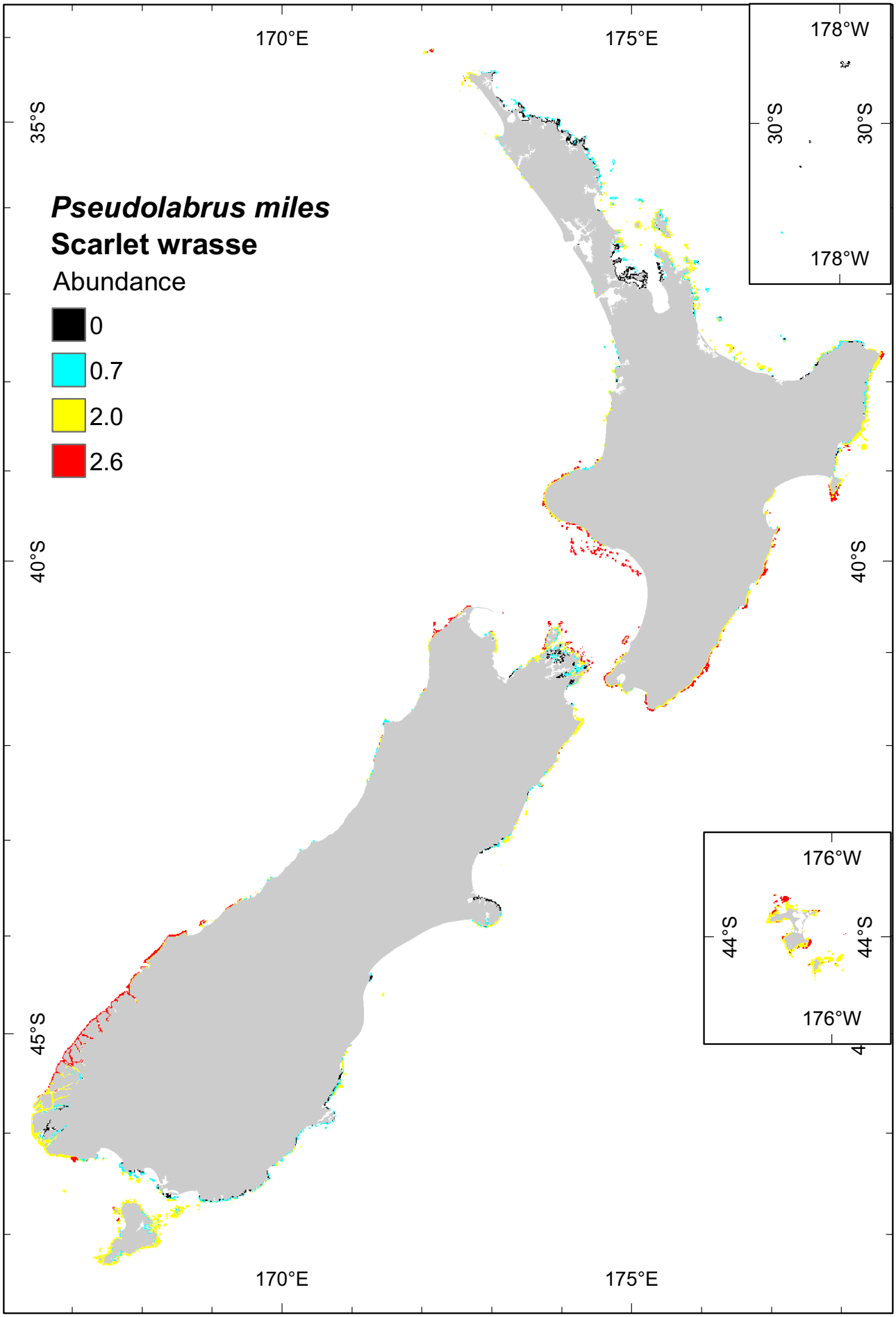

Figure S1.60. The predicted abundance of *Pseudolabrus miles* (scarlet wrasse) on rocky reefs around New Zealand.

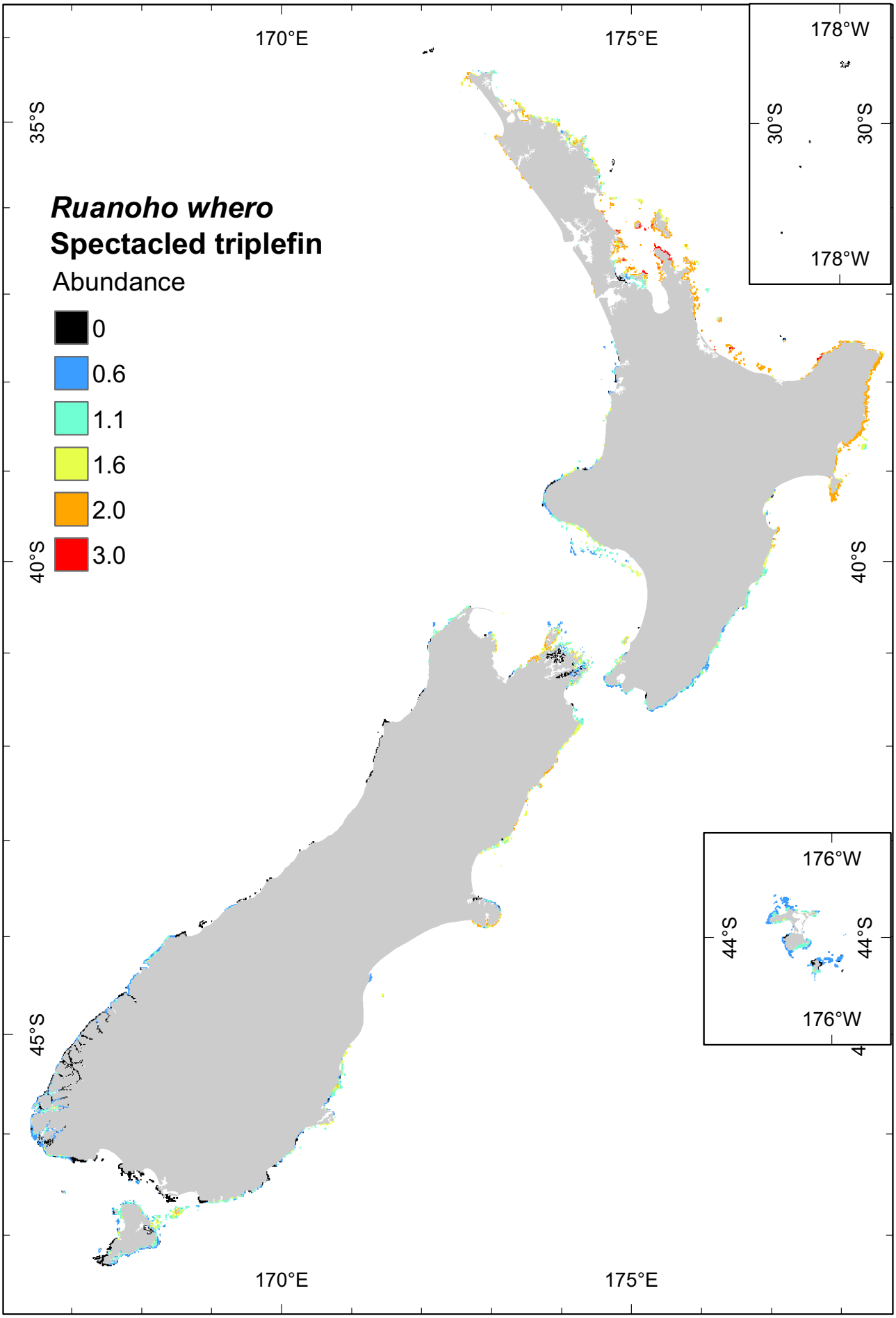

Figure S1.61. The predicted abundance of *Ruanoho whero* (spectacled triplefin) on rocky reefs around New Zealand.

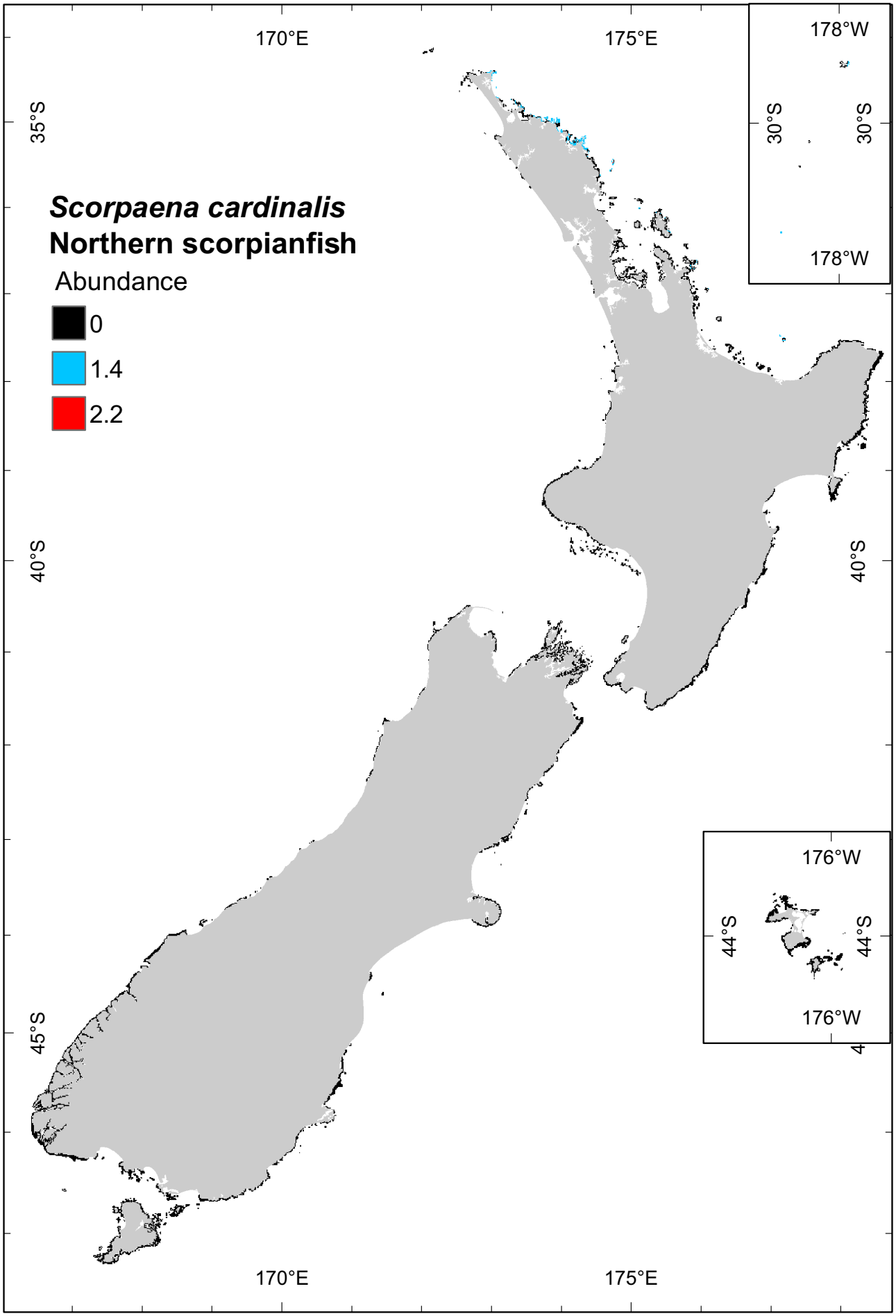

Figure S1.62. The predicted abundance of *Scorpaena cardinalis* (northern scorpionfish) on rocky reefs around New Zealand.

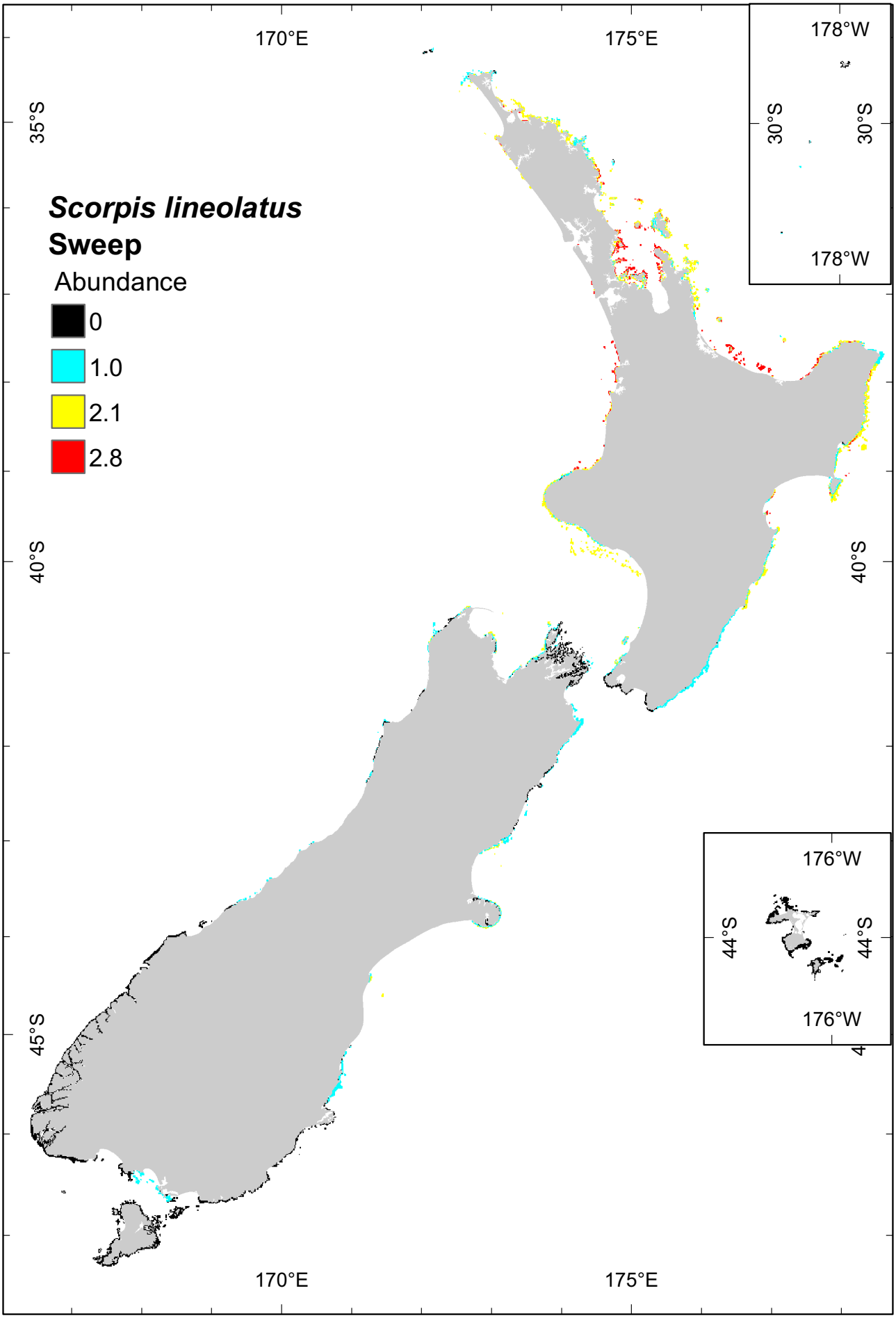

Figure S1.63. The predicted abundance of *Scorpis lineolatus* (sweep) on rocky reefs around New Zealand.

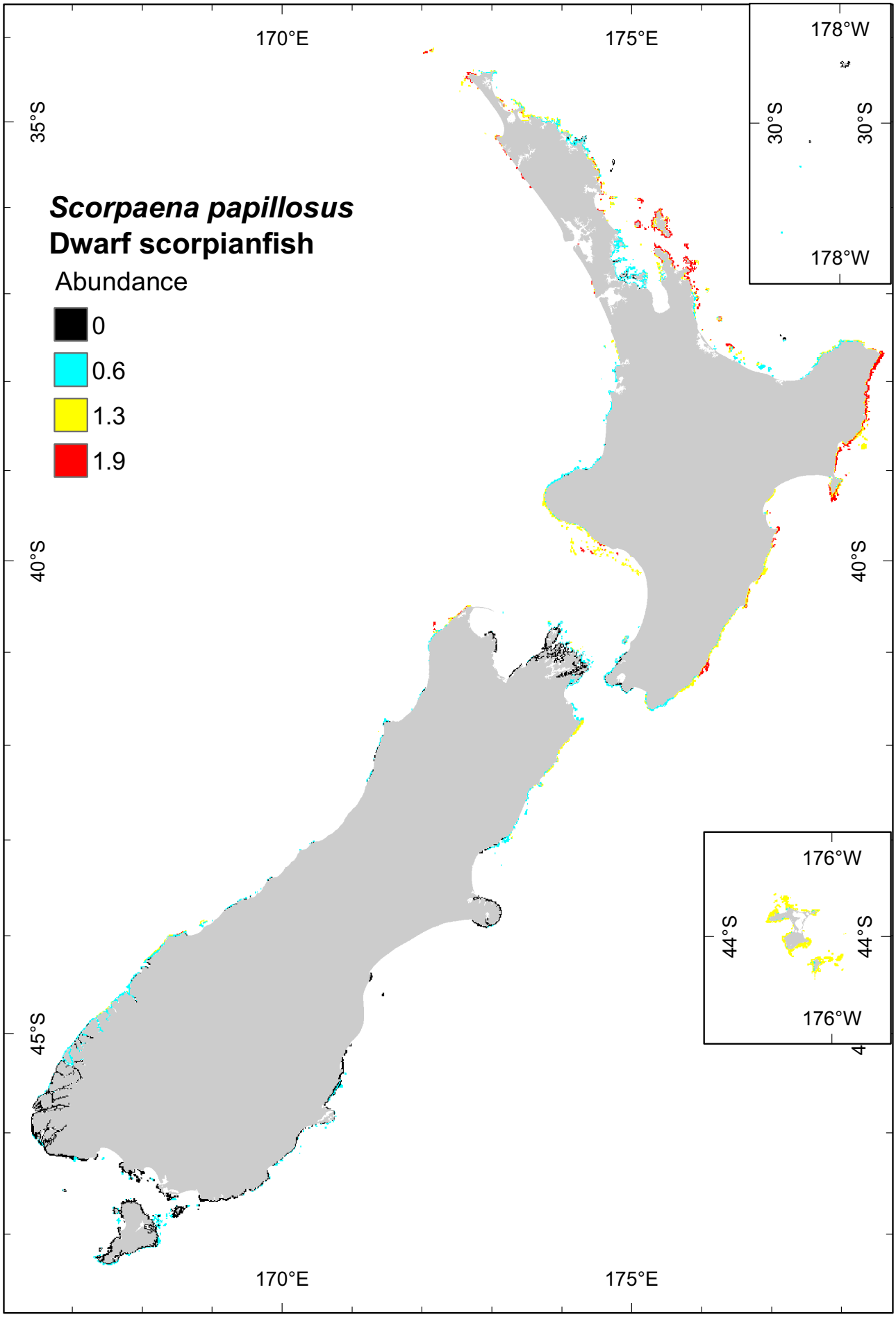

Figure S1.64. The predicted abundance of *Scorpaena papillosus* (dwarf scorpionfish) on rocky reefs around New Zealand.

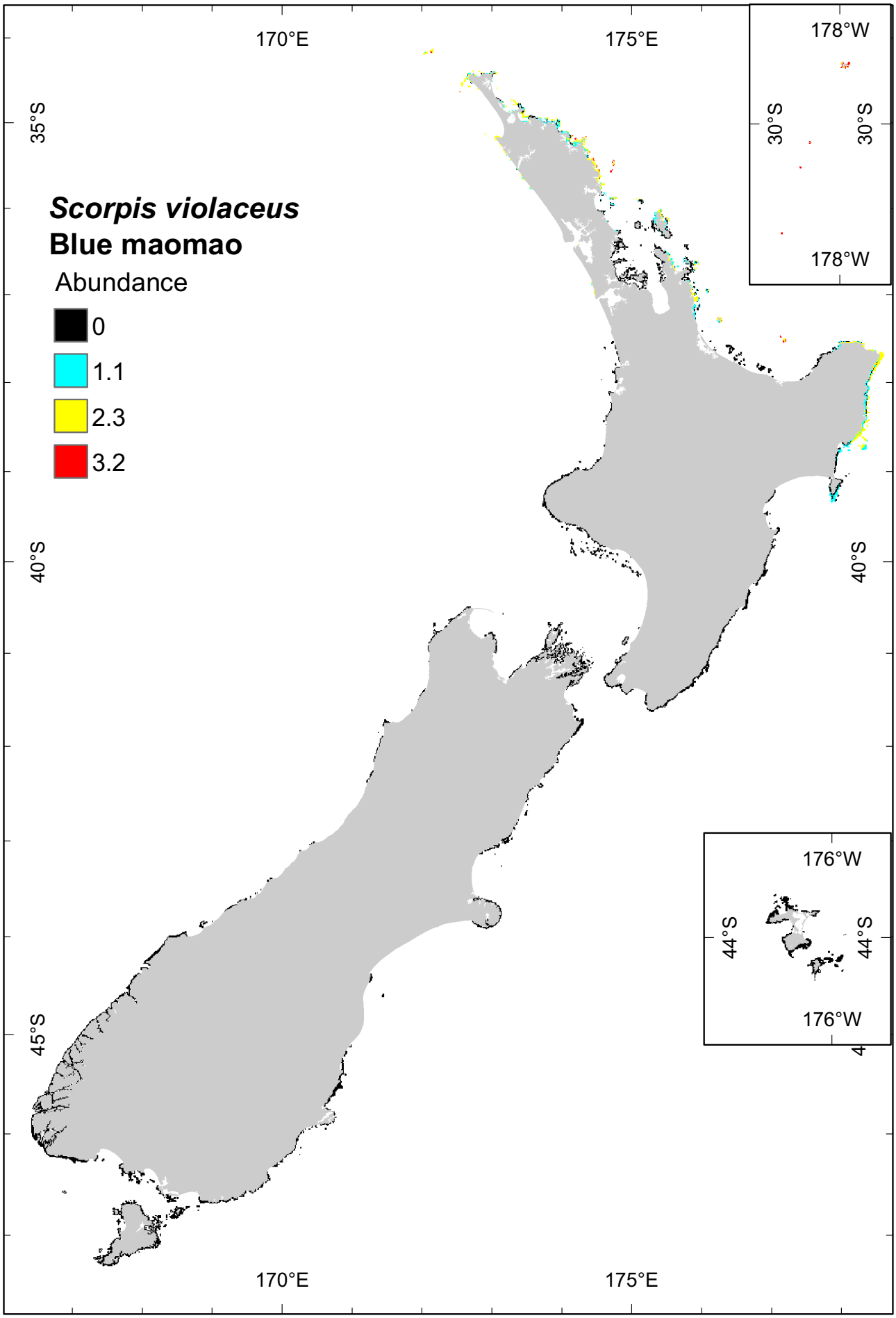

Figure S1.65. The predicted abundance of *Scorpis violaceus* (blue maomao) on rocky reefs around New Zealand.

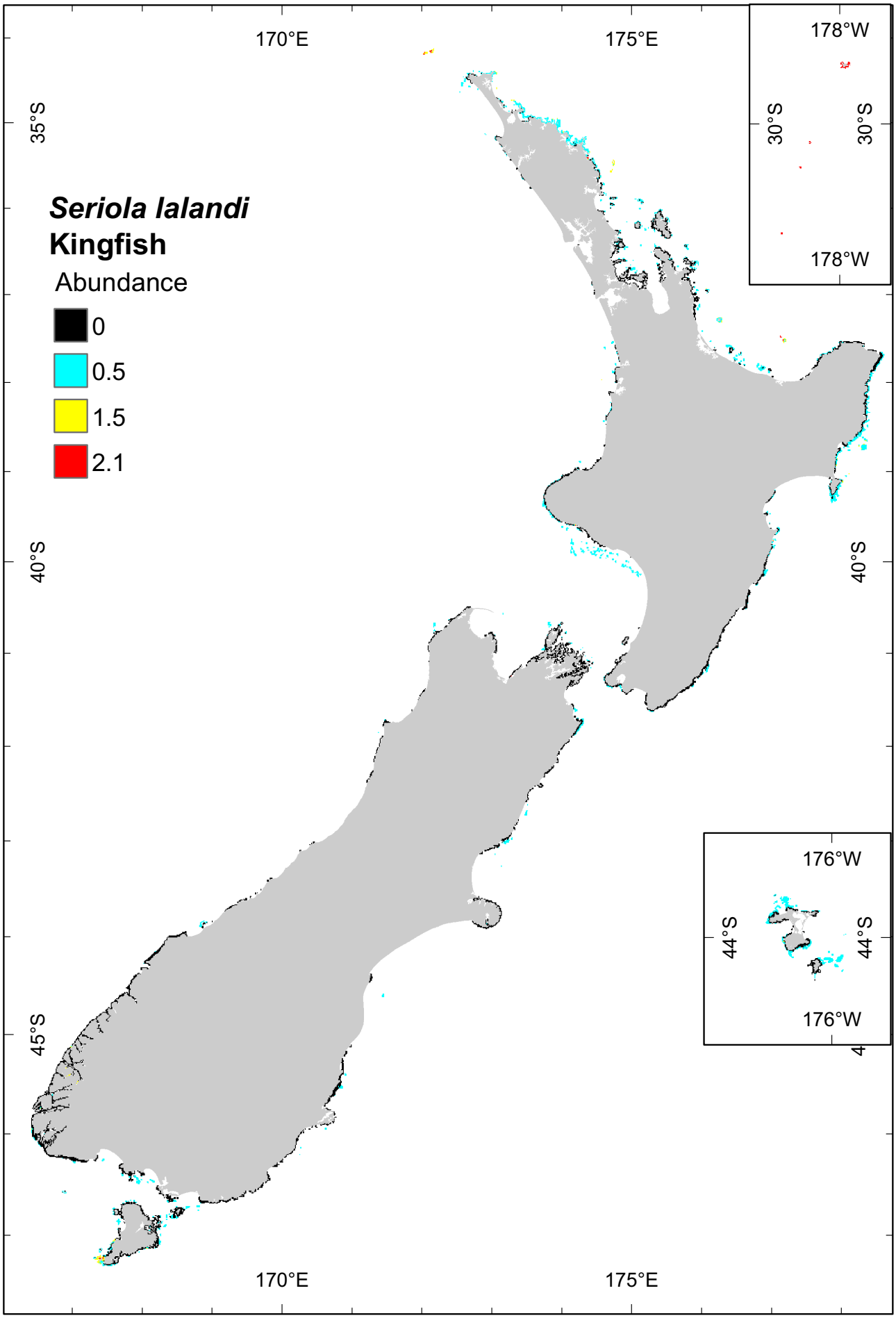

Figure S1.66. The predicted abundance of *Seriola lalandi* (kingfish) on rocky reefs around New Zealand.

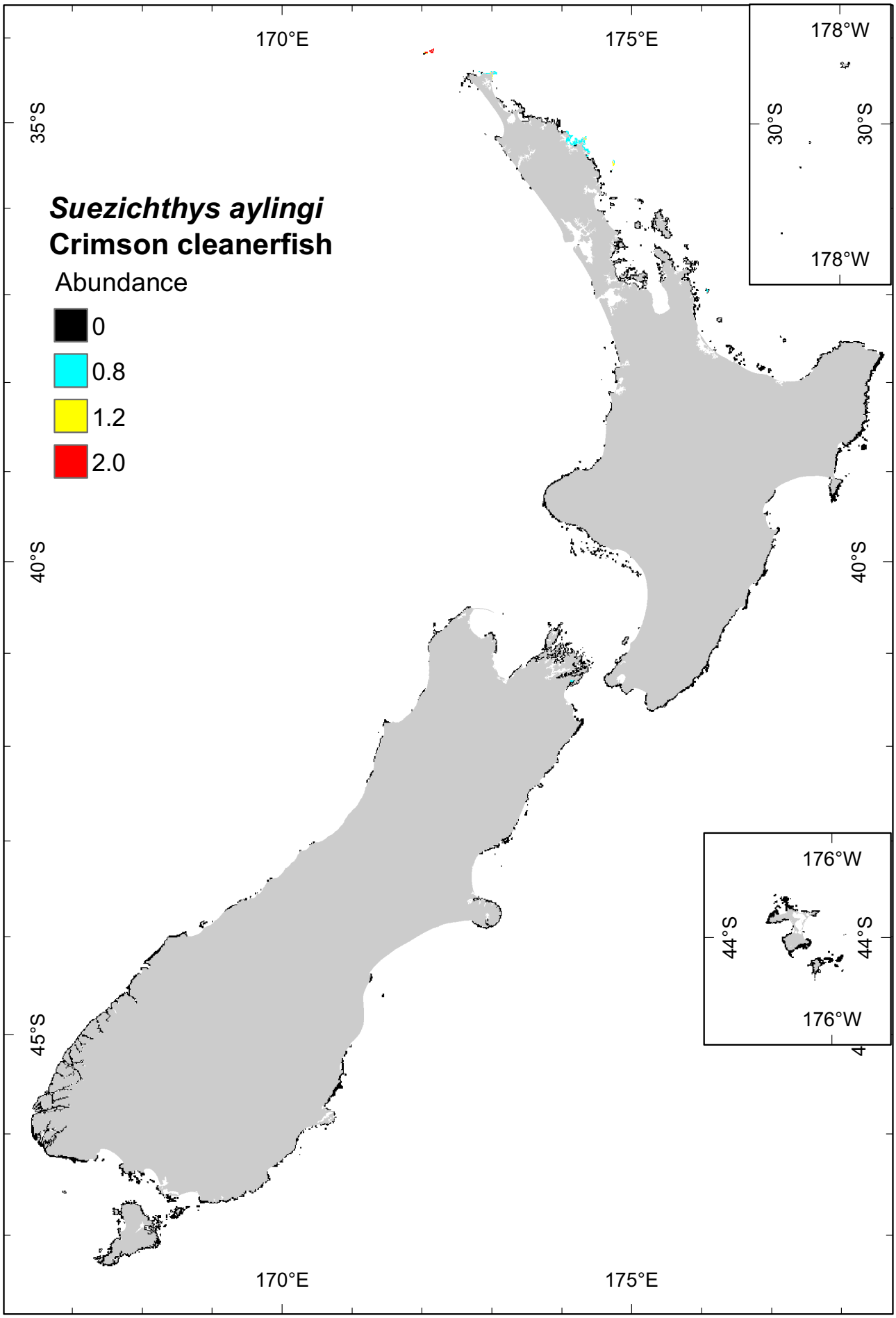

Figure S1.67. The predicted abundance of *Suezichthys aylingi* (crimson cleanerfish) on rocky reefs around New Zealand.

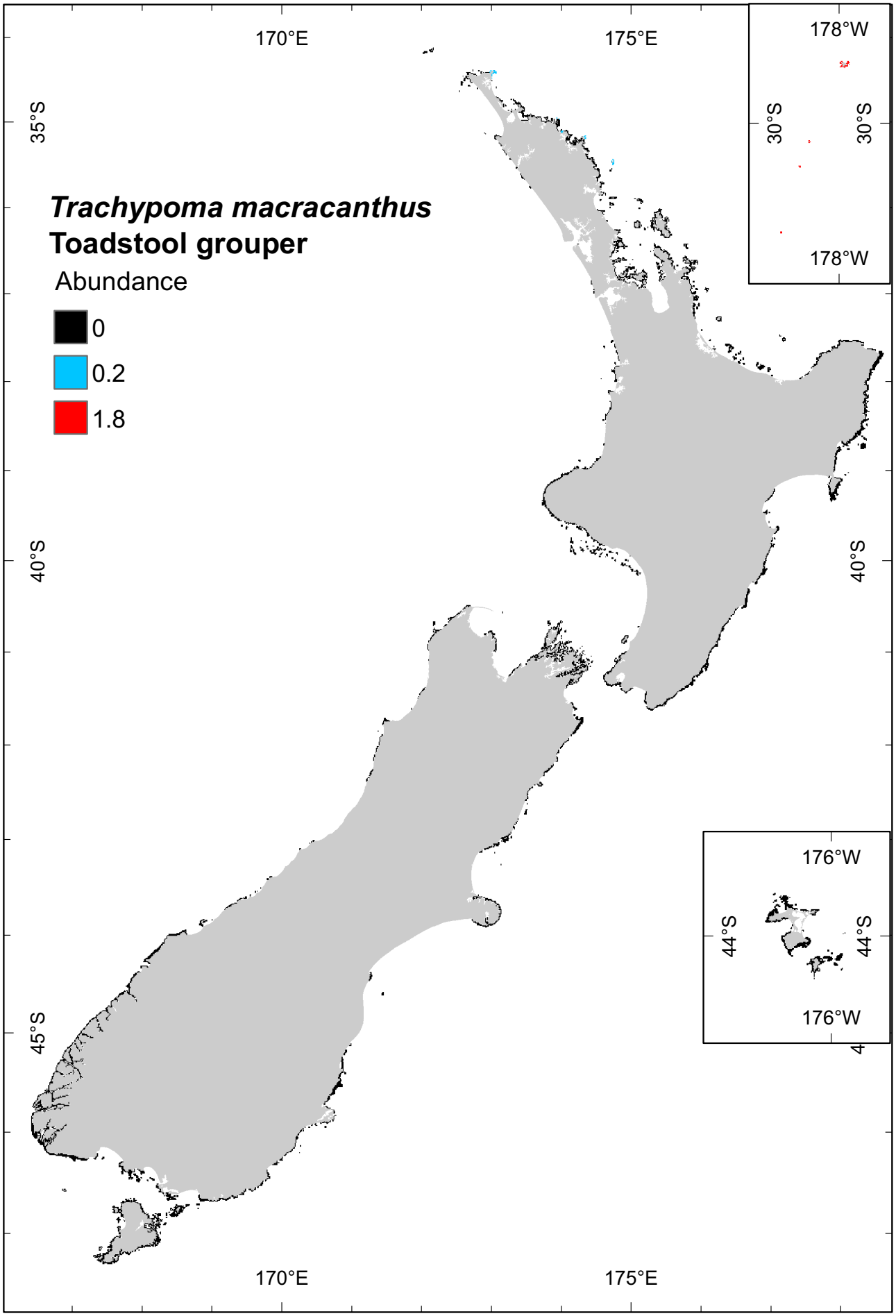

Figure S1.68. The predicted abundance of *Trachypoma macracanthus* (Toadstool grouper) on rocky reefs around New Zealand.

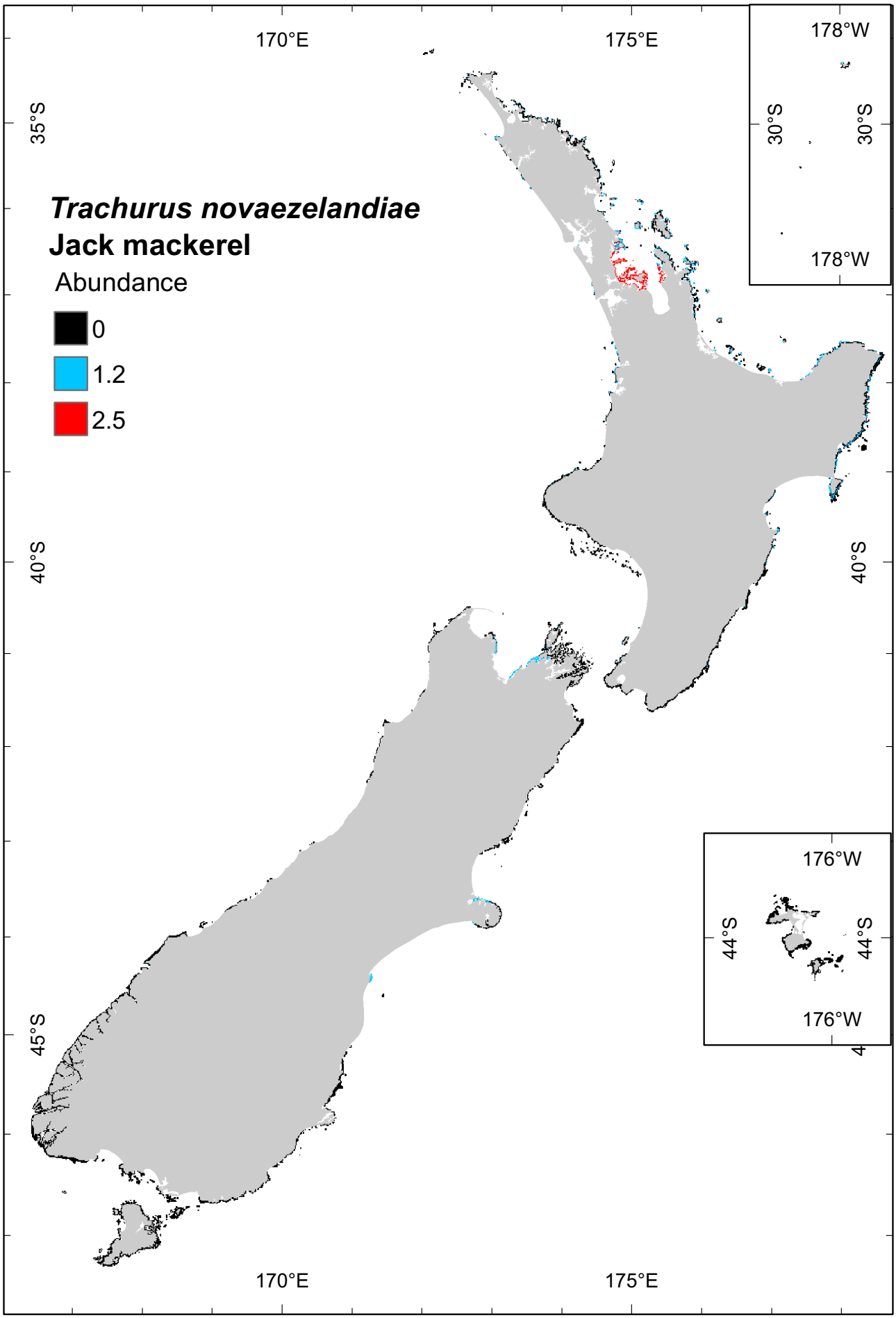

Figure S1.69. The predicted abundance of *Trachurus novaezelandiae* (jack mackerel) on rocky reefs around New Zealand.

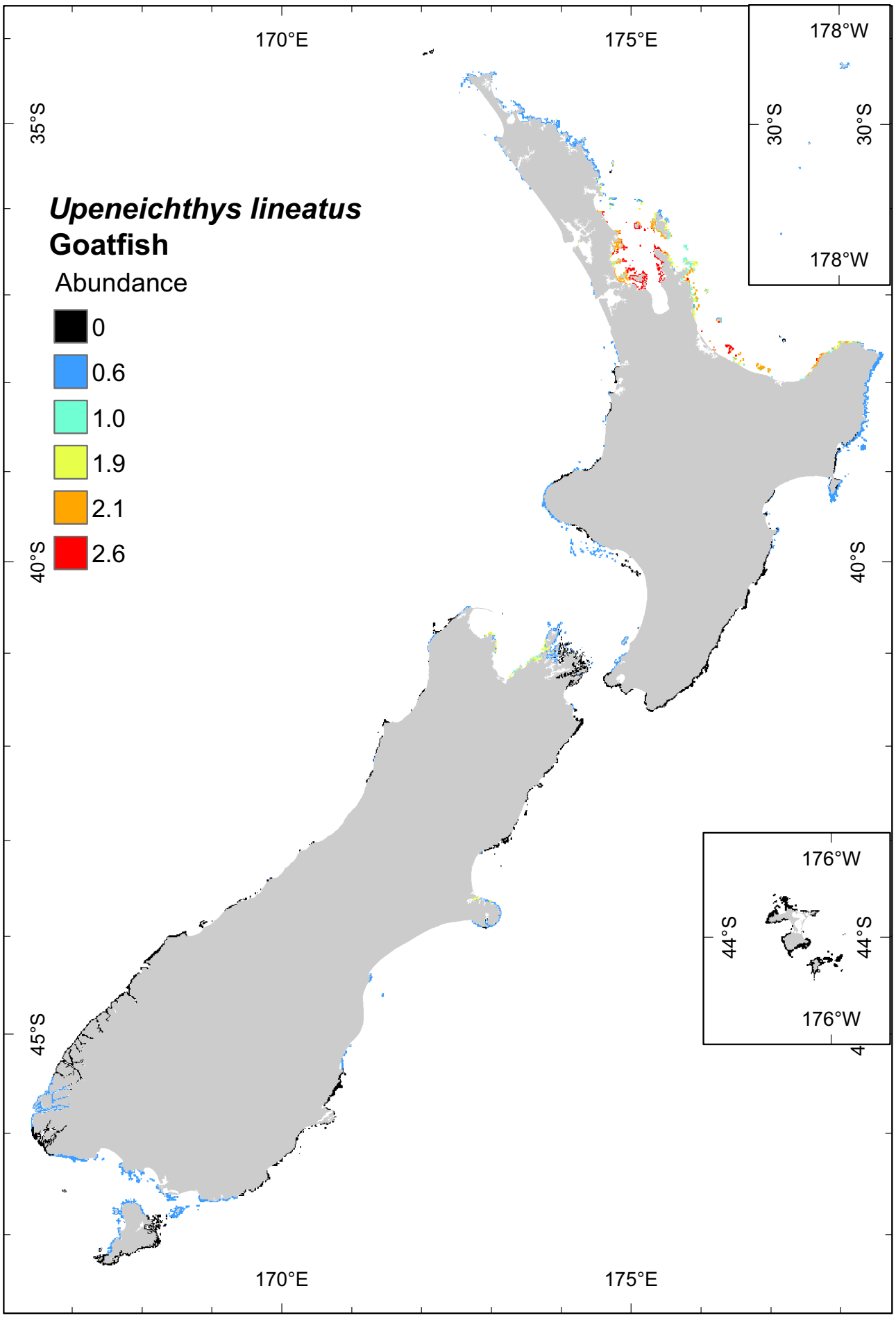

Figure S1.70. The predicted abundance of *Upeneichthys lineatus* (goatfish) on rocky reefs around New Zealand.

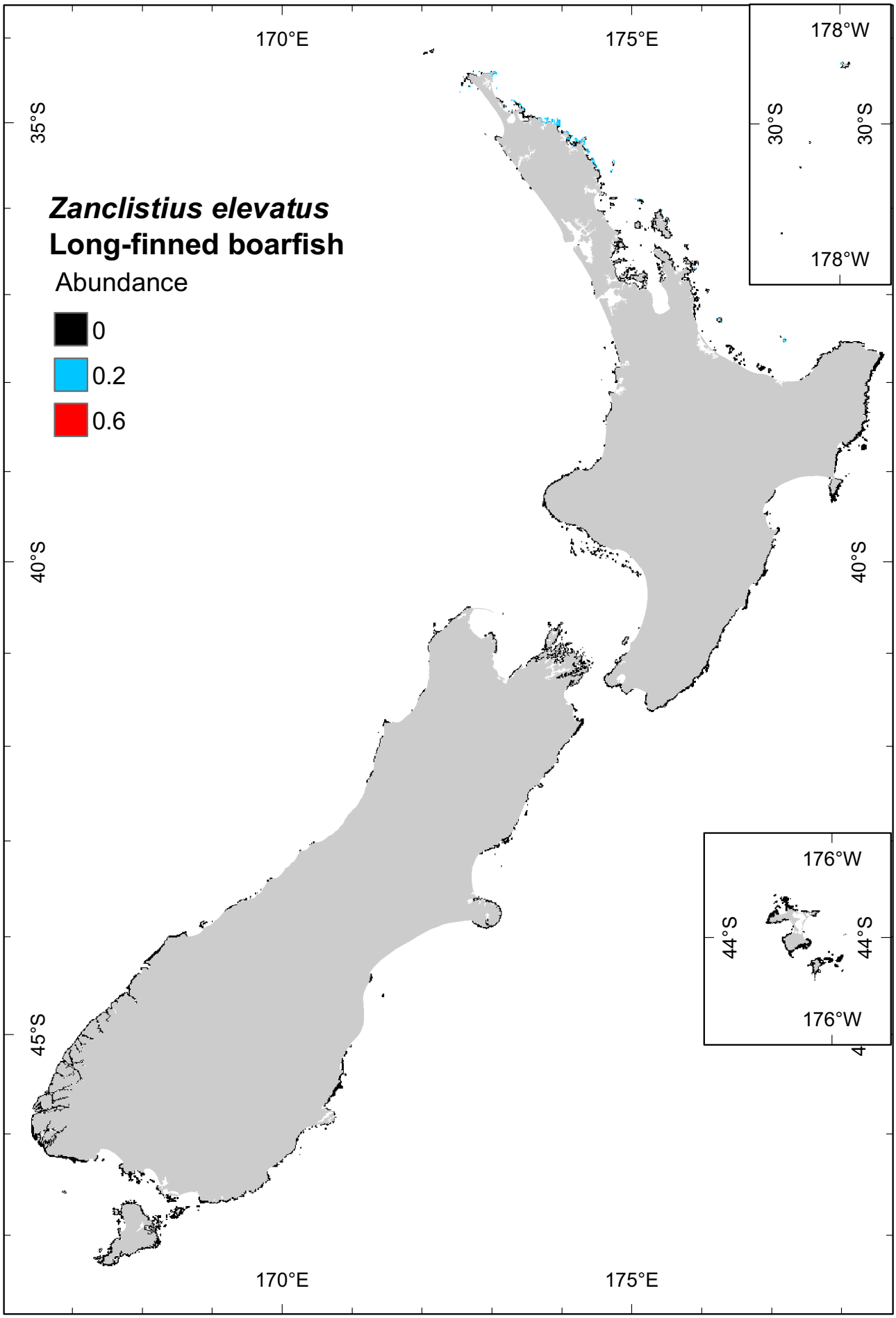

Figure S1.71. The predicted abundance of *Zanclistius elevatus* (long-finned boarfish) on rocky reefs around New Zealand.

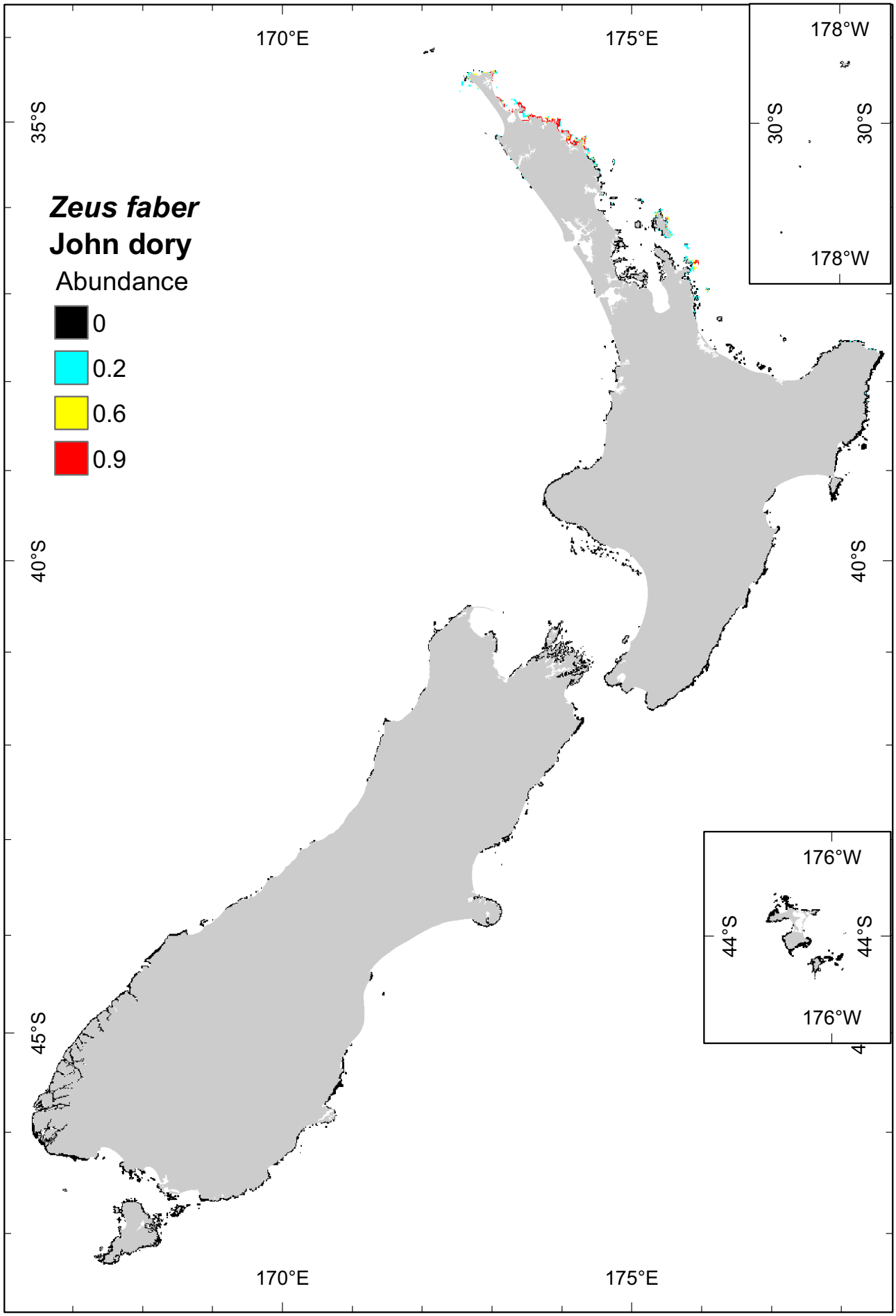

Figure S1.72. The predicted abundance of *Zeus faber* (john dory) on rocky reefs around New Zealand.