#### **Appendix S6**

#### **Model predictions**

A warming western boundary current increases the prevalence of commercially disruptive parasites in broadbill swordfish

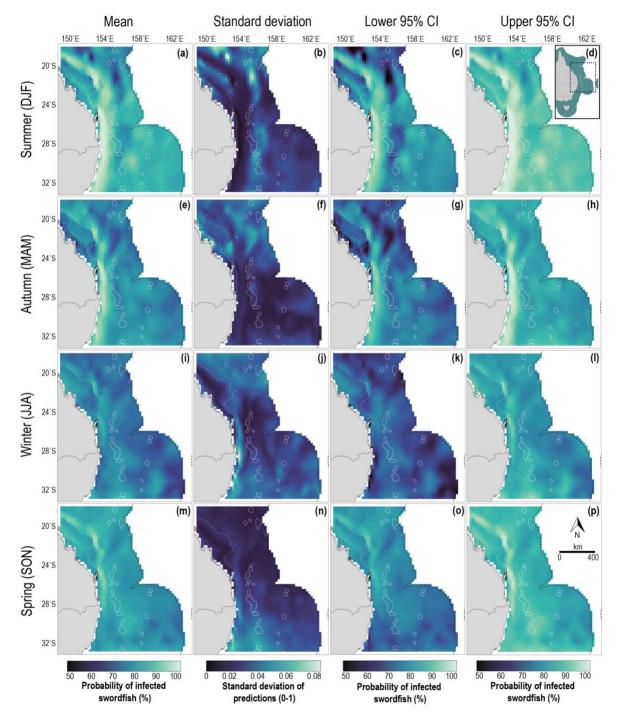
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#### Fisheries Oceanography

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#### Figure S1

Seasonal predictions of the prevalence of infection, and the associated uncertainty for the Austral (a-d) summer, (e-h) autumn, (i-l) winter and (m-p) spring. Dashed white line is the continental shelf as depicted by the 200 m isobath. Solid white lines are outlines of seamounts and guyots (Harris et al. 2014). Dashed black line is the extent of the Exclusive Economic Zone (EEZ). The inset map in panel (h) outlines the study region in relation to the EEZ, coloured in green.



#### Figure S2

Seasonal predictions of the intensity of infection, and the associated uncertainty for the Austral (a-d) summer, (e-h) autumn, (i-l) winter and (m-p) spring. Dashed white line is the continental shelf as depicted by the 200 m isobath. Solid white lines are outlines of seamounts and guyots (Harris et al. 2014). Dashed black line is the extent of the Exclusive Economic Zone (EEZ). The inset map in panel (h) outlines the study region in relation to the EEZ, coloured in green.

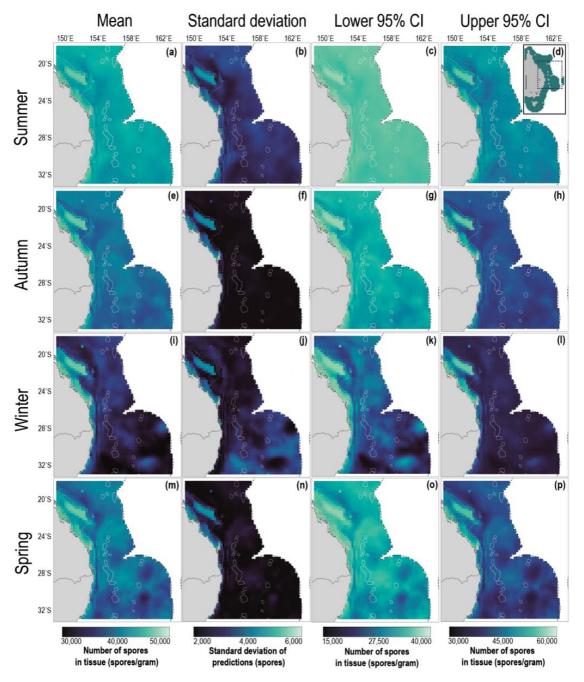
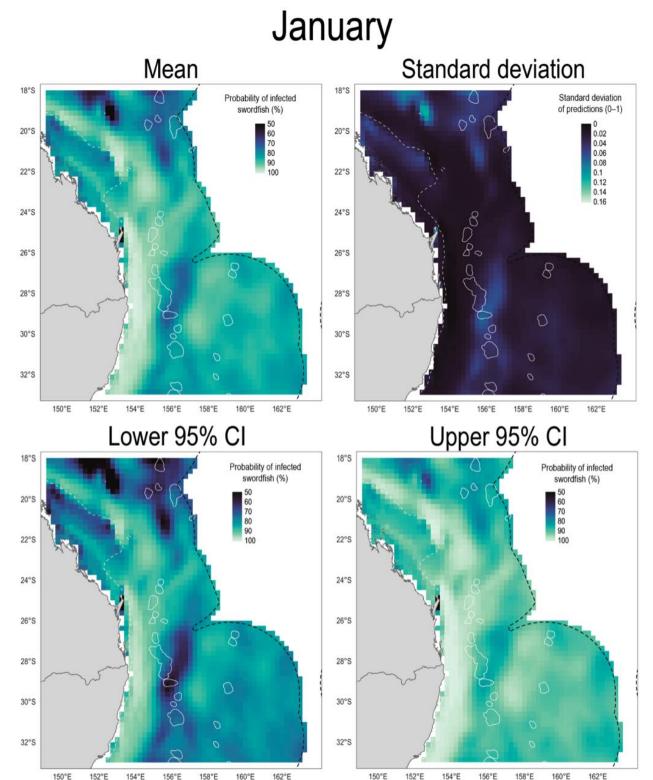
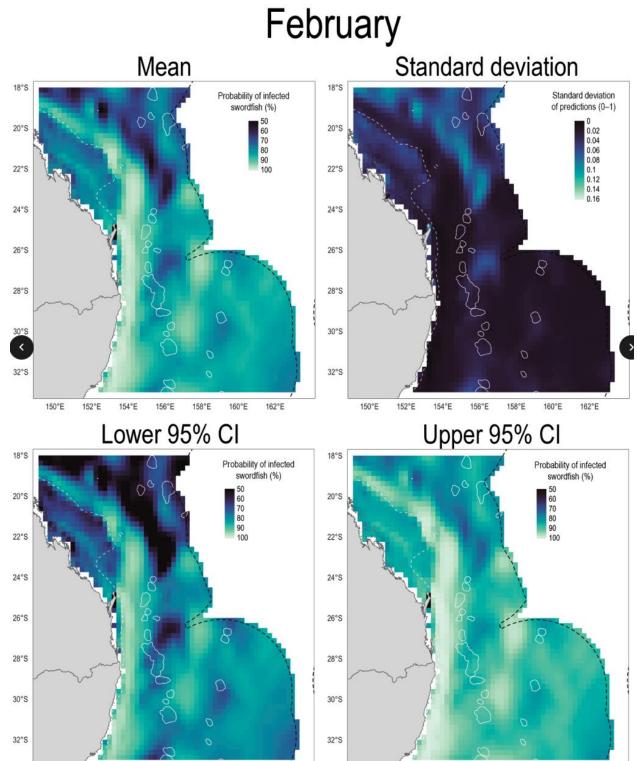


Figure S3

Probability of harvesting an infected swordfish in January, and associated uncertainty metrics.



**Figure S4**Probability of harvesting an infected swordfish in February, and associated uncertainty metrics.



156°E

160°E

162°E

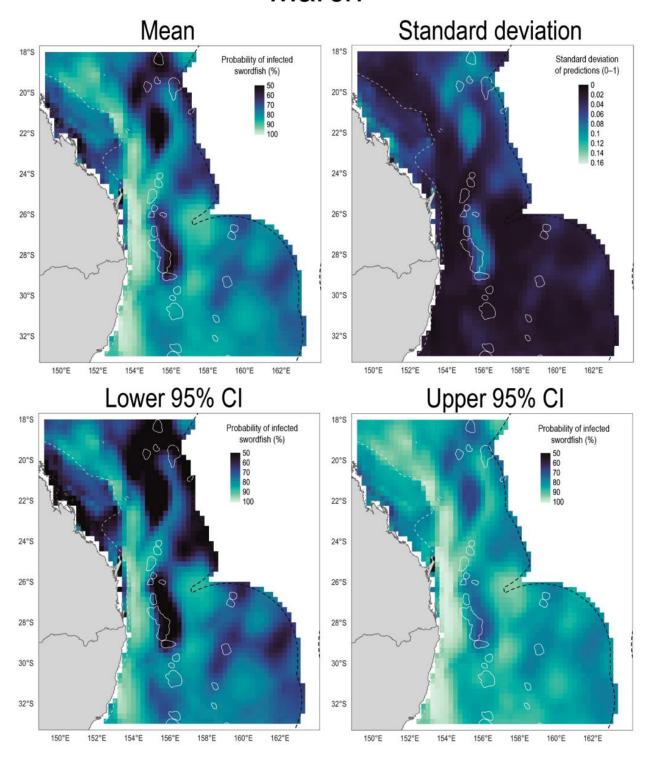
154°E

160°E

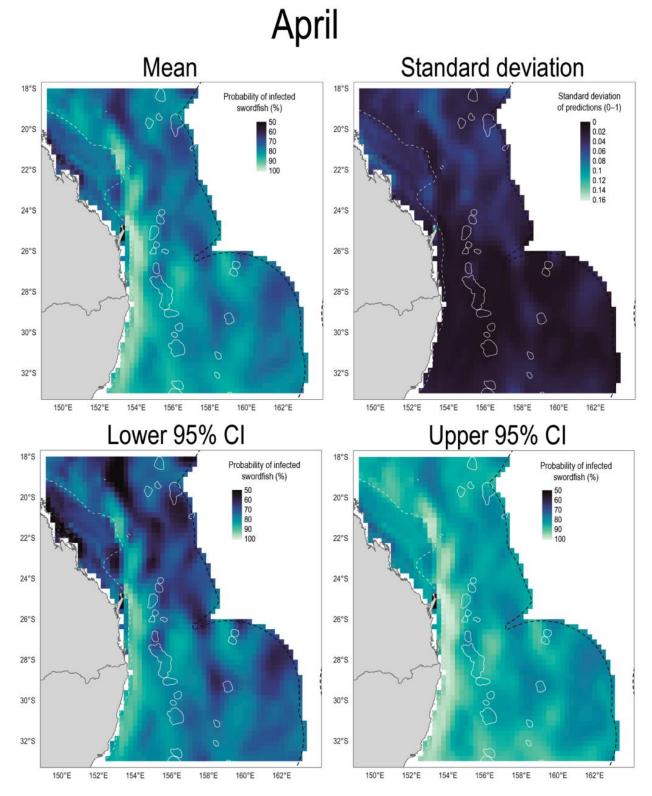
Figure S5

Probability of harvesting an infected swordfish in March, and associated uncertainty metrics.

## March



**Figure S6**Probability of harvesting an infected swordfish in April, and associated uncertainty metrics.



**Figure S7**Probability of harvesting an infected swordfish in May, and associated uncertainty metrics.

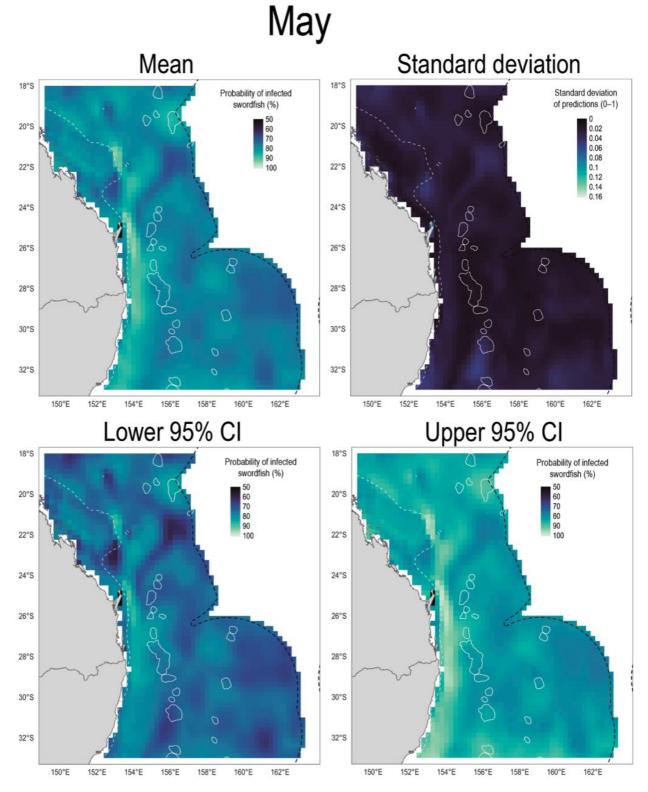
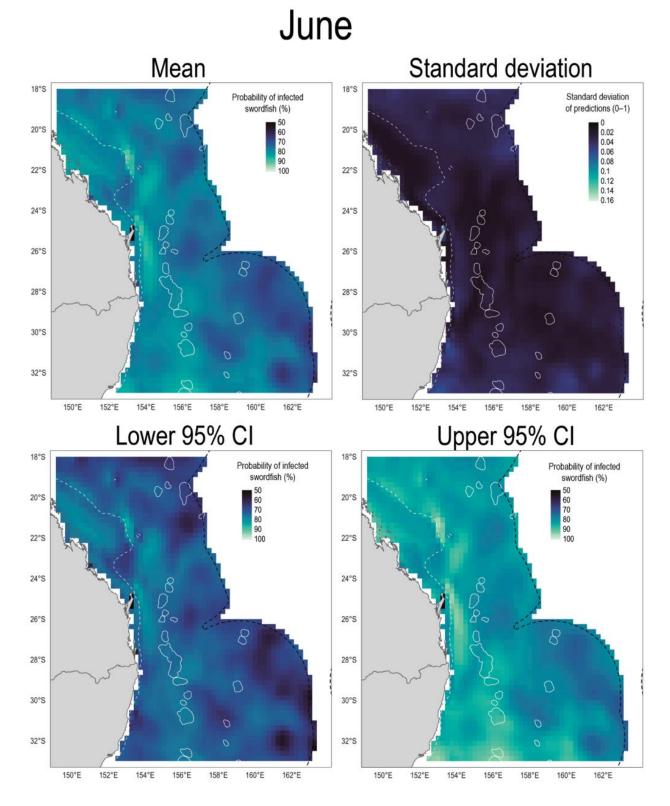


Figure S8

Probability of harvesting an infected swordfish in June, and associated uncertainty metrics.



**Figure S9**Probability of harvesting an infected swordfish in July, and associated uncertainty metrics.

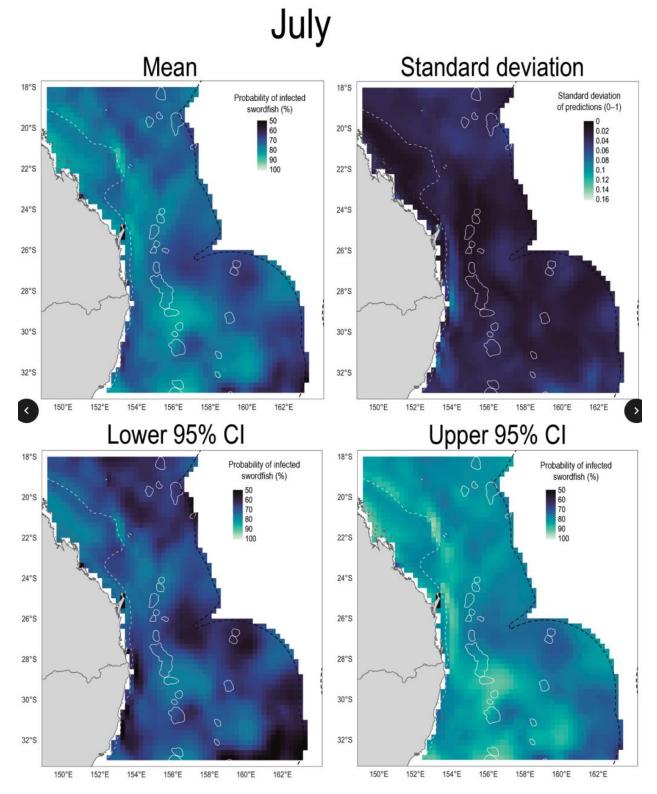


Figure S10

Probability of harvesting an infected swordfish in August, and associated uncertainty metrics.

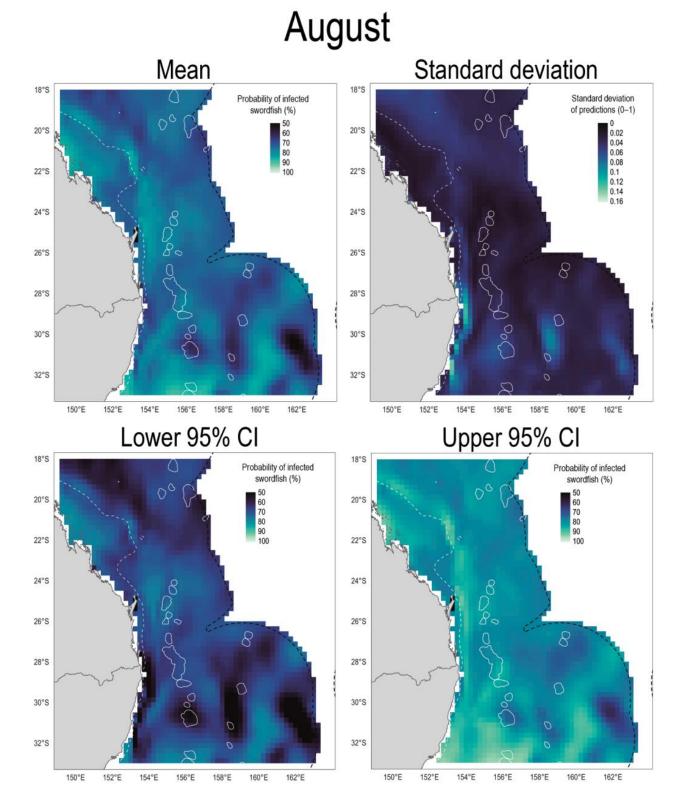


Figure S11
Probability of harvesting an infected swordfish in September, and associated uncertainty metrics.

# September

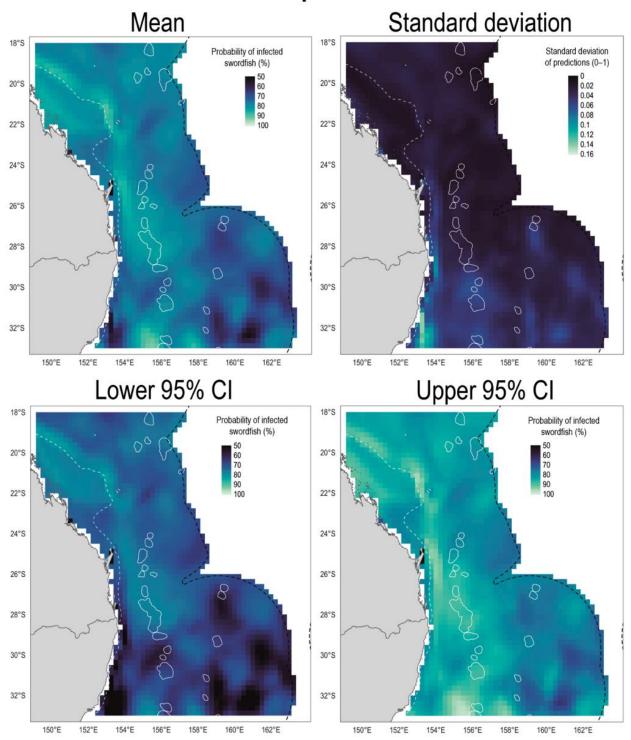


Figure S12

Probability of harvesting an infected swordfish in October, and associated uncertainty metrics.

#### October Standard deviation Mean 18°S Standard deviation Probability of infected of predictions (0-1) swordfish (%) 50 60 70 80 90 100 0 0.02 0.04 20°S 20°S 0.06 0.08 22°S 0.1 0.12 0.14 24°S 24°S 26°S 26°S 28°S 28°S 30°S 30°S 32°S 32°S Upper 95% CI Lower 95% CI 18°S 18°S Probability of infected Probability of infected swordfish (%) swordfish (%) 50 60 70 80 90 100 50 60 70 80 90 100 20°S 20°S 22°S 22°S 24°S 24°S 26°S 26°S

28°S

30°S

32°S

150°E

162°E

28°S

30°S

32°S

152°E

160°E

Figure S13

Probability of harvesting an infected swordfish in November, and associated uncertainty metrics.

### November

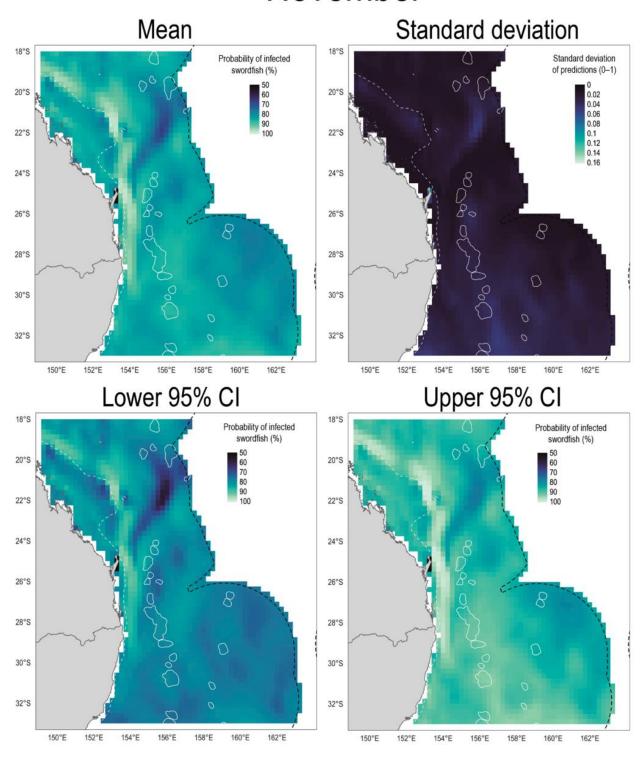


Figure S14

Probability of harvesting an infected swordfish in December, and associated uncertainty metrics.

### December

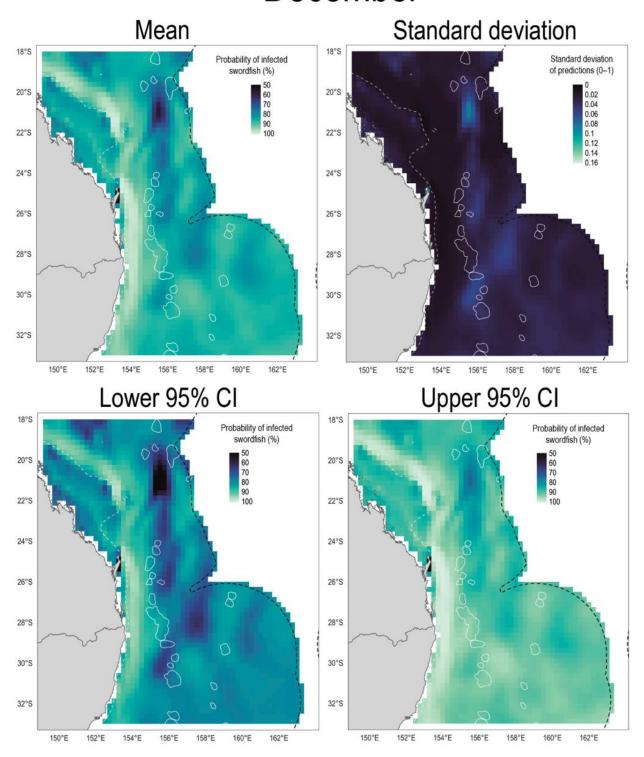


Figure S15

Predicted spore counts of infected swordfish in January, and associated uncertainty metrics.

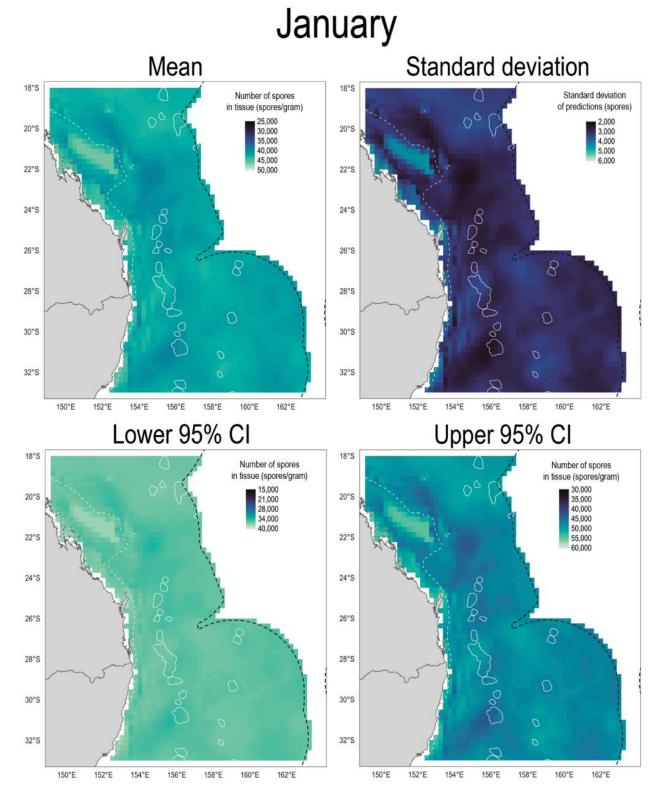
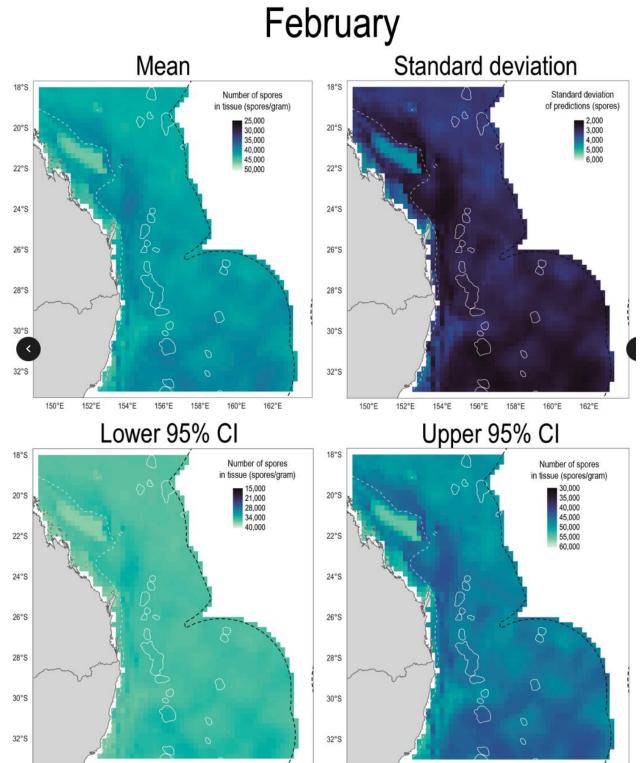


Figure S16

Predicted spore counts of infected swordfish in February, and associated uncertainty metrics.



154°E

152°E

150°E

158°E

160°E

162°E

150°E

152°E

154°E

156°E

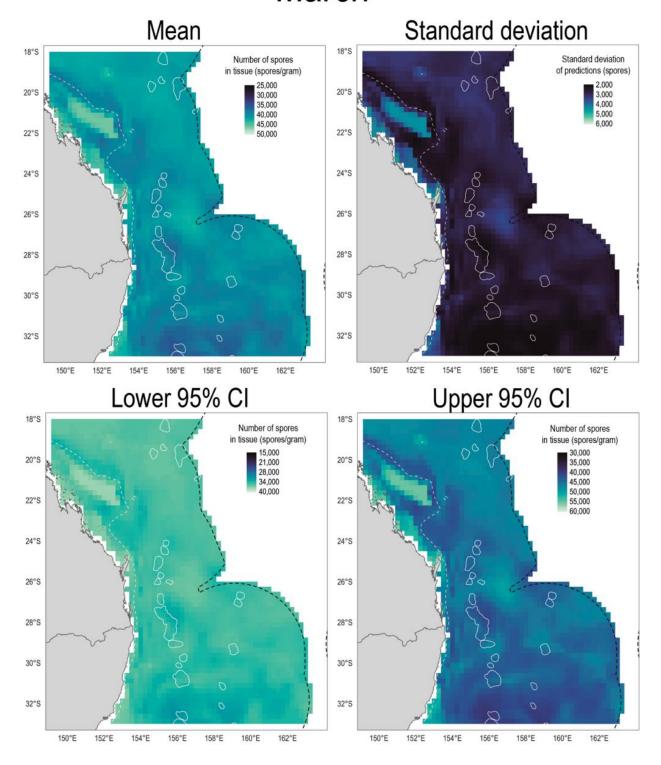
160°E

156°E

Figure S17

Predicted spore counts of infected swordfish in March, and associated uncertainty metrics.

## March



 $\label{eq:Figure S18} \textbf{Predicted spore counts of infected swordfish in April, and associated uncertainty metrics.}$ 

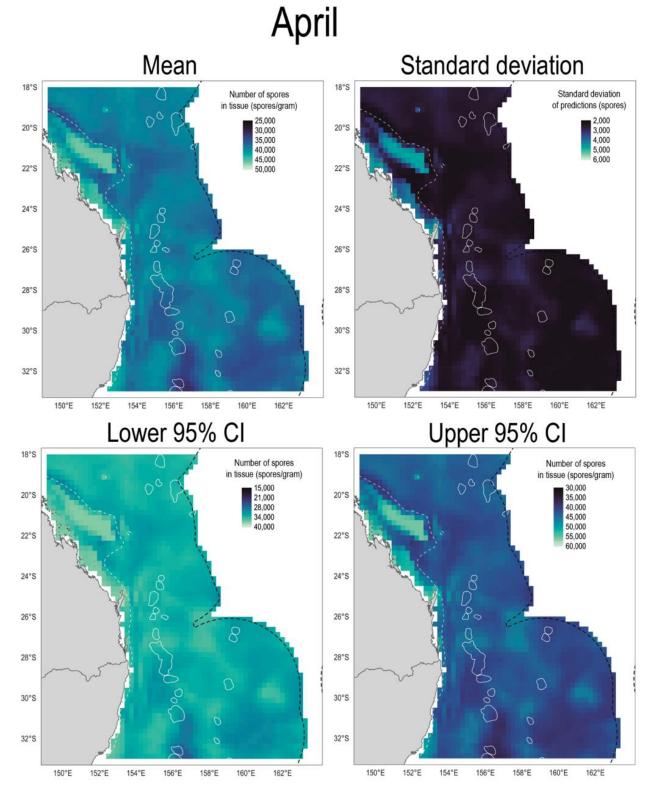


Figure S19

Predicted spore counts of infected swordfish in May, and associated uncertainty metrics.

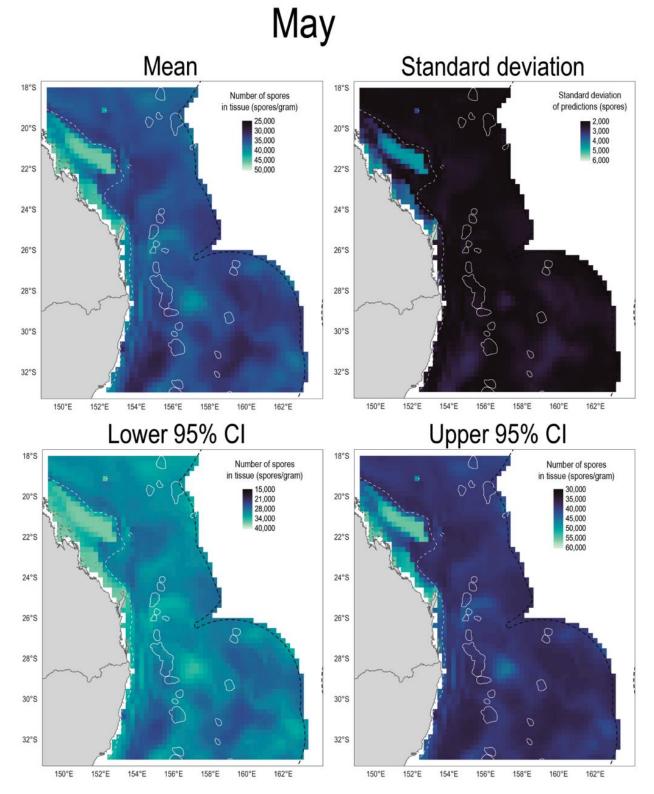


Figure S20
Predicted spore counts of infected swordfish in June, and associated uncertainty metrics.

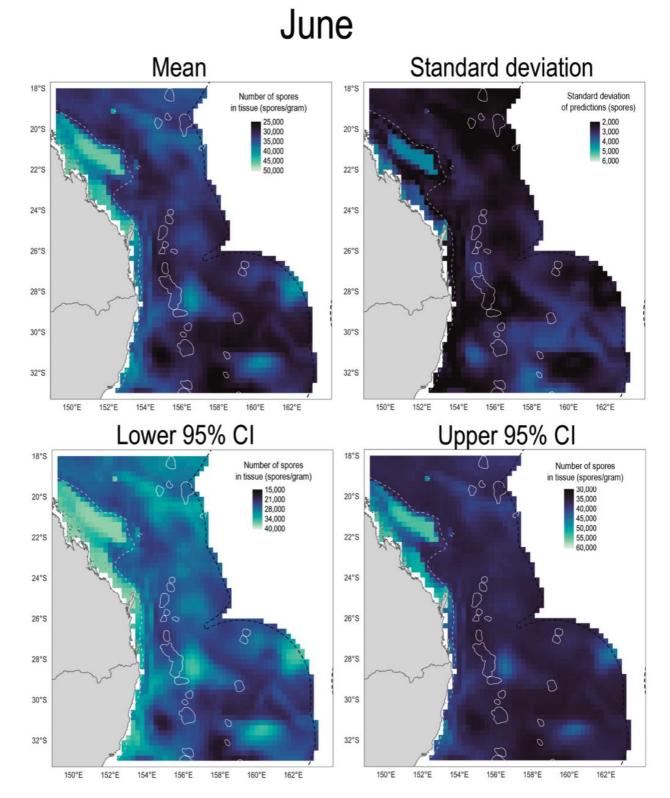


Figure S21
Predicted spore counts of infected swordfish in July, and associated uncertainty metrics.

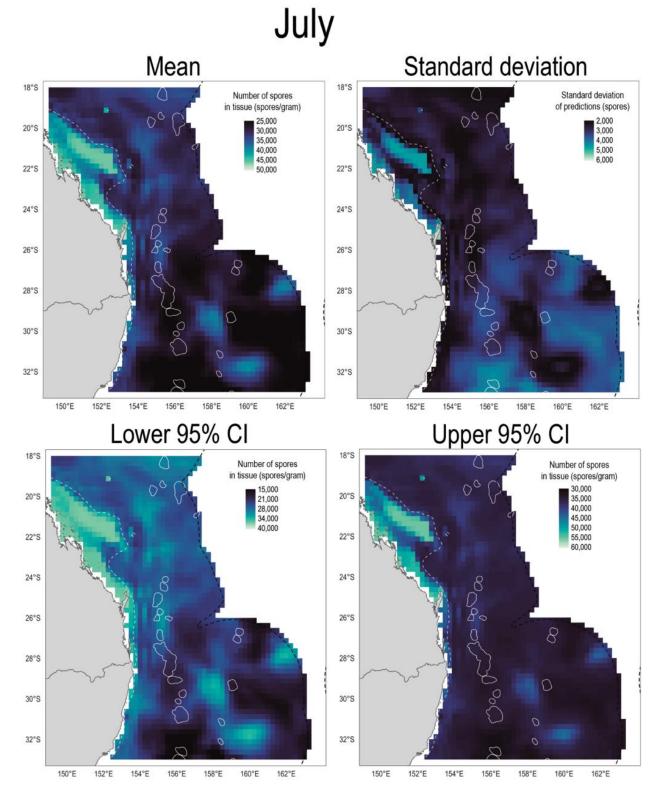


Figure S22

Predicted spore counts of infected swordfish in August, and associated uncertainty metrics.

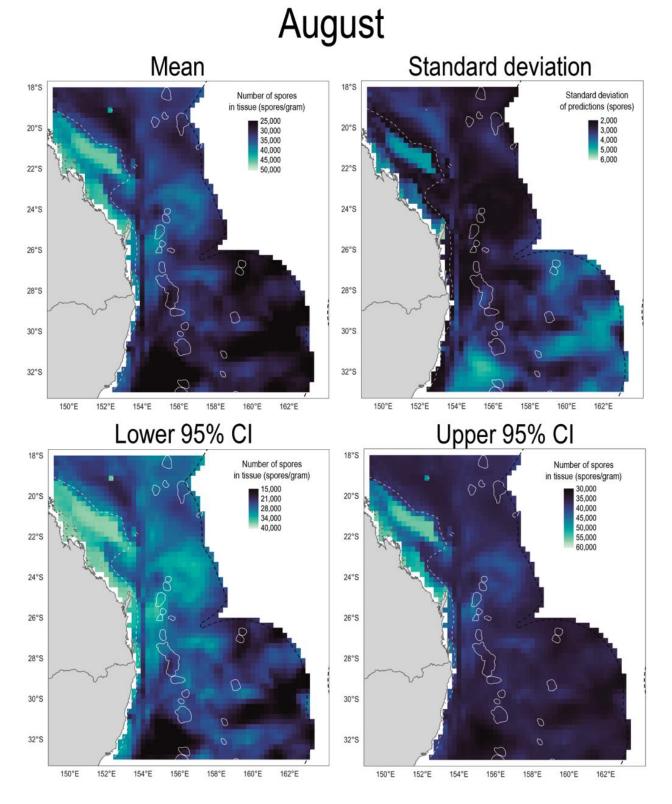


Figure S23
Predicted spore counts of infected swordfish in September, and associated uncertainty metrics.

# September

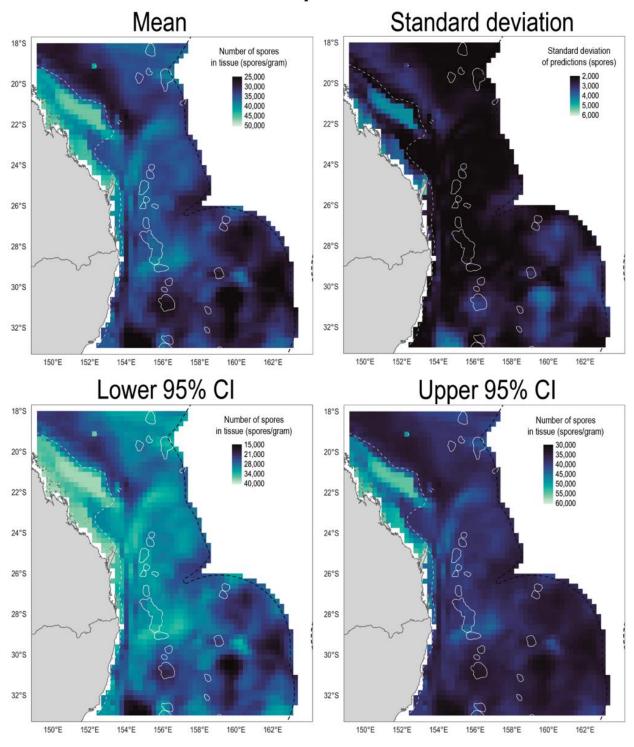


Figure S24

Predicted spore counts of infected swordfish in October, and associated uncertainty metrics.

## October

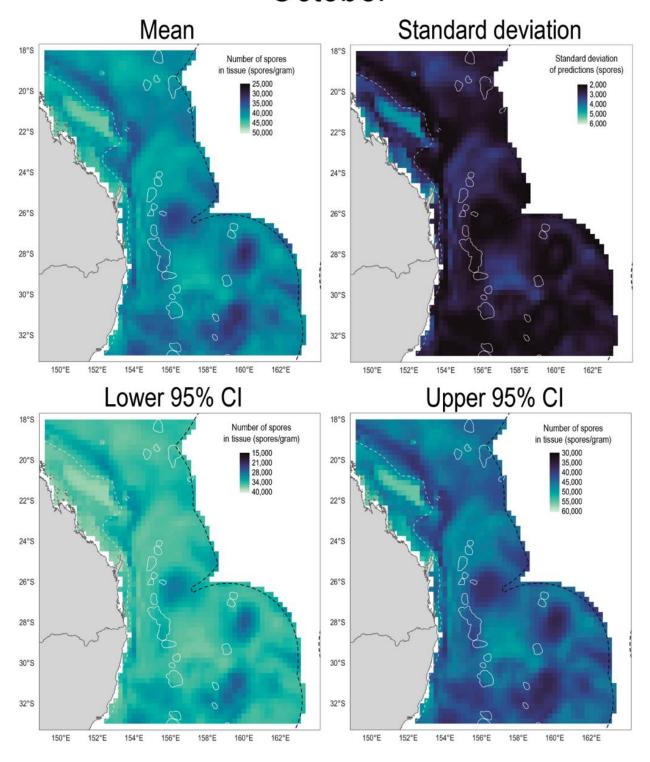


Figure S25

Predicted spore counts of infected swordfish in November, and associated uncertainty metrics.

### November

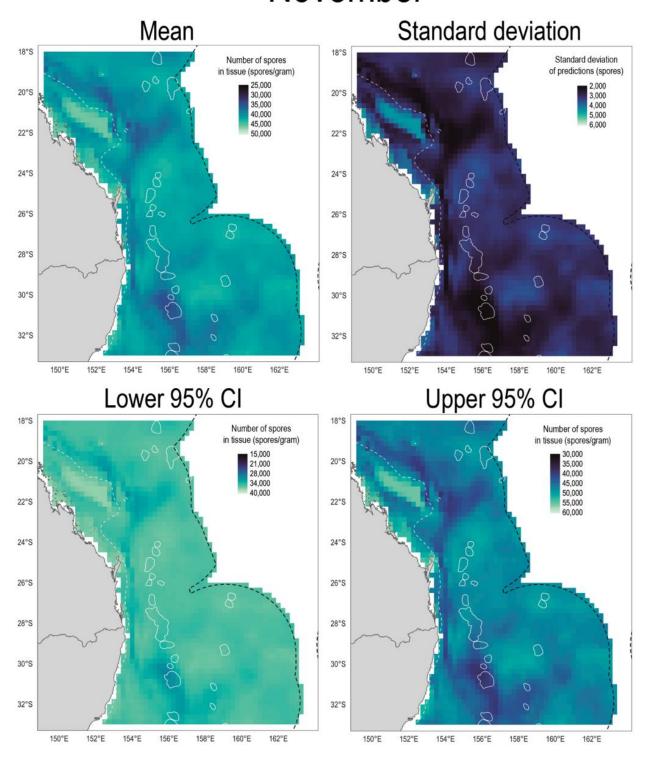


Figure S26

Predicted spore counts of infected swordfish in December, and associated uncertainty metrics.

### December

