Table S1. Marine bird species and their life history traits detected in the study area. Life history information was synthesized from Kaufman (2001) and Kenyon et al. (2009).

[a] Indicates species with 30 or fewer detections

[b] Indicates species with 5 or fewer detections

Family	Species detected in the study area	Latin Name	Diet at Sea	Foraging behaviour at sea	Breeding behaviour	Marine habitat use
Alcidae	Ancient Murrelet	_Synthliboramphus antiquus_	Proportions vary by species - primarily fish and/or zooplankton	Moderate to deep divers	Colonial in the boreal spring and summer; colonies of some of the species occur in the study area	Obligate
	Cassin's Auklet	_Ptychoramphus aleuticus_				
	Common Murre	_Uria aalge_				
	Horned Puffin [a]	_Fratercula corniculate_				
	Least Auklet [b]	_Aethia pusilla_				
	Marbled Murrelet	_Brachyramphus marmoratus_				
	Parakeet Auklet	_Aethia psittacula_				
	Pigeon Guillemot	_Cepphus columba_				
	Rhinoceros Auklet	_Cerorhinca monocerata_				
	Thick-billed Murre [a]	_Uria lomvia_				
	Tufted Puffin	_Fratercula cirrhata_				
	Xantus's Murrelet [a]	_Synthliboramphus sp._				
Laridae	Arctic Tern	_Sterna paradisaea_	Fish and invertebrates	Surface feeders and shallow divers	Colonial in the boreal spring and summer; colonies of some of the species occur in the study area	Varies by species
	Black-legged Kittiwake	_Rissa tridactyla_				
	Bonaparte's Gull	_Larus Philadelphia_				
	California Gull	_Larus californicus_				
	Caspian Tern [b]	_Hydroprogne caspia_				
	Common Tern [b]	_Sterna hirundo_				
	Glaucous-winged Gull	_Larus glaucescens_				
	Glaucous Gull [a]	_Larus hyperboreus_				
	Heermann's Gull [a]	_Larus heermanni_				
	Herring Gull	_Larus argentatus_				
	Thayer's Gull	_Larus glaucoides_				

	Mew Gull	*Larus canus*				
	Sabine's Gull	*Xema sabini*				
	Slaty-backed Gull [b]	*Larus schistisagus*				
	Western Gull	*Larus occidentalis*				
Diomedeidae	Black-footed Albatross	*Phoebastria nigripes*	Squid, fish, and eggs	Surfacer feeders and occasional shallow divers	Colonial in the boreal fall and winter; breeds outside the study area	Obligate
	Laysan Albatross	*Phoebastria immutabilis*				
	Short-tailed Albatross [a]	*Phoebastria albatrus*				
Hydrobatidae	Fork-tailed Storm-Petrel	*Hydrobates furcatus*	Zooplankton and fish	Surface feeders and shallow divers	Colonial in the boreal spring and summer; some colonies occur in the study area	Obligate
	Leach's Storm-Petrel	*Hydrobates leucorhous*				
Procellariidae	Black-vented Shearwater [b]	*Puffinus opisthomelas*	Proportions vary by species - primarily fish and/or zooplankton	Surface feeders and shallow to moderate divers	Colonial in the boreal spring and summer; primarily breeds outside of the study area	Obligate
	Buller's Shearwater	*Ardenna bulleri*				
	Flesh-footed Shearwater [b]	*Ardenna carneipes*				
	Hawaiian Petrel [b]	*Pterodroma sandwichensis*				
	Manx Shearwater [b]	*Puffinus puffinus*				
	Mottled Petrel	*Pterodroma inexpectata*				
	Murphy's Petrel [a]	*Pterodroma ultima*				
	Northern Fulmar	*Fulmarus glacialis*				
	Pink-footed Shearwater	*Ardenna creatopus*				
	Short-tailed Shearwater	*Ardenna tenuirostris*				
	Sooty Shearwater	*Ardenna grisea*				
Scolopacidae	Red-necked Phalarope	*Phalaropus lobatus*	Zooplankton and macroinvertebrates	Surface feeders	Dispersed breeder in the boreal spring/summer; breeds outside the study area	Obligate
	Red Phalarope	*Phalaropus fulicarius*				

| *Phalacrocoracidae*	Brandt's Cormorant	*Urile penicillatus*	Primarily fish and some macroinvertebrates	Moderate divers	Colonial in the boreal spring/summer, colonies occur in study area	Varies by species
	Double-crested Cormorant	*Nannopterum auritus*				
	Pelagic Cormorant	*Urile pelagicus*				
Stercorariidae	Long-tailed Jaeger	*Stercorarius longicaudus*	Primarily fish and some macroinvertebrates	Kleptoparasite, occasional surface feeder	Dispersed breeder in the boreal spring/summer; breeds outside the study area	Obligate in the nonbreeding season
	Parasitic Jaeger	*Stercorarius parasiticus*				
	Pomarine Jaeger	*Stercorarius pomarinus*				
	South Polar Skua	*Catharacta maccormicki*				
Gaviidae	Common Loon	*Gavia immer*	Fish and macroinvertebrates	Moderate divers	Colonial in the boreal spring/summer, colonies occur in the study area	Varies by species
	Pacific Loon	*Gavia pacifica*				
	Red-throated Loon	*Gavia stellata*				
	Yellow-billed Loon	*Gavia adamsii*				
Anatidae	Barrow's Goldeneye [a]	*Bucephala islandica*	Macroinvertebrates, fish and fish eggs	Shallow diver to moderate diver	Dispersed breeder in the boreal spring/summer; breeds outside the study area	Facultative in nonbreeding season
	Black Brant [a]	*Branta bernicla*				
	Black Scoter [a]	*Melanitta americana*				
	Bufflehead [a]	*Bucephala albeola*				
	Common Goldeneye [b]	*Bucephala clangula*				
	Common Merganser	*Mergus Merganser*				
	Harlequin Duck	*Histrionicus histrionicus*				
	Hooded Merganser [b]	*Lophodytes cucullatus*				
	Long-tailed Duck	*Clangula hyemalis*				
	Red-breasted Merganser [a]	*Mergus serrator*				
	Surf Scoter	*Melanitta perspicillata*				
	White-winged Scoter	*Melanitta deglandi*				
Podicipedidae	Horned Grebe [b]	*Podiceps auritus*	Macroinvertebrates and fish	Moderate diver	Dispersed breeder in the boreal spring/summer; breeds outside the study area	Facultative in nonbreeding season
	Red-necked Grebe [b]	*Podiceps grisegena*				
	Western Grebe [b]	*Aechmophorus occidentalis*				
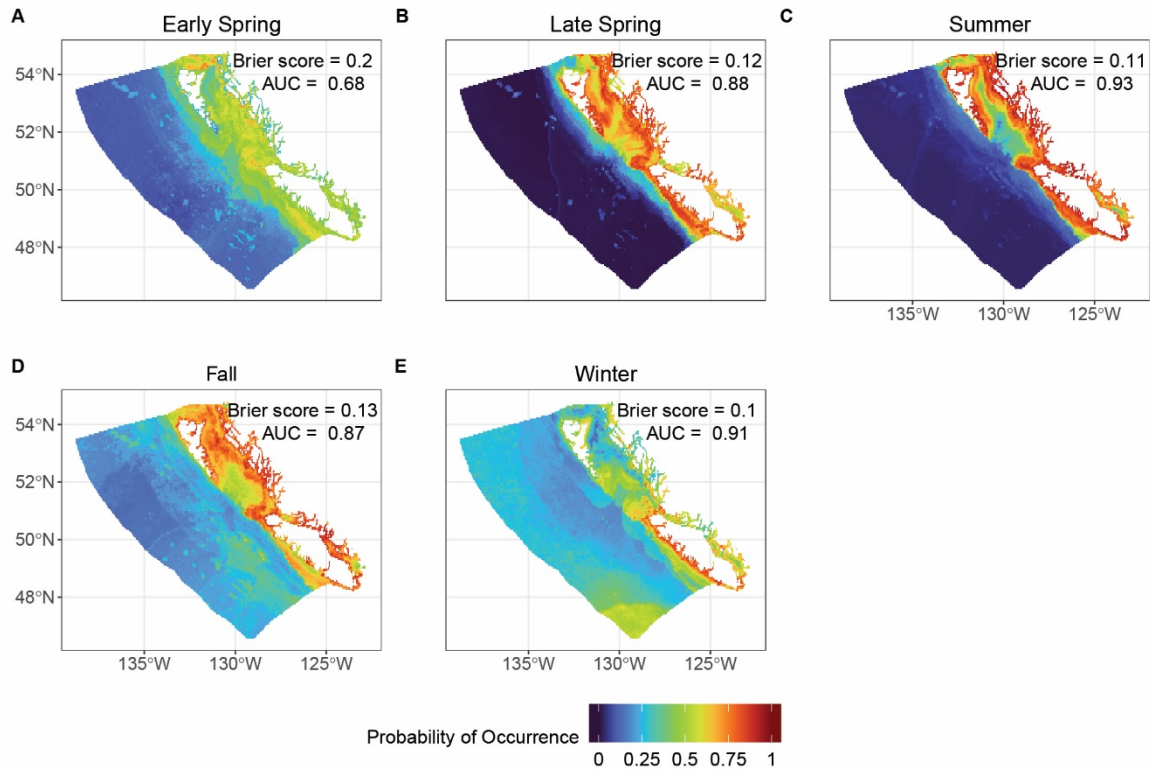
Fig. S1. Predicted probability of occurrence distribution for marine birds in the *Laridae* family in response to spatial variation in chlorophyll *a*, sea surface temperature, bathymetry, distance to shore, and benthic substrate type in A) early-spring (March and April), B) late spring (May and June), C) summer (July and August), D) fall (September and October), and E) winter (November, December, January, and February). Probability of occurrence was increased in coastal waters during late spring, summer, and fall but was less pronounced and more dispersed during the remaining seasons. Predictive models were created with classification Random Forests averaged over 1997-2017 for Canada's Exclusive Economic Zone off the coast of British Columbia. Marine bird information was obtained from strip transect surveys compiled in the North Pacific Pelagic Seabird Database.
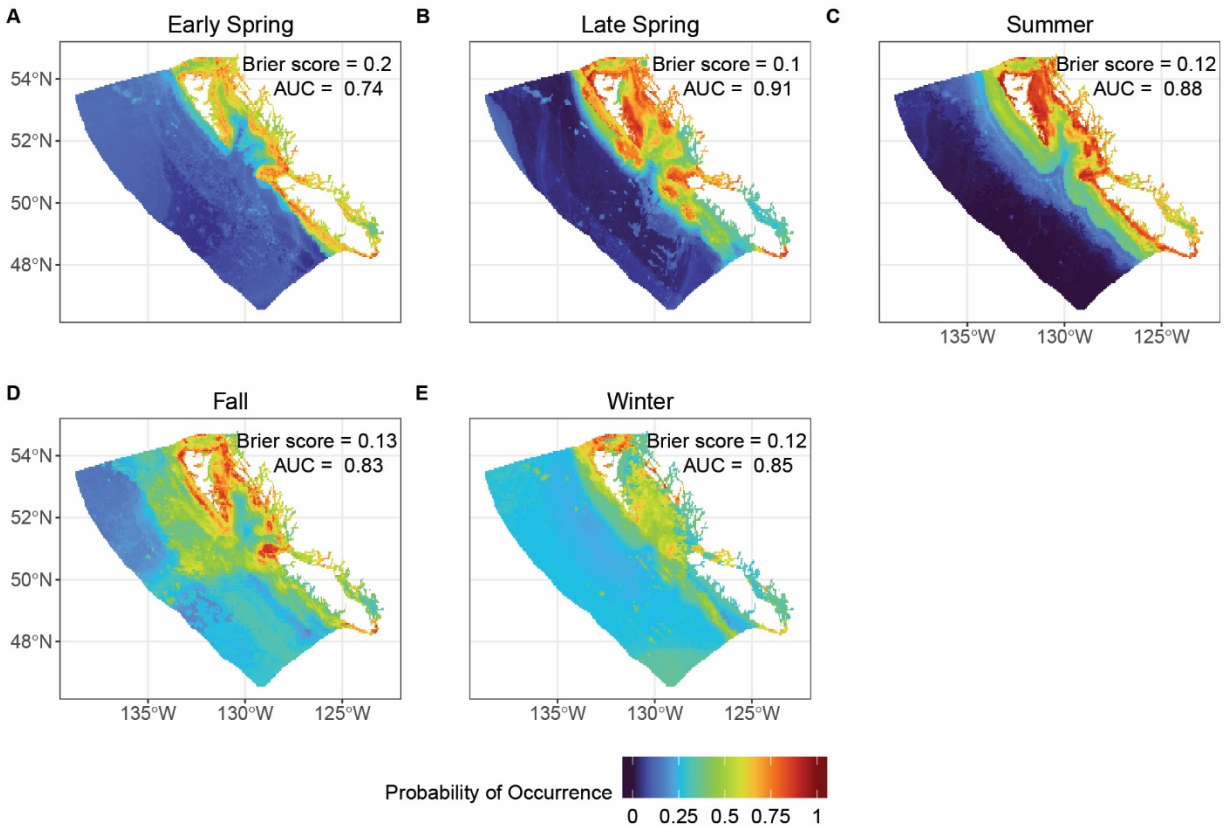
Fig. S2. Predicted probability of occurrence distribution for marine birds in the *Alcidae* family in response to spatial variation in chlorophyll *a*, sea surface temperature, bathymetry, distance to shore, and benthic substrate type in A) early-spring (March and April), B) late spring (May and June), C) summer (July and August), D) fall (September and October), and E) winter (November, December, January, and February). Probability of occurrence was highest in coastal and nearshore waters across all seasons, with waters surrounding the Scott Islands consistently showing high probabilities of occurrence. Predictive models were created with classification Random Forests averaged over 1997-2017 for Canada's Exclusive Economic Zone off the coast of British Columbia. Seabird information was obtained from strip transect surveys compiled in the North Pacific Pelagic Seabird Database.
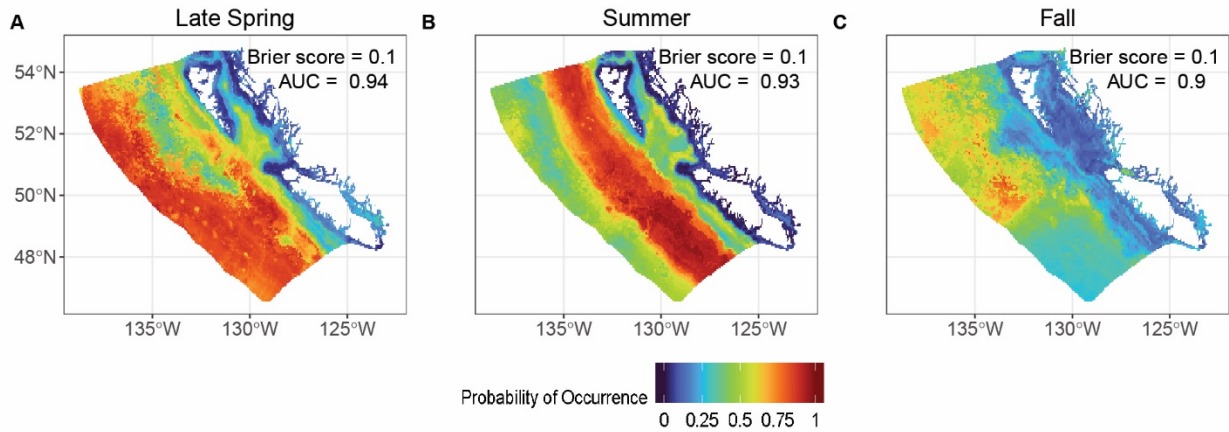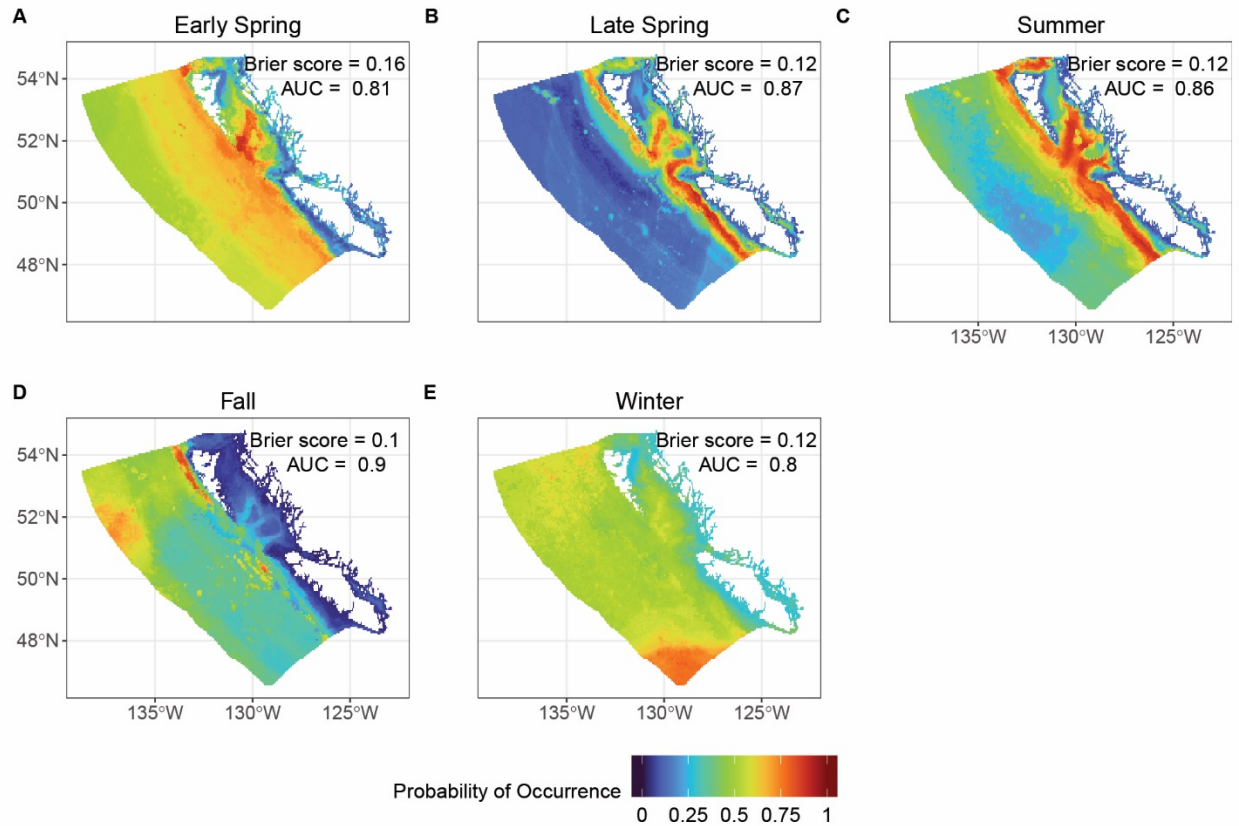
Fig. S3. Predicted probability of occurrence distribution for marine birds in the *Hydrobatidae* family in response to spatial variation in chlorophyll *a*, sea surface temperature, bathymetry, distance to shore, and benthic substrate type in A) late spring (May and June), B) summer (July and August), and C) fall (September and October). Probability of occurrence was consistently highest in offshore waters in all seasons. Predictive models were created with classification Random Forests averaged over 1997-2017 for Canada's Exclusive Economic Zone off the coast of British Columbia. Seabird information was obtained from strip transect surveys compiled in the North Pacific Pelagic Seabird Database.

Fig. S4. Predicted probability of occurrence distribution for marine birds in the *Diomedeidae* family in response to spatial variation in chlorophyll *a*, sea surface temperature, bathymetry, distance to shore, and benthic substrate type in A) early-spring (March and April), B) late spring (May and June), C) summer (July and August), D) fall (September and October), and E) winter (November, December, January, and February). Probability of occurrence was higher in Queen Charlotte Sound and near the shelf break early spring to fall. Predictive models were created with classification Random Forests averaged over 1997-2017 for Canada's Exclusive Economic Zone off the coast of British Columbia. Seabird information was obtained from strip transect surveys compiled in the North Pacific Pelagic Seabird Database.
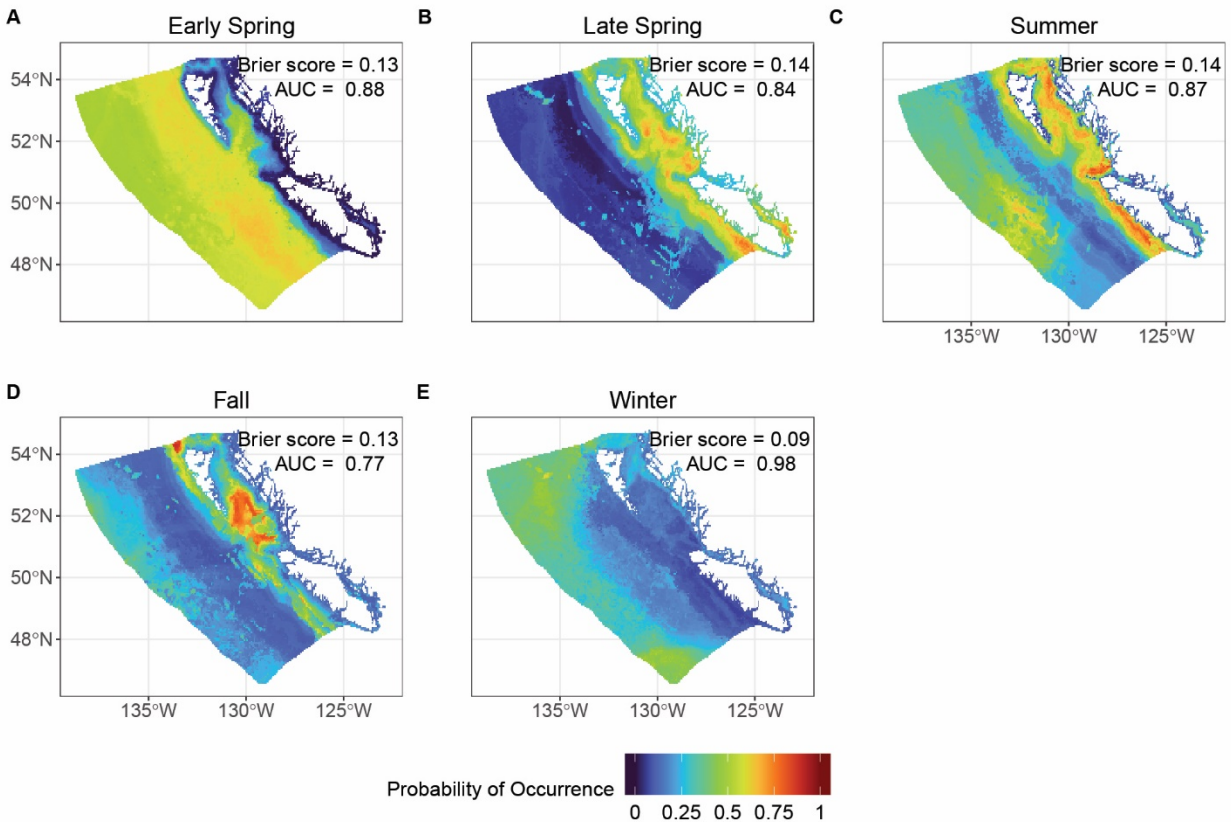
Fig. S5. Predicted probability of occurrence distribution for marine birds in the *Procellariidae* family in response to spatial variation in chlorophyll *a*, sea surface temperature, bathymetry, distance to shore, and benthic substrate type in A) early-spring (March and April), B) late spring (May and June), C) summer (July and August), D) fall (September and October), and E) winter (November, December, January, and February). Probability of occurrence was higher in Queen Charlotte Sound and near the shelf break off the west coast of Vancouver Island during late spring, summer and fall, but increased in offshore waters during the remaining seasons. Predictive models were created with classification Random Forests averaged over 1997-2017 for Canada's Exclusive Economic Zone off the coast of British Columbia. Seabird information was obtained from strip transect surveys compiled in the North Pacific Pelagic Seabird Database.
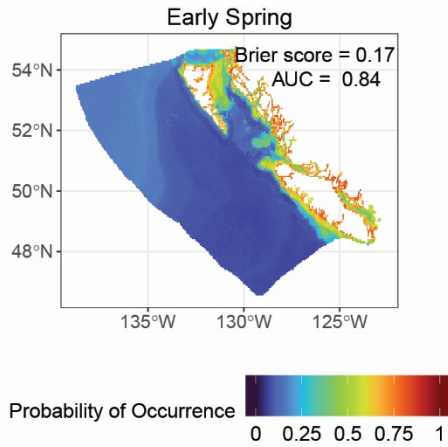
Fig. S6. Predicted probability of occurrence distribution for marine birds in the *Anatidae* family in response to spatial variation in chlorophyll *a*, sea surface temperature, bathymetry, distance to shore, and benthic substrate type in early-spring (March and April). Probability of occurrence was highest in coastal areas throughout the study area. Predictive models were created with classification Random Forests averaged over 1997-2017 for Canada's Exclusive Economic Zone off the coast of British Columbia. Seabird information was obtained from strip transect surveys compiled in the North Pacific Pelagic Seabird Database.
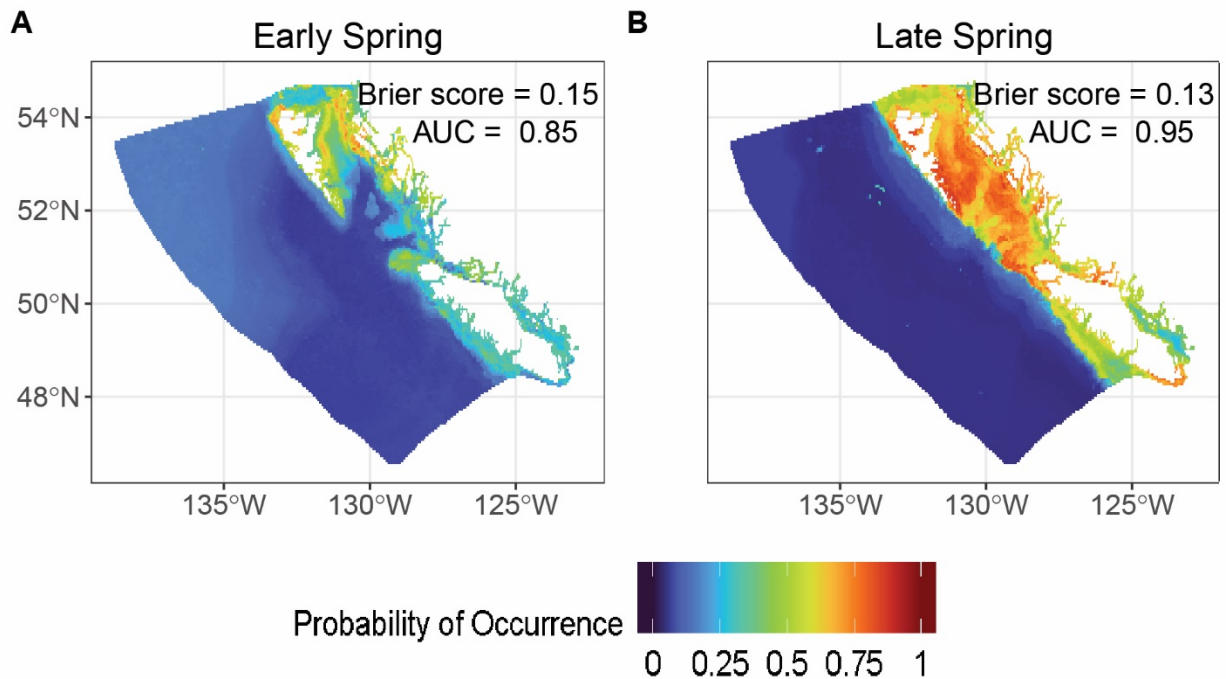
Fig. S7. Predicted probability of occurrence distribution for marine birds in the *Gaviidae* family in response to spatial variation in chlorophyll *a*, sea surface temperature, bathymetry, distance to shore, and benthic substrate type in A) early-spring (March and April) and B) late spring (May and June). Probability of occurrence was highest in coastal waters and in Queen Charlotte Sound. Predictive models were created with classification Random Forests averaged over 1997-2017 for Canada's Exclusive Economic Zone off the coast of British Columbia. Seabird information was obtained from strip transect surveys compiled in the North Pacific Pelagic Seabird Database.
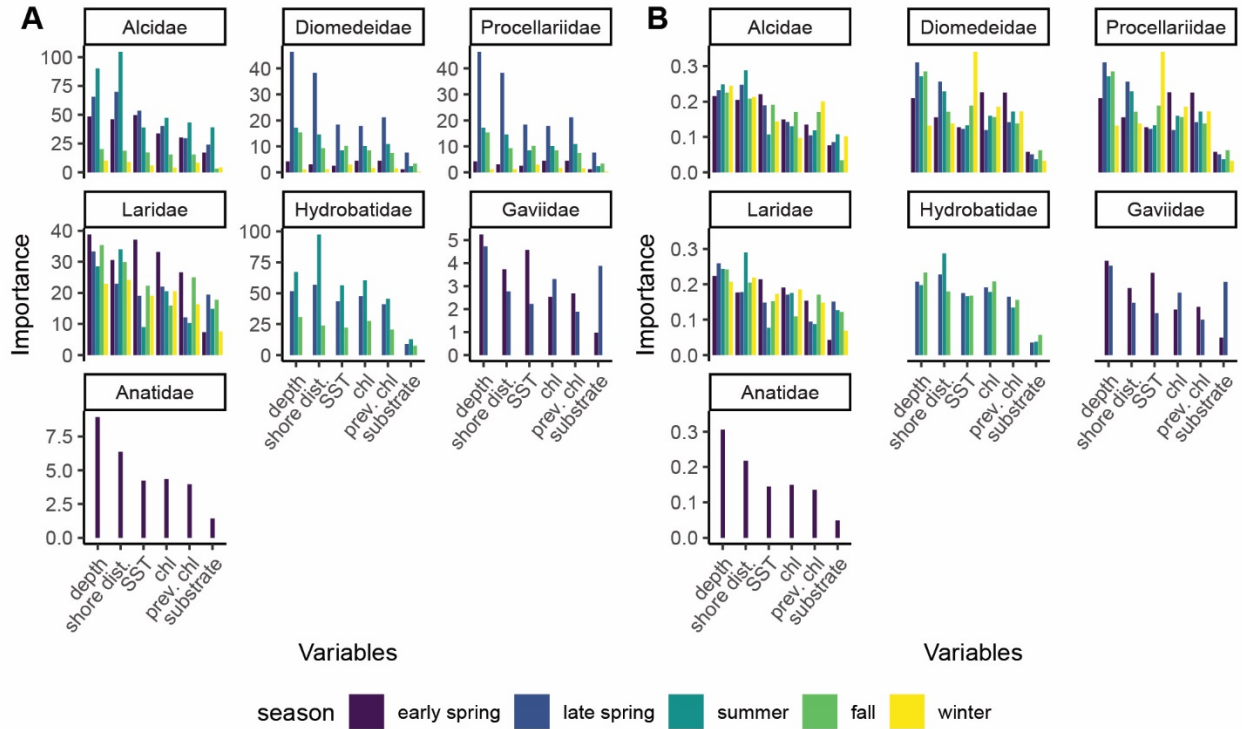
Fig. S8. Variable importance for predicting marine bird family probability of occurrence across seasons in British Columbia's exclusive economic zone measured as A) relative importance and B) absolute importance. Importance was assessed with the impurity measure (Gini index) in R's ranger package for Random Forests. Higher values indicate greater importance. Shore dist. and prev. chl are abbreviations for distance to shore and previous season's chlorophyll *a*, respectively.