

Ocean Uses and Marine Renewable Energy

Ben Best

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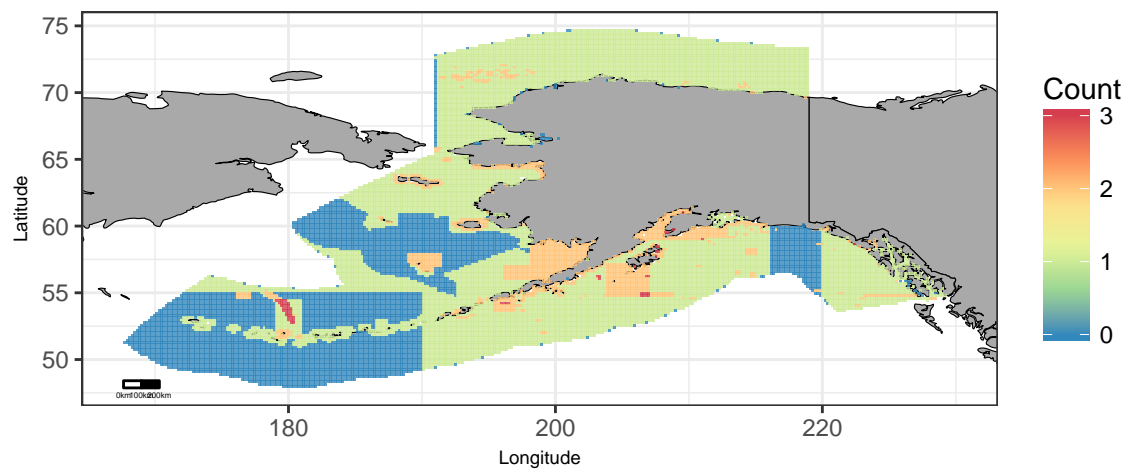


Figure 1: Map of cumulative ocean use in Alaska region.

Ocean Use Layers

Existence of ocean use layers across regions.

	Source	Layer	Alaska	Atlantic Islands	East	Great Lakes	Gulf of Mexico	Hawaii	Pacific Islands	West
1	GEBCO	Depth (m)								
2	MarineCadaastre	Active Oil & Gas Leases								
3	MarineCadaastre	Aquaculture								
4	MarineCadaastre	Essential Fish Habitat								
5	MarineCadaastre	Marine Protected Areas								
6	MarineCadaastre	Shipping Lanes								
7	NREL	Tide (W/m ²)								
8	NREL	Wave (kW/m)								
9	NREL	Wind (m/s @ 90m)								

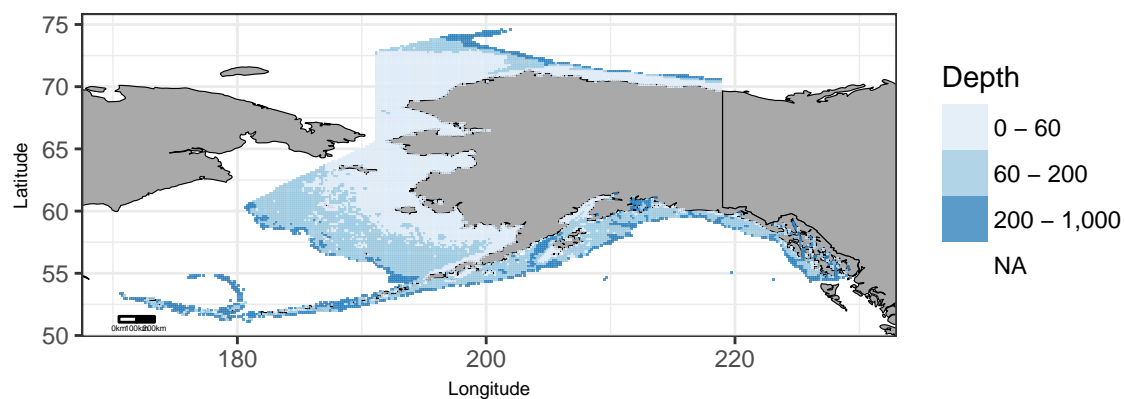


Figure 2: Map of viable depth in Alaska region.

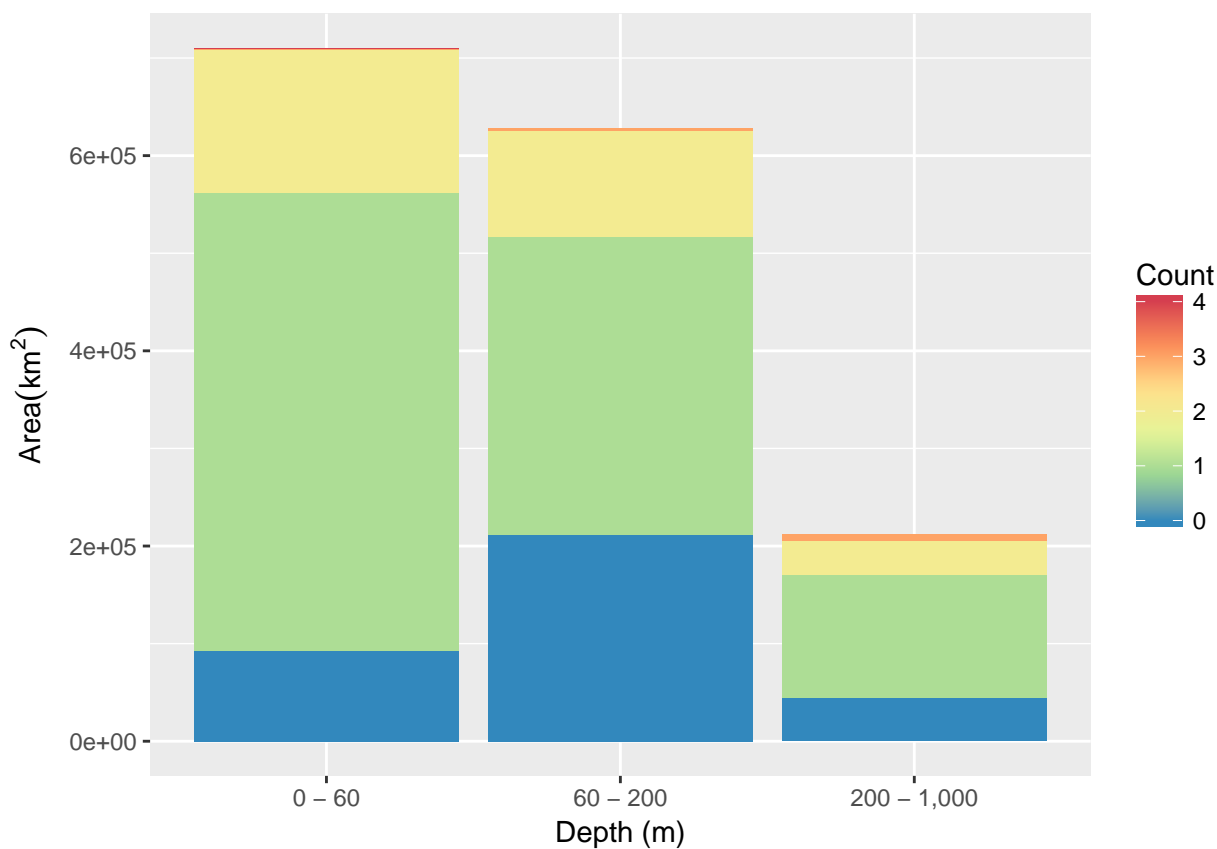


Figure 3: Area of Cumulative Ocean Use by Depth (m) for Alaska region. Cumulative use are counted and summarized by Depth (m) and area.

Alaska

Alaska: Map of Uses

Alaska: Map of Depth

Alaska: Plot of Uses by Depth

Alaska: Table of Uses by Depth

Table 1: Area (km²) of Ocean Use by Depth (m) bin for Alaska region. Width of gray horizontal bars from left of cell indicate percent area occupied in given depth bin.

Ocean Use			Area (km ²) by Depth (m)				Rank
Category	Layer	Component	0 - 60	60 - 200	200 - 1,000	Total	
	Total Area		709,865	627,590	212,112	1,549,566	0
Governance: Commercial Leases	Active Oil & Gas Leases		11,750	11	0	11,761	4
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Estuarine Research Reserve System	530	252	11	794	9
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Fisheries Service	609,470	403,506	150,351	1,163,327	1
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Park Service	806	913	341	2,060	8
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Wildlife Refuge System	12,543	1,211	127	13,881	3
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	State MPA	131,096	118,622	48,760	298,478	2
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Bowers	0	365	10,525	10,890	5
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Coral	0	42	5	47	13
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Seamount	0	0	517	517	10
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Skate	0	113	165	279	11
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Slope	12	1,248	4,237	5,497	6
Ocean Uses: Transportation: Commercial Shipping	Shipping Lanes		21	2,956	444	3,421	7
	Aquaculture	Other	62	2	0	64	12
	Aquaculture	Shellfish	0	0	0	0	14

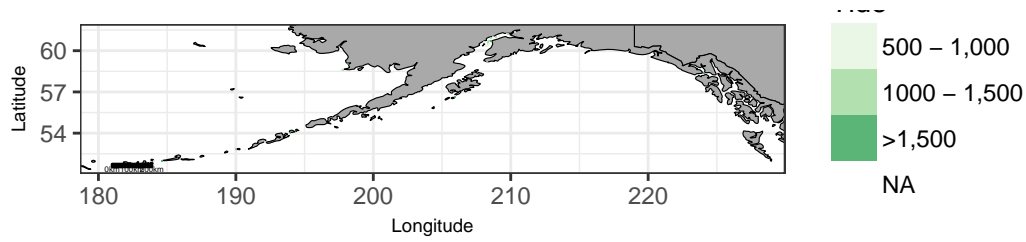


Figure 4: Map of viable tide in Alaska region.

Alaska: Map of Tide

Alaska: Plot of Uses by Tide

Alaska: Table of Uses by Tide

Table 2: Area (km²) of Ocean Use by Tide (W/m2) bin for Alaska region. Width of gray horizontal bars from left of cell indicate percent area occupied in given depth bin.

Ocean Use			Area (km ²) by Tide (W/m2)				Total	Rank
Category	Layer	Component	500 - 1,000	1000 - 1,500	>1,500			
	Total Area		1,600	390	236		2,227	0
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Fisheries Service	1,553	366	190		2,109	1
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Park Service	13	11	34		57	3
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Wildlife Refuge System	2	0	2		4	4
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	State MPA	1,219	288	123		1,631	2

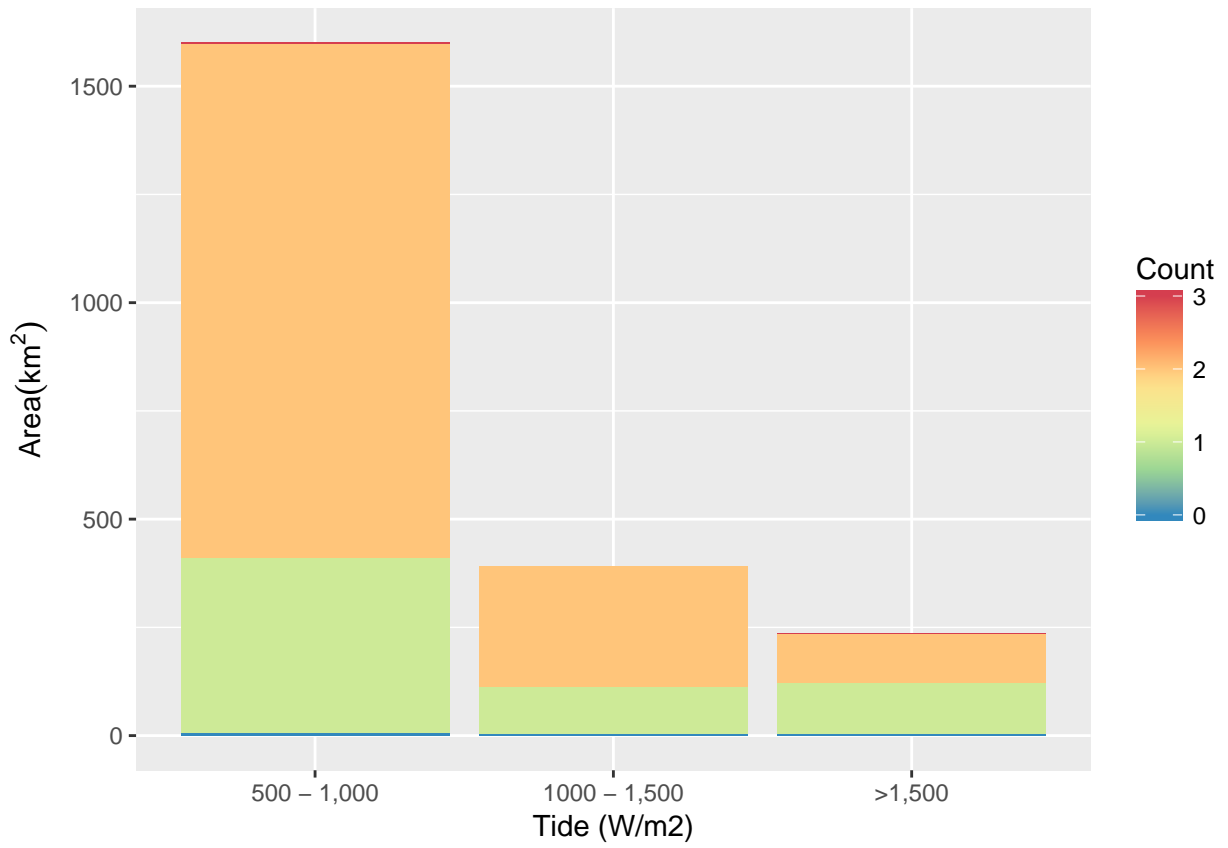


Figure 5: Area of Cumulative Ocean Use by Tide (W/m²) for Alaska region. Cumulative use are counted and summarized by Tide (W/m²) and area.

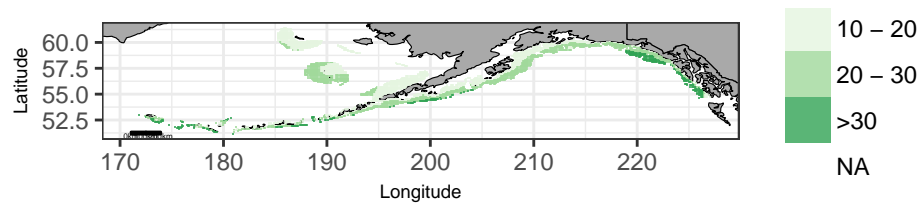


Figure 6: Map of viable wave in Alaska region.

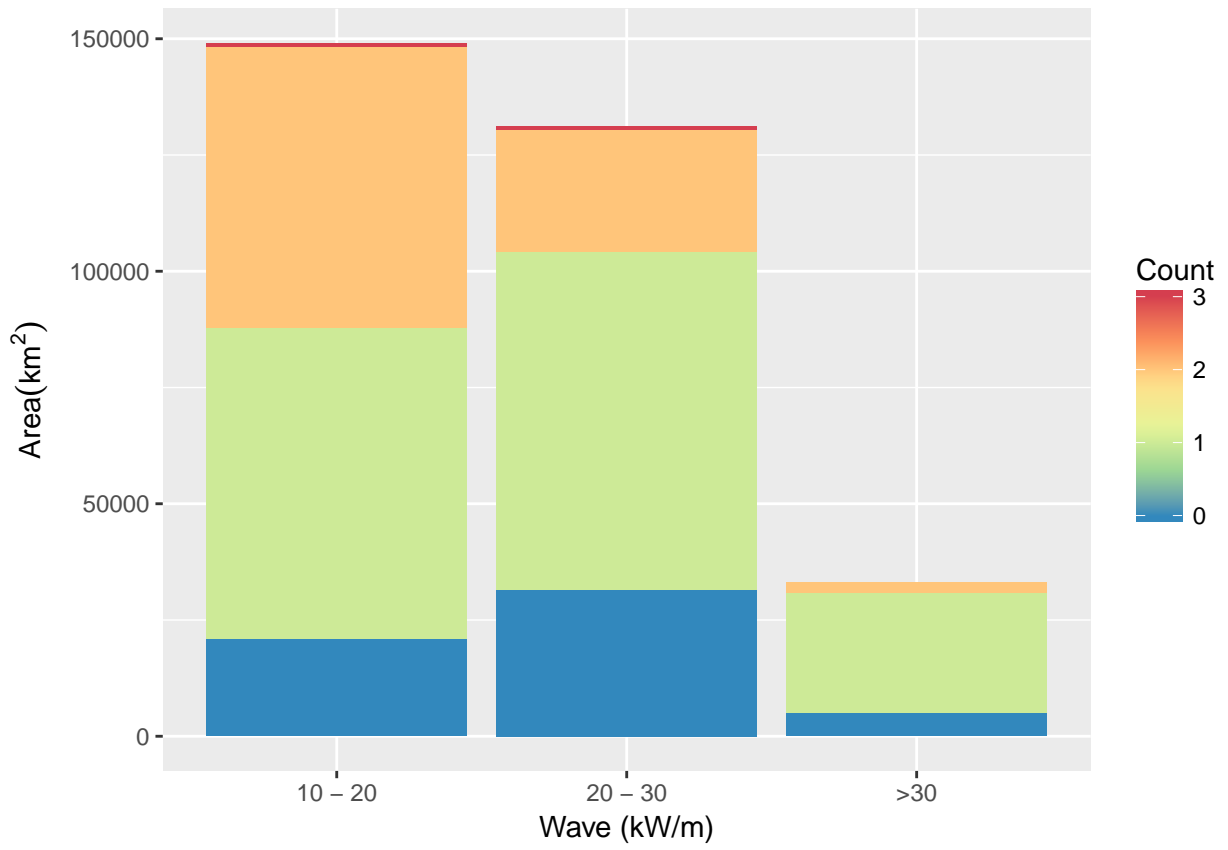


Figure 7: Area of Cumulative Ocean Use by Wave (kW/m) for Alaska region. Cumulative use are counted and summarized by Wave (kW/m) and area.

Alaska: Map of Wave

Alaska: Plot of Uses by Wave

Alaska: Table of Uses by Wave

Table 3: Area (km²) of Ocean Use by Wave (kW/m) bin for Alaska region. Width of gray horizontal bars from left of cell indicate percent area occupied in given depth bin.

Ocean Use			Area (km ²) by Wave (kW/m)				Rank
Category	Layer	Component	10 - 20	20 - 30	>30	Total	
	Total Area		148,995	131,201	33,013	313,209	0
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Fisheries Service	127,753	99,076	27,507	254,336	1
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Park Service	0	411	0	411	6
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Wildlife Refuge System	561	4	1	566	5
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	State MPA	60,115	25,651	2,131	87,897	2
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Coral	0	0	42	42	8
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Skate	0	64	0	64	7
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Slope	0	830	428	1,258	4
Ocean Uses: Transportation: Commercial Shipping	Shipping Lanes		1,557	1,417	0	2,974	3

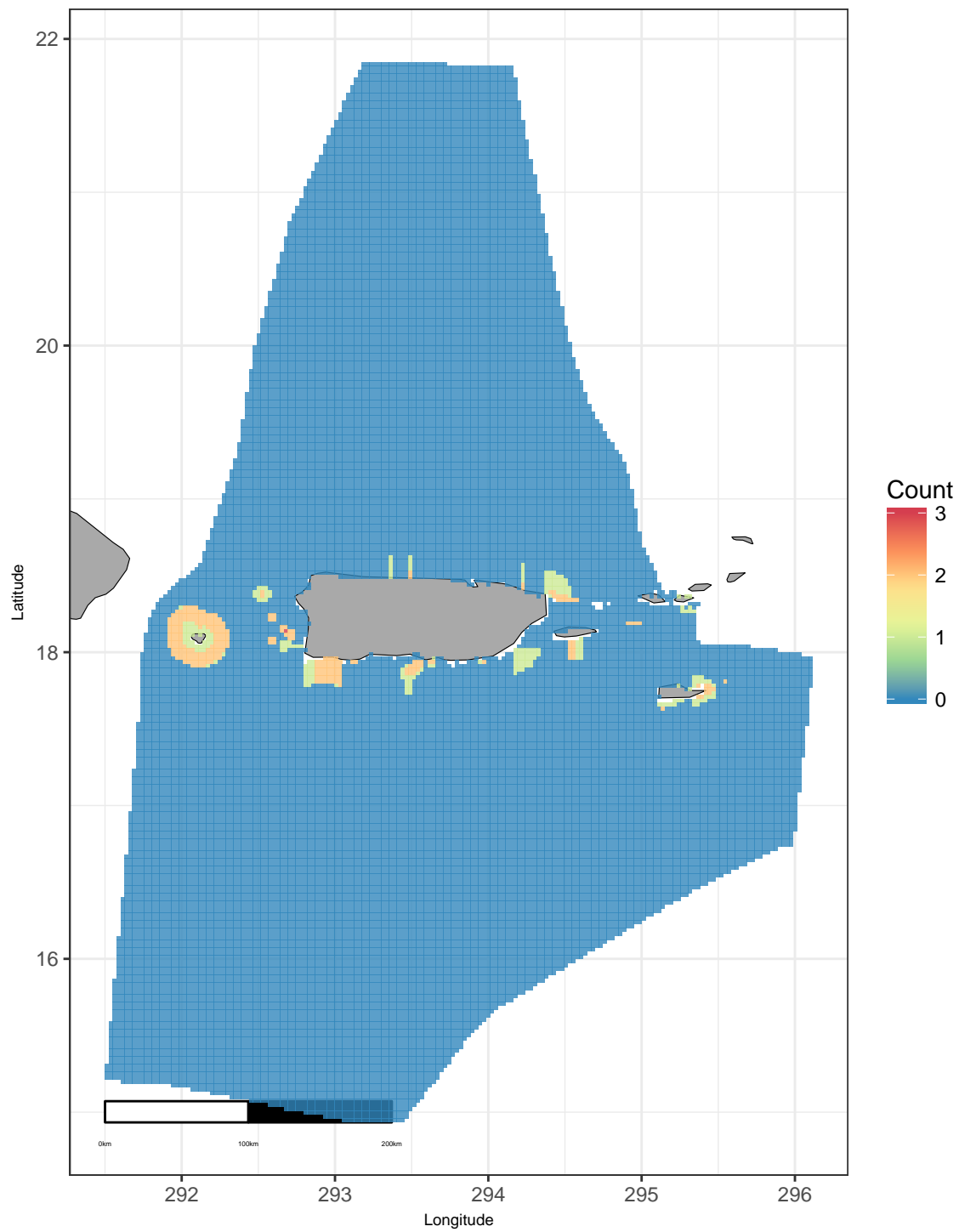


Figure 8: Map of cumulative ocean use in Atlantic Islands region.

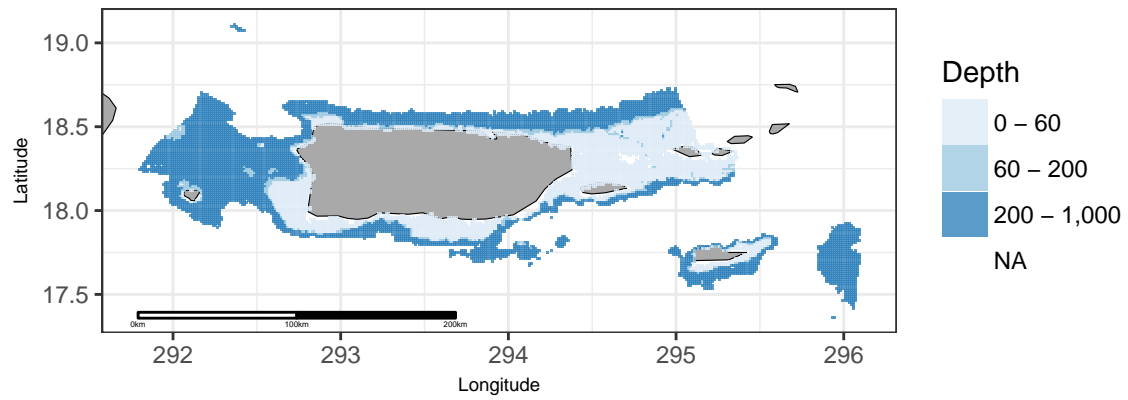


Figure 9: Map of viable depth in Atlantic Islands region.

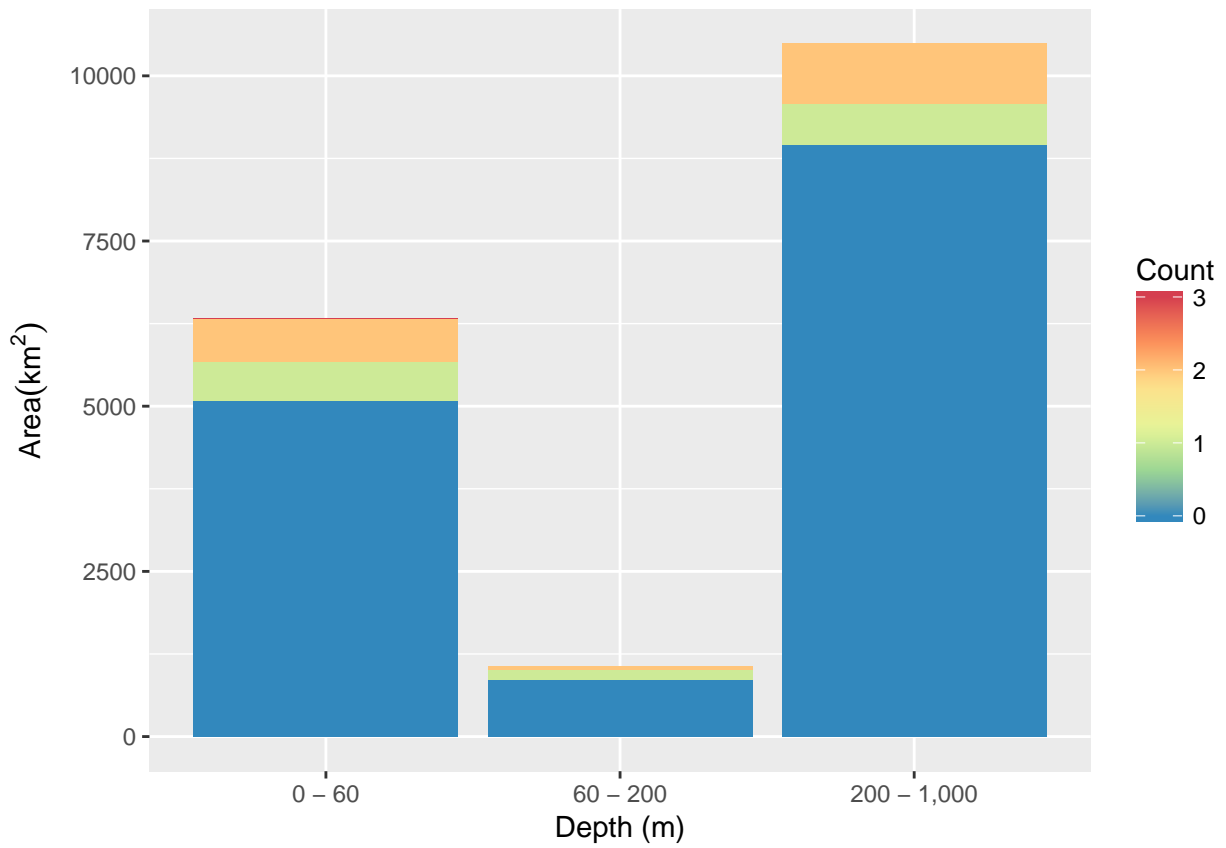


Figure 10: Area of Cumulative Ocean Use by Depth (m) for Atlantic Islands region. Cumulative use are counted and summarized by Depth (m) and area.

Atlantic Islands

Atlantic Islands: Map of Uses

Atlantic Islands: Map of Depth

Atlantic Islands: Plot of Uses by Depth

Atlantic Islands: Table of Uses by Depth

Table 4: Area (km²) of Ocean Use by Depth (m) bin for Atlantic Islands region. Width of gray horizontal bars from left of cell indicate percent area occupied in given depth bin.

Ocean Use			Area (km ²) by Depth (m)				Total	Rank
Category	Layer	Component	0 - 60	60 - 200	200 - 1,000			
	Total Area		6,340	1,069	10,486		17,895	0
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	Marine National Monuments	66	17	24		107	5
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Estuarine Research Reserve System	2	0	0		2	7
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Fisheries Service	97	28	31		156	3
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Park Service	11	0	0		11	6
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	Puerto Rico	879	135	1,314		2,328	1
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	U S Virgin Islands	101	11	29		142	4
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	EFH	782	77	1,045		1,905	2

Atlantic Islands: Map of Wave

Atlantic Islands: Plot of Uses by Wave

Atlantic Islands: Table of Uses by Wave

Table 5: Area (km²) of Ocean Use by Wave (kW/m) bin for Atlantic Islands region. Width of gray horizontal bars from left of cell indicate percent area occupied in given depth bin.

Ocean Use			Area (km ²) by Wave (kW/m)		Rank
Category	Layer	Component	10 - 20	Total	
	Total Area		7	7	0

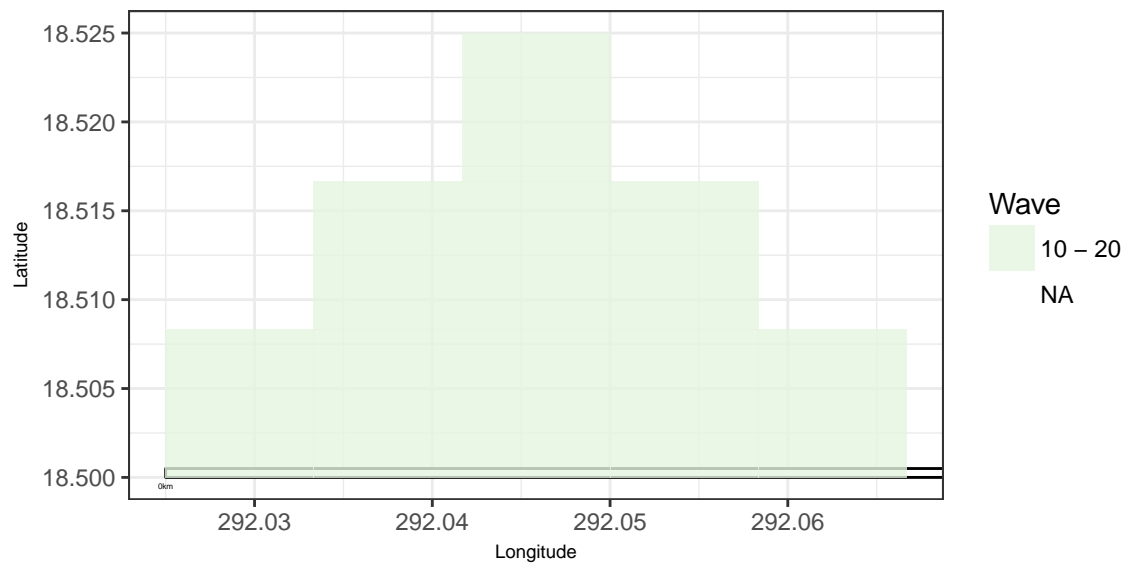


Figure 11: Map of viable wave in Atlantic Islands region.

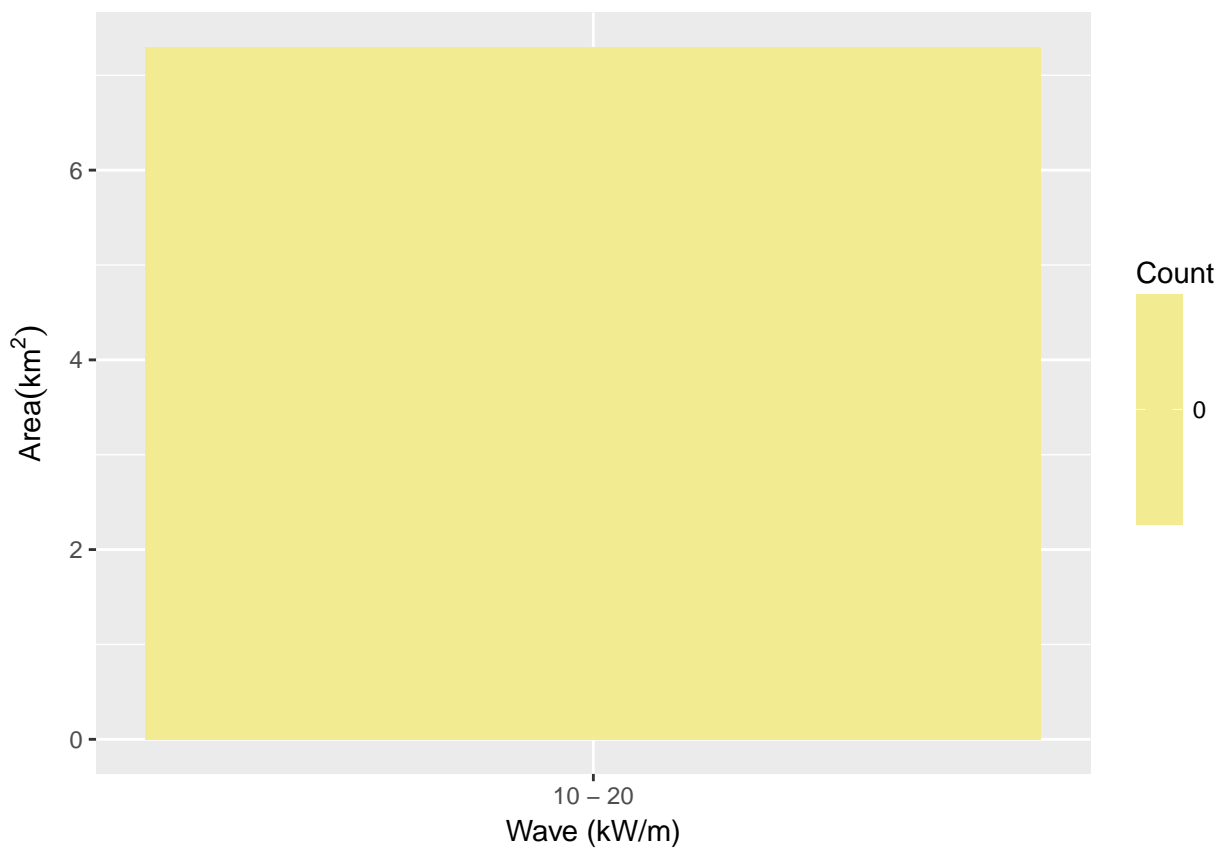


Figure 12: Area of Cumulative Ocean Use by Wave (kW/m) for Atlantic Islands region. Cumulative use are counted and summarized by Wave (kW/m) and area.

East

East: Map of Uses

East: Map of Depth

East: Plot of Uses by Depth

East: Table of Uses by Depth

Table 6: Area (km²) of Ocean Use by Depth (m) bin for East region. Width of gray horizontal bars from left of cell indicate percent area occupied in given depth bin.

Ocean Use			Area (km ²) by Depth (m)				Rank
Category	Layer	Component	0 - 60	60 - 200	200 - 1,000	Total	
	Total Area		239,101	118,153	183,838	541,091	0
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	Marine National Monuments	1	0	0	1	12
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Estuarine Research Reserve System	625	1	0	626	9
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Fisheries Service	233,164	117,716	182,167	533,048	1
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Sanctuaries	5,265	2,113	0	7,379	5
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Park Service	1,165	0	0	1,165	6
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Wildlife Refuge System	985	0	0	985	7
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	State MPA	16,188	151	0	16,339	3
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	EFH	49,636	7,388	32,497	89,522	2
Ocean Uses: Transportation: Commercial Shipping	Shipping Lanes		6,115	3,734	4	9,854	4
	Aquaculture	Finfish	4	0	0	4	11
	Aquaculture	Other	6	0	0	6	10
	Aquaculture	Shellfish	653	0	0	653	8

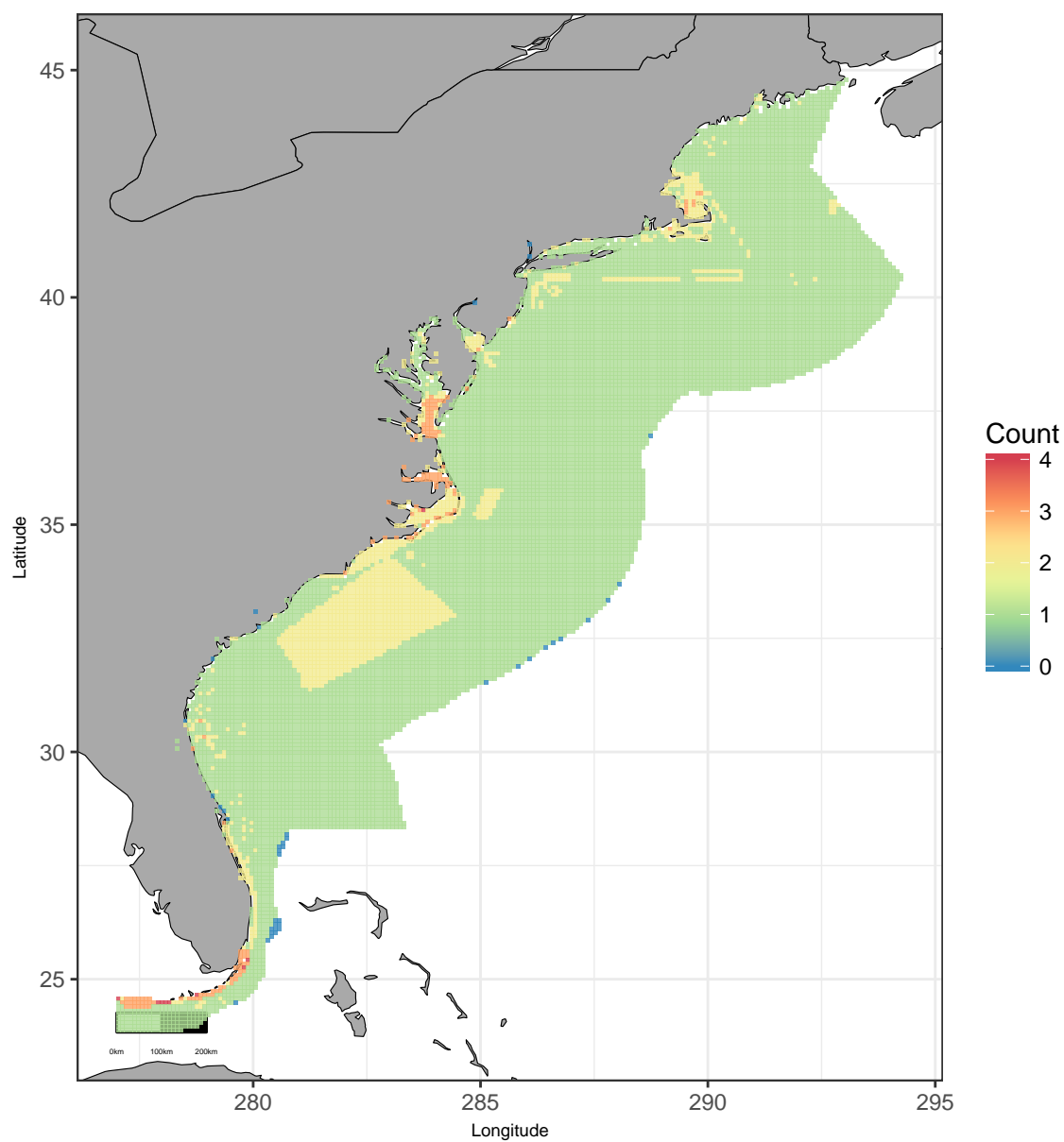


Figure 13: Map of cumulative ocean use in East region.

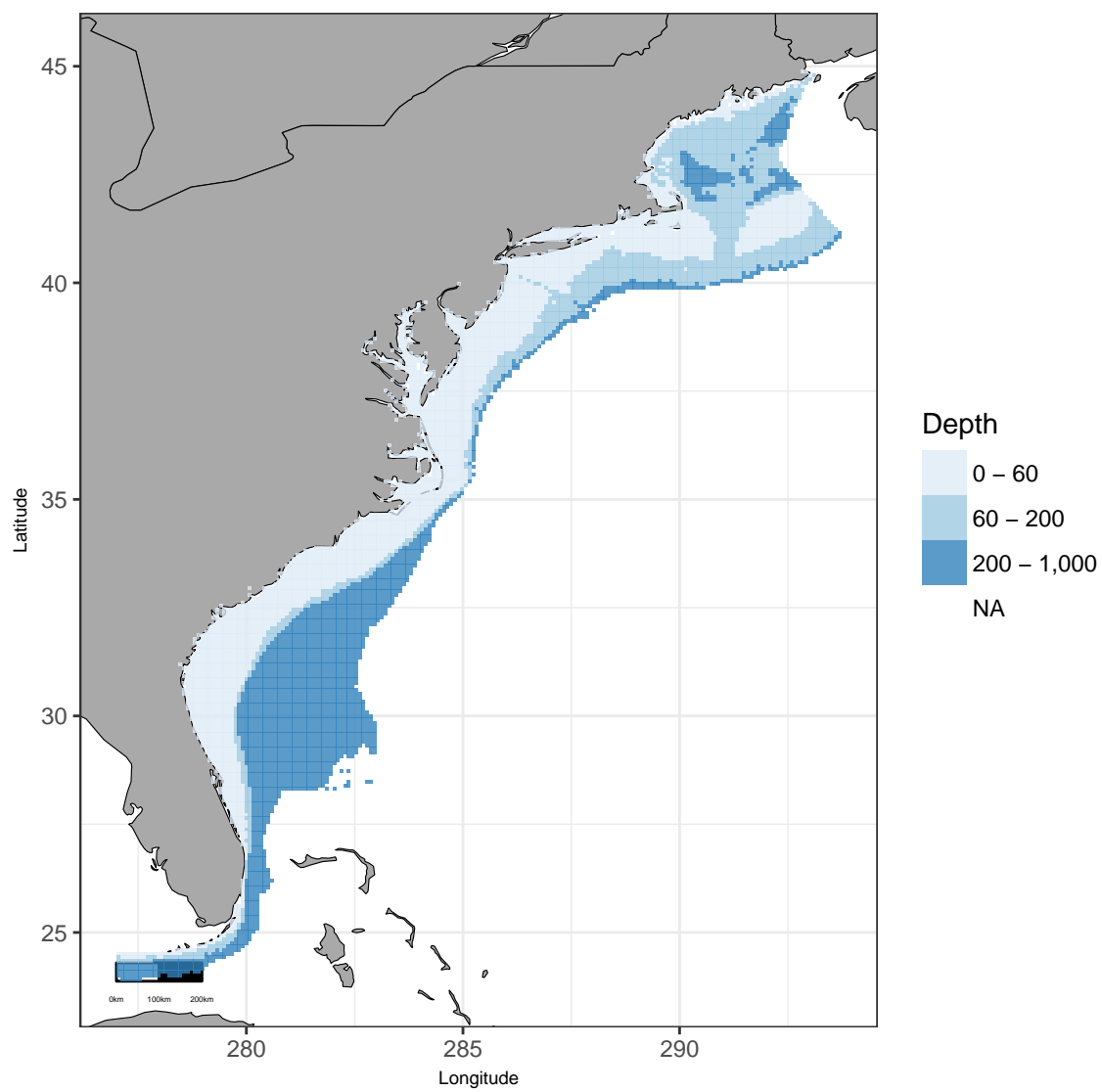


Figure 14: Map of viable depth in East region.

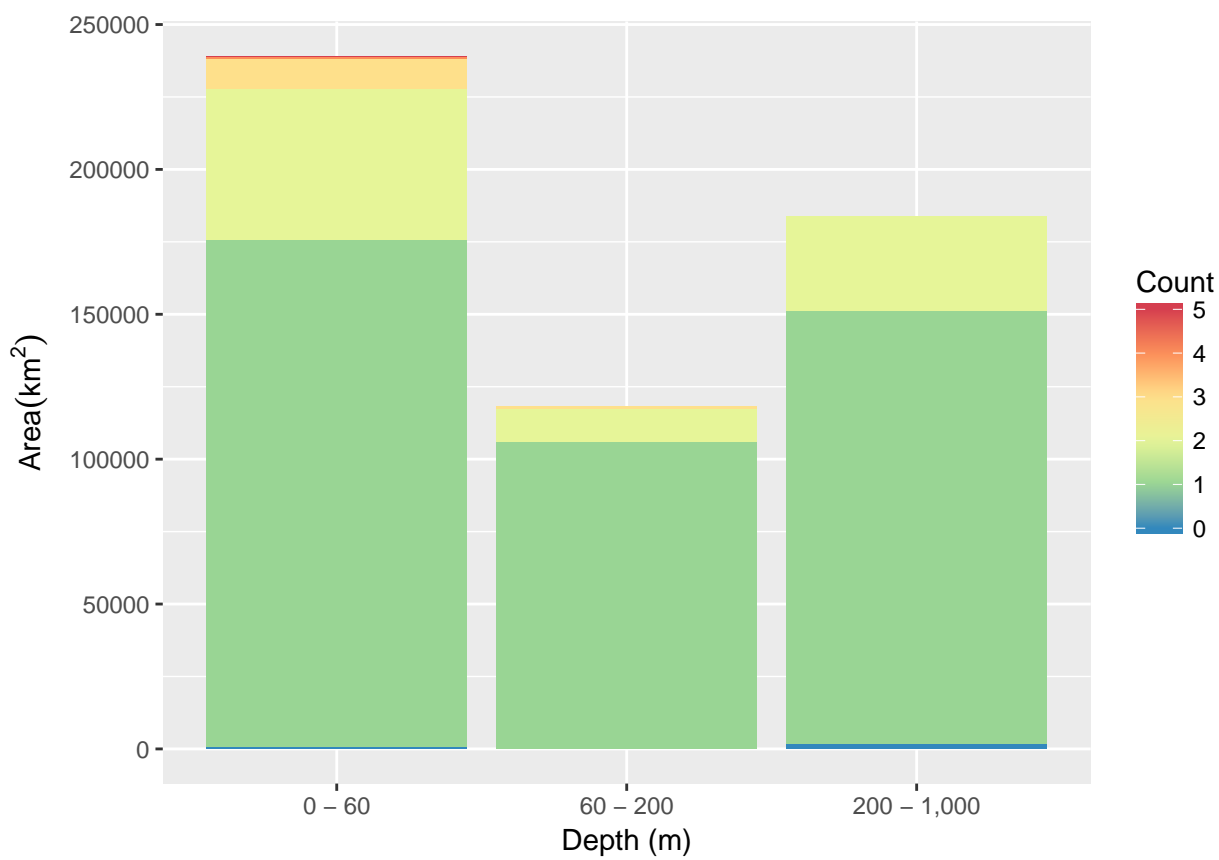


Figure 15: Area of Cumulative Ocean Use by Depth (m) for East region. Cumulative use are counted and summarized by Depth (m) and area.

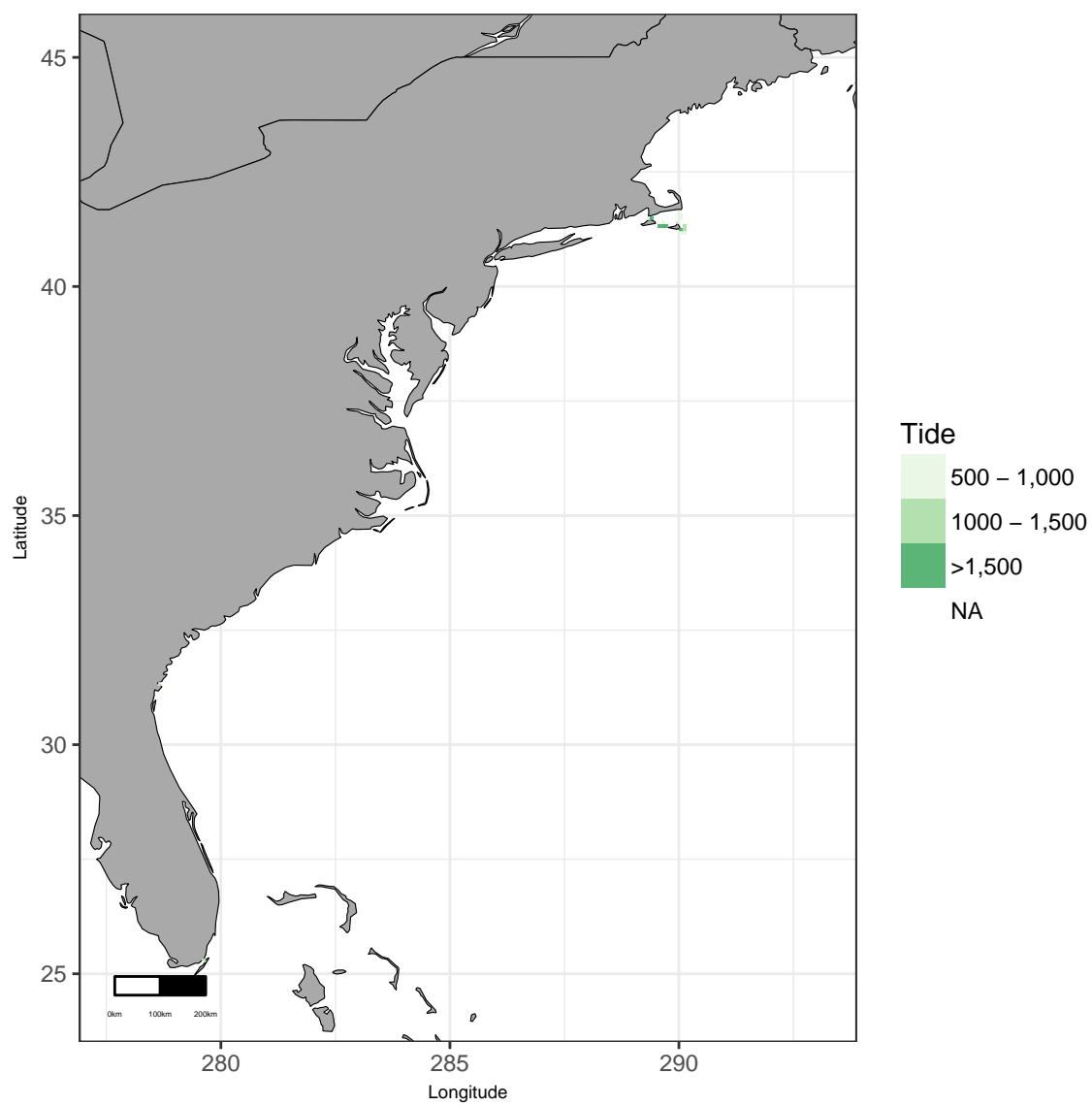


Figure 16: Map of viable tide in East region.

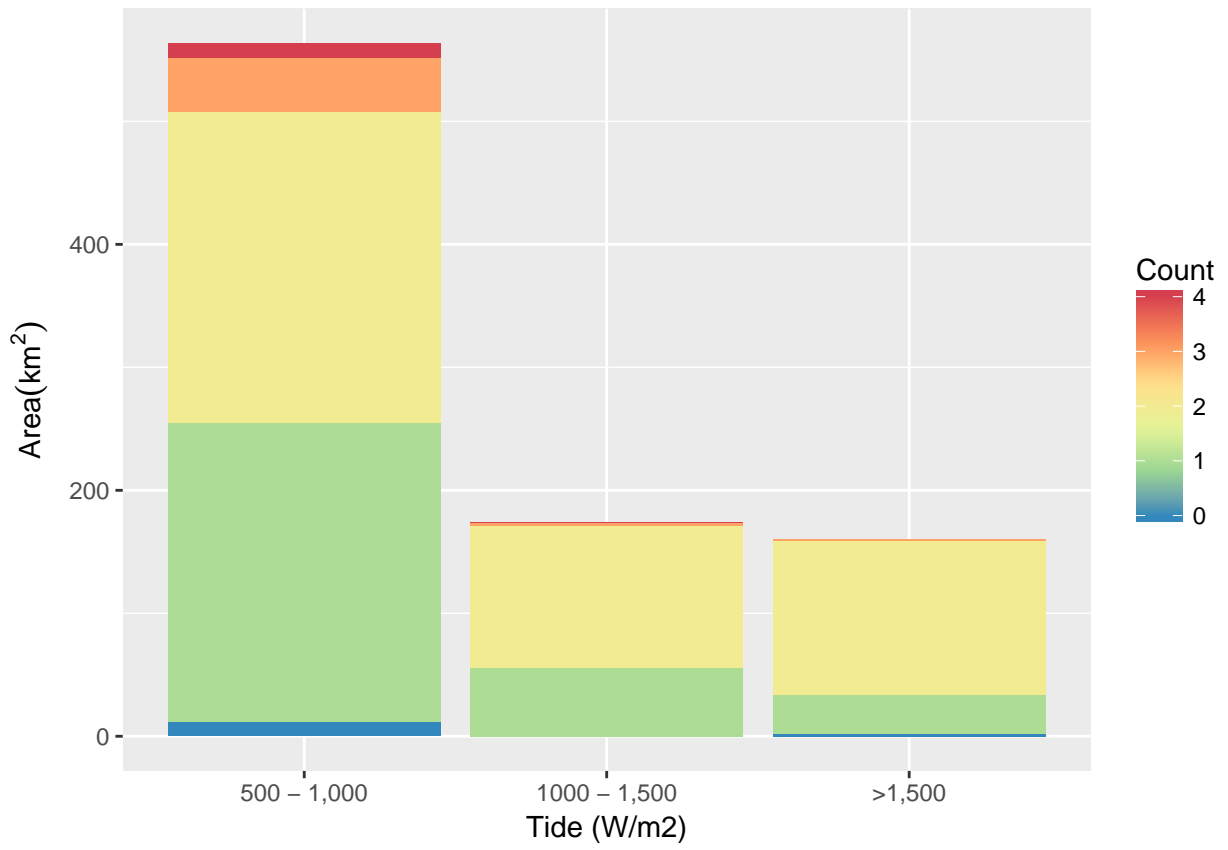


Figure 17: Area of Cumulative Ocean Use by Tide (W/m²) for East region. Cumulative use are counted and summarized by Tide (W/m²) and area.

East: Map of Tide

East: Plot of Uses by Tide

East: Table of Uses by Tide

Table 7: Area (km²) of Ocean Use by Tide (W/m2) bin for East region. Width of gray horizontal bars from left of cell indicate percent area occupied in given depth bin.

Ocean Use			Area (km ²) by Tide (W/m2)				Rank
Category	Layer	Component	500 - 1,000	1000 - 1,500	>1,500	Total	
	Total Area		563	174	160	898	0
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Estuarine Research Reserve System	13	0	1	14	7
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Fisheries Service	472	170	156	798	1
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Sanctuaries	29	1	1	30	4
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Park Service	14	3	1	18	5
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Wildlife Refuge System	15	1	0	16	6
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	State MPA	279	113	125	517	2
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	EFH	105	7	3	115	3
Ocean Uses: Transportation: Commercial Shipping	Shipping Lanes		1	0	0	1	8

East: Map of Wave

East: Plot of Uses by Wave

East: Table of Uses by Wave

Table 8: Area (km²) of Ocean Use by Wave (kW/m) bin for East region. Width of gray horizontal bars from left of cell indicate percent area occupied in given depth bin.

Ocean Use			Area (km ²) by Wave (kW/m)		
Category	Layer	Component	10 - 20	Total	Rank
	Total Area		<div>17,357</div>	<div>17,357</div>	0
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Fisheries Service	<div>17,357</div>	<div>17,357</div>	1
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	EFH	<div><div></div>2,060</div>	<div><div></div>2,060</div>	3
Ocean Uses: Transportation: Commercial Shipping	Shipping Lanes		<div><div></div>2,365</div>	<div><div></div>2,365</div>	2

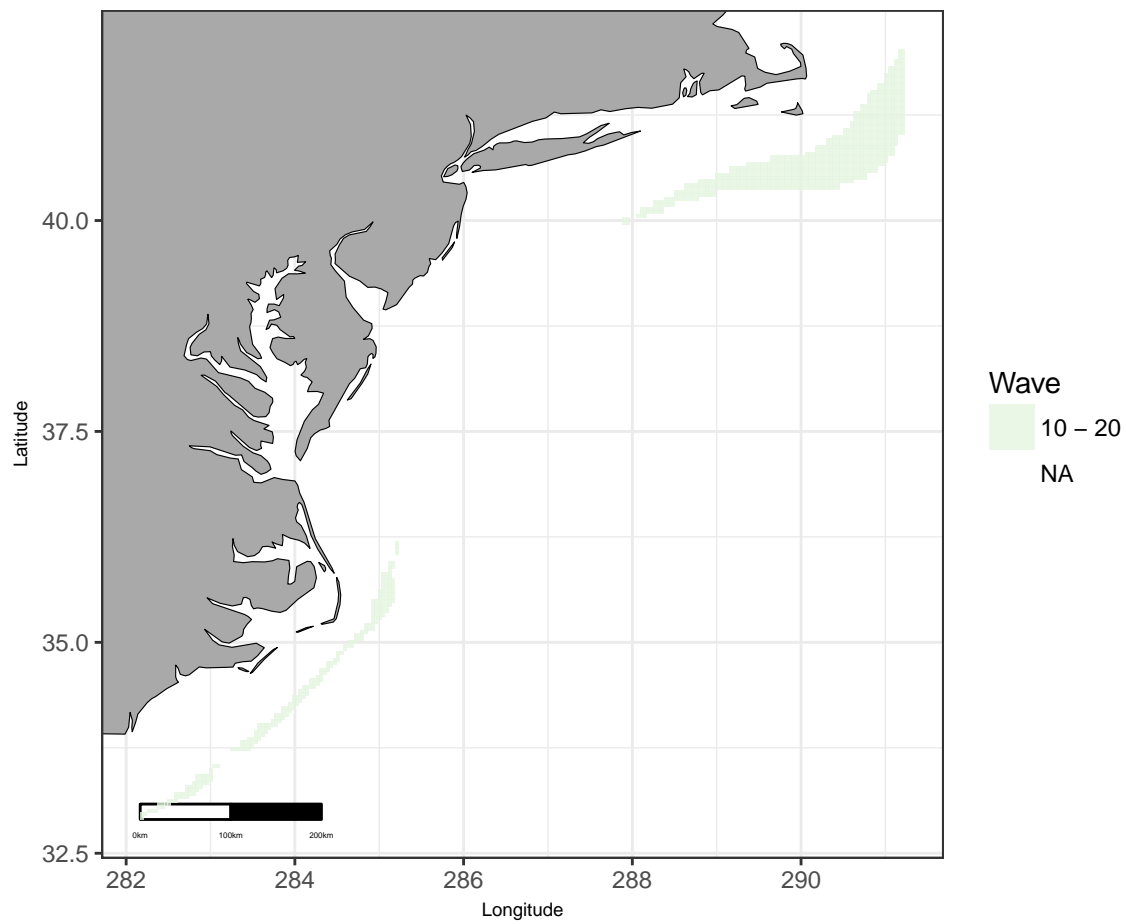


Figure 18: Map of viable wave in East region.

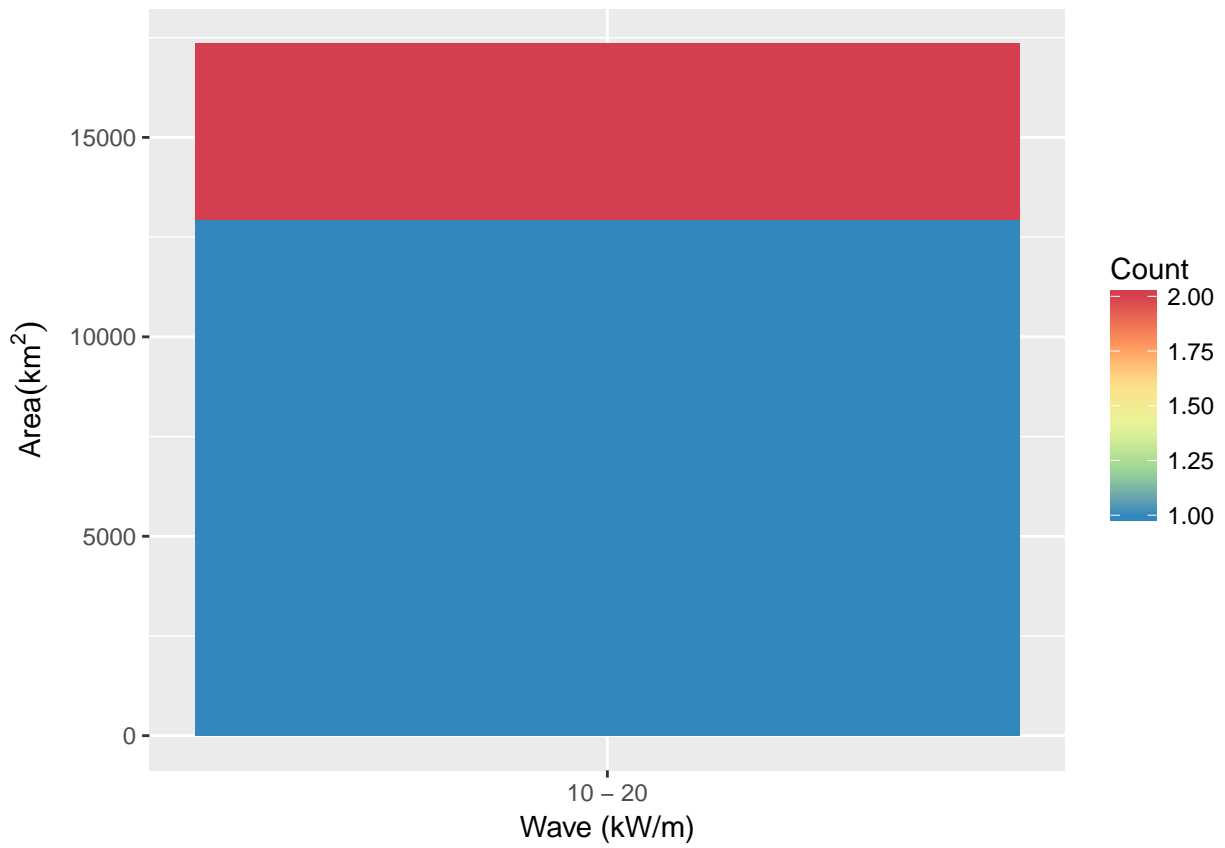


Figure 19: Area of Cumulative Ocean Use by Wave (kW/m) for East region. Cumulative use are counted and summarized by Wave (kW/m) and area.

East: Map of Wind

East: Plot of Uses by Wind

East: Table of Uses by Wind

Table 9: Area (km²) of Ocean Use by Wind (m/s @ 90m) bin for East region. Width of gray horizontal bars from left of cell indicate percent area occupied in given depth bin.

Ocean Use			Area (km ²) by Wind (m/s @ 90m)				
Category	Layer	Component	7 - 8.5	8.5 - 10	>10	Total	Rank
	Total Area		113,859	123,994	1	237,853	0
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	Marine National Monuments	1	0	0	1	12
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Estuarine Research Reserve System	375	0	0	375	6
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Fisheries Service	113,201	123,992	1	237,194	1
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Sanctuaries	63	2,181	0	2,244	5
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Park Service	256	12	0	268	9
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Wildlife Refuge System	259	24	0	283	8
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	State MPA	8,098	3,703	0	11,801	3
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	EFH	33,771	5,370	0	39,141	2
Ocean Uses: Transportation: Commercial Shipping	Shipping Lanes		1,504	6,868	0	8,372	4
	Aquaculture	Finfish	3	0	0	3	10
	Aquaculture	Other	1	1	0	2	11
	Aquaculture	Shellfish	320	0	0	320	7

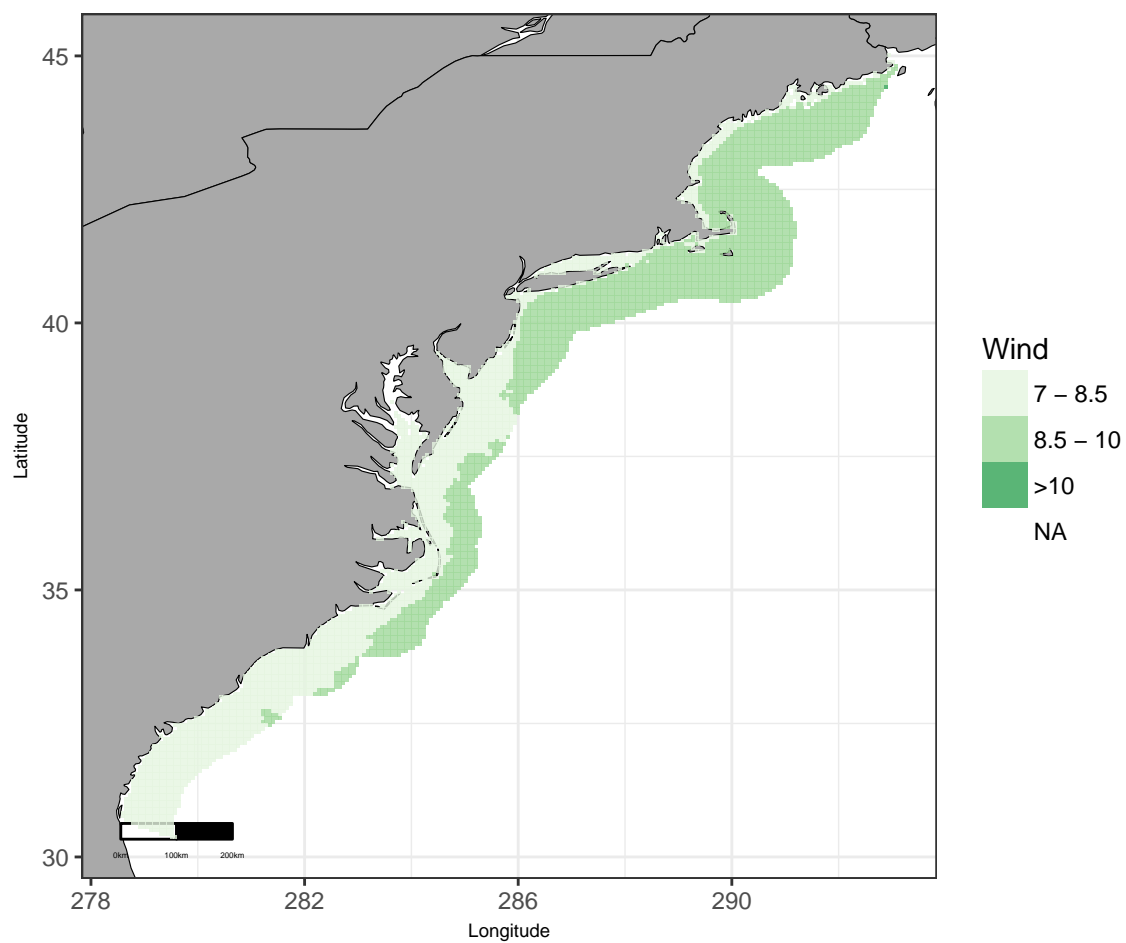


Figure 20: Map of viable wind in East region.

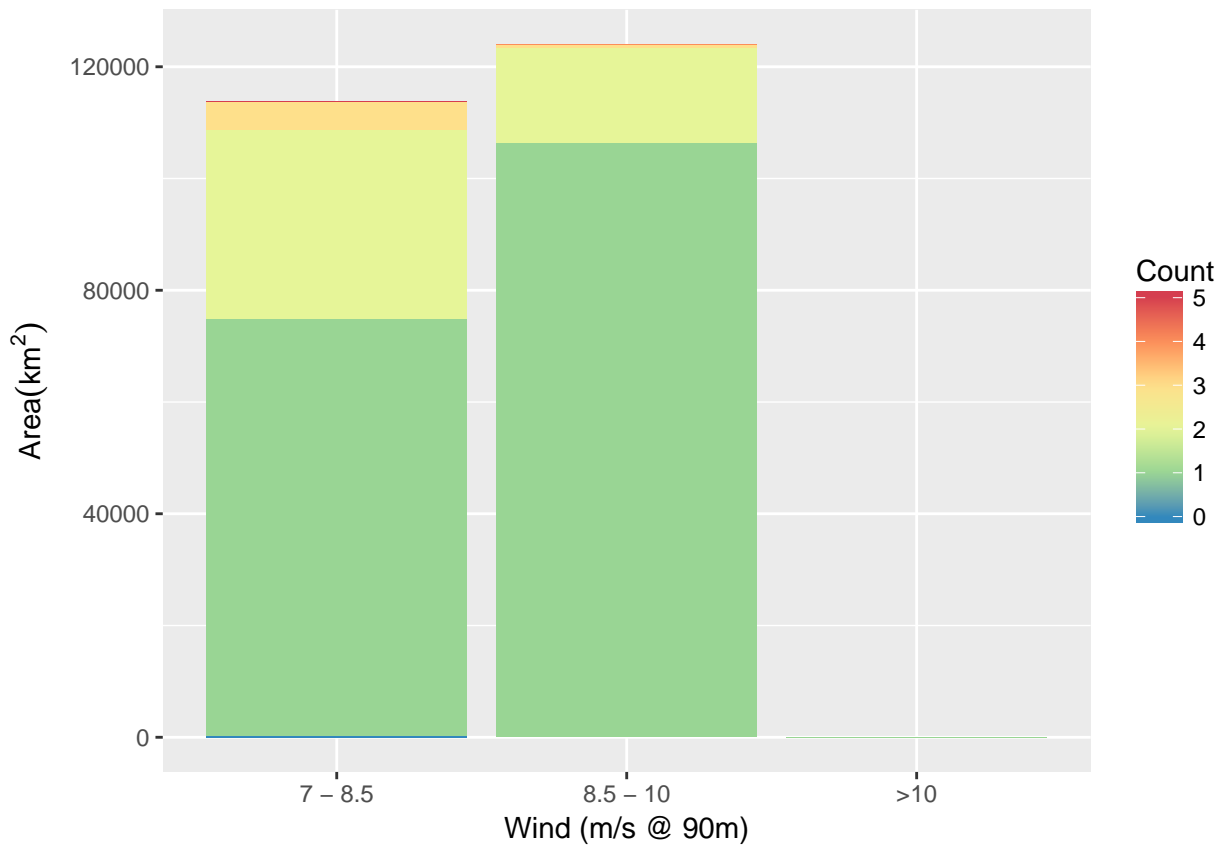


Figure 21: Area of Cumulative Ocean Use by Wind (m/s @ 90m) for East region. Cumulative use are counted and summarized by Wind (m/s @ 90m) and area.

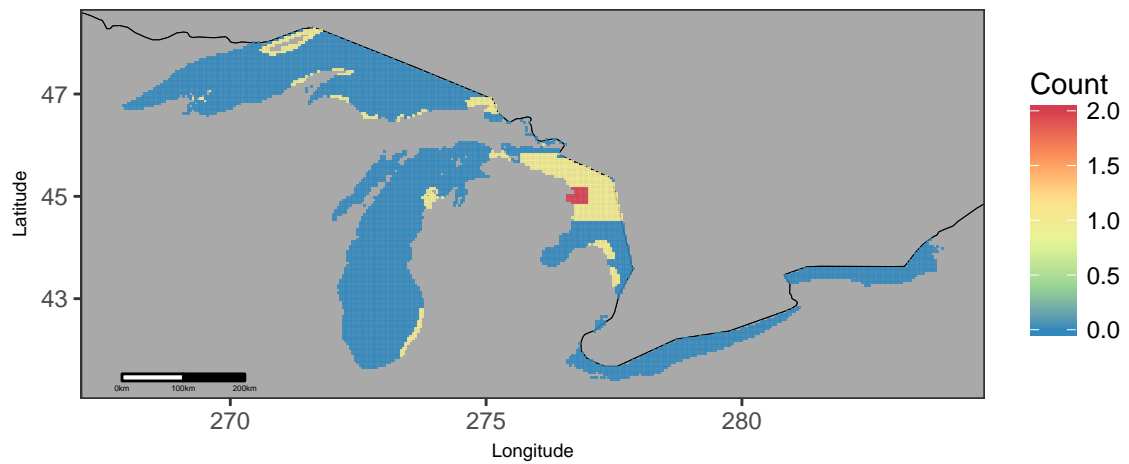


Figure 22: Map of cumulative ocean use in Great Lakes region.

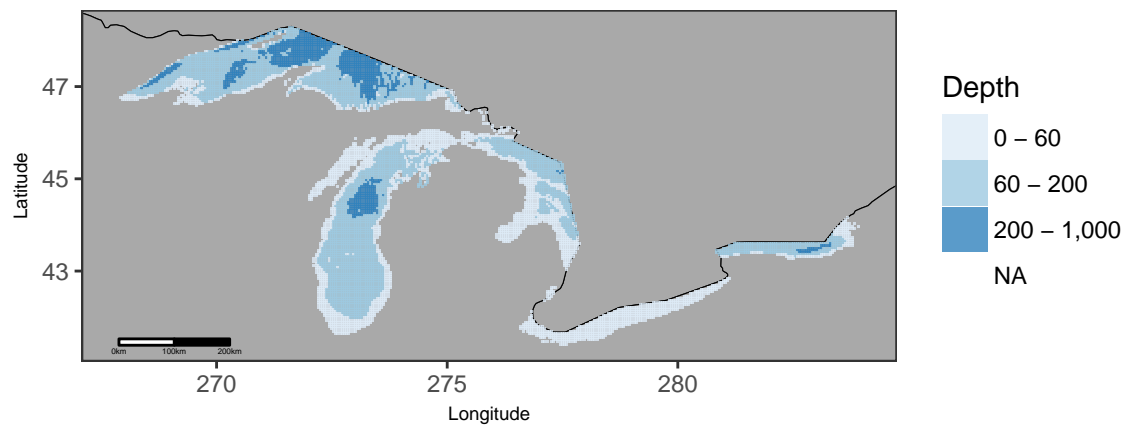


Figure 23: Map of viable depth in Great Lakes region.

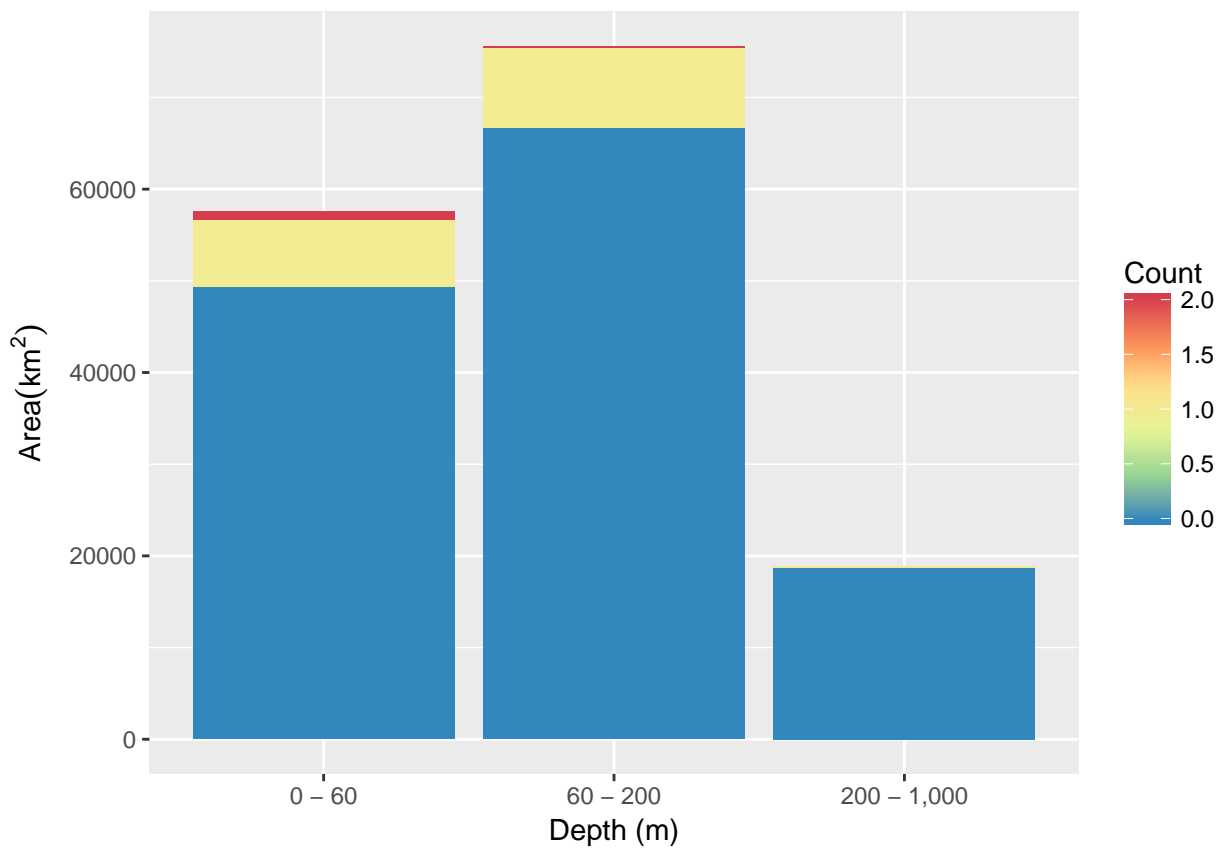


Figure 24: Area of Cumulative Ocean Use by Depth (m) for Great Lakes region. Cumulative use are counted and summarized by Depth (m) and area.

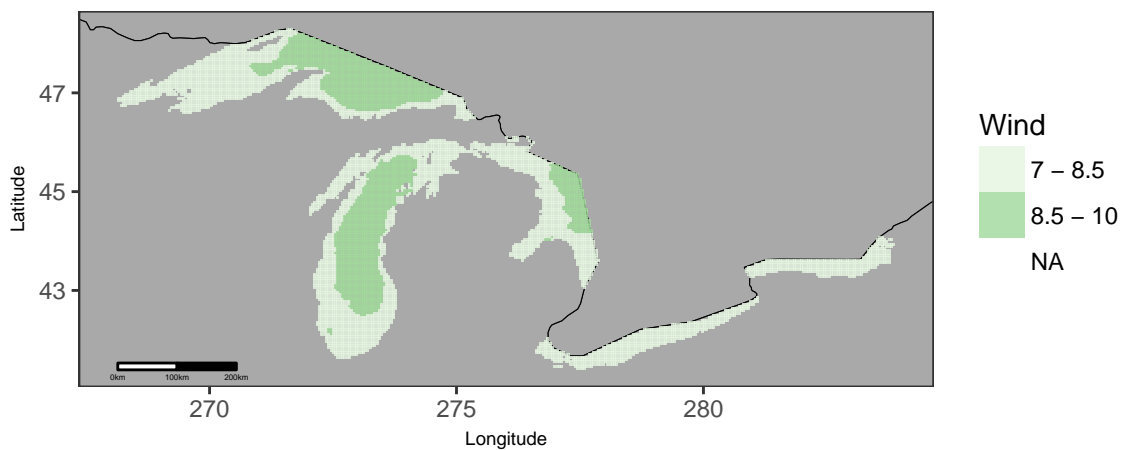


Figure 25: Map of viable wind in Great Lakes region.

Great Lakes

Great Lakes: Map of Uses

Great Lakes: Map of Depth

Great Lakes: Plot of Uses by Depth

Great Lakes: Table of Uses by Depth

Table 10: Area (km²) of Ocean Use by Depth (m) bin for Great Lakes region. Width of gray horizontal bars from left of cell indicate percent area occupied in given depth bin.

Ocean Use			Area (km ²) by Depth (m)				Total	Rank
Category	Layer	Component	0 - 60	60 - 200	200 - 1,000			
	Total Area		57,650	75,569	18,881		152,099	0
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Estuarine Research Reserve System	1	0	0		1	5
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Sanctuaries	3,759	7,071	83		10,913	1
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Park Service	365	1,172	117		1,655	3
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	Pennsylvania	7	0	0		7	4
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	State MPA	5,160	760	0		5,920	2

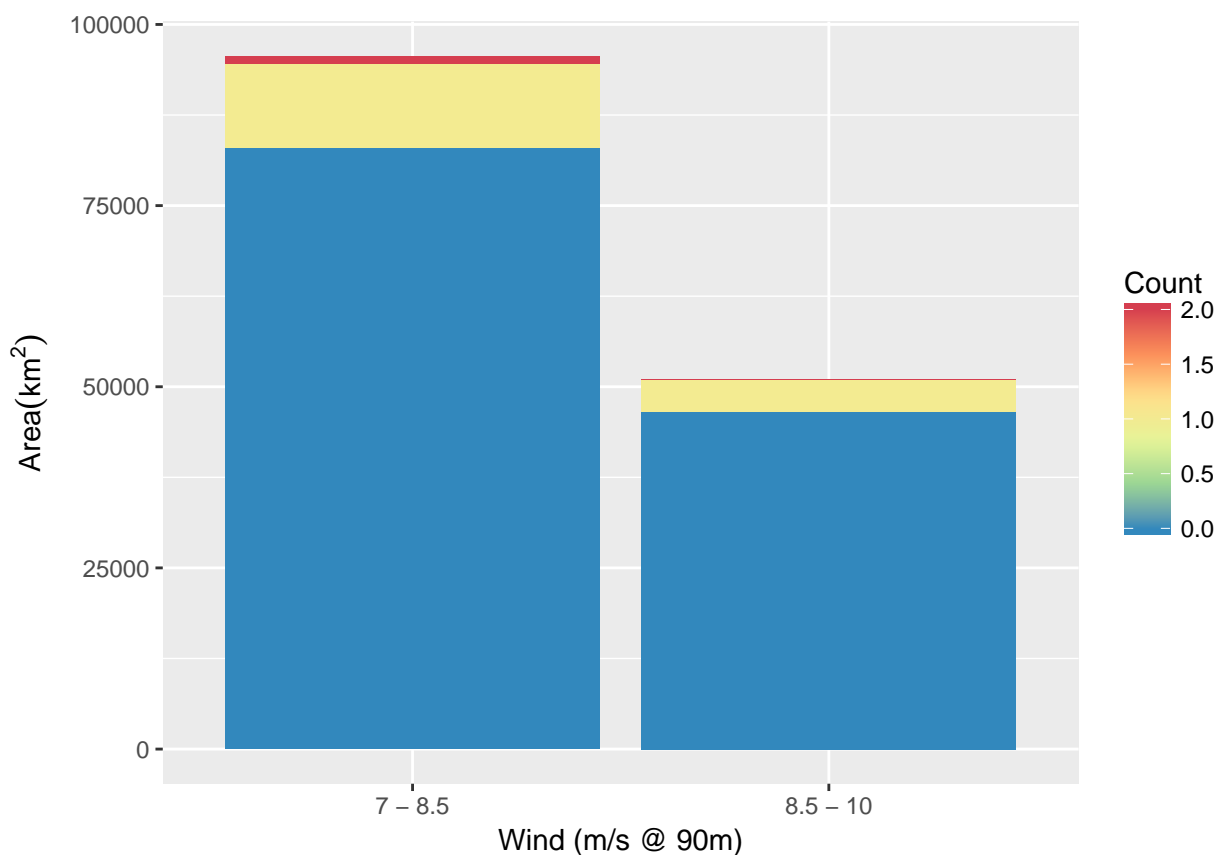


Figure 26: Area of Cumulative Ocean Use by Wind (m/s @ 90m) for Great Lakes region. Cumulative use are counted and summarized by Wind (m/s @ 90m) and area.

Great Lakes: Map of Wind

Great Lakes: Plot of Uses by Wind

Great Lakes: Table of Uses by Wind

Table 11: Area (km²) of Ocean Use by Wind (m/s @ 90m) bin for Great Lakes region. Width of gray horizontal bars from left of cell indicate percent area occupied in given depth bin.

Ocean Use			Area (km ²) by Wind (m/s @ 90m)			
Category	Layer	Component	7 - 8.5	8.5 - 10	Total	Rank
	Total Area		95,612	50,989	146,601	0
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Sanctuaries	<div><div></div></div> 6,685	<div><div></div></div> 4,116	10,801	1
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Park Service	<div><div></div></div> 1,528	<div><div></div></div> 11	1,540	3
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	Pennsylvania	<div><div></div></div> 7	<div><div></div></div> 0	7	4
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	State MPA	<div><div></div></div> 5,402	<div><div></div></div> 371	5,772	2

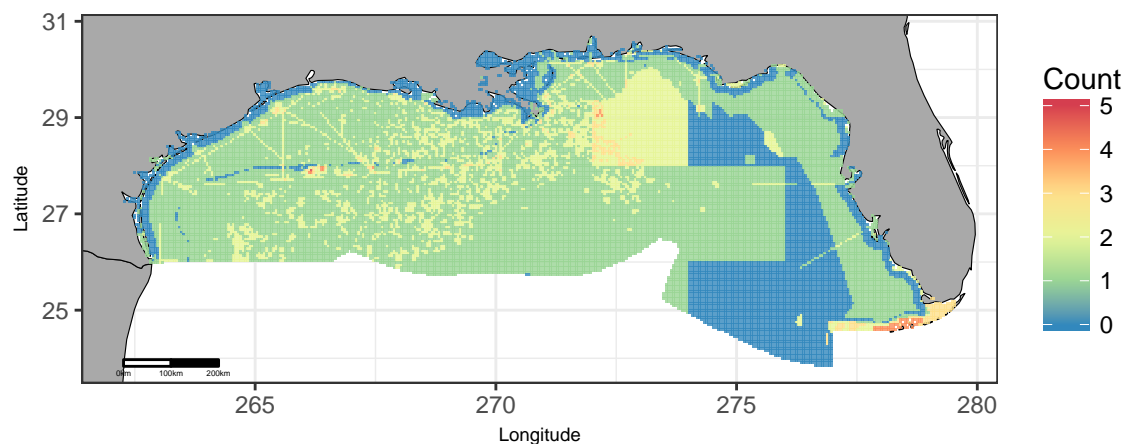


Figure 27: Map of cumulative ocean use in Gulf of Mexico region.

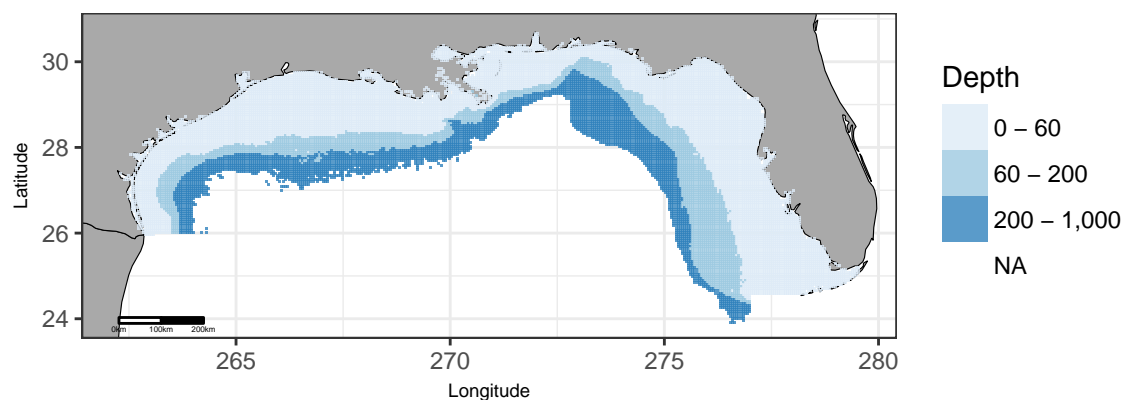


Figure 28: Map of viable depth in Gulf of Mexico region.

Gulf of Mexico

Gulf of Mexico: Map of Uses

Gulf of Mexico: Map of Depth

Gulf of Mexico: Plot of Uses by Depth

Gulf of Mexico: Table of Uses by Depth

Table 12: Area (km²) of Ocean Use by Depth (m) bin for Gulf of Mexico region. Width of gray horizontal bars from left of cell indicate percent area occupied in given depth bin.

Ocean Use			Area (km ²) by Depth (m)				Total	Rank
Category	Layer	Component	0 - 60	60 - 200	200 - 1,000			
	Total Area		251,128	83,535	92,050		426,713	0
Governance: Commercial Leases	Active Oil & Gas Leases		12,432	6,239	8,747		27,418	3
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	Bureau of Ocean Energy Management	437	1,642	561		2,640	8
			29					
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Estuarine Research Reserve System	996	0	0		996	10
Governance: Marine	Marine	National Marine						

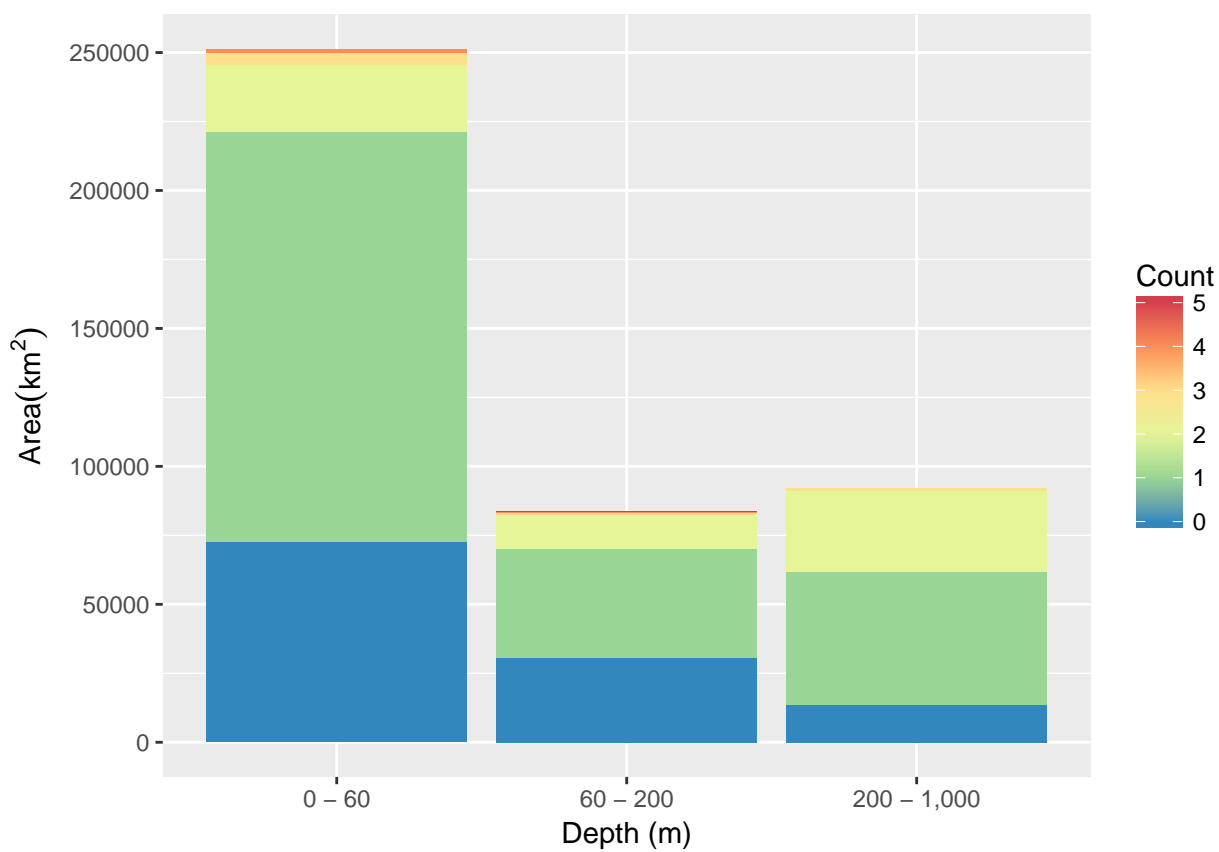


Figure 29: Area of Cumulative Ocean Use by Depth (m) for Gulf of Mexico region. Cumulative use are counted and summarized by Depth (m) and area.

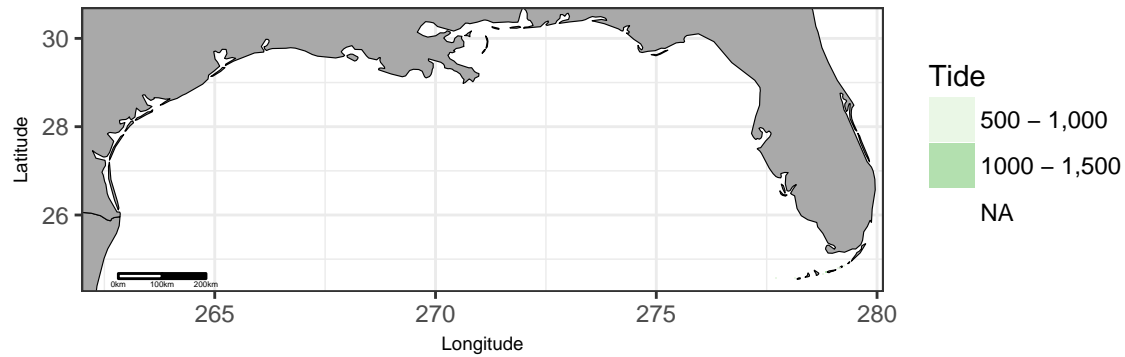


Figure 30: Map of viable tide in Gulf of Mexico region.

Gulf of Mexico: Map of Tide

Gulf of Mexico: Plot of Uses by Tide

Gulf of Mexico: Table of Uses by Tide

Table 13: Area (km²) of Ocean Use by Tide (W/m2) bin for Gulf of Mexico region. Width of gray horizontal bars from left of cell indicate percent area occupied in given depth bin.

Ocean Use			Area (km ²) by Tide (W/m2)				Total	Rank
Category	Layer	Component	500 - 1,000	1000 - 1,500	>1,500			
	Total Area		70	16	8	94		0
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Fisheries Service	2	0	0	2		5
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Sanctuaries	60	14	8	82		1
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Park Service	1	0	0	1		6
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Wildlife Refuge System	23	2	0	25		3
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	State MPA	58	15	8	81		2
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	EFH	60	14	8	82		1
Ocean Uses: Transportation: Commercial Shipping	Shipping Lanes		2	1	0	2		4

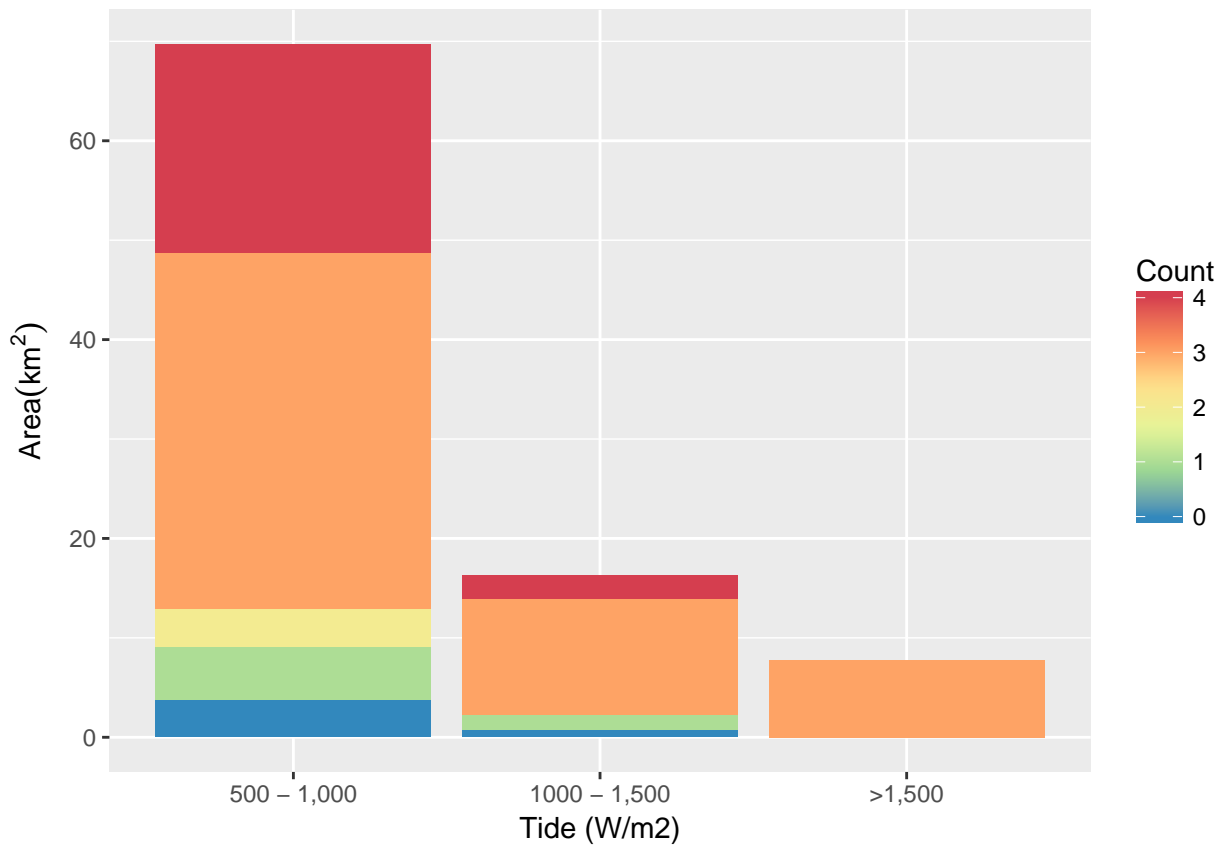


Figure 31: Area of Cumulative Ocean Use by Tide (W/m²) for Gulf of Mexico region. Cumulative use are counted and summarized by Tide (W/m²) and area.

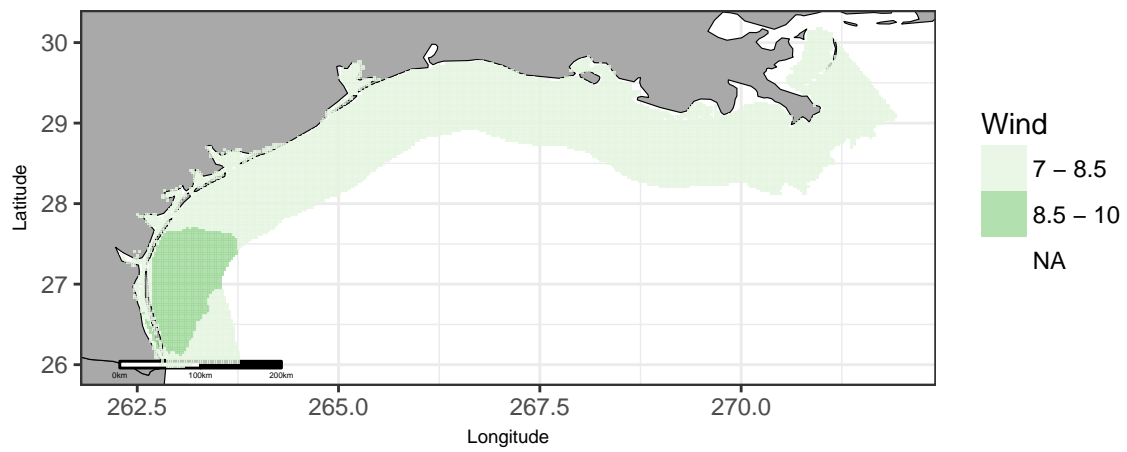


Figure 32: Map of viable wind in Gulf of Mexico region.

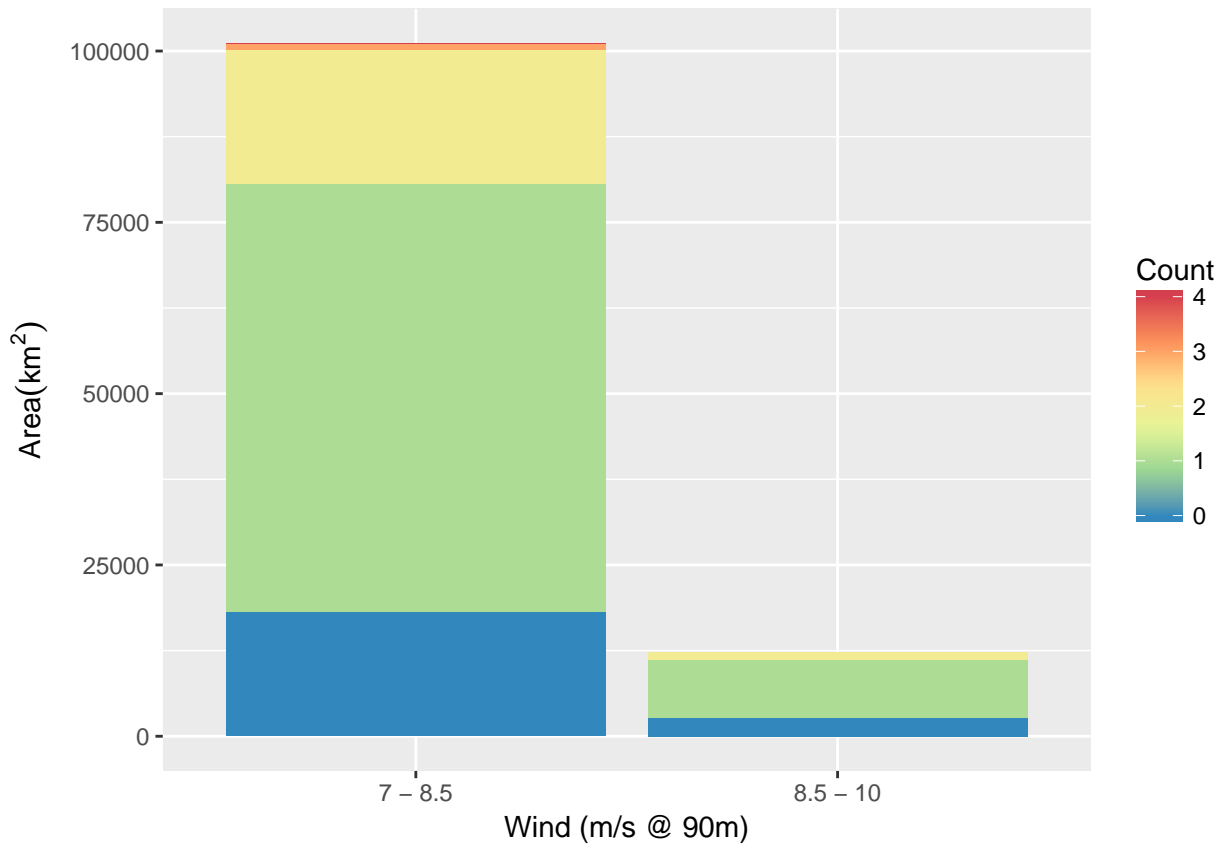


Figure 33: Area of Cumulative Ocean Use by Wind (m/s @ 90m) for Gulf of Mexico region. Cumulative use are counted and summarized by Wind (m/s @ 90m) and area.

Gulf of Mexico: Map of Wind

Gulf of Mexico: Plot of Uses by Wind

Gulf of Mexico: Table of Uses by Wind

Table 14: Area (km²) of Ocean Use by Wind (m/s @ 90m) bin for Gulf of Mexico region. Width of gray horizontal bars from left of cell indicate percent area occupied in given depth bin.

Ocean Use			Area (km ²) by Wind (m/s @ 90m)					
Category	Layer	Component	7 - 8.5		8.5 - 10		Total	Rank
	Total Area		101,108		12,235		113,343	0
Governance: Commercial Leases	Active Oil & Gas Leases		14,643		0		14,643	2
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	Bureau of Ocean Energy Management	618		0		618	6
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Estuarine Research Reserve System	420		0		420	8
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Fisheries Service	68,618		8,459		77,077	1
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Park Service	239		0		239	9
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Wildlife Refuge System	465		183		648	5
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	State MPA	519		0		519	7
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	EFH	11,544		888		12,433	3
Ocean Uses: Transportation: Commercial Shipping	Shipping Lanes		7,340		1,186		8,527	4

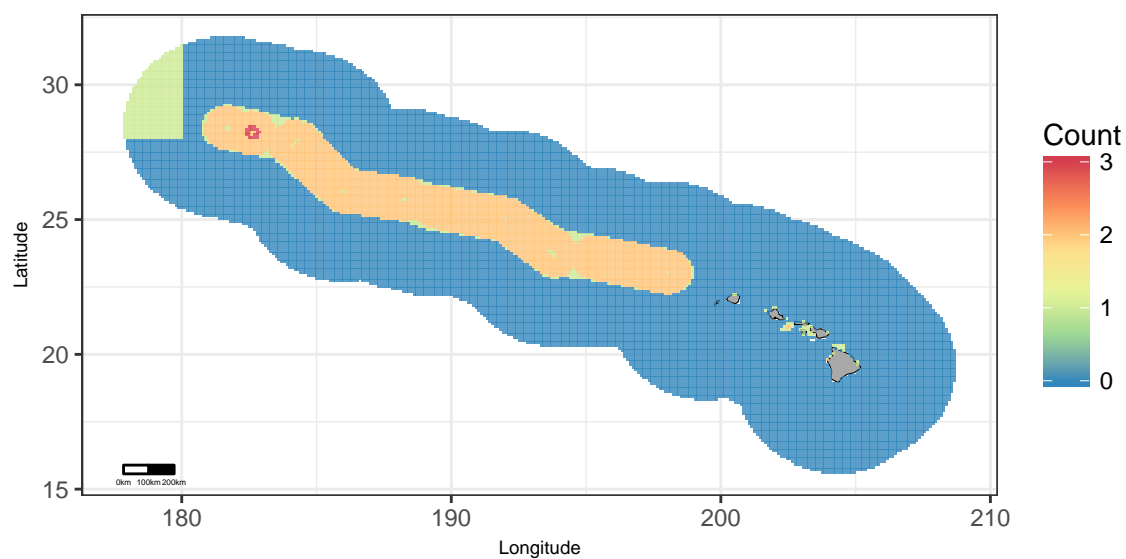


Figure 34: Map of cumulative ocean use in Hawaii region.

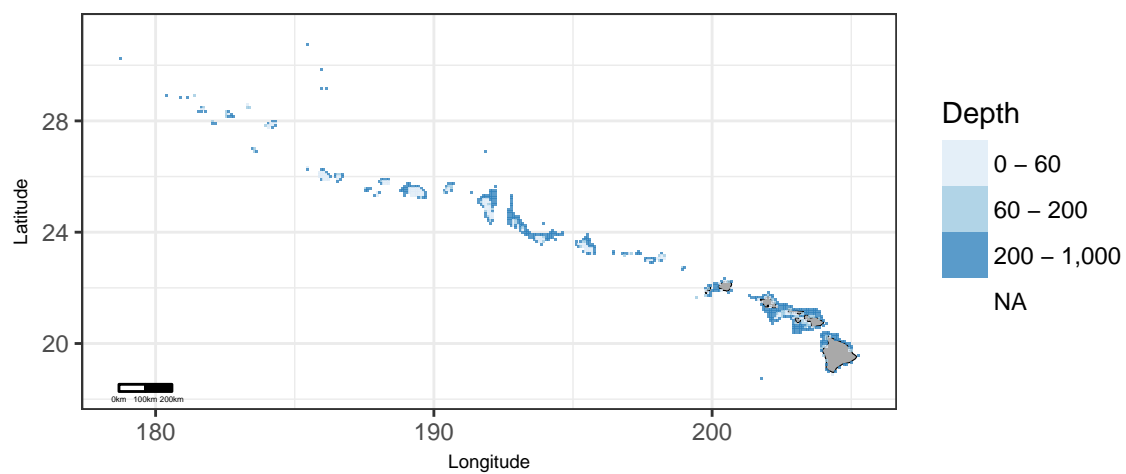


Figure 35: Map of viable depth in Hawaii region.

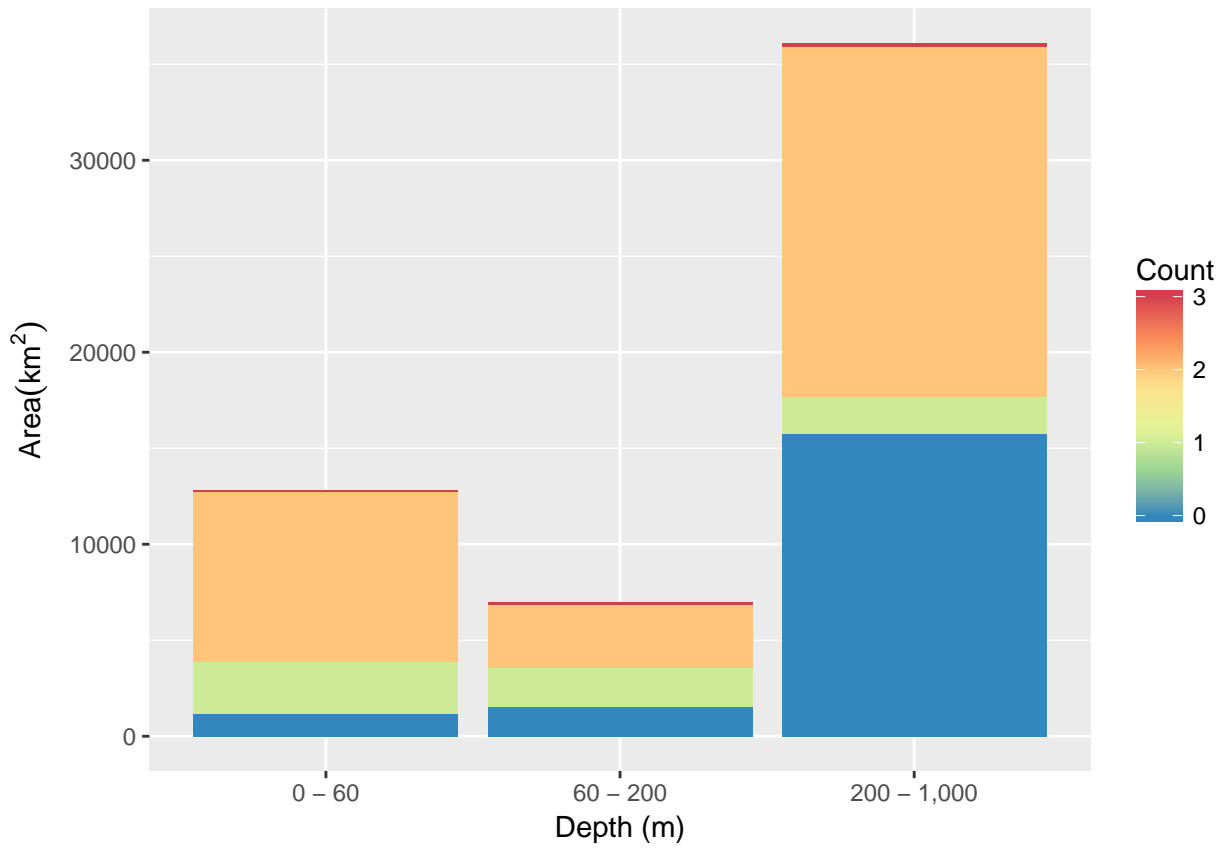


Figure 36: Area of Cumulative Ocean Use by Depth (m) for Hawaii region. Cumulative use are counted and summarized by Depth (m) and area.

Hawaii


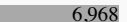
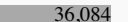
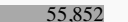


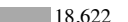
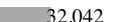




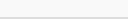
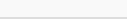
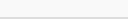
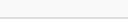












Hawaii: Map of Uses

Hawaii: Map of Depth

Hawaii: Plot of Uses by Depth

Hawaii: Table of Uses by Depth

Table 15: Area (km²) of Ocean Use by Depth (m) bin for Hawaii region. Width of gray horizontal bars from left of cell indicate percent area occupied in given depth bin.

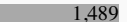

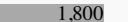









Ocean Use			Area (km ²) by Depth (m)				Rank
Category	Layer	Component	0 - 60	60 - 200	200 - 1,000	Total	
	Total Area		 12,800	 6,968	 36,084	 55,852	0
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	Marine National Monuments	 10,120	 3,300	 18,622	 32,042	1
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Fisheries Service	 8,711	 3,094	 18,443	 30,248	2
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Sanctuaries	 1,394	 1,763	 220	 3,378	3
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Park Service	 4	 0	 0	 4	6
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Wildlife Refuge System	 165	 173	 200	 538	5
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	State MPA	 208	 622	 1,407	 2,238	4

Hawaii: Map of Wave

Hawaii: Plot of Uses by Wave

Hawaii: Table of Uses by Wave

Table 16: Area (km²) of Ocean Use by Wave (kW/m) bin for Hawaii region. Width of gray horizontal bars from left of cell indicate percent area occupied in given depth bin.

Ocean Use			Area (km ²) by Wave (kW/m)			Rank
Category	Layer	Component	10 - 20	20 - 30	Total	
	Total Area		 1,489	 311	 1,800	0
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Sanctuaries	 189	 175	 363	1
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Park Service	 3	 0	 3	3
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	State MPA	 186	 26	 212	2

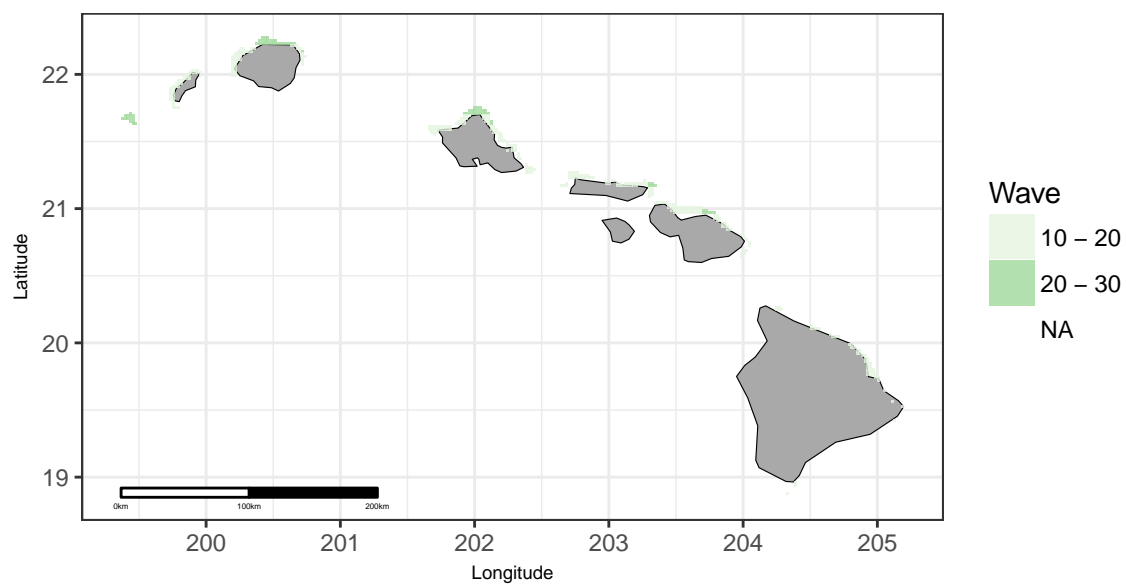


Figure 37: Map of viable wave in Hawaii region.

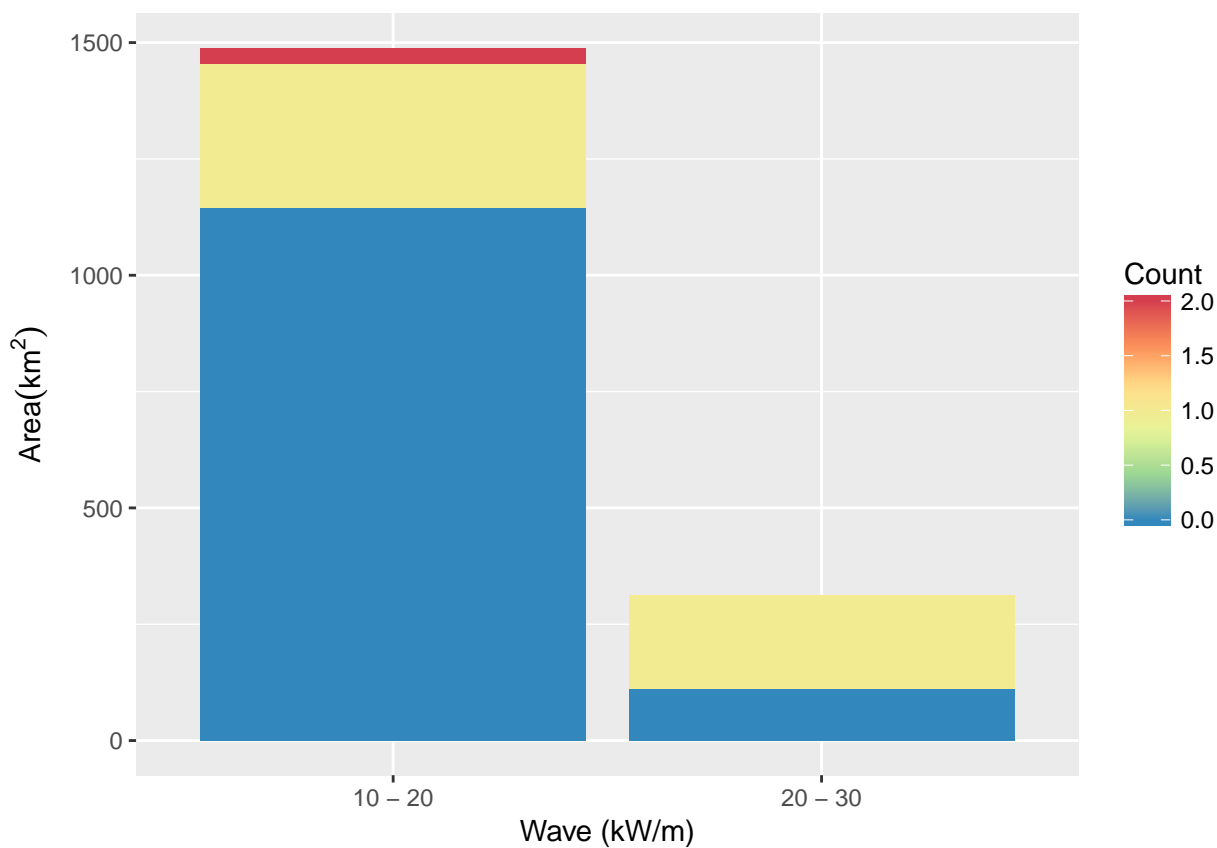


Figure 38: Area of Cumulative Ocean Use by Wave (kW/m) for Hawaii region. Cumulative use are counted and summarized by Wave (kW/m) and area.

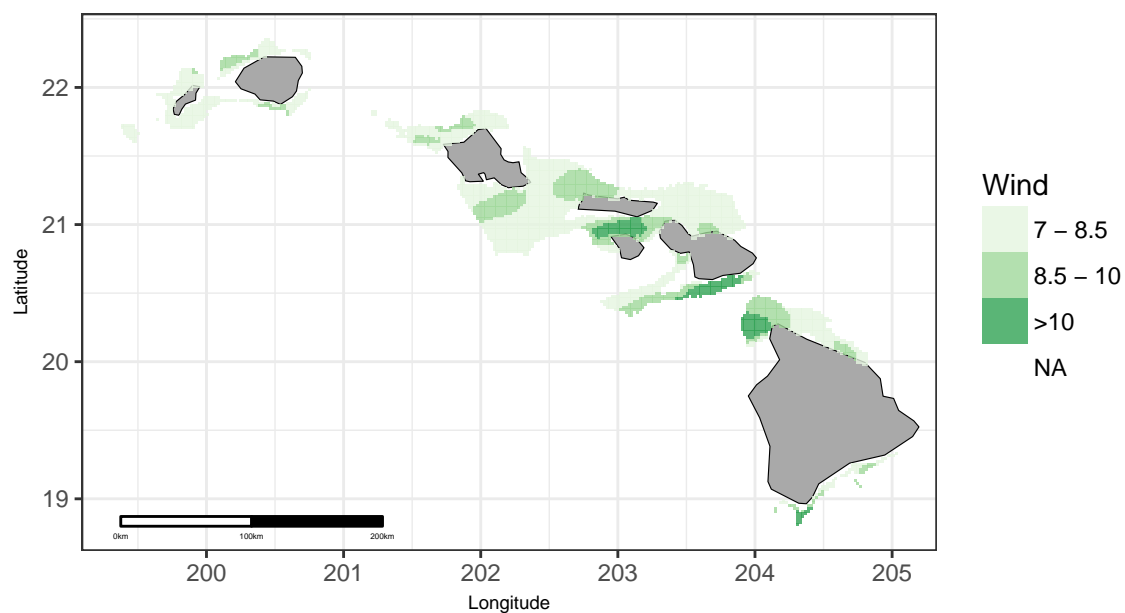


Figure 39: Map of viable wind in Hawaii region.

Hawaii: Map of Wind

Hawaii: Plot of Uses by Wind

Hawaii: Table of Uses by Wind

Table 17: Area (km²) of Ocean Use by Wind (m/s @ 90m) bin for Hawaii region. Width of gray horizontal bars from left of cell indicate percent area occupied in given depth bin.

Ocean Use			Area (km ²) by Wind (m/s @ 90m)					Total	Rank
Category	Layer	Component	7 - 8.5	8.5 - 10	>10				
	Total Area		10,601	3,999	1,217			15,818	0
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Sanctuaries	■ 1,441	■ 453	■ 304	■		2,199	1
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Park Service	2	0	0			2	3
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	State MPA	■ 1,369	■ 284	39	■		1,691	2

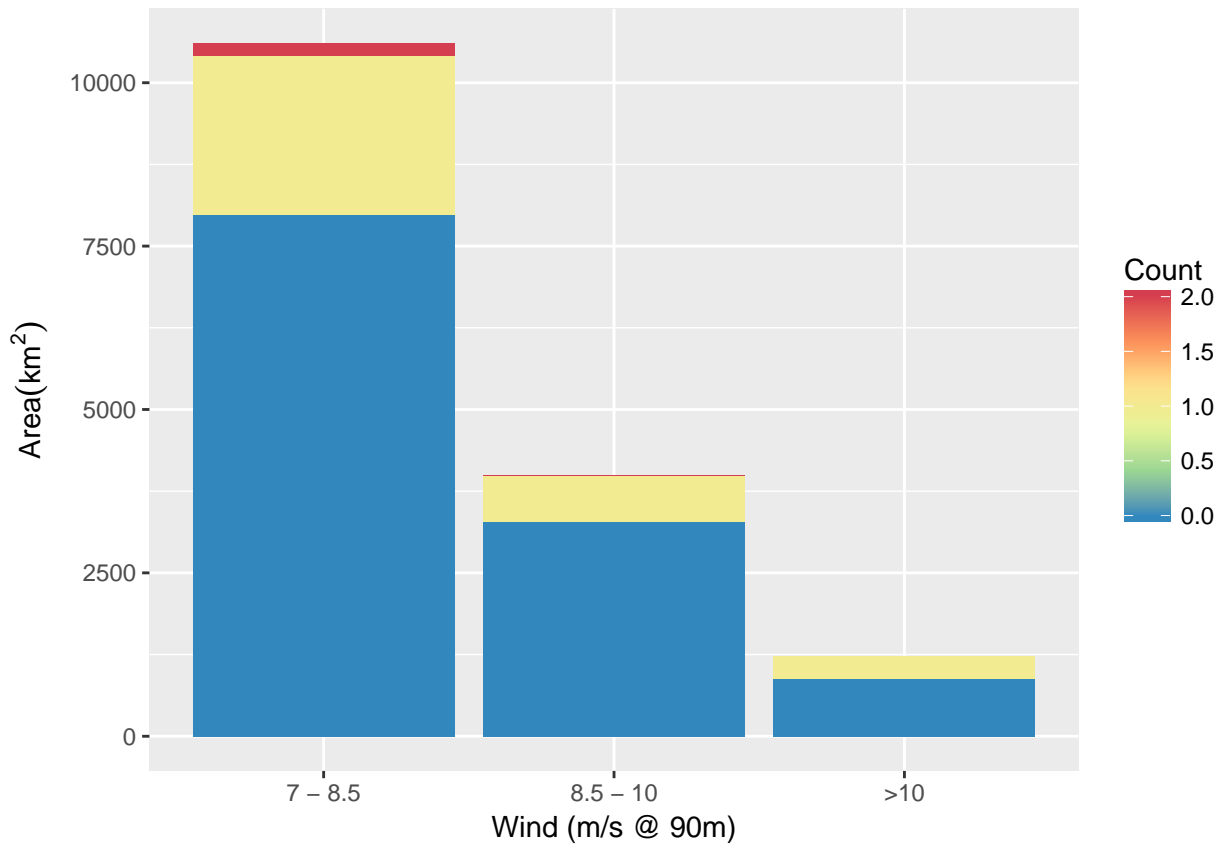


Figure 40: Area of Cumulative Ocean Use by Wind (m/s @ 90m) for Hawaii region. Cumulative use are counted and summarized by Wind (m/s @ 90m) and area.

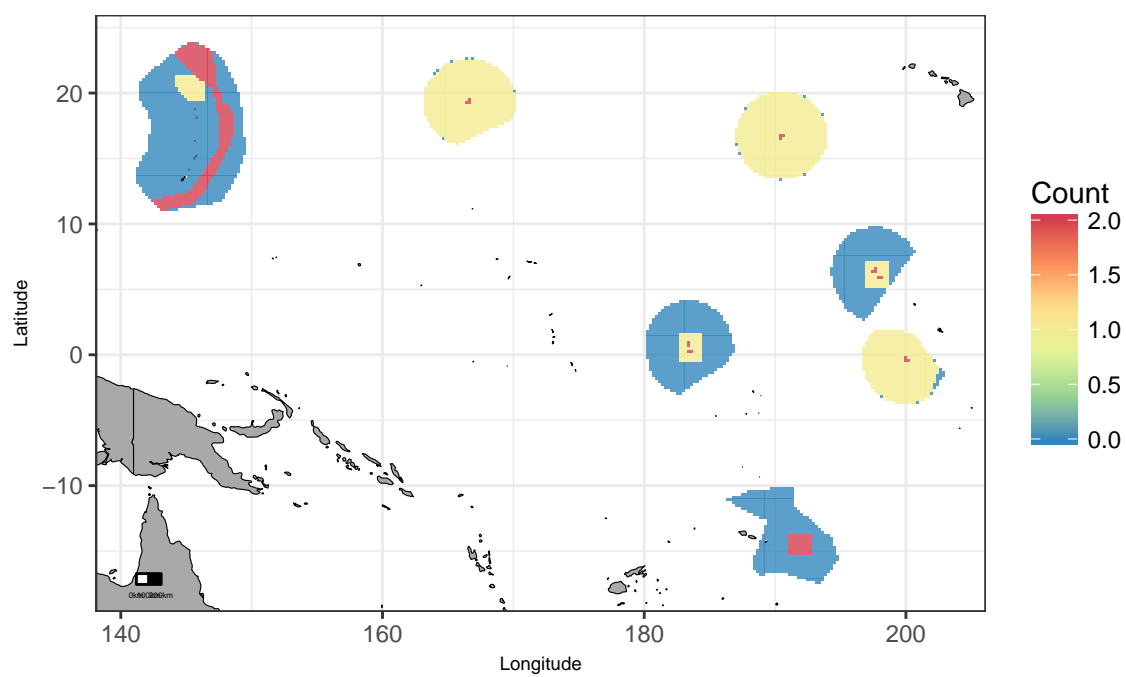


Figure 41: Map of cumulative ocean use in Pacific Islands region.

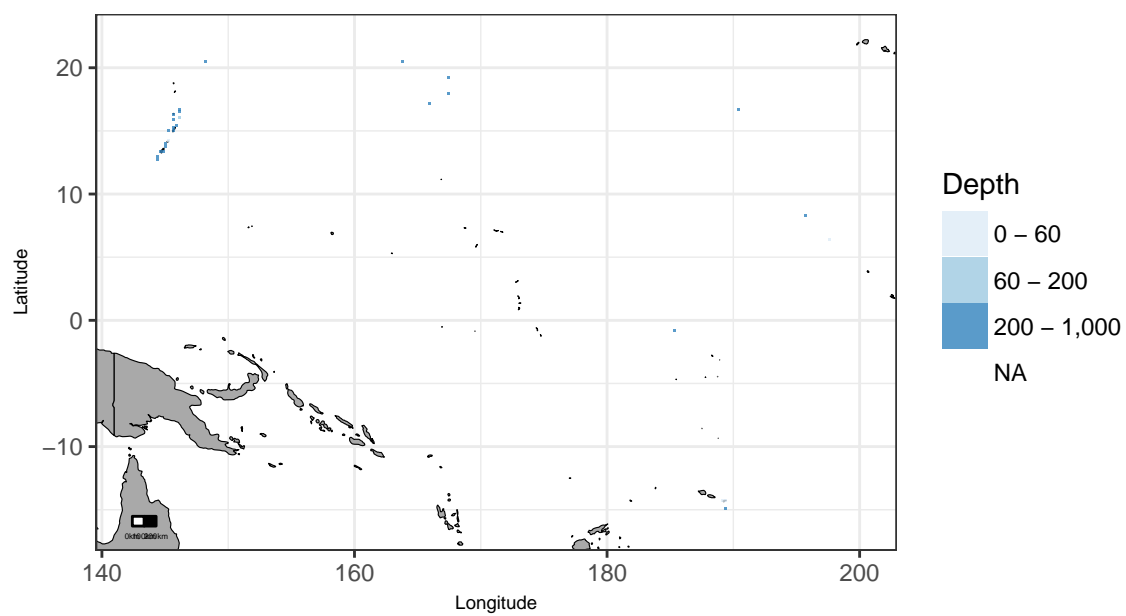


Figure 42: Map of viable depth in Pacific Islands region.

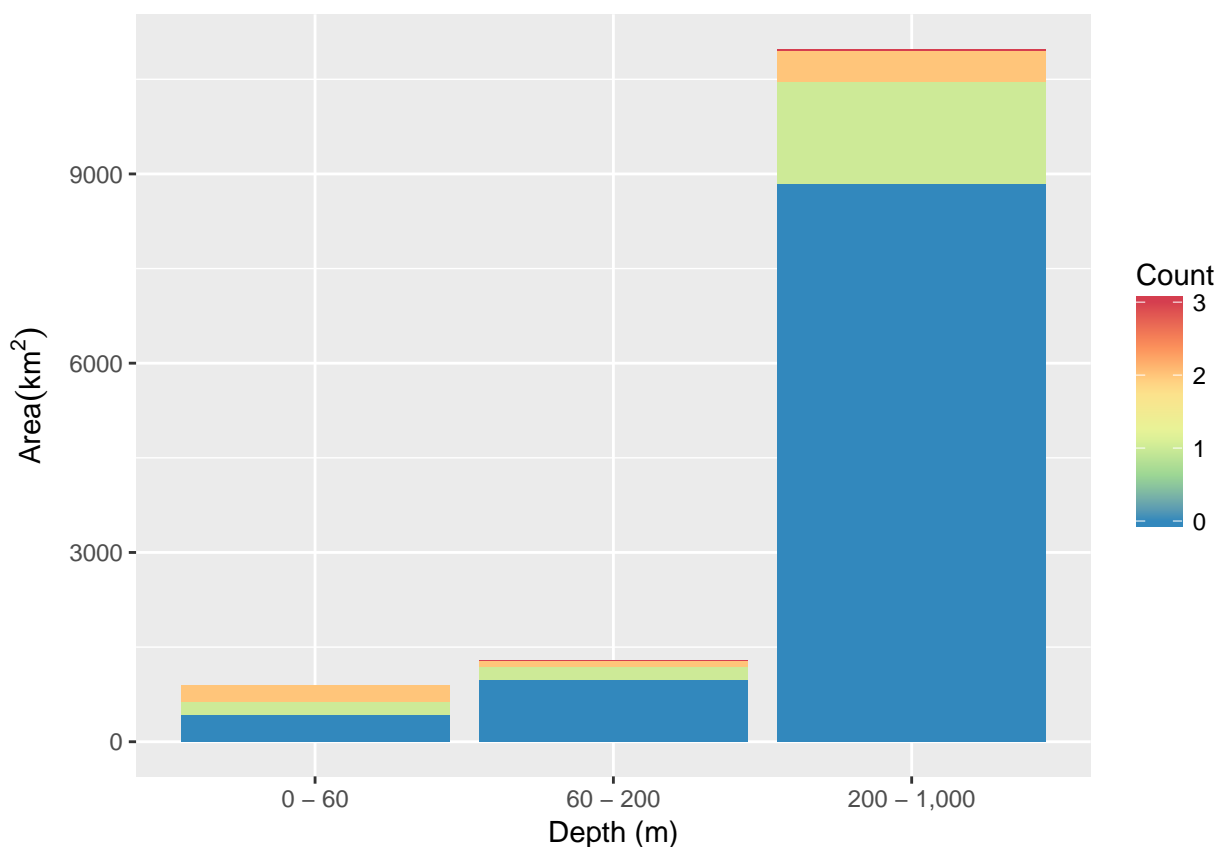


Figure 43: Area of Cumulative Ocean Use by Depth (m) for Pacific Islands region. Cumulative use are counted and summarized by Depth (m) and area.

Pacific Islands

Pacific Islands: Map of Uses

Pacific Islands: Map of Depth

Pacific Islands: Plot of Uses by Depth

Pacific Islands: Table of Uses by Depth

Table 18: Area (km²) of Ocean Use by Depth (m) bin for Pacific Islands region. Width of gray horizontal bars from left of cell indicate percent area occupied in given depth bin.

Ocean Use			Area (km ²) by Depth (m)							
Category	Layer	Component	0 - 60		60 - 200		200 - 1,000		Total	Rank
	Total Area		888		1,294		10,982		13,164	0
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	American Samoa	1		1		0		2	7
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	Guam	9		12		3		25	4
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	Mariana Islands	7		1		0		7	5
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	Marine National Monuments	42	426	271		2,077		2,775	1
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Sanctuaries	6		24		63		93	3

West

West: Map of Uses

West: Map of Depth

West: Plot of Uses by Depth

West: Table of Uses by Depth

Table 19: Area (km²) of Ocean Use by Depth (m) bin for West region. Width of gray horizontal bars from left of cell indicate percent area occupied in given depth bin.

Ocean Use			Area (km ²) by Depth (m)				Total	Rank
Category	Layer	Component	0 - 60	60 - 200	200 - 1,000			
	Total Area		22,032	42,357	69,766	134,156		0
Governance: Commercial Leases	Active Oil & Gas Leases		118	355	394	867		8
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	Bureau of Ocean Energy Management	26	100	100	227		12
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Estuarine Research Reserve System	45	0	0	45		14
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Fisheries Service	919	5,157	15,047	21,123		2
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Sanctuaries	5,758	11,132	7,556	24,446		1
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Park Service	357	81	2	440		11
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Wildlife Refuge System	195	9	2	206		13
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	State MPA	2,512	2,205	355	5,071		5
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Canopy Kelp	818	27	1	847		9
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Estuaries	3,307	968	77	4,352		6
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Groundfish	2,256	1,052	2,322	5,630		4
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Rocky Reefs	951	3,540	4,813	9,304		3
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Seagrass	504	1	0	505		10
Ocean Uses: Transportation: Commercial Shipping	Shipping Lanes		215	971	1,256	2,442		7
	Aquaculture	Shellfish	3	0	0	3		15

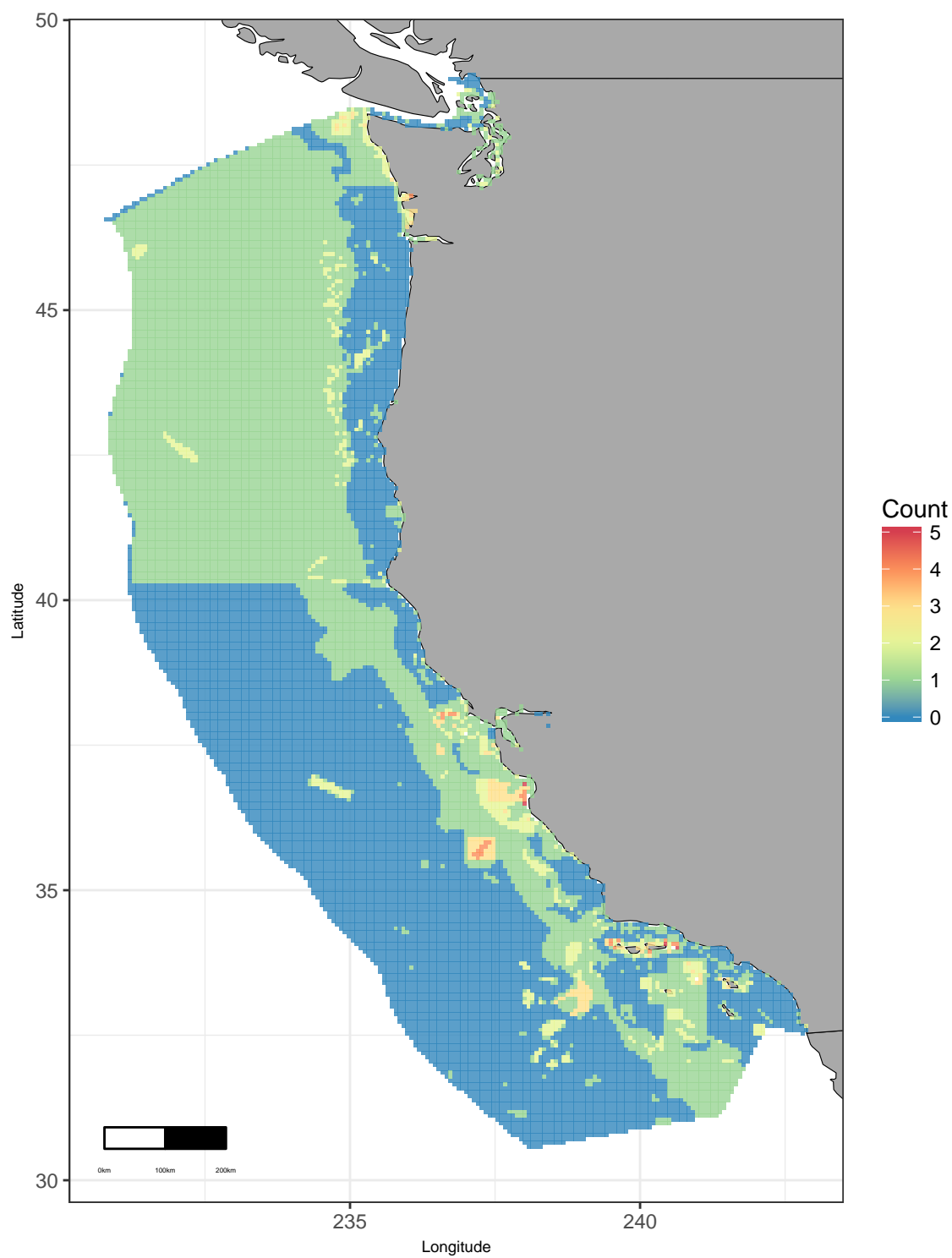


Figure 44: Map of cumulative ocean use in West region.

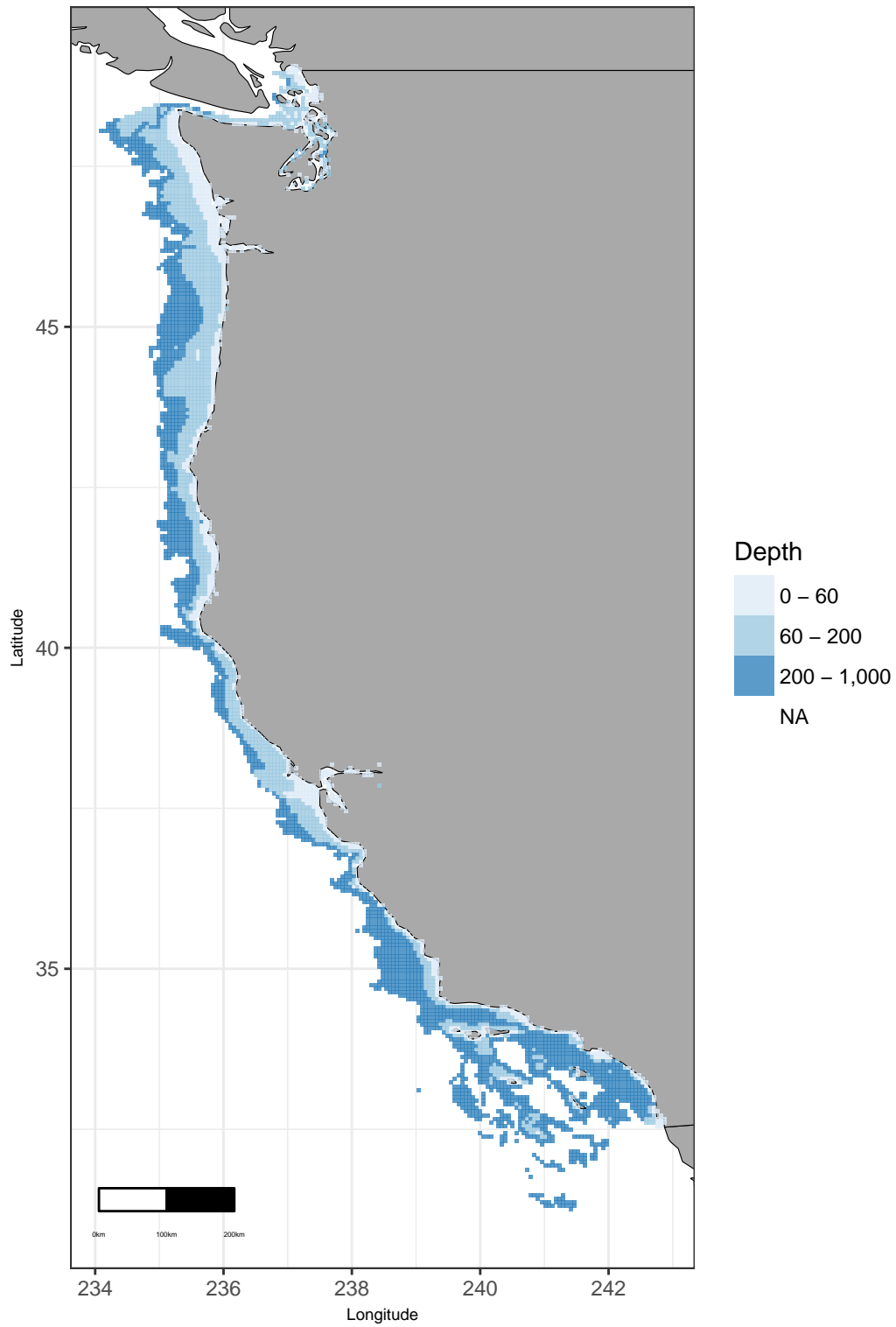


Figure 45: Map of viable depth in West region.

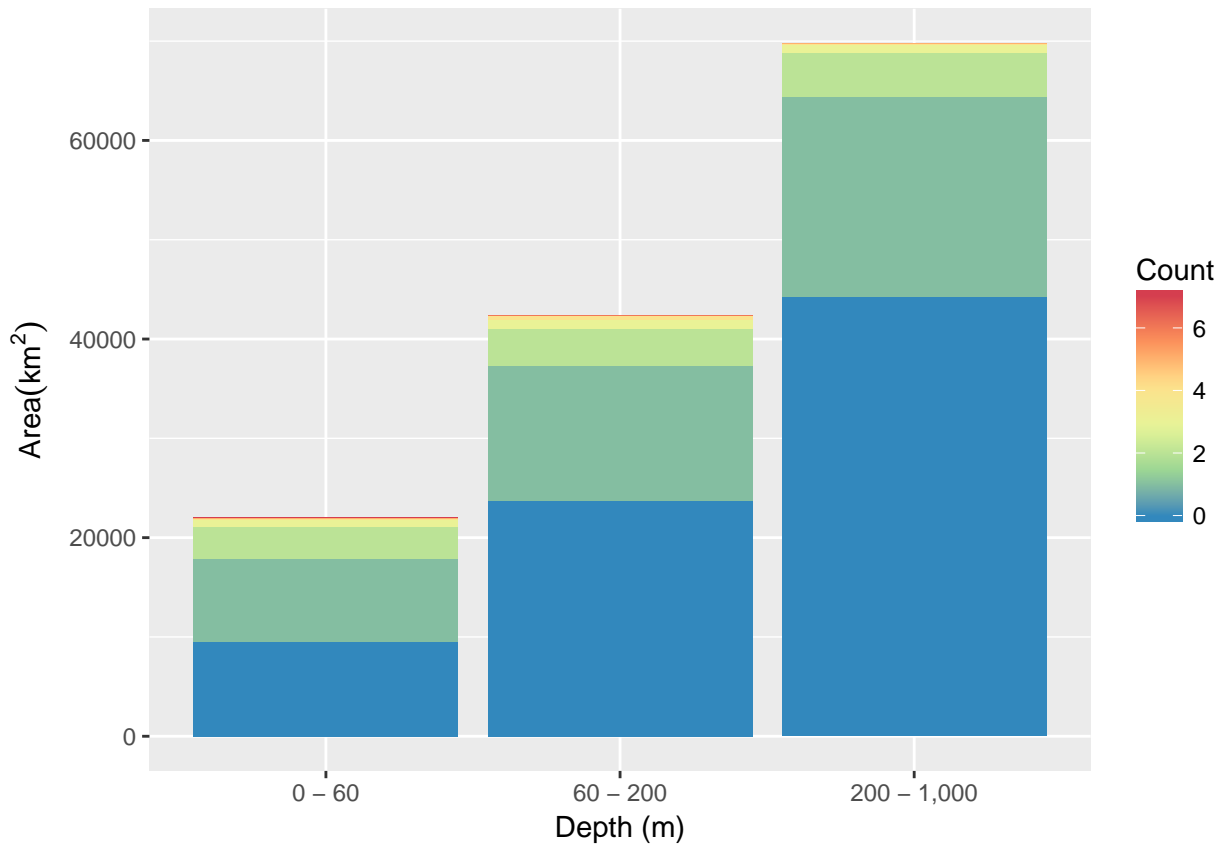


Figure 46: Area of Cumulative Ocean Use by Depth (m) for West region. Cumulative use are counted and summarized by Depth (m) and area.

West: Map of Tide

West: Plot of Uses by Tide

West: Table of Uses by Tide

Table 20: Area (km²) of Ocean Use by Tide (W/m2) bin for West region. Width of gray horizontal bars from left of cell indicate percent area occupied in given depth bin.

Ocean Use			Area (km ²) by Tide (W/m2)								
Category	Layer	Component	500 - 1,000		1000 - 1,500		>1,500		Total	Rank	
	Total Area		82		20		28		131	0	
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Sanctuaries		1		1		0		2	5
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Park Service		1		0		0		1	6
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Wildlife Refuge System		2		0		0		2	4
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	State MPA	■	15	■	3	■	11	■	29	3
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Estuaries	■	42	■	10	■	7	■	59	1
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Groundfish		1		0		0		1	8
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Seagrass		0		1		1		1	7
Ocean Uses: Transportation: Commercial Shipping	Shipping Lanes		■	23	■	2	■	7	■	32	2

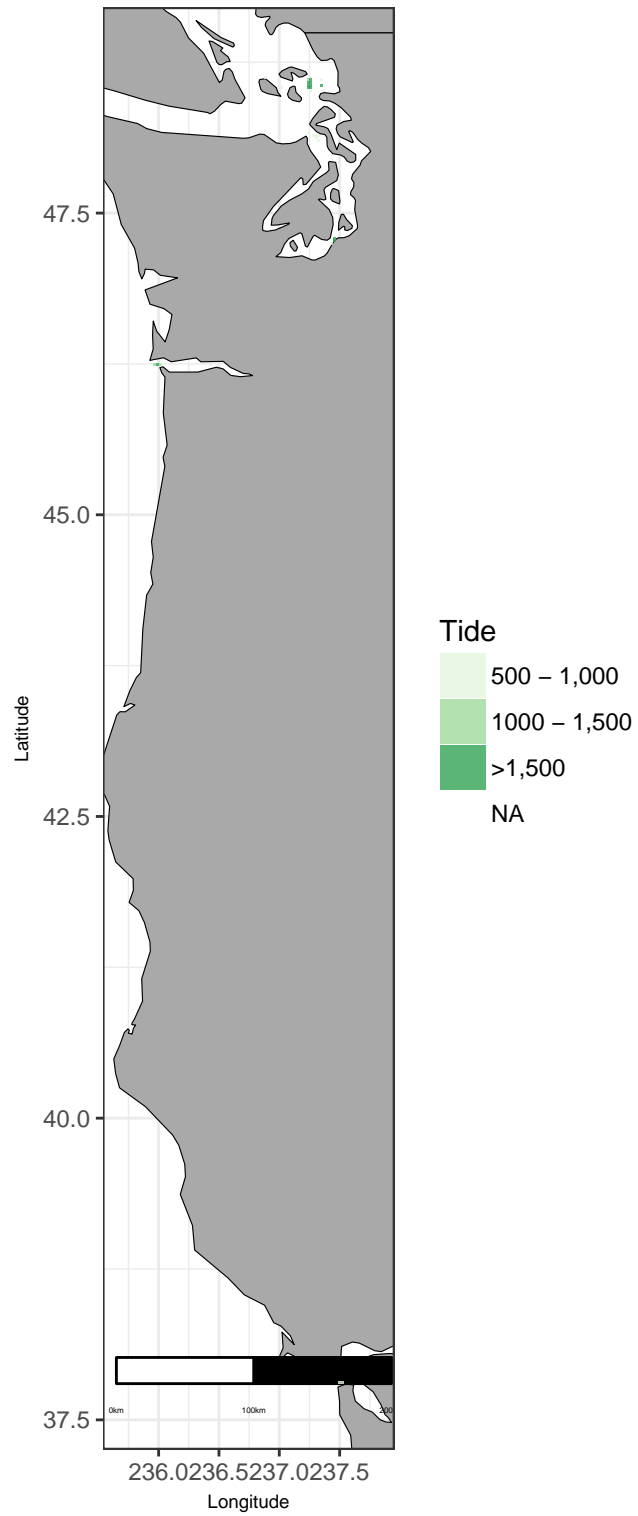


Figure 47: Map of viable tide in West region.

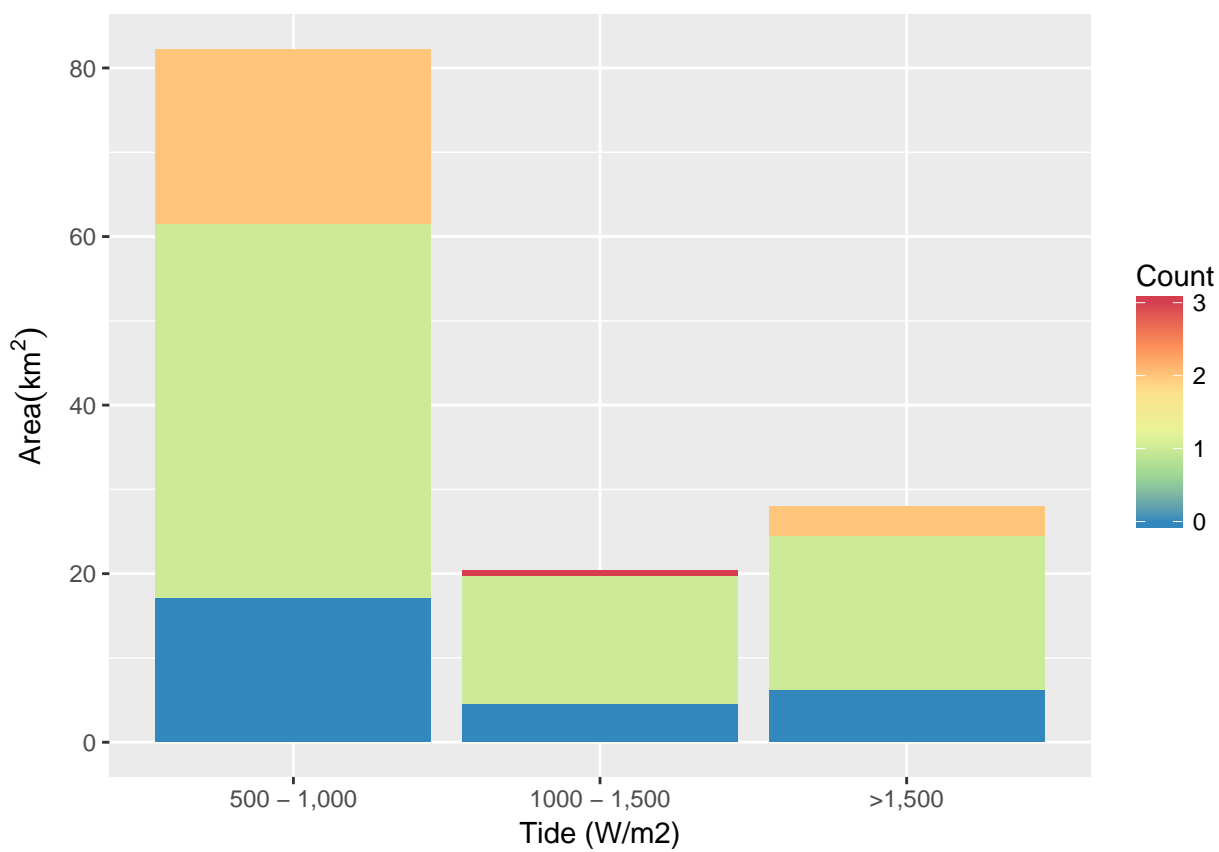


Figure 48: Area of Cumulative Ocean Use by Tide (W/m²) for West region. Cumulative use are counted and summarized by Tide (W/m²) and area.

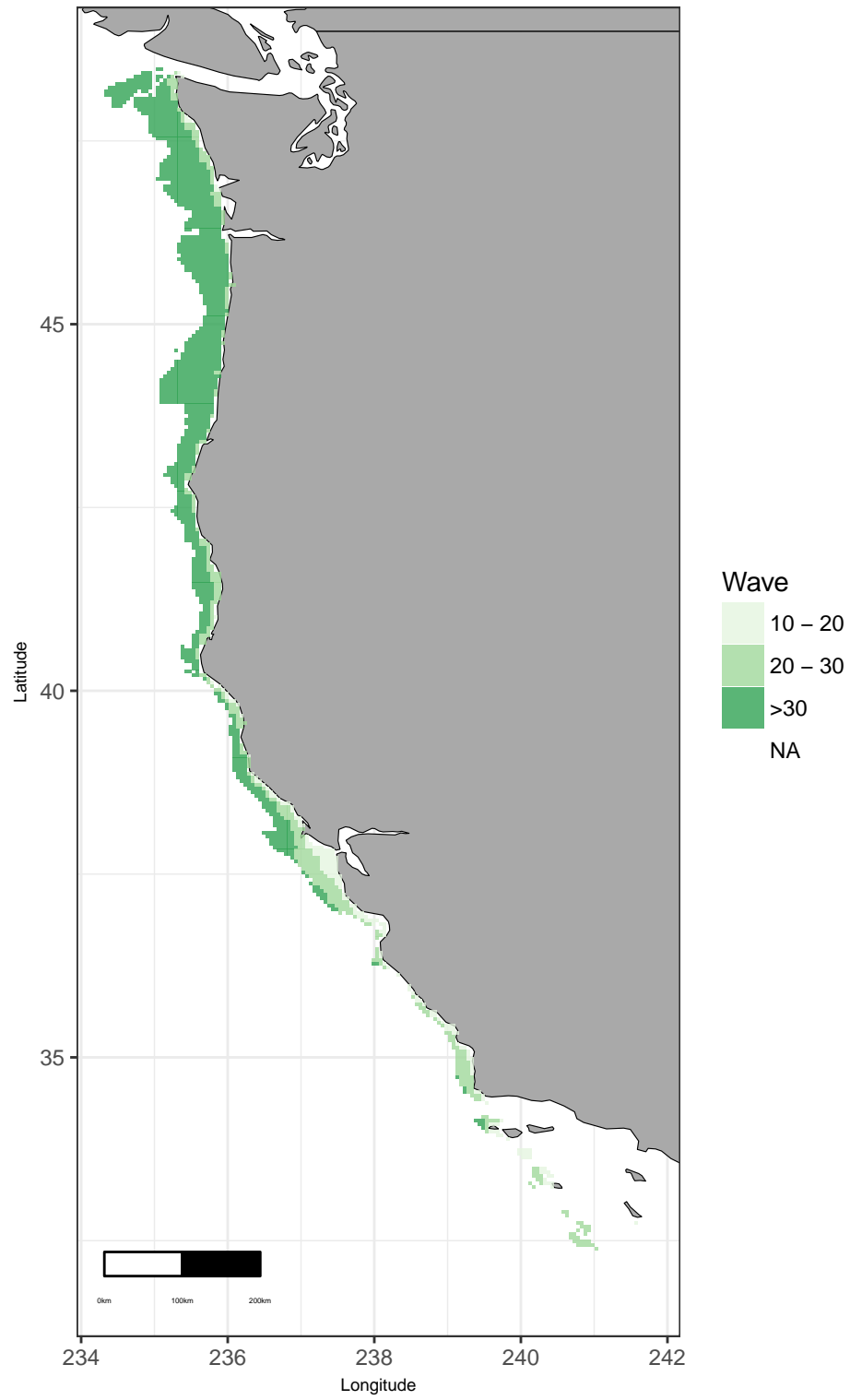


Figure 49: Map of viable wave in West region.

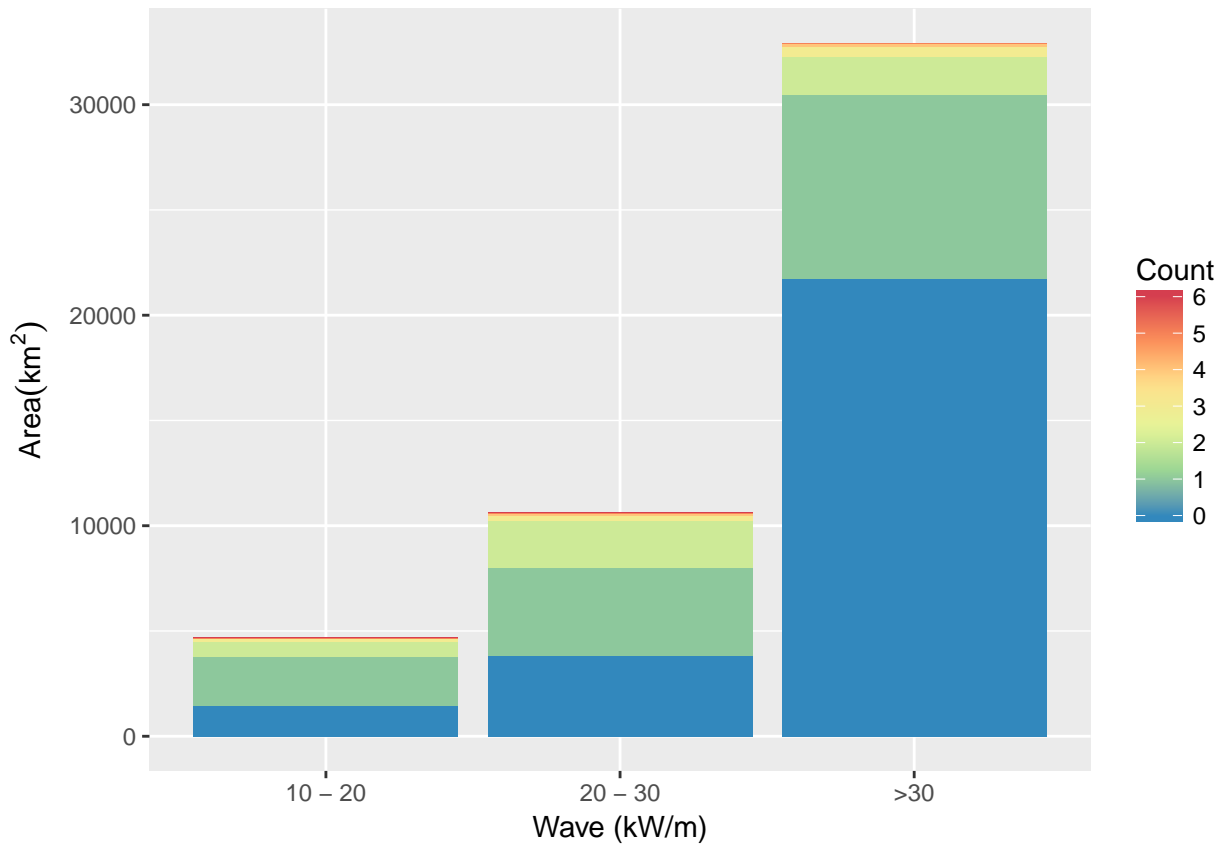


Figure 50: Area of Cumulative Ocean Use by Wave (kW/m) for West region. Cumulative use are counted and summarized by Wave (kW/m) and area.

West: Map of Wave

West: Plot of Uses by Wave

West: Table of Uses by Wave

Table 21: Area (km²) of Ocean Use by Wave (kW/m) bin for West region. Width of gray horizontal bars from left of cell indicate percent area occupied in given depth bin.

Ocean Use			Area (km ²) by Wave (kW/m)				Total	Rank
Category	Layer	Component	10 - 20	20 - 30	>30			
	Total Area		4,680	10,608	32,910		48,199	0
Governance: Commercial Leases	Active Oil & Gas Leases		0	128	13		140	8
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Fisheries Service	391	1,742	2,872		5,004	2
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Sanctuaries	2,463	4,399	7,884		14,745	1
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Park Service	51	18	0		69	9
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	State MPA	616	888	238		1,742	5
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Canopy Kelp	271	156	18		445	7
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Estuaries	7	33	0		40	10
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Groundfish	172	1,284	902		2,358	4
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Rocky Reefs	348	997	2,334		3,680	3
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Seagrass	2	14	0		16	11
Ocean Uses: Transportation: Commercial Shipping	Shipping Lanes		112	252	174		538	6
	Aquaculture	Shellfish	1	0	0		1	12

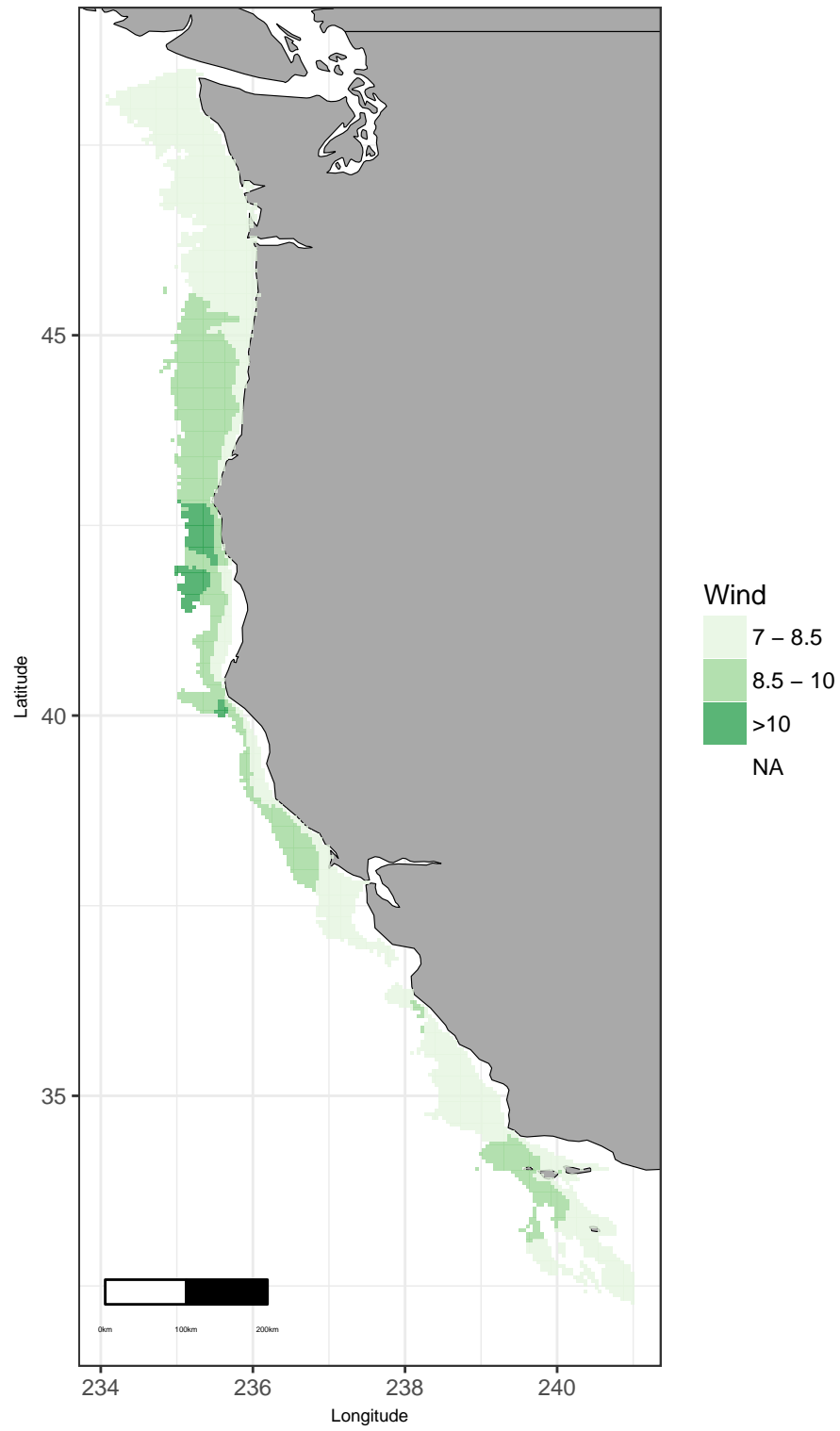


Figure 51: Map of viable wind in West region.

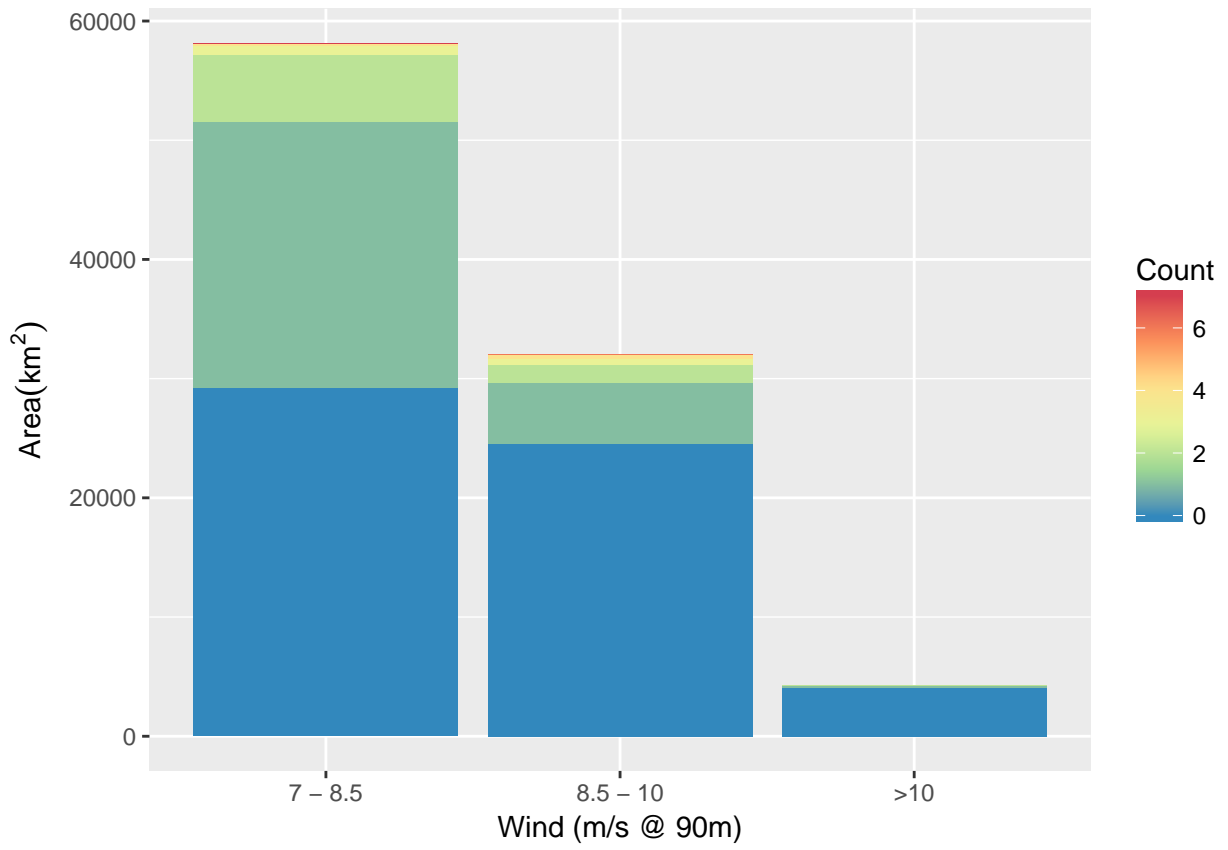


Figure 52: Area of Cumulative Ocean Use by Wind (m/s @ 90m) for West region. Cumulative use are counted and summarized by Wind (m/s @ 90m) and area.

West: Map of Wind

West: Plot of Uses by Wind

West: Table of Uses by Wind

Table 22: Area (km²) of Ocean Use by Wind (m/s @ 90m) bin for West region. Width of gray horizontal bars from left of cell indicate percent area occupied in given depth bin.

Ocean Use			Area (km ²) by Wind (m/s @ 90m)				Total	Rank
Category	Layer	Component	7 - 8.5	8.5 - 10	>10			
	Total Area		58,121	32,006	4,231		94,357	0
Governance: Commercial Leases	Active Oil & Gas Leases		212	14	0		226	9
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Fisheries Service	10,171	3,645	9		13,826	2
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Sanctuaries	16,754	2,879	0		19,634	1
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Park Service	208	66	0		274	8
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Wildlife Refuge System	4	0	0		4	12
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	State MPA	1,512	491	5		2,008	5
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Canopy Kelp	138	29	0		167	10
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Estuaries	387	0	0		387	7
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Groundfish	2,411	942	0		3,353	4
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Rocky Reefs	4,132	2,697	152		6,981	3
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Seagrass	106	0	0		106	11
Ocean Uses: Transportation: Commercial Shipping	Shipping Lanes		659	245	0		904	6