

Ocean Uses and Marine Renewable Energy

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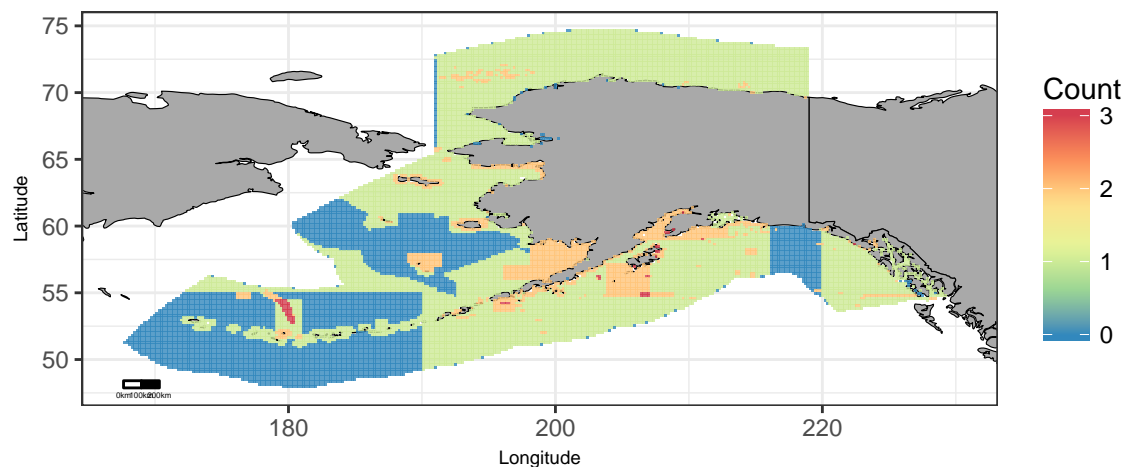


Figure 1: Map of cumulative ocean use in Alaska region.

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	Marine Cadastre	Active Oil & Gas Leases									
3	Marine Cadastre	Aquaculture									
4	Marine Cadastre	Essential Fish Habitat									
5	Marine Cadastre	Marine Protected Areas									
6	Marine Cadastre	Shipping Lanes									
7	NOAA Ocean Uses	Ocean Use Atlas for California									
8	NOAA Ocean Uses	Ocean Use Atlas for Hawaii									
9	NOAA Ocean Uses	Ocean Use Atlas for Oregon & Washington									
10	NREL	Tide (W/m ²)									
11	NREL	Wave (kW/m)									
12	NREL	Wind (m/s @ 90m)									

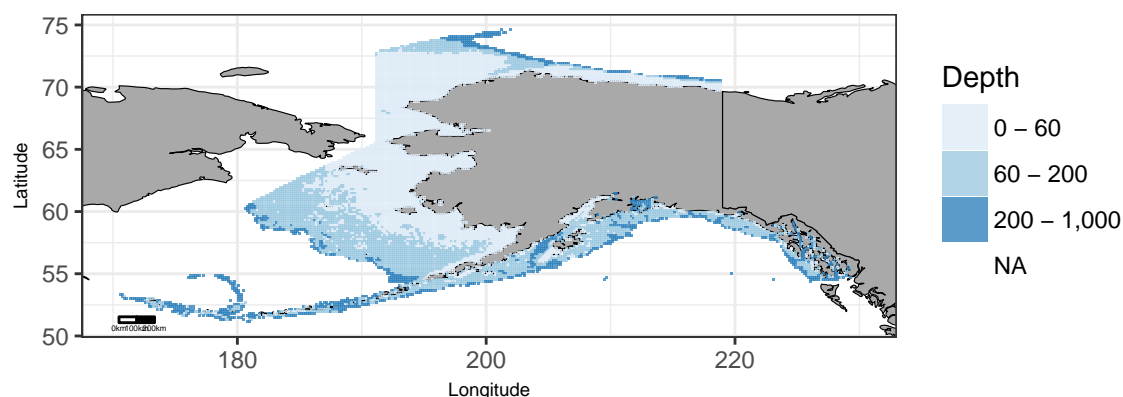


Figure 2: Map of viable depth in Alaska region.

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)							
Category	Layer	Component	0 - 60		60 - 200		200 - 1,000		Total	Rank
	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	4	0	0		517		517	10
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Skate	0		113		165		279	11

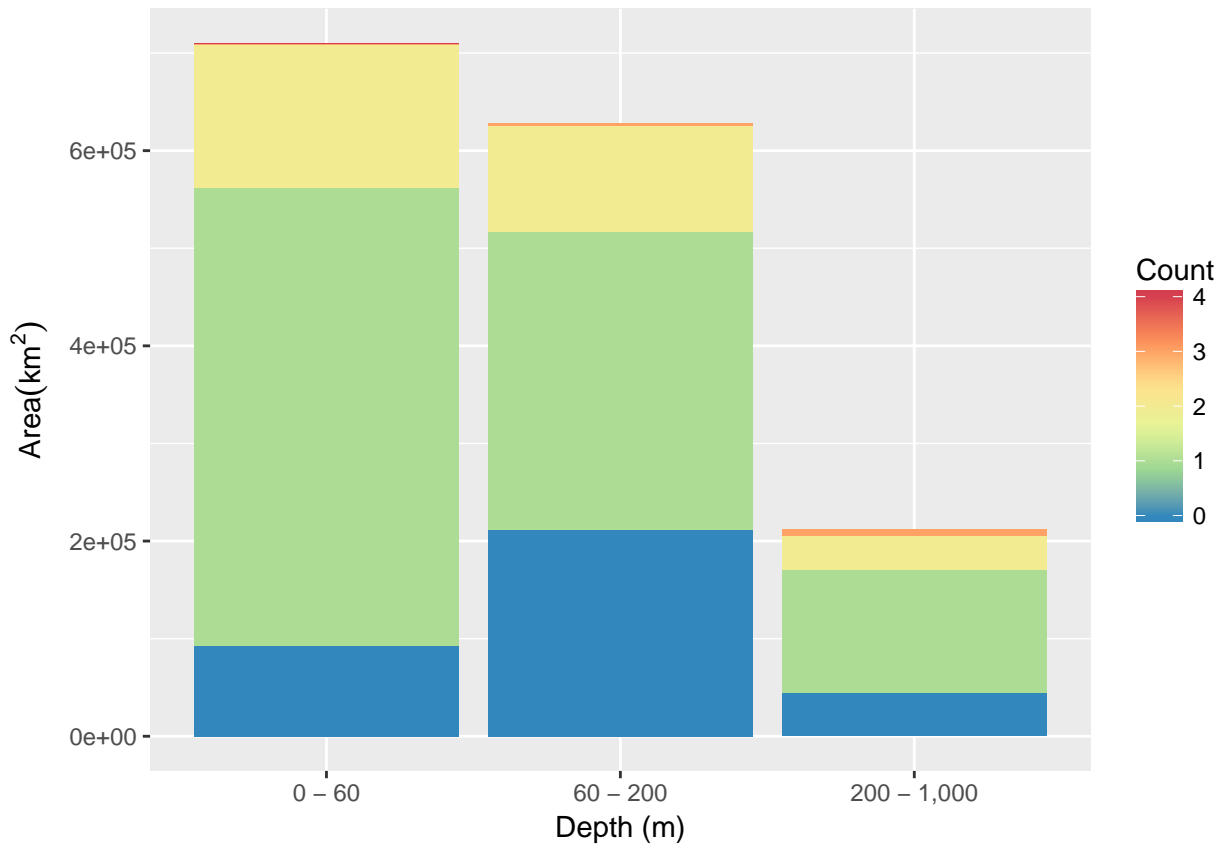


Figure 3: Area of Cumulative Ocean Use by Depth (m) for Alaska region. Cumulative use are counted and summarized by Depth (m) and area.

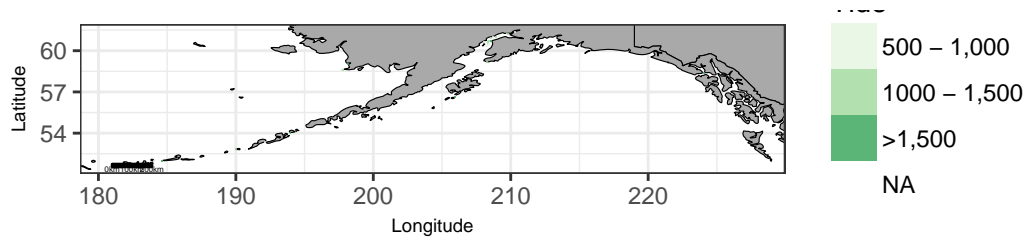


Figure 4: Map of viable tide in Alaska region.

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

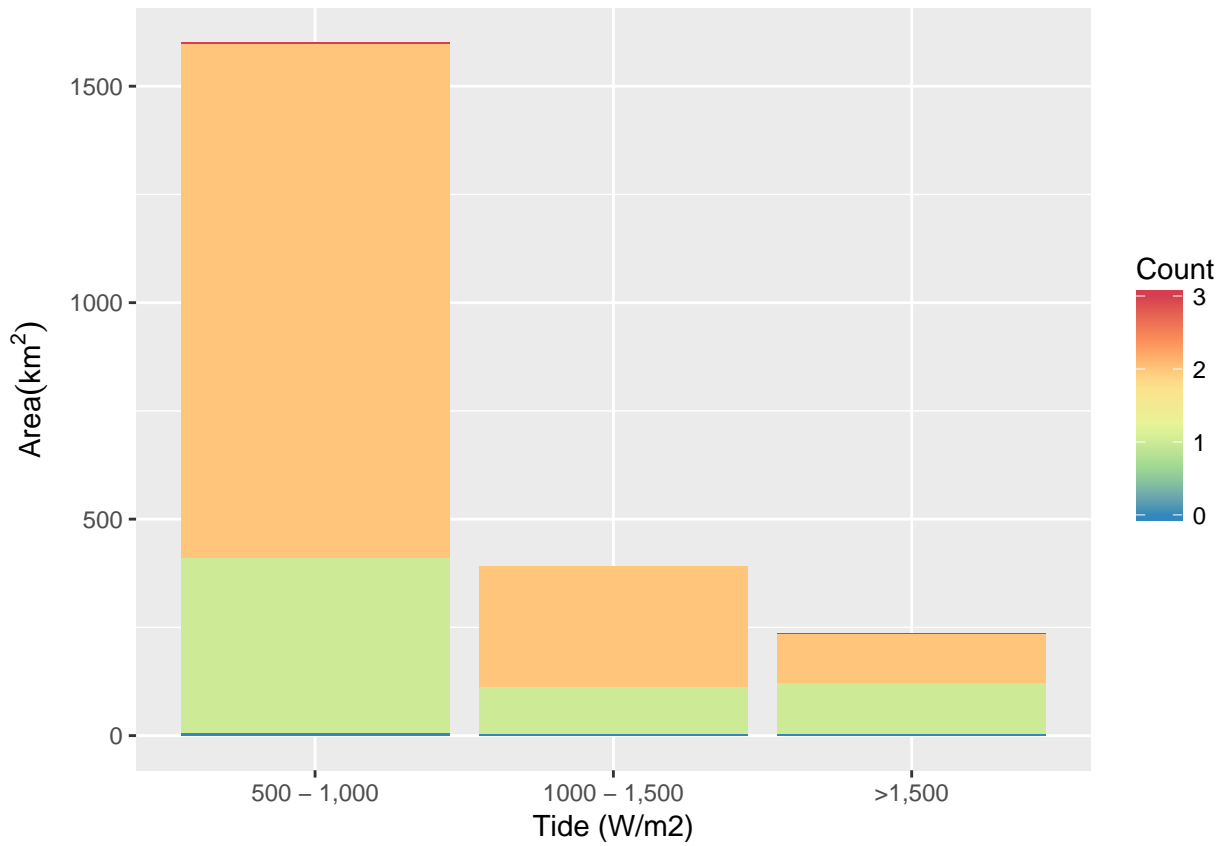


Figure 5: Area of Cumulative Ocean Use by Tide (W/m²) for Alaska region. Cumulative use are counted and summarized by Tide (W/m²) and area.

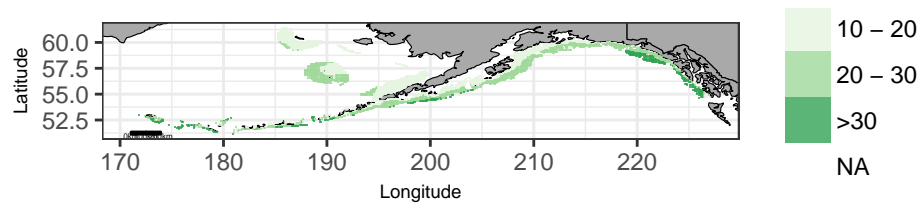


Figure 6: Map of viable wave in Alaska region.

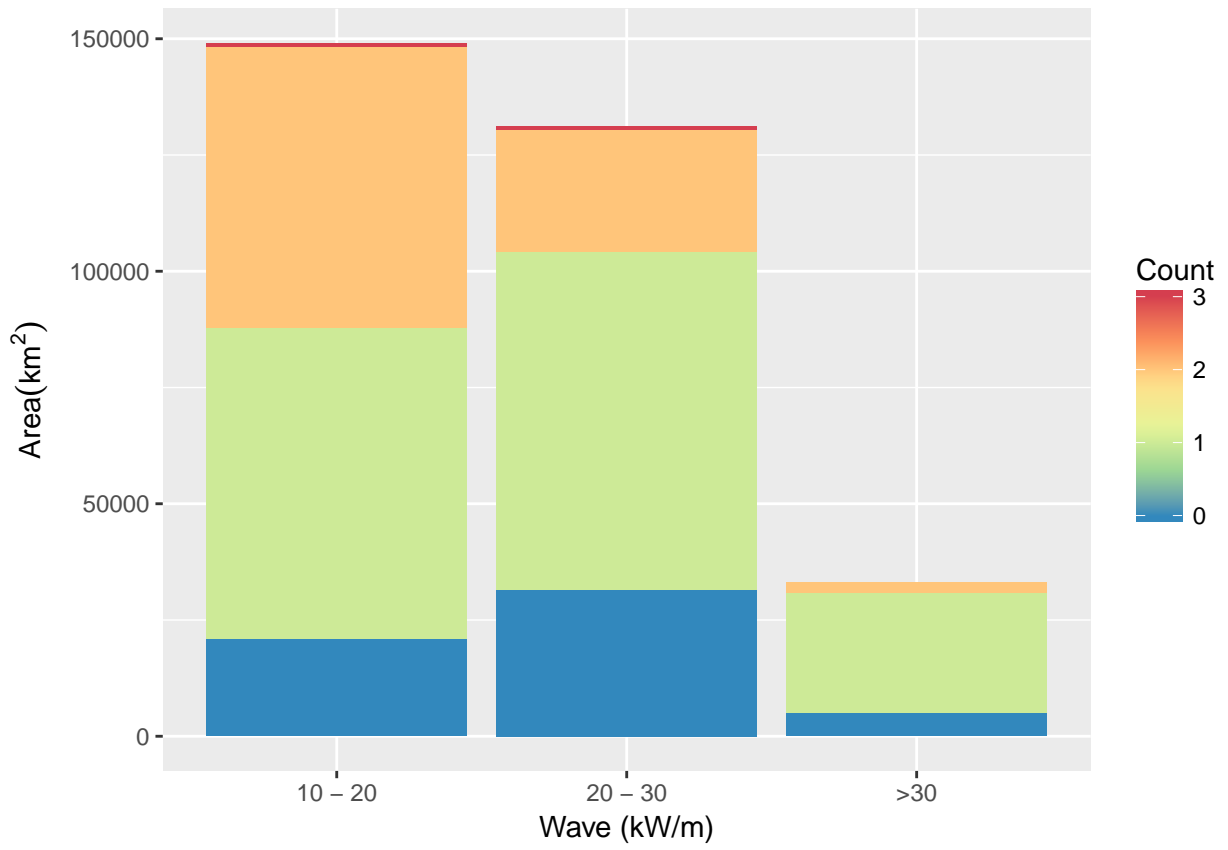


Figure 7: Area of Cumulative Ocean Use by Wave (kW/m) for Alaska region. Cumulative use are counted and summarized by Wave (kW/m) and area.

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

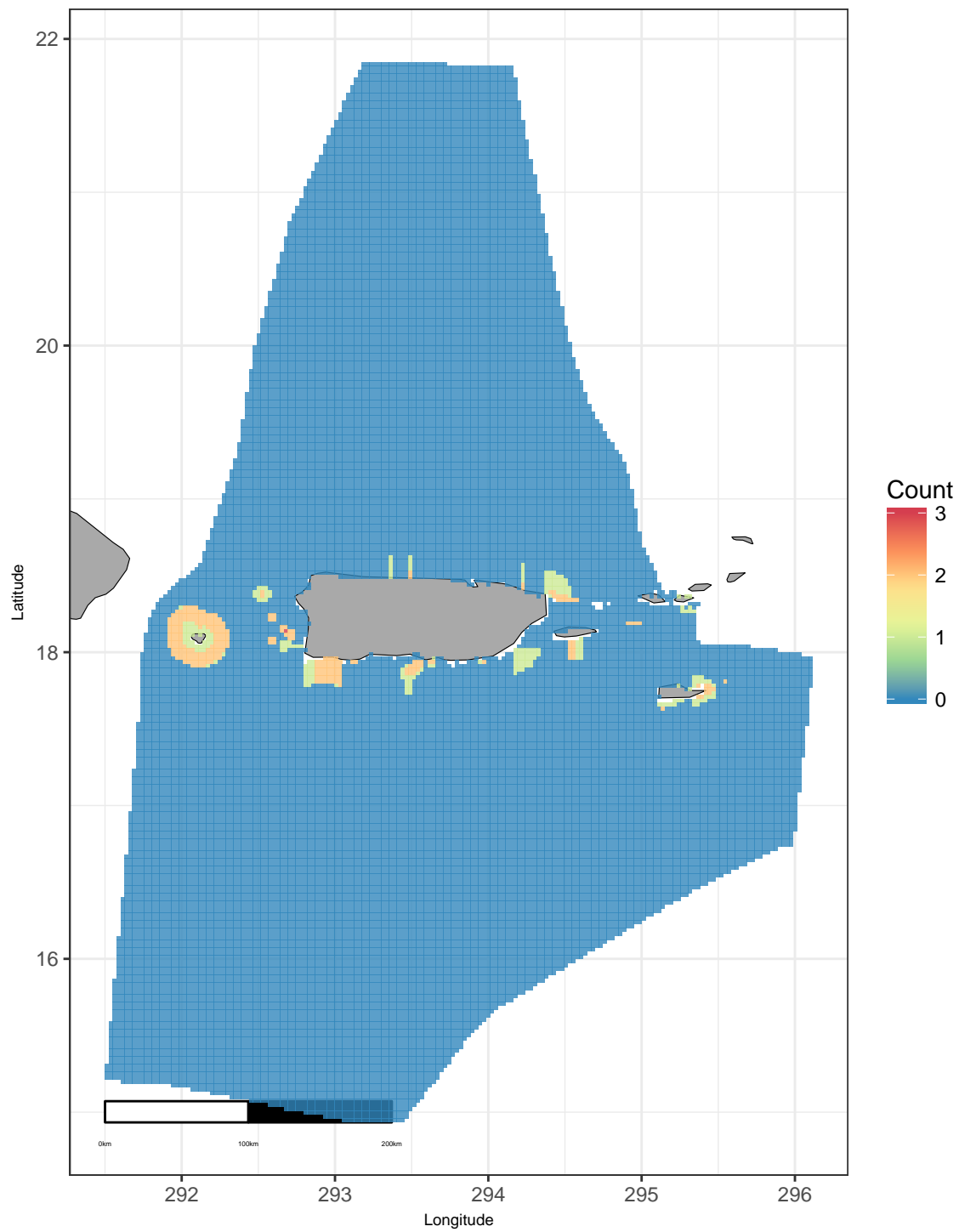


Figure 8: Map of cumulative ocean use in Atlantic Islands region.

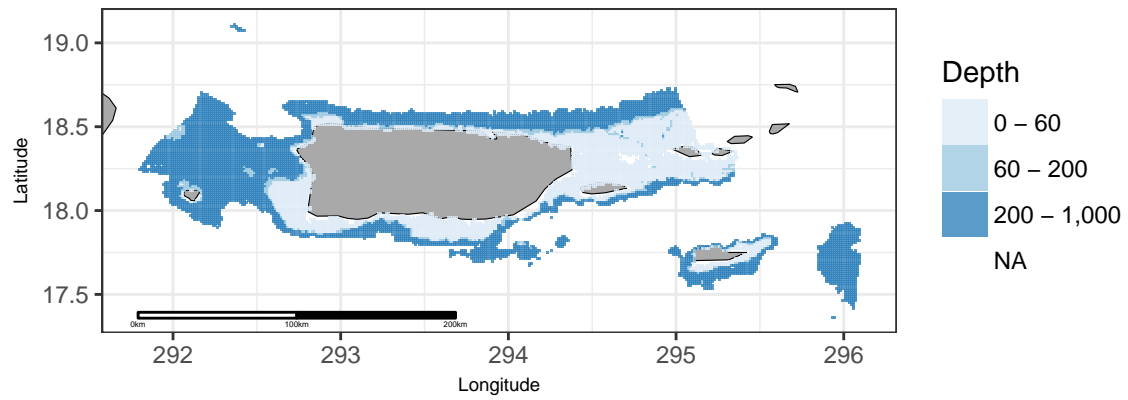


Figure 9: Map of viable depth in Atlantic Islands region.

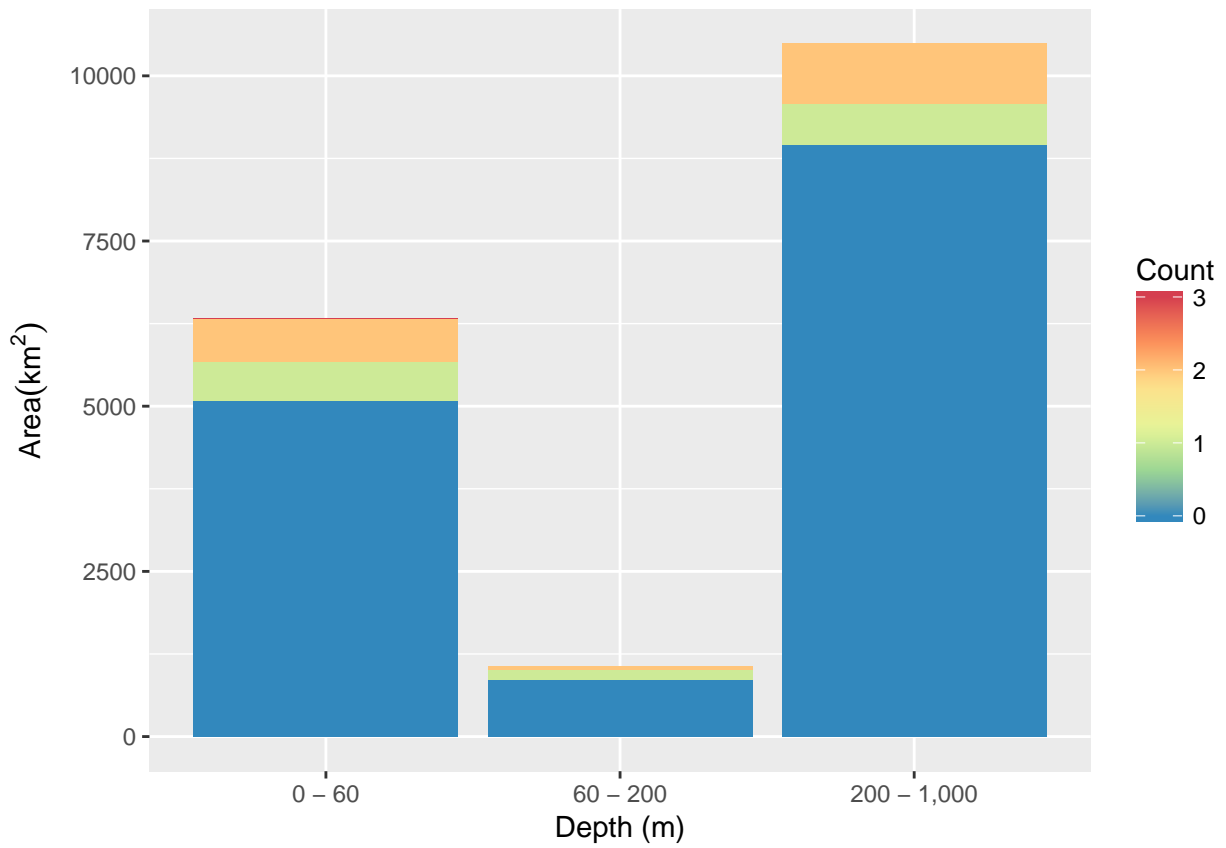


Figure 10: Area of Cumulative Ocean Use by Depth (m) for Atlantic Islands region. Cumulative use are counted and summarized by Depth (m) and area.

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

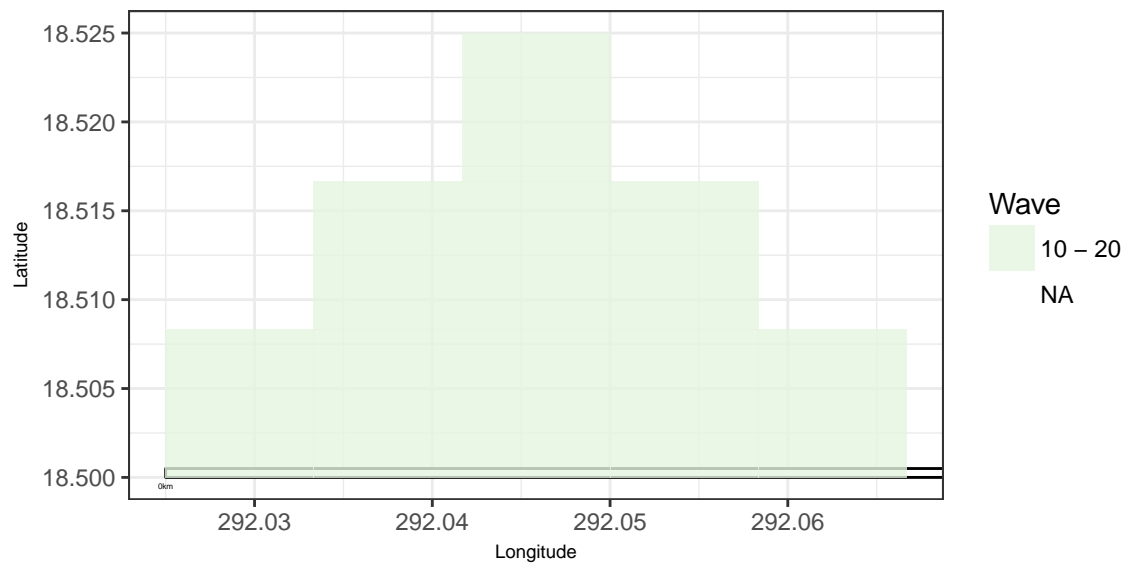


Figure 11: Map of viable wave in Atlantic Islands region.

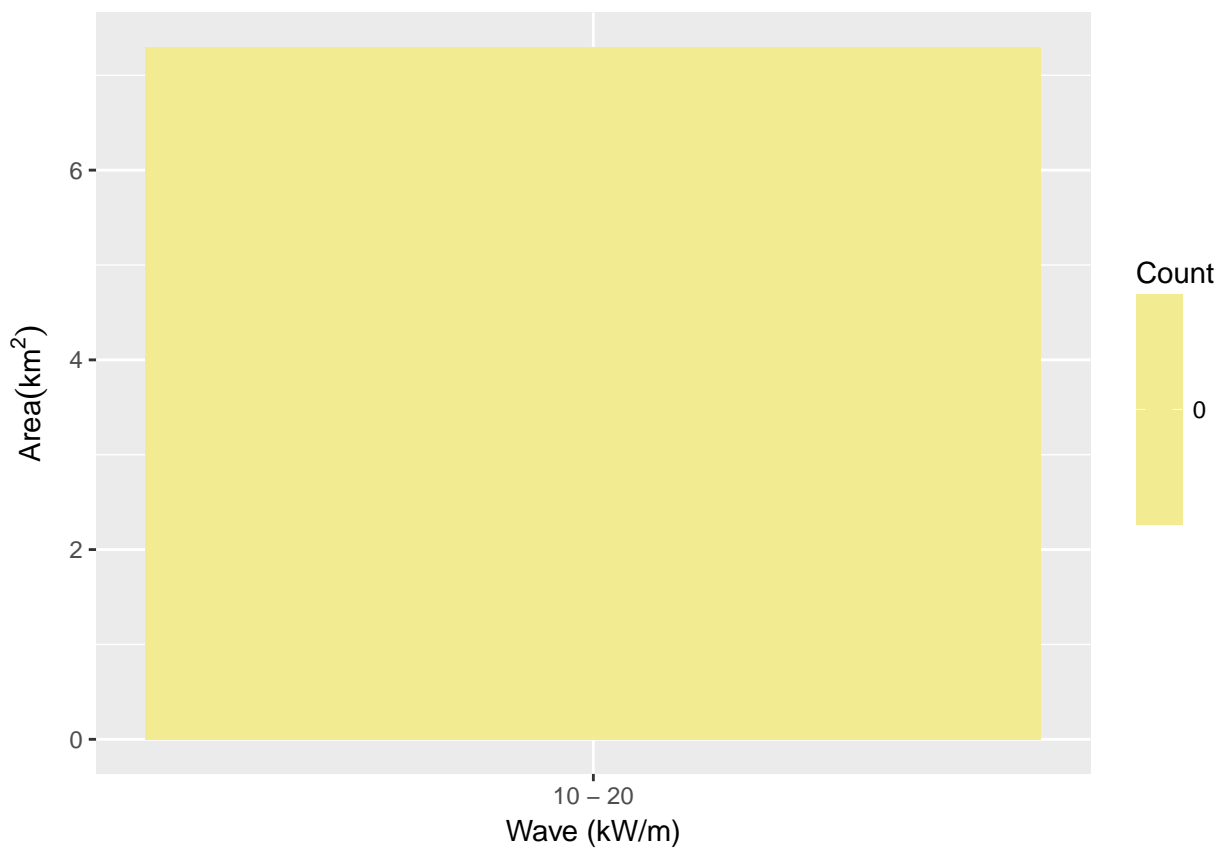


Figure 12: Area of Cumulative Ocean Use by Wave (kW/m) for Atlantic Islands region. Cumulative use are counted and summarized by Wave (kW/m) and area.

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

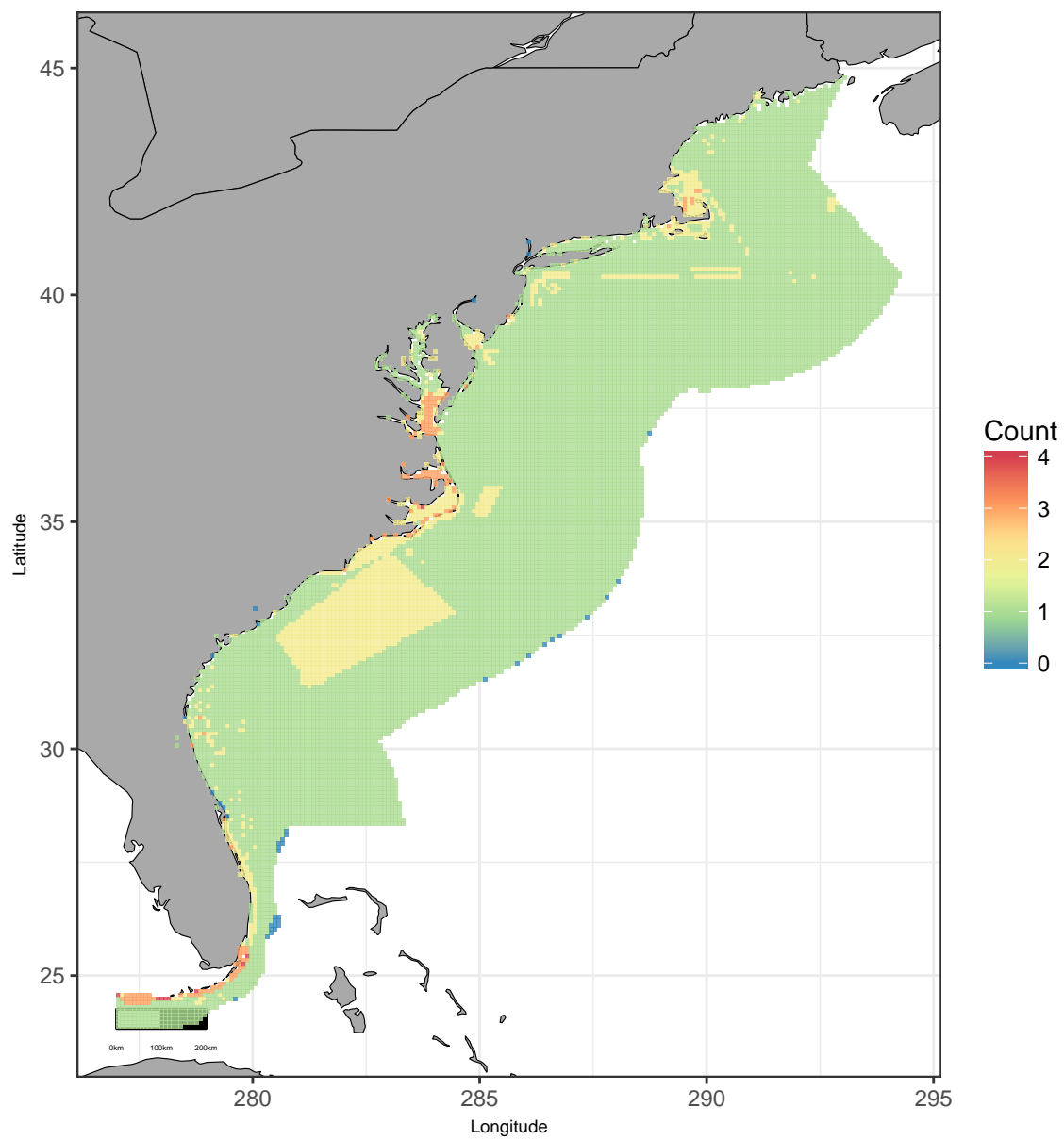


Figure 13: Map of cumulative ocean use in East region.

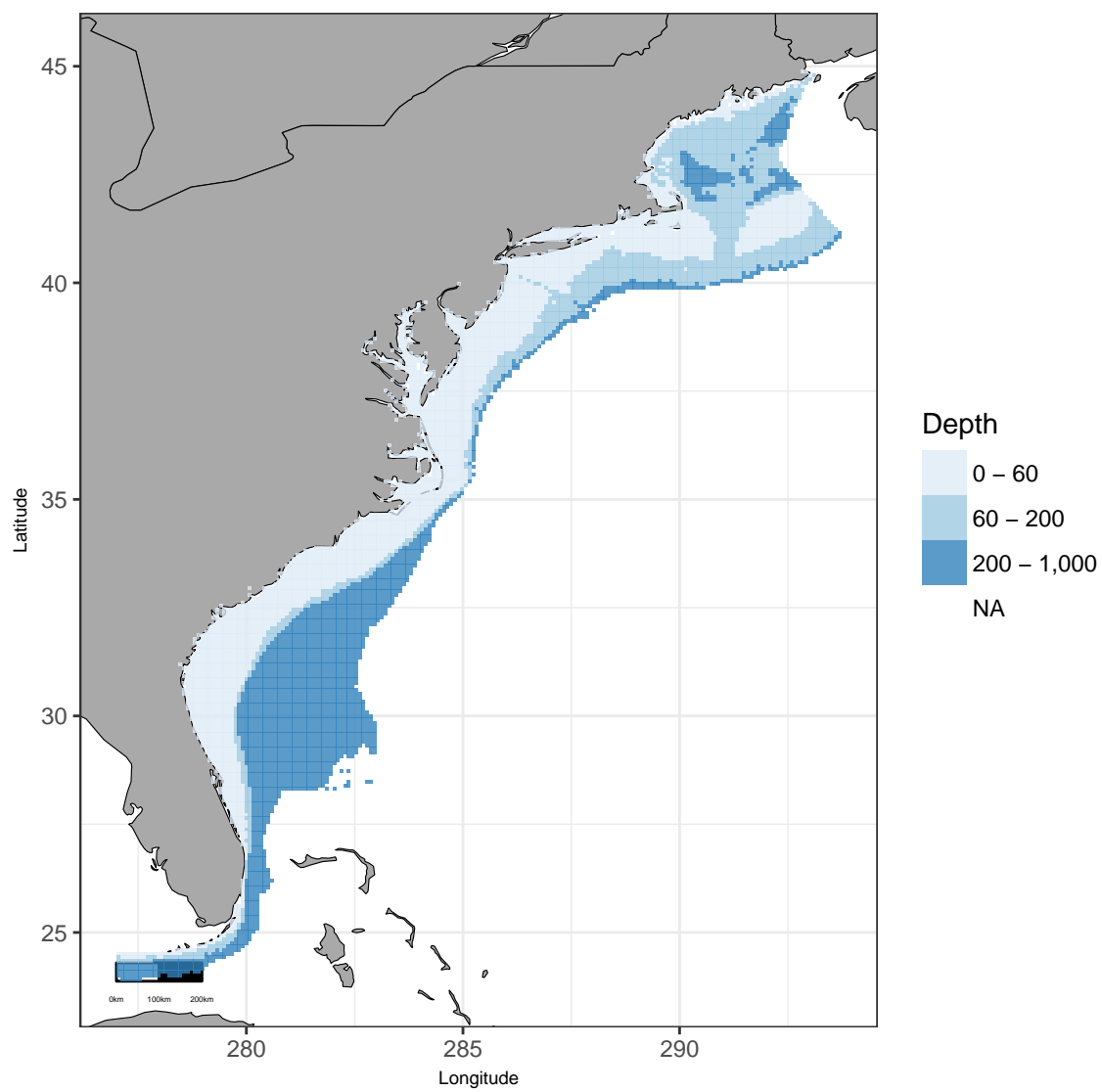


Figure 14: Map of viable depth in East region.

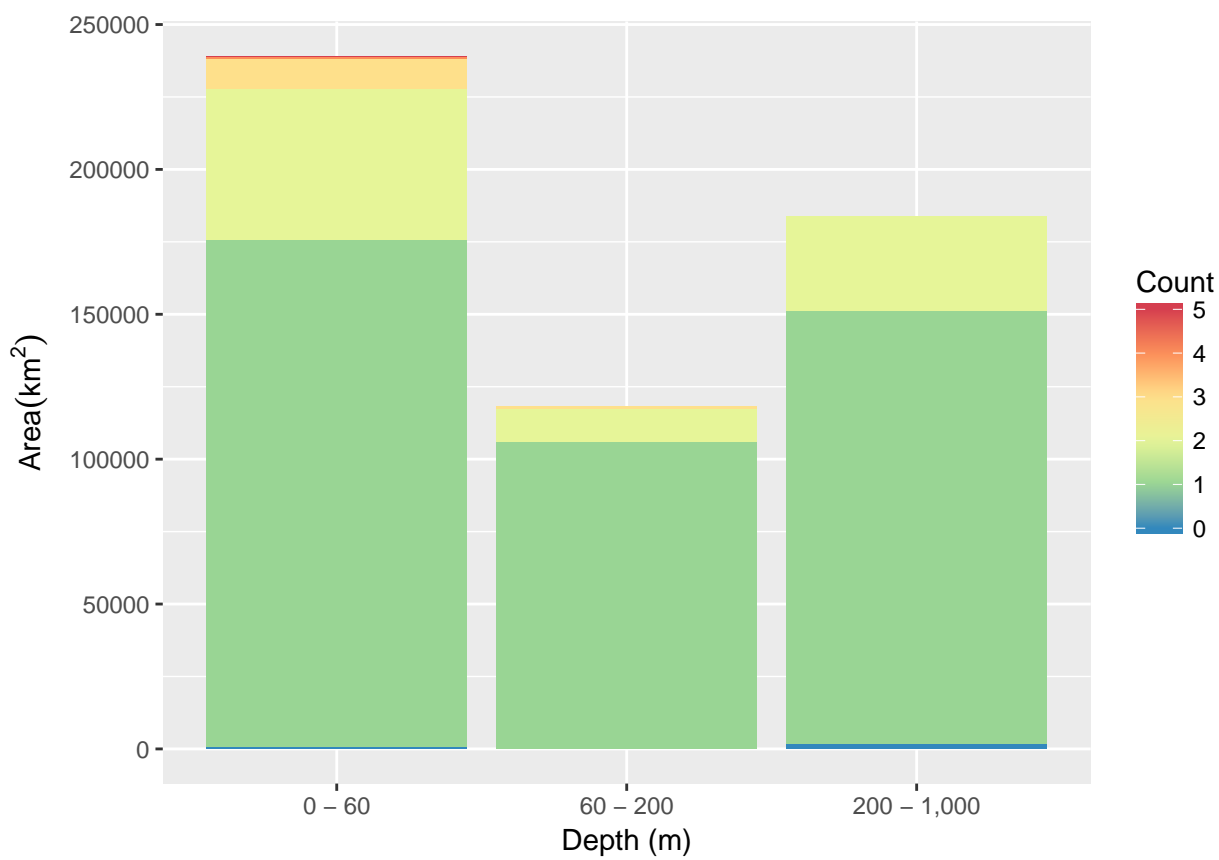


Figure 15: Area of Cumulative Ocean Use by Depth (m) for East region. Cumulative use are counted and summarized by Depth (m) and area.

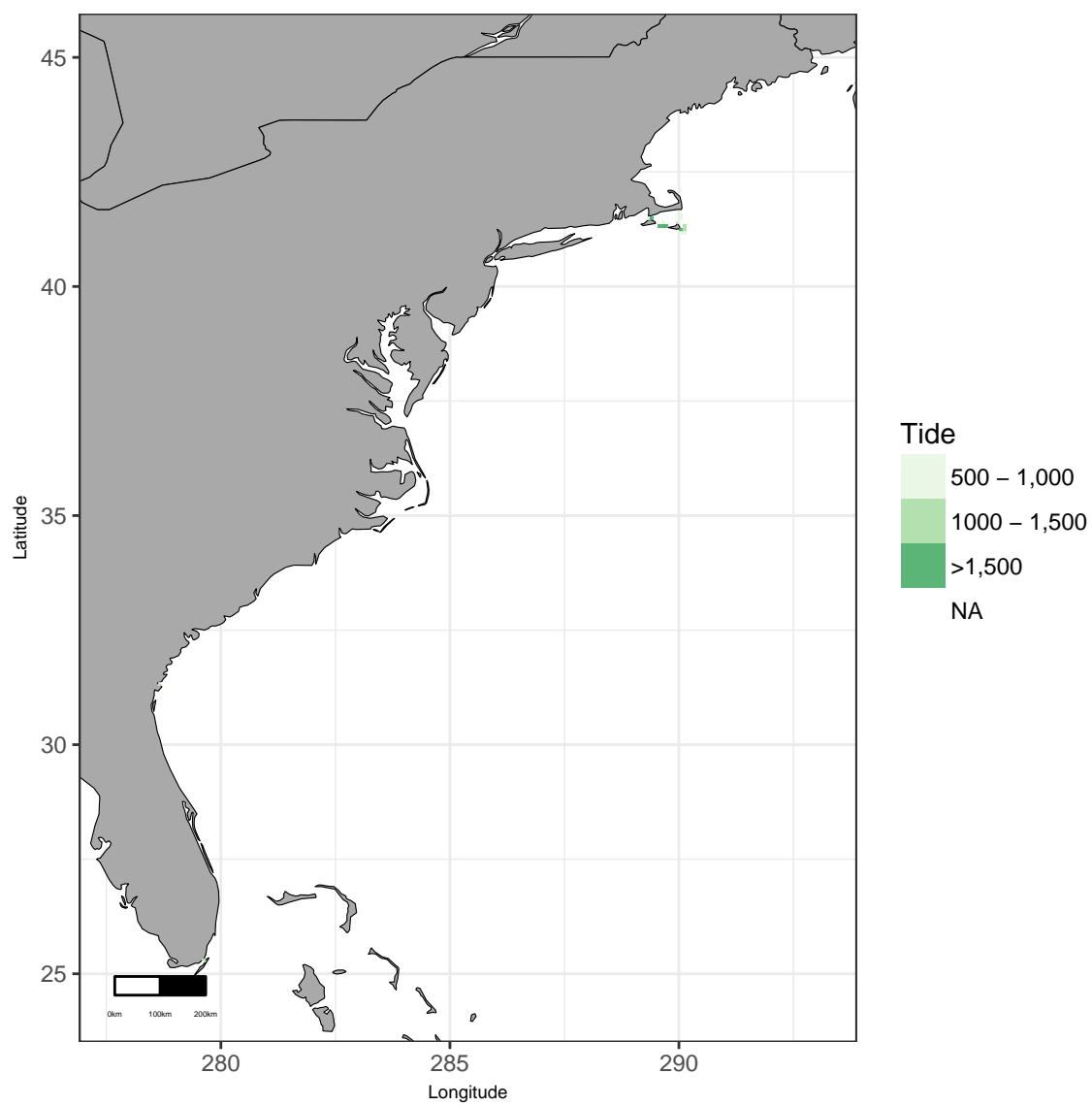


Figure 16: Map of viable tide in East region.

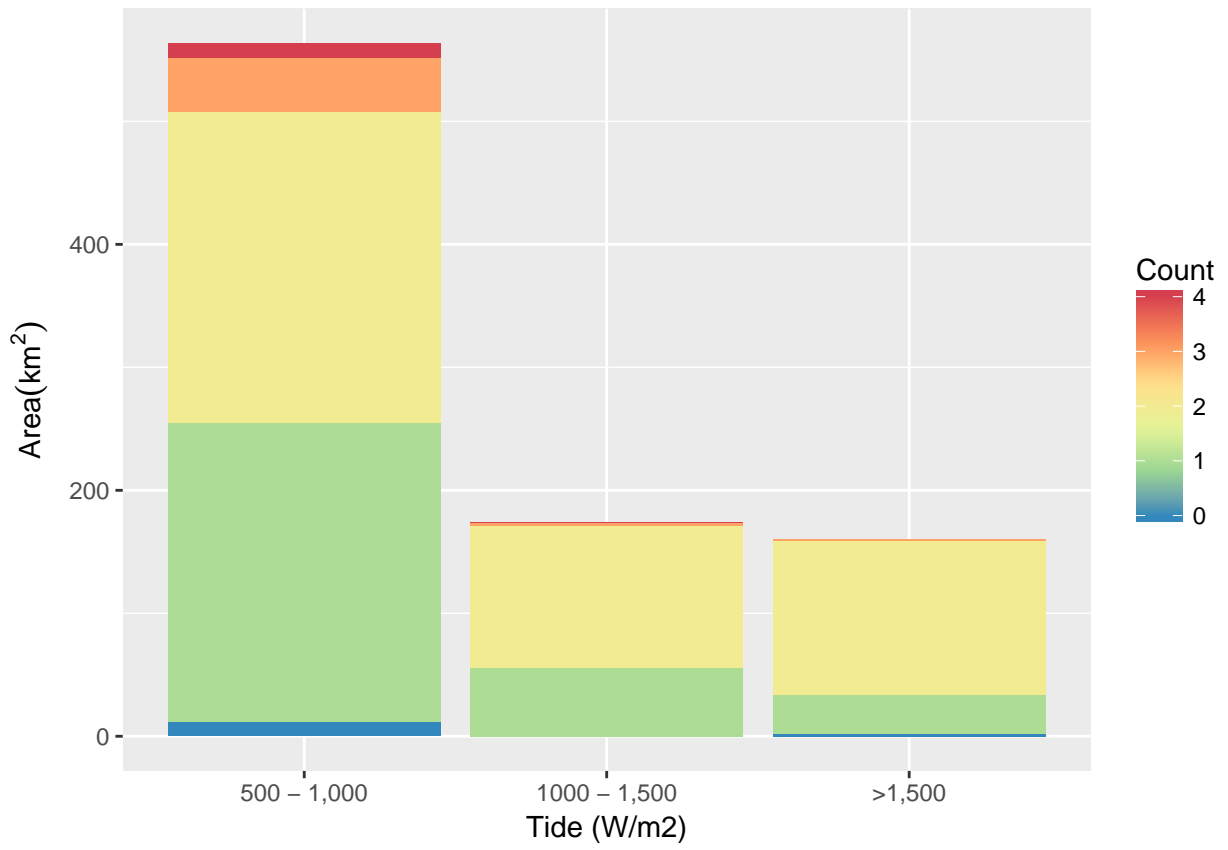


Figure 17: Area of Cumulative Ocean Use by Tide (W/m²) for East region. Cumulative use are counted and summarized by Tide (W/m²) and area.

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

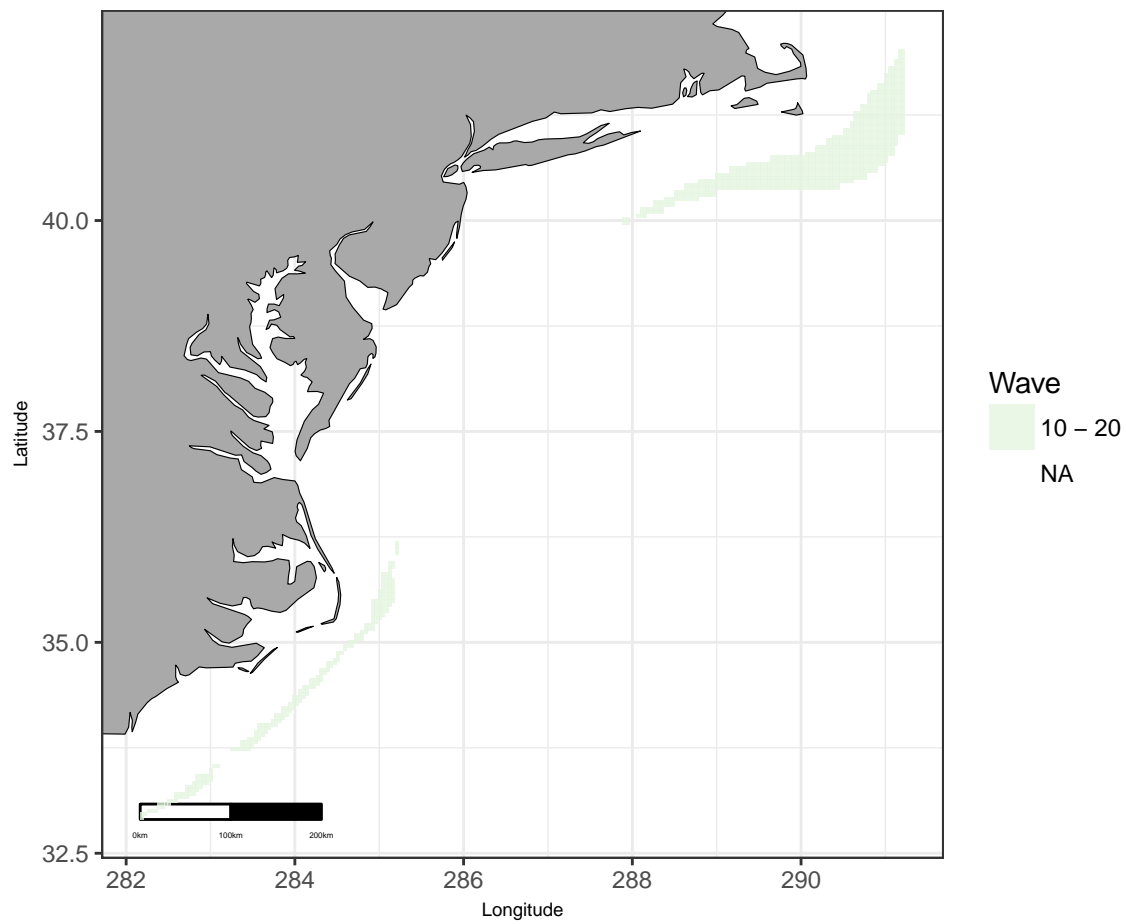


Figure 18: Map of viable wave in East region.

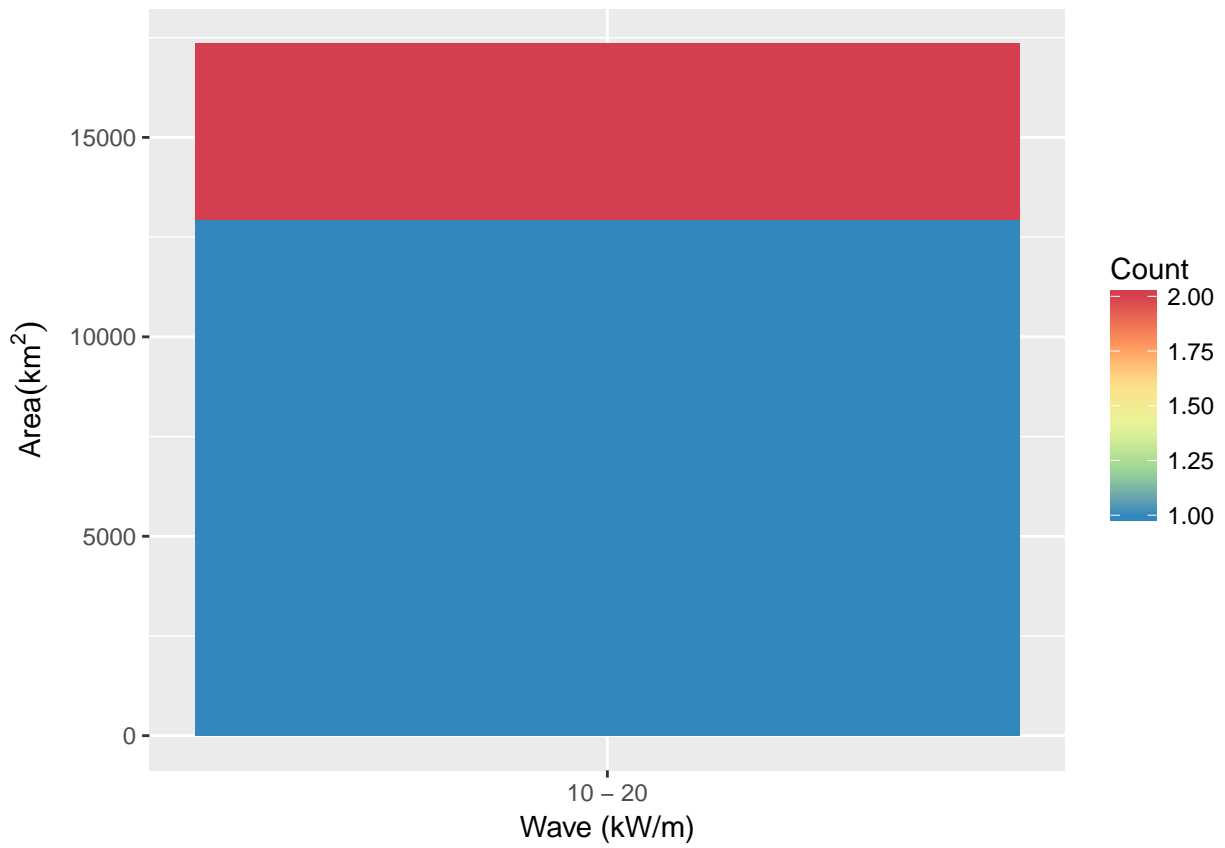


Figure 19: Area of Cumulative Ocean Use by Wave (kW/m) for East region. Cumulative use are counted and summarized by Wave (kW/m) and area.

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

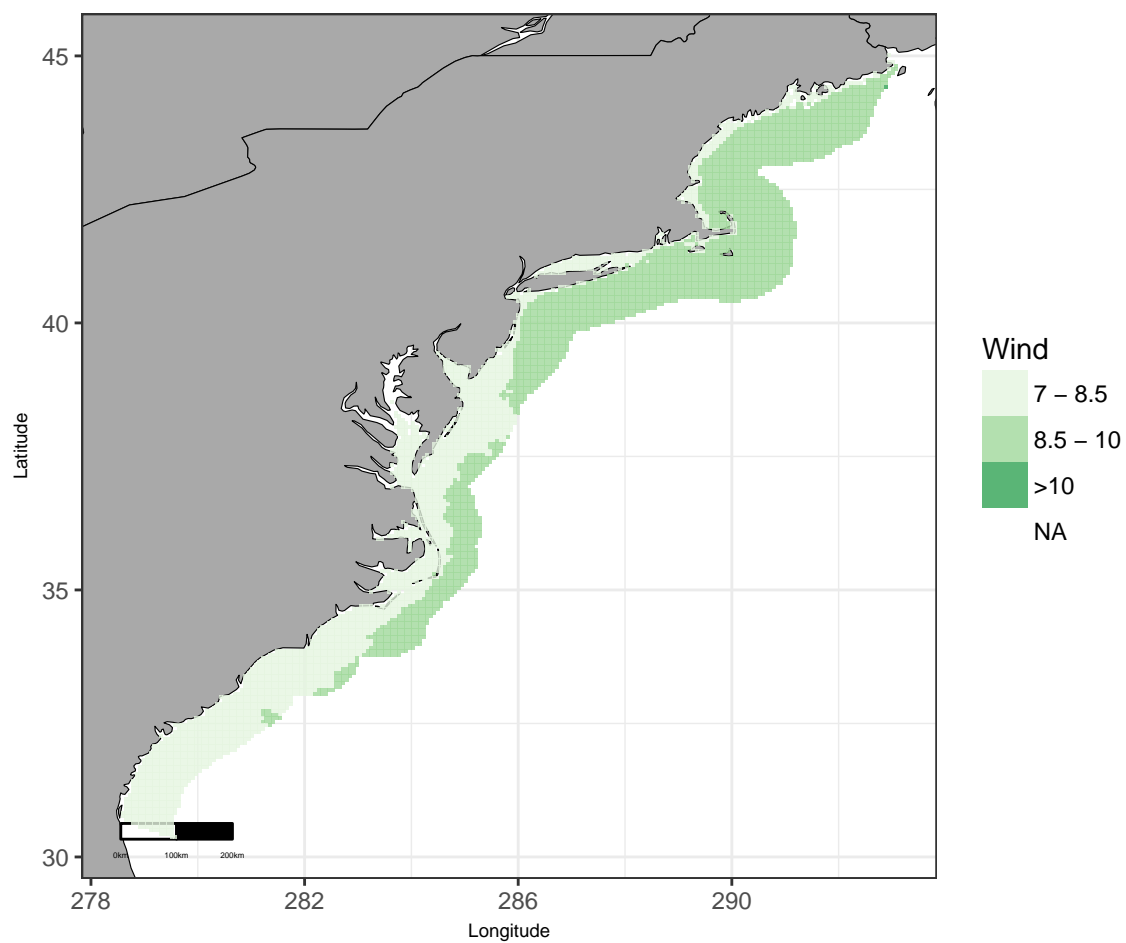


Figure 20: Map of viable wind in East region.

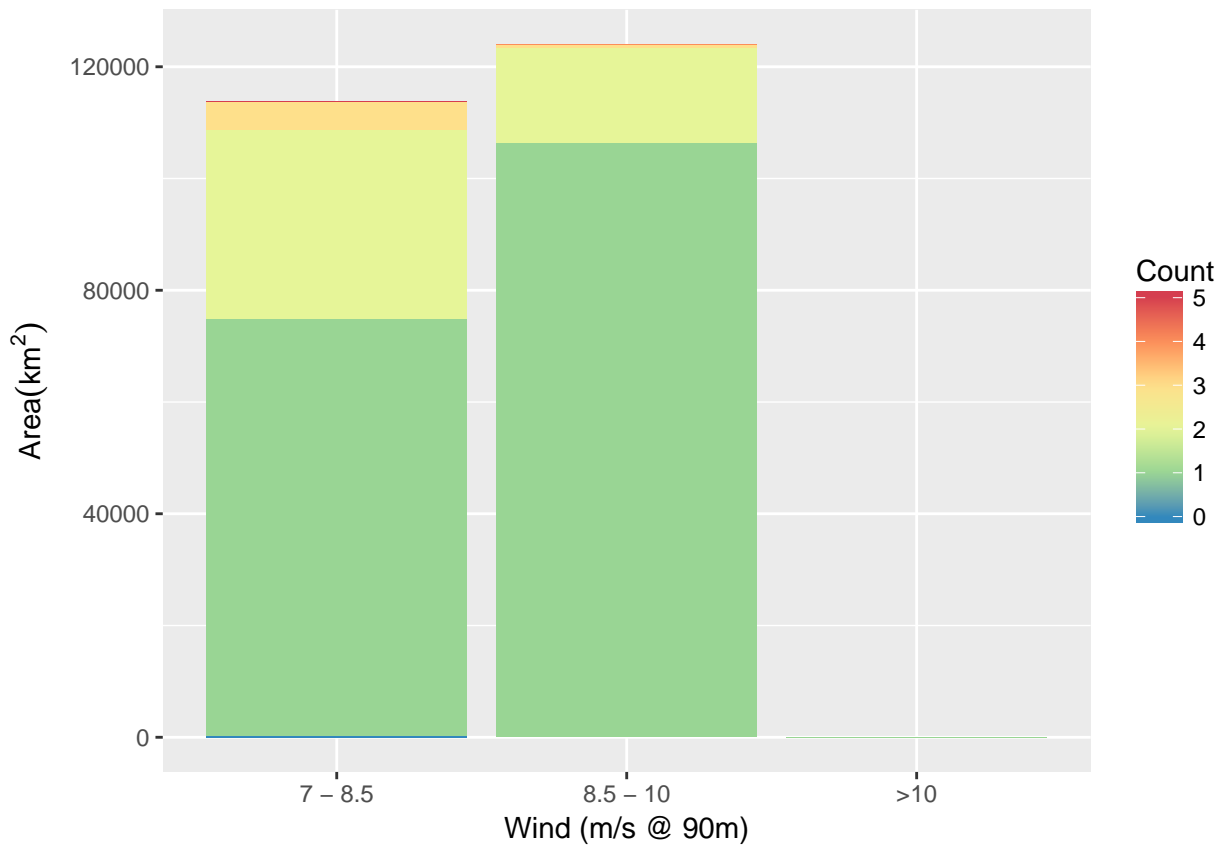


Figure 21: Area of Cumulative Ocean Use by Wind (m/s @ 90m) for East region. Cumulative use are counted and summarized by Wind (m/s @ 90m) and area.

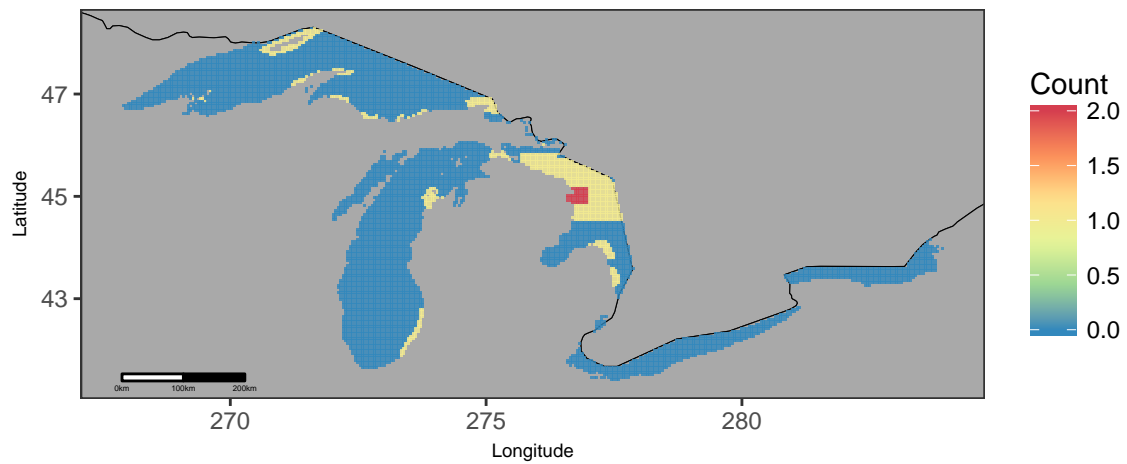


Figure 22: Map of cumulative ocean use in Great Lakes region.

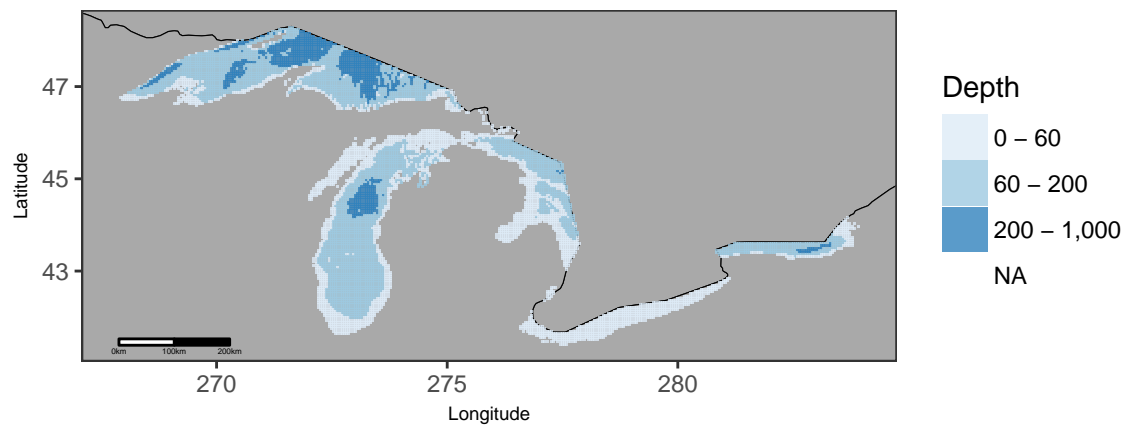


Figure 23: Map of viable depth in Great Lakes region.

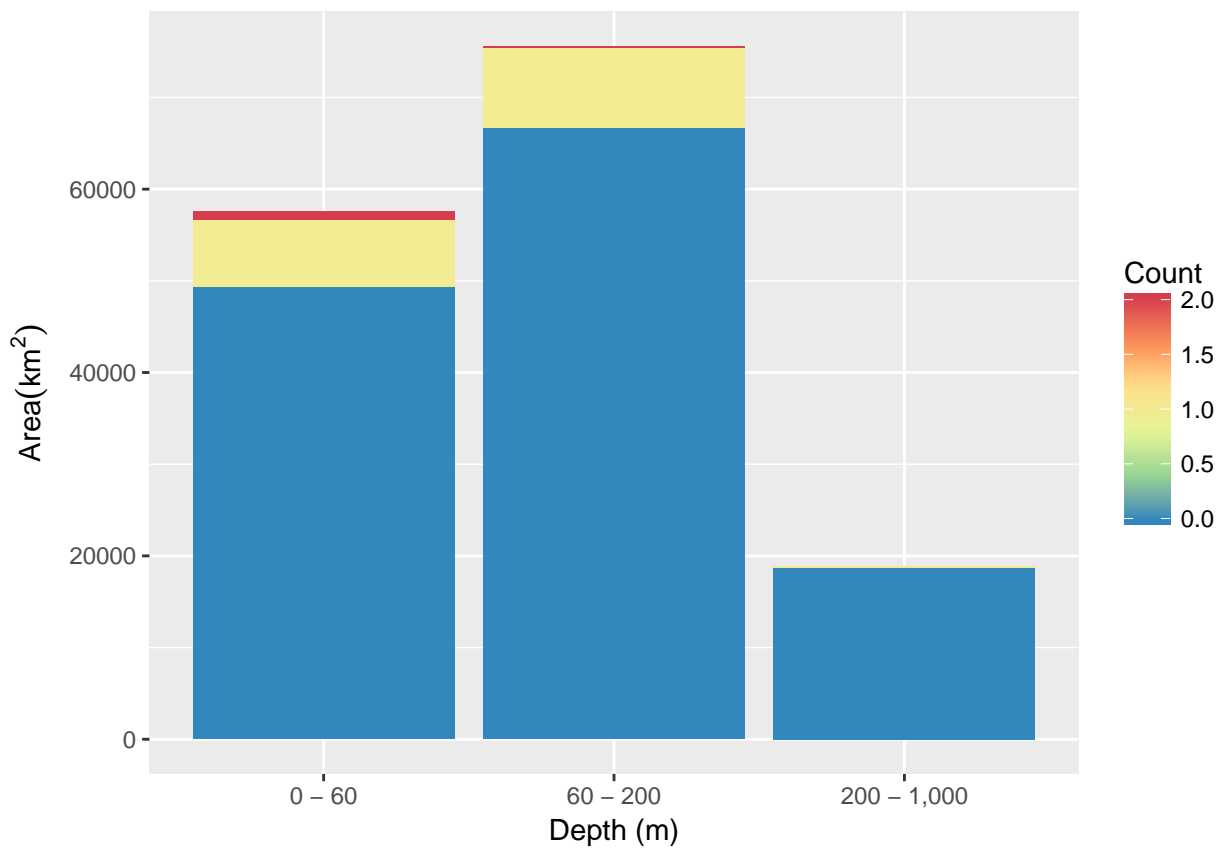


Figure 24: Area of Cumulative Ocean Use by Depth (m) for Great Lakes region. Cumulative use are counted and summarized by Depth (m) and area.

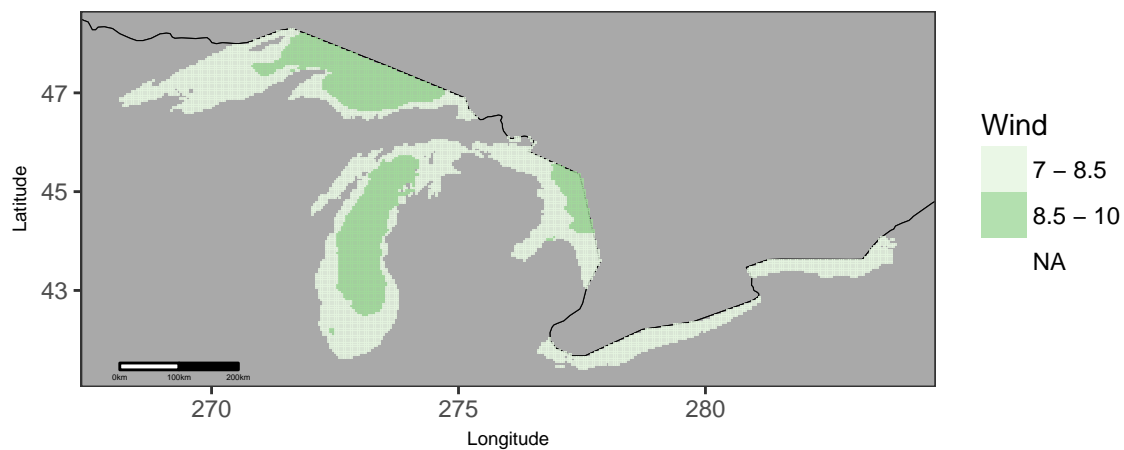


Figure 25: Map of viable wind in Great Lakes region.

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

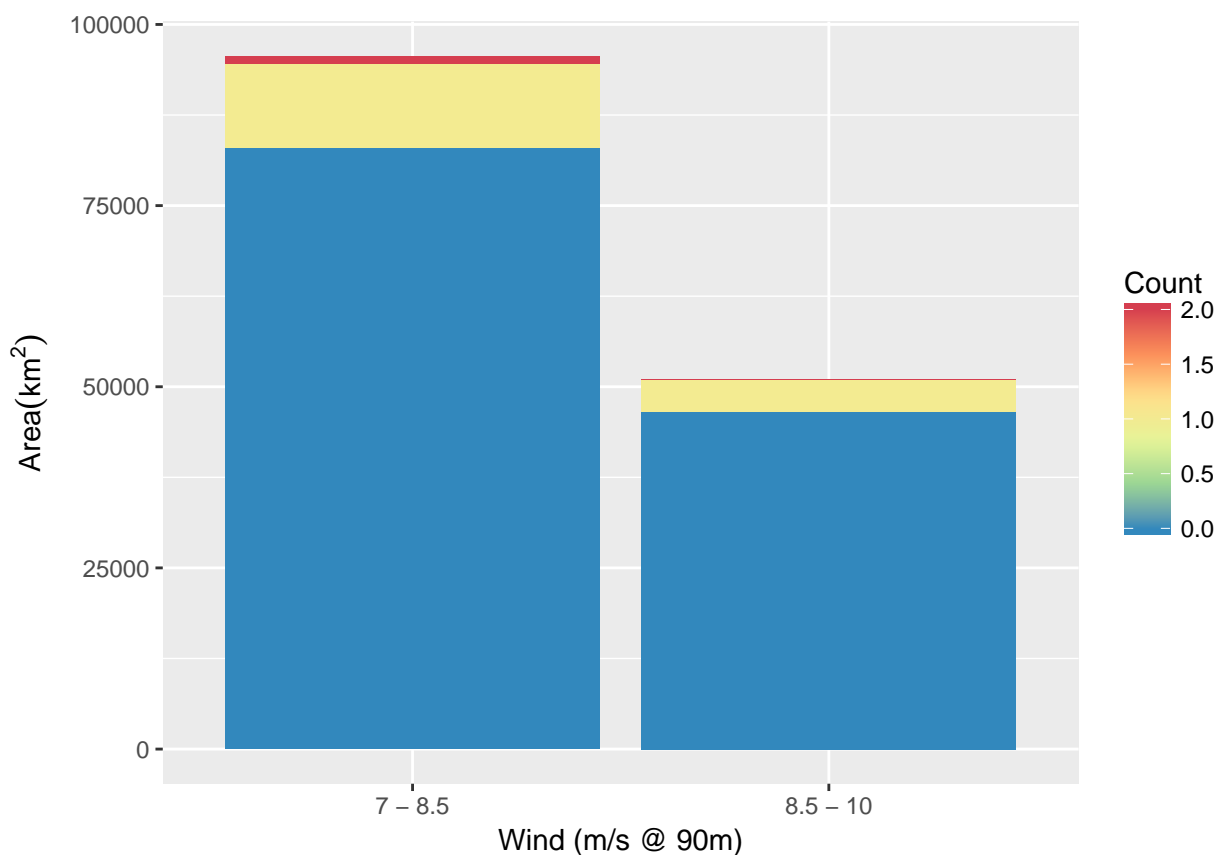


Figure 26: Area of Cumulative Ocean Use by Wind (m/s @ 90m) for Great Lakes region. Cumulative use are counted and summarized by Wind (m/s @ 90m) and area.

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

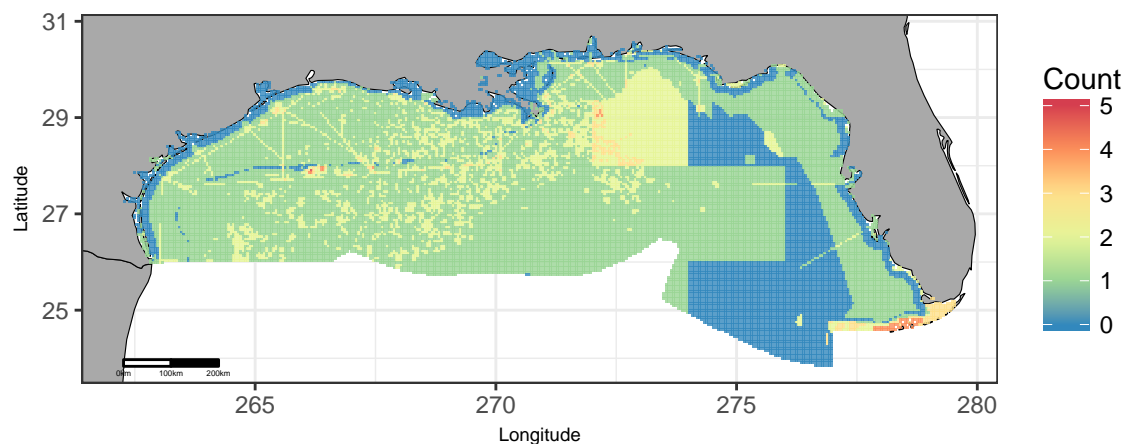


Figure 27: Map of cumulative ocean use in Gulf of Mexico region.

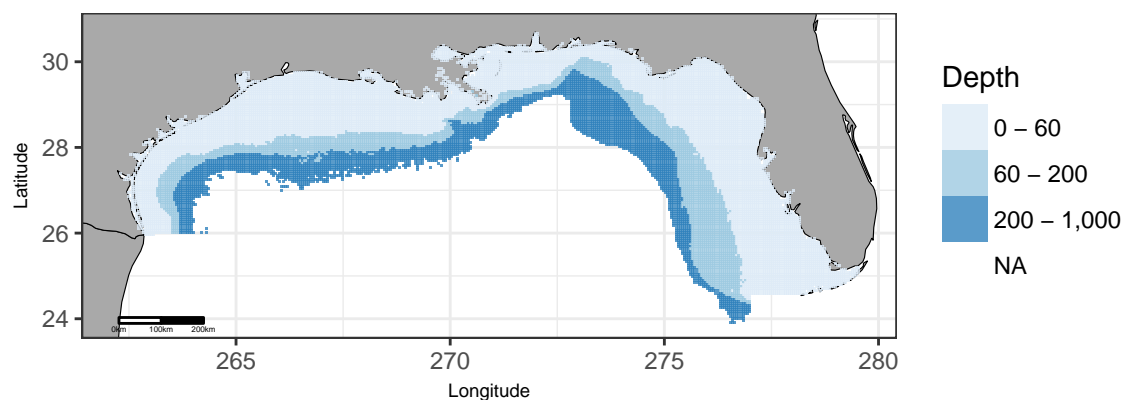


Figure 28: Map of viable depth in Gulf of Mexico region.

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						

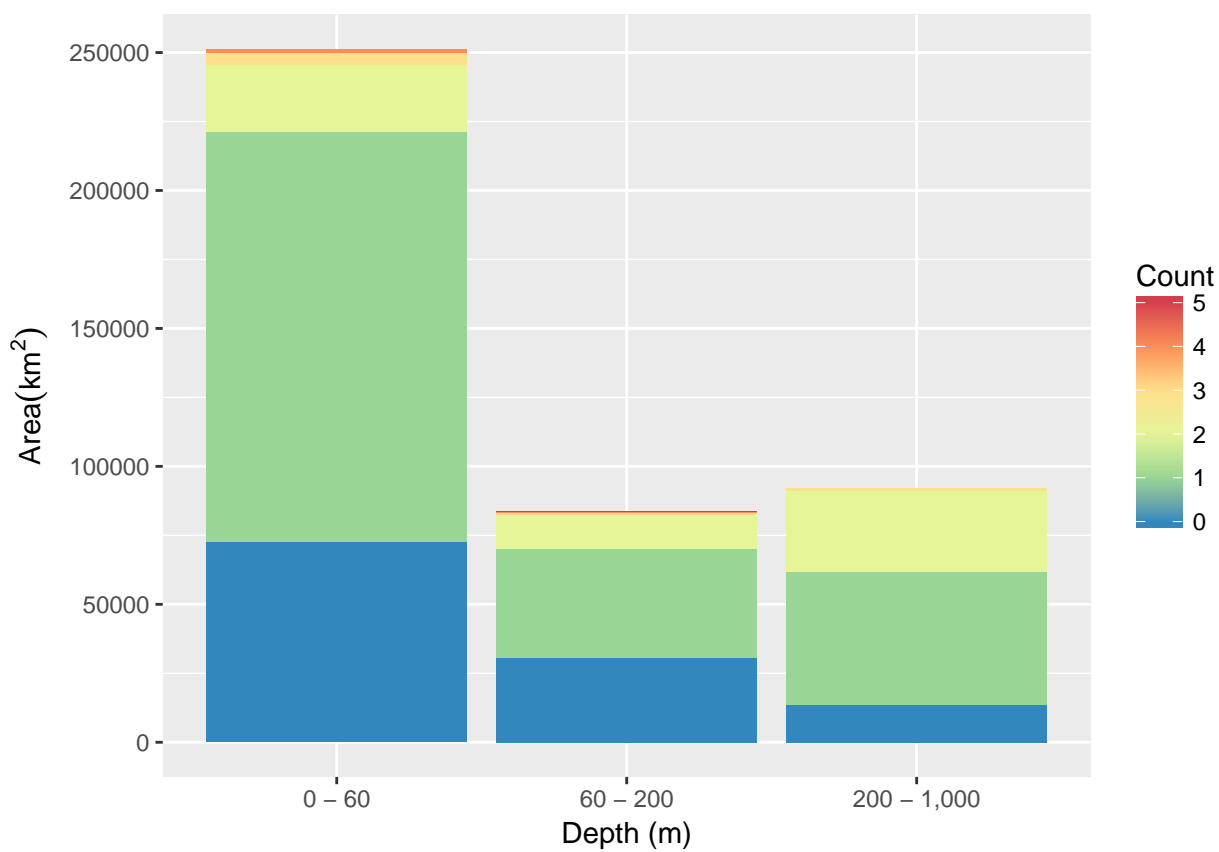


Figure 29: Area of Cumulative Ocean Use by Depth (m) for Gulf of Mexico region. Cumulative use are counted and summarized by Depth (m) and area.

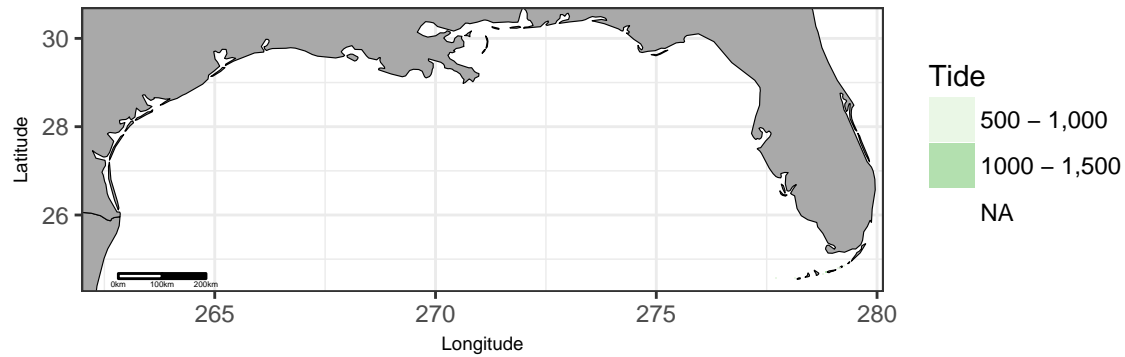


Figure 30: Map of viable tide in Gulf of Mexico region.

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

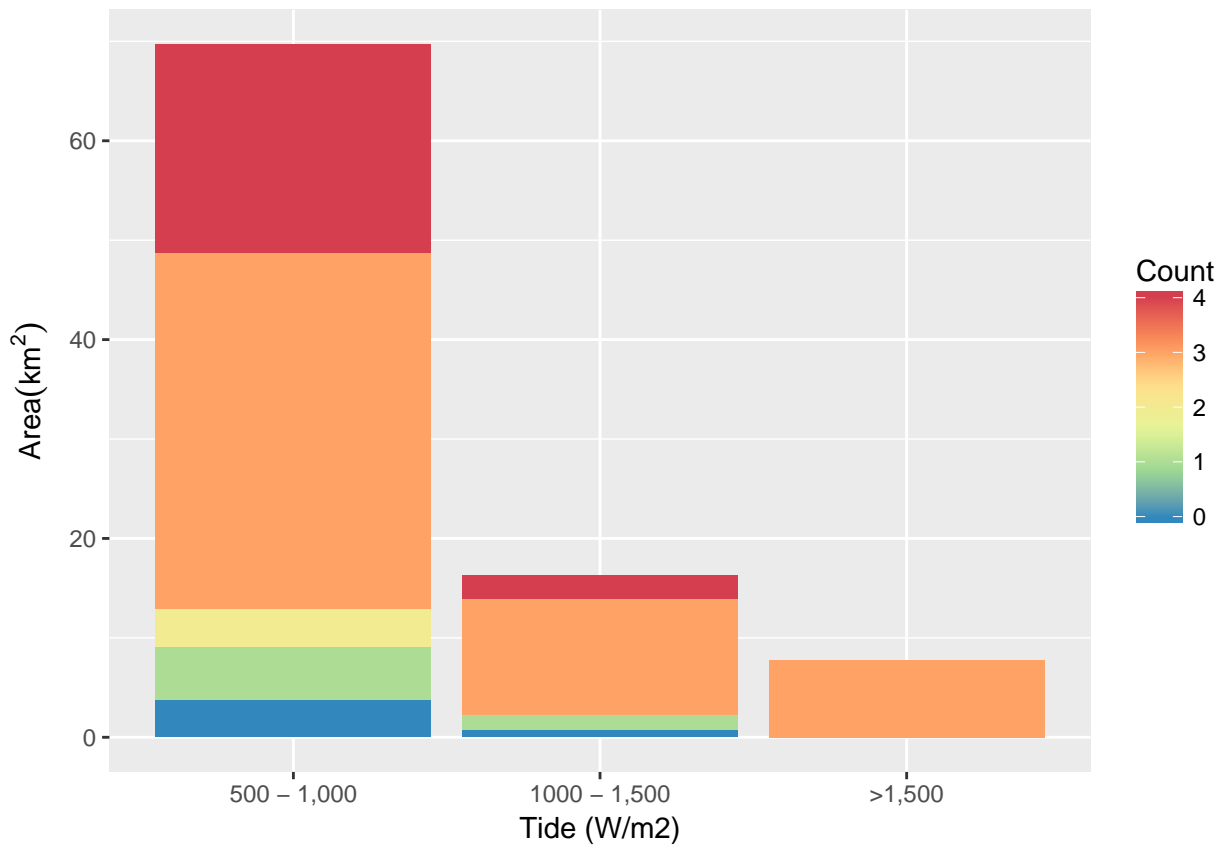


Figure 31: Area of Cumulative Ocean Use by Tide (W/m²) for Gulf of Mexico region. Cumulative use are counted and summarized by Tide (W/m²) and area.

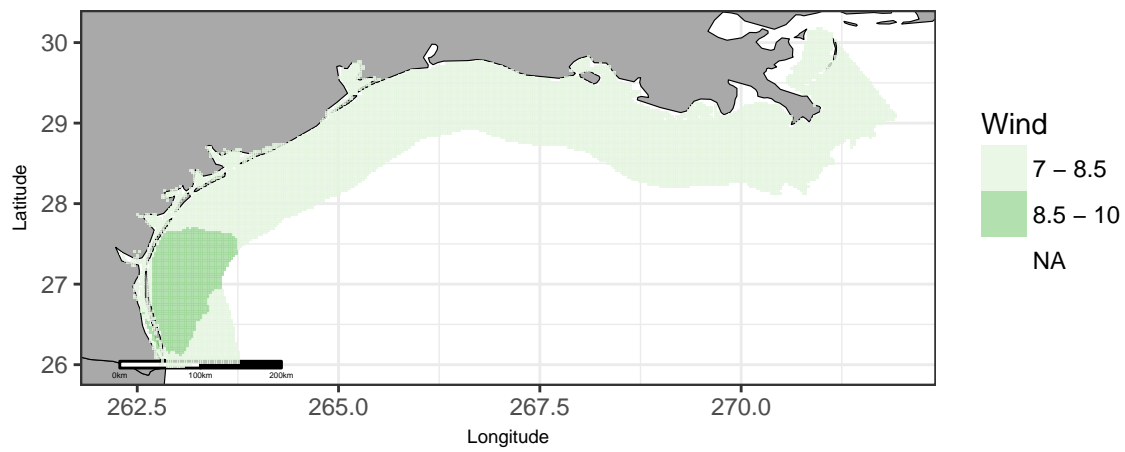


Figure 32: Map of viable wind in Gulf of Mexico region.

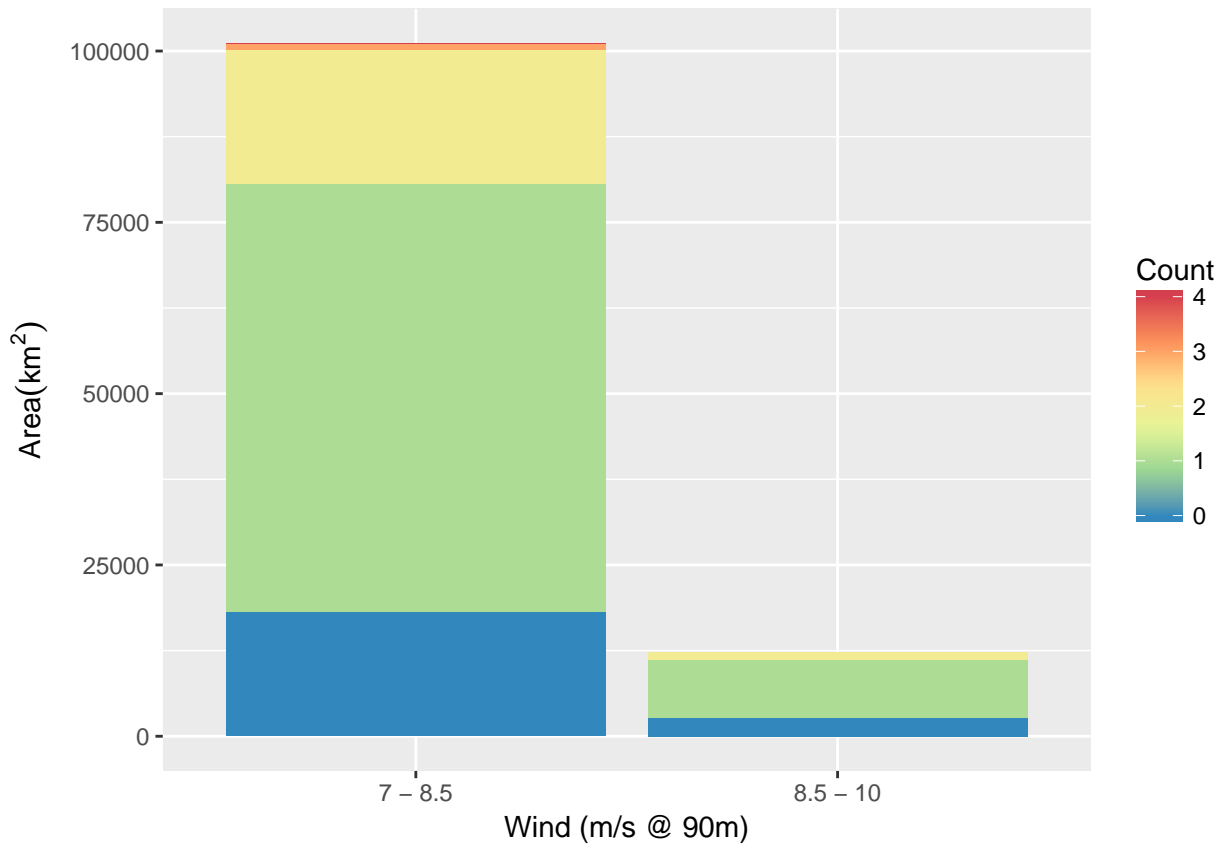


Figure 33: Area of Cumulative Ocean Use by Wind (m/s @ 90m) for Gulf of Mexico region. Cumulative use are counted and summarized by Wind (m/s @ 90m) and area.

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

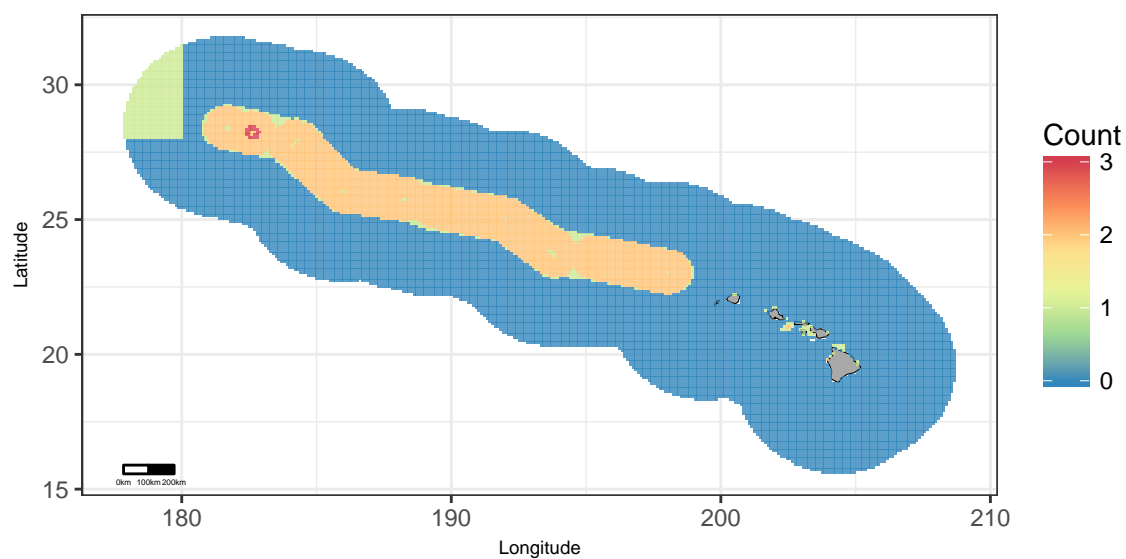


Figure 34: Map of cumulative ocean use in Hawaii region.

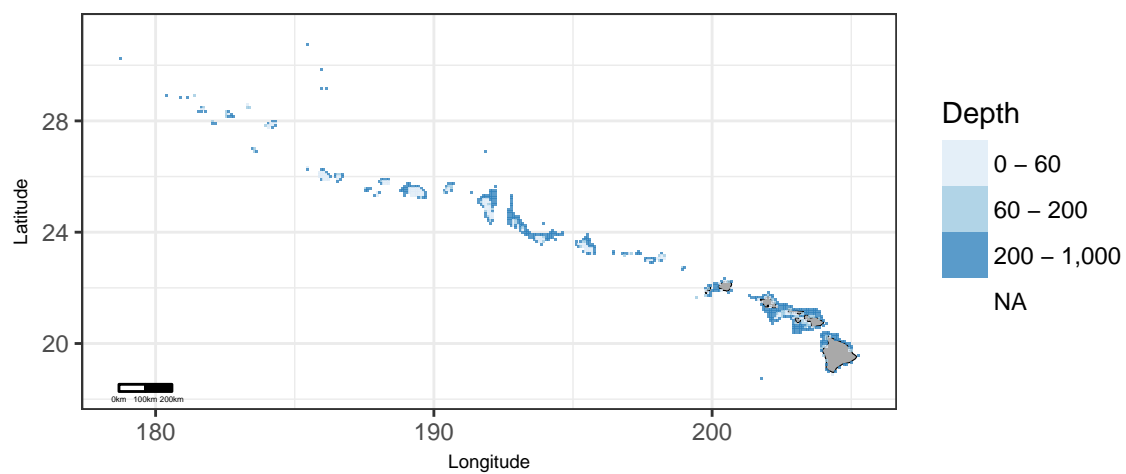


Figure 35: Map of viable depth in Hawaii region.

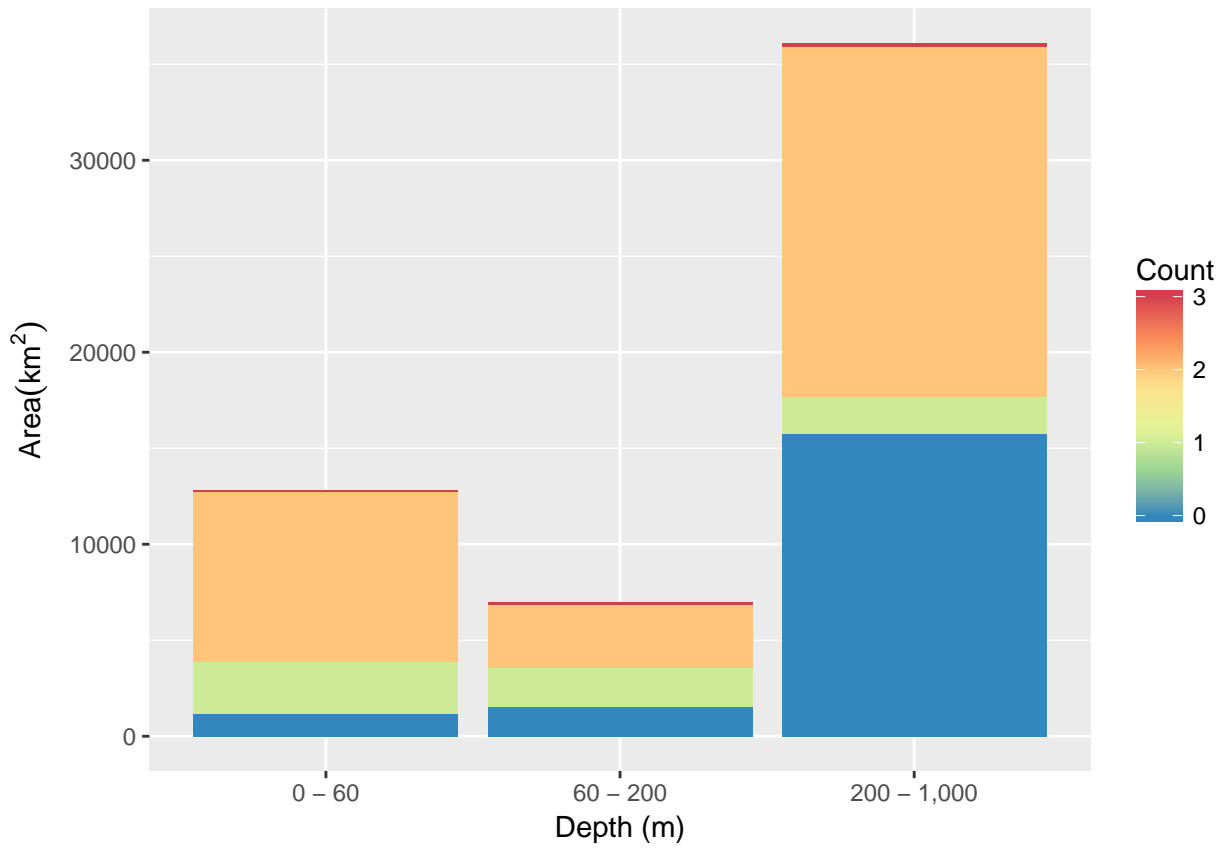


Figure 36: Area of Cumulative Ocean Use by Depth (m) for Hawaii region. Cumulative use are counted and summarized by Depth (m) and area.

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

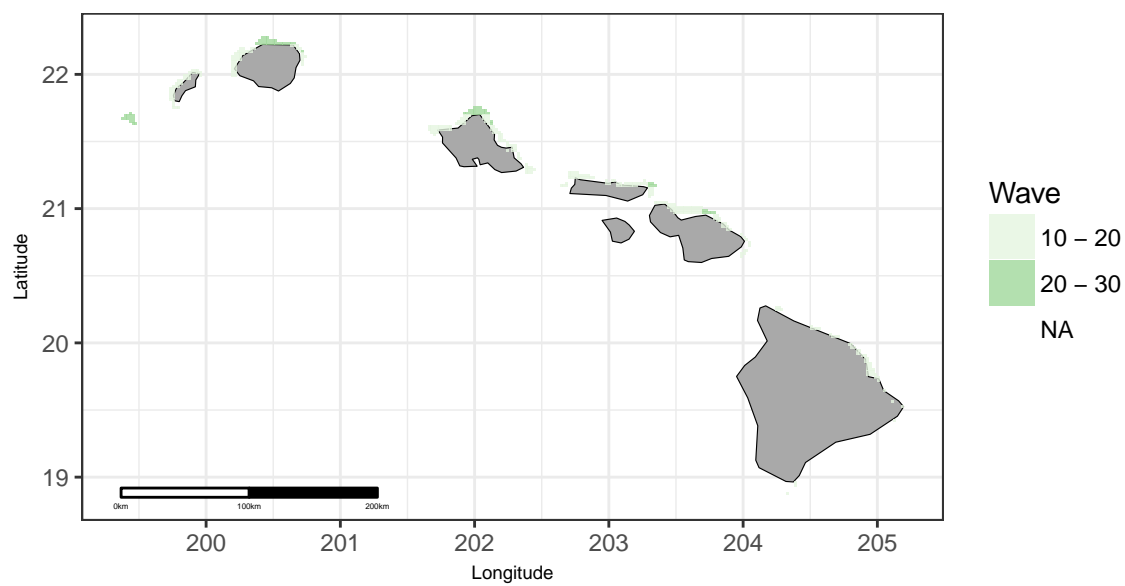


Figure 37: Map of viable wave in Hawaii region.

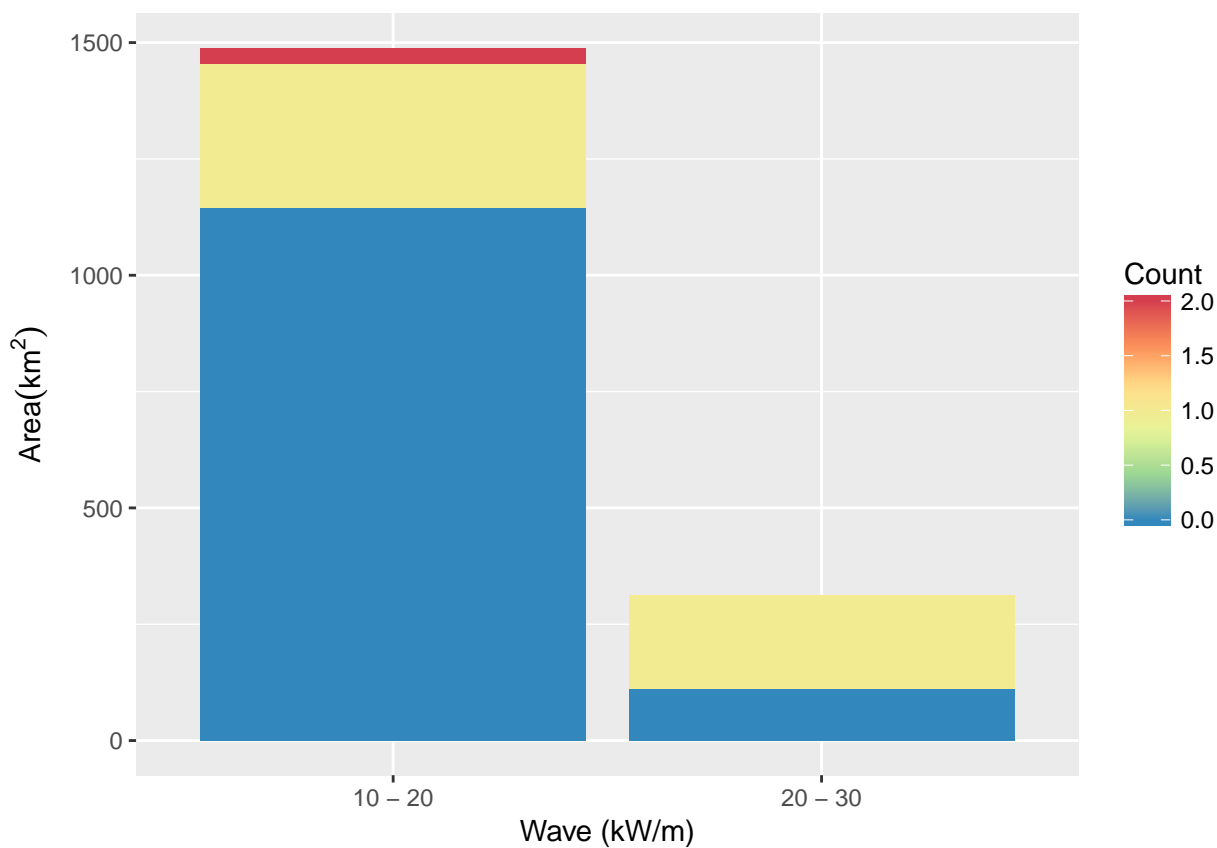


Figure 38: Area of Cumulative Ocean Use by Wave (kW/m) for Hawaii region. Cumulative use are counted and summarized by Wave (kW/m) and area.

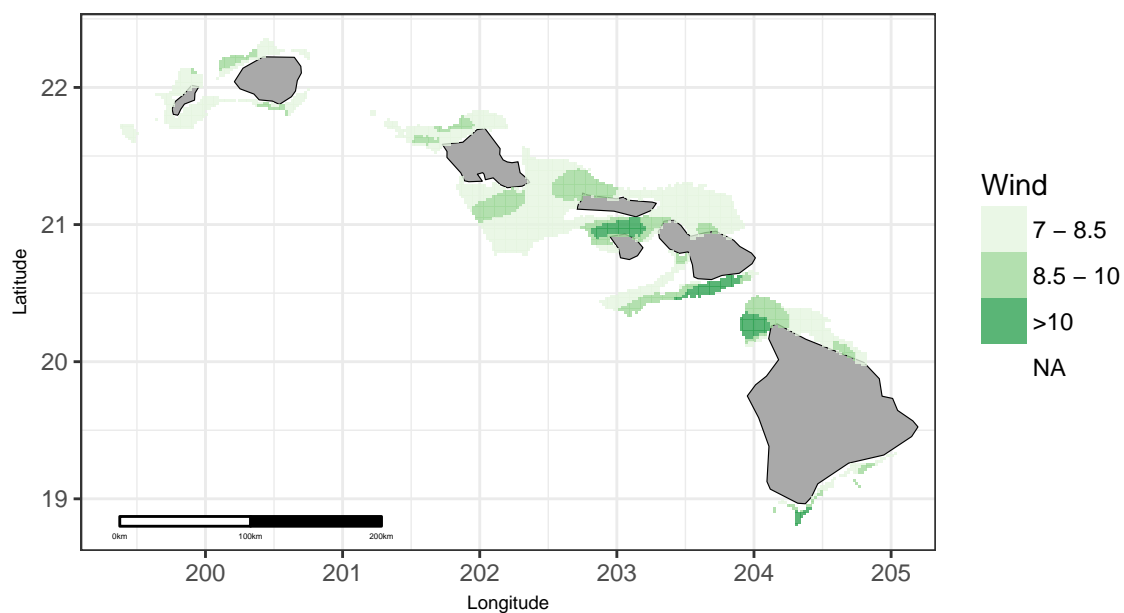


Figure 39: Map of viable wind in Hawaii region.

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

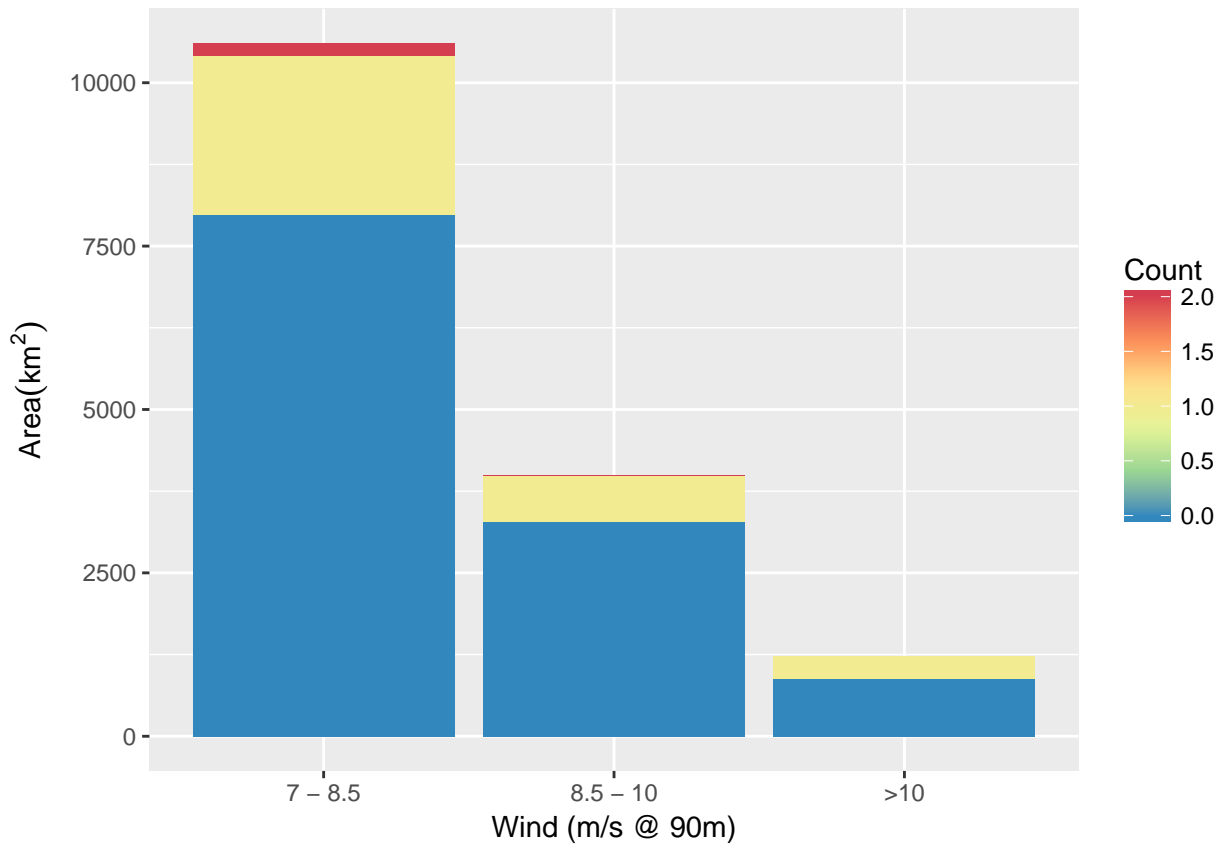


Figure 40: Area of Cumulative Ocean Use by Wind (m/s @ 90m) for Hawaii region. Cumulative use are counted and summarized by Wind (m/s @ 90m) and area.

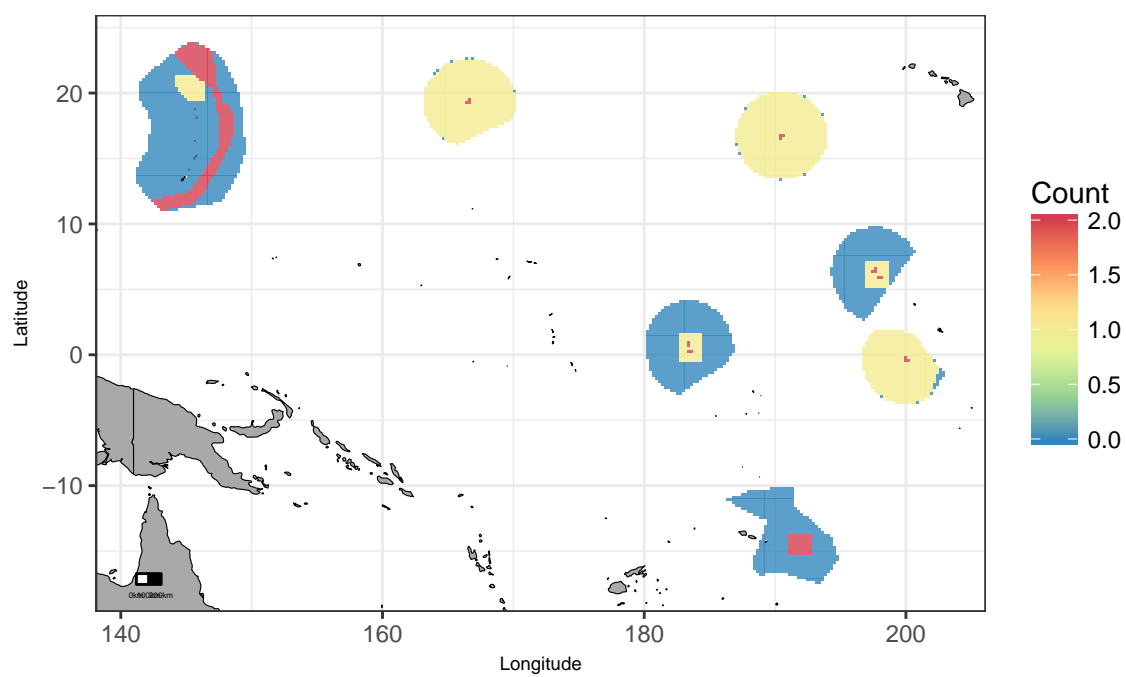


Figure 41: Map of cumulative ocean use in Pacific Islands region.

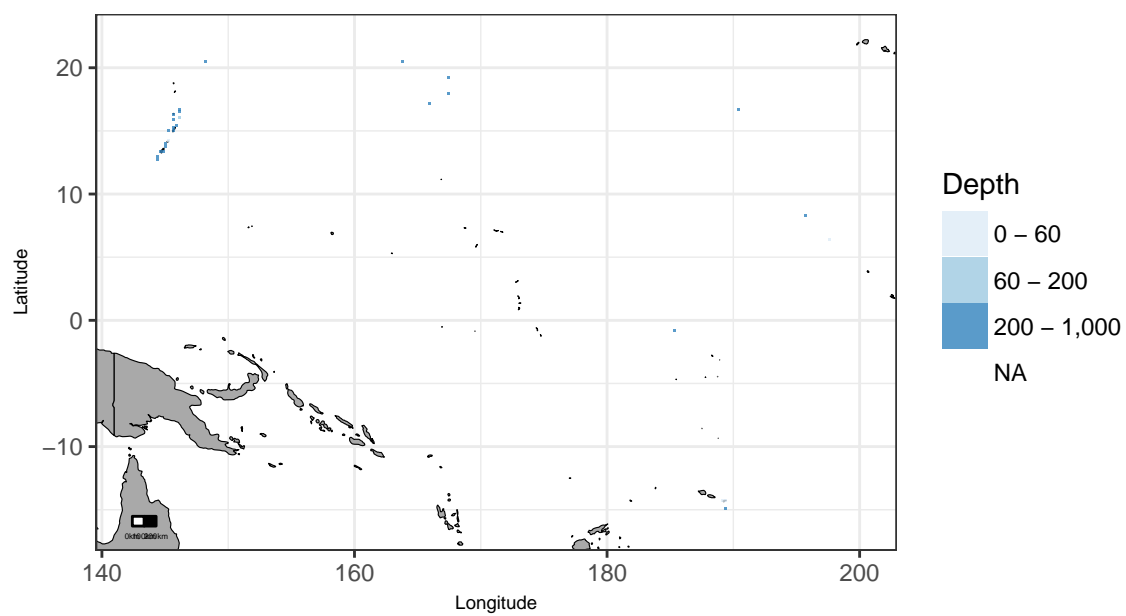


Figure 42: Map of viable depth in Pacific Islands region.

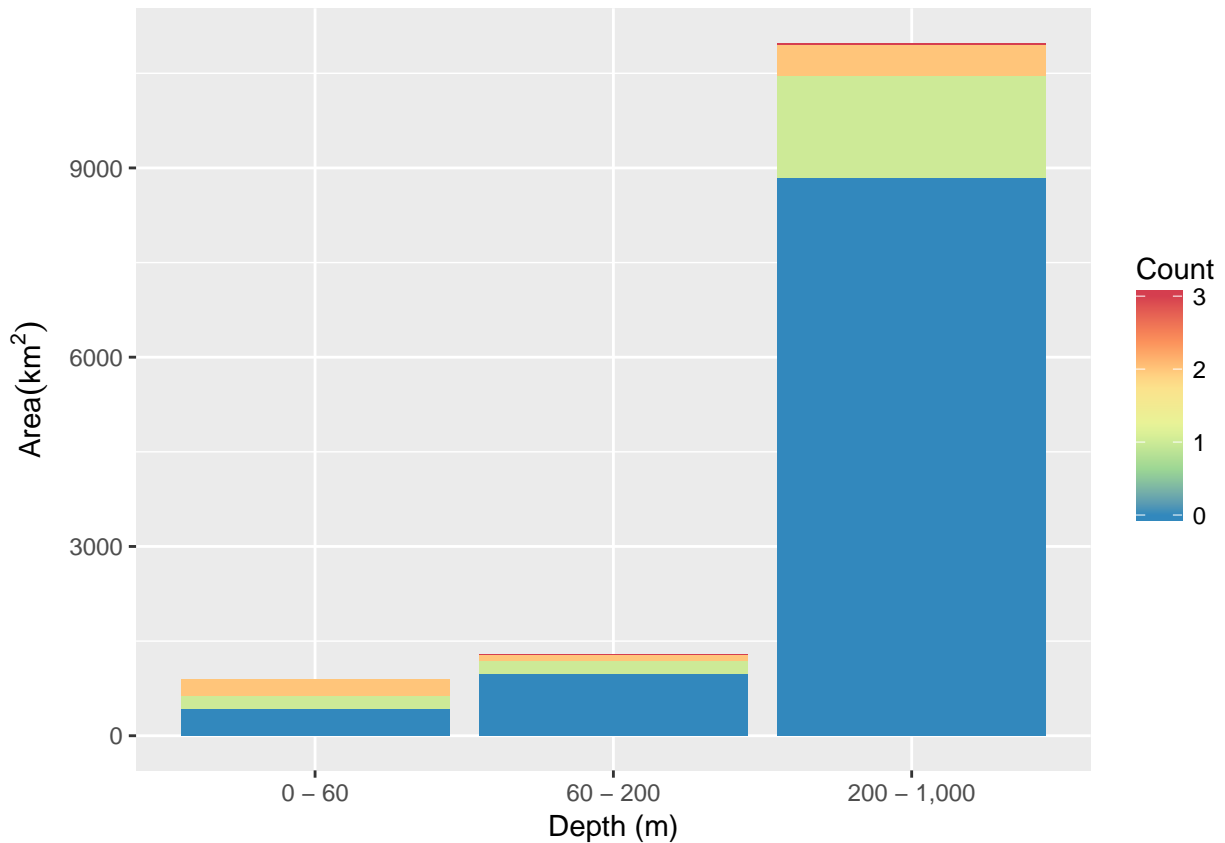


Figure 43: Area of Cumulative Ocean Use by Depth (m) for Pacific Islands region. Cumulative use are counted and summarized by Depth (m) and area.

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 - 49	49 - 200	200 - 1,000			
Total Area								
Government: Commercial	Active Oil & Gas Leases		118	355	394		867	53
Government: Marine Protected Areas (MPAs)	Reserve of Ocean Energy Management		26	100	100		227	65
Government: Marine Protected Areas (MPAs)	National Estuarine Research Reserve System		45	0	0		45	69
Government: Marine Protected Areas (MPAs)	National Marine Fisheries Service		919	5,157	15,047		21,123	24
Government: Marine Protected Areas (MPAs)	National Marine Sanctuaries		5,758	11,132	7,296		24,186	21
Government: Marine Protected Areas (MPAs)	National Park Service		357	81	2		440	59
Government: Marine Protected Areas (MPAs)	National Wildlife Refuge System		195	9	2		206	66
Government: Marine Protected Areas (MPAs)	State MPA		2,912	2,305	355		5,671	36
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Canopy Kelp	815	27	1		847	54
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Estuaries	3,307	964	77		4,352	37
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Groundfish	2,256	1,092	2,332		5,680	34
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Rocky Reefs	951	5,540	4,815		9,304	31
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Seagrass	504	1	0		505	56
Ocean Use: Transportation Commercial Shipping	Shipping Lanes		215	971	1,296		2,482	39
	Apiculture	Shellfish	3	0	0		3	71
Ocean Use: Adm for California	Off Energy Pumps		3,054	10,931	5,265		19,250	26
Ocean Use: Adm for California	Apiculture		1,129	702	142		1,972	42
Ocean Use: Adm for California	Beach		1,694	91	2		1,887	45
Ocean Use: Adm for California	Cables		2,324	2,944	11,392		16,664	28
Ocean Use: Adm for California	Corn Benthic Plank		9,511	17,652	2,267		24,430	6
Ocean Use: Adm for California	Corn Benthic Mobile		4,675	11,861	15,010		31,546	10
Ocean Use: Adm for California	Corn Dive		2,804	802	74		3,681	38
Ocean Use: Adm for California	Corn Kelp		1,144	127	1		1,272	49
Ocean Use: Adm for California	Corn Pelagic		9,380	17,566	941		21,827	5
Ocean Use: Adm for California	Hunting		3,168	5,594	10,019		18,761	17
Ocean Use: Adm for California	Kayak Fishing		7,084	4,865	904		12,853	29
Ocean Use: Adm for California	Military		9,676	18,121	2,267		29,224	1
Ocean Use: Adm for California	Mining		111	0	0		111	68
Ocean Use: Adm for California	Mineral Bunting		9,889	18,121	2,267		29,224	5
Ocean Use: Adm for California	Oil		5,634	16,510	418		22,562	7
Ocean Use: Adm for California	Paddling		7,889	5,596	3,528		16,813	27
Ocean Use: Adm for California	Rac Boat		9,594	17,797	2,944		24,336	4
Ocean Use: Adm for California	Rac Dive		8,249	1,323	471		10,043	30
Ocean Use: Adm for California	Rac Shores Harvest		3,995	5,608	10,019		19,621	16
Ocean Use: Adm for California	Swimming		9,889	18,121	2,267		29,224	2
Ocean Use: Adm for California	Scuba		5,010	1,278	138		6,427	33
Ocean Use: Adm for California	Shopping		4,169	12,263	1,146		17,578	9
Ocean Use: Adm for California	Shore Fishing		1,679	113	3		1,795	43
Ocean Use: Adm for California	Surface Sports		4,556	1,435	625		6,614	32
Ocean Use: Adm for California	Swimming		1,245	286	665		2,195	40
Ocean Use: Adm for California	Volunteering		1,255	97	2		1,354	48
Ocean Use: Adm for California	Wildlife Viewing		9,508	17,465	2,251		29,224	8
Ocean Use: Adm for Oregon & Washington	Apiculture		496	0	0		496	58
Ocean Use: Adm for Oregon & Washington	Corn Dive Fishing		152	9	0		161	67
Ocean Use: Adm for Oregon & Washington	Corn Fishing Plank		5,646	21,590	18,306		45,542	11
Ocean Use: Adm for Oregon & Washington	Corn Fishing Mobile		5,646	21,590	18,260		45,296	13
Ocean Use: Adm for Oregon & Washington	Corn Gathering Shores		499	0	0		499	57
Ocean Use: Adm for Oregon & Washington	Corn Pelagic Fishing		5,646	21,590	18,306		45,542	11
Ocean Use: Adm for Oregon & Washington	Corn Ships		496	9,615	15,596		25,607	23
Ocean Use: Adm for Oregon & Washington	Cultural Use		5,646	21,590	18,306		45,542	11
Ocean Use: Adm for Oregon & Washington	Fishing Shores		277	5	0		282	62
Ocean Use: Adm for Oregon & Washington	Hunting		4,833	8,579	6,277		19,689	25
Ocean Use: Adm for Oregon & Washington	Kayak Fishing		1,620	77	1		1,698	51
Ocean Use: Adm for Oregon & Washington	Marine Debris		1,182	203	0		1,386	44
Ocean Use: Adm for Oregon & Washington	Military Operations		5,646	21,590	18,306		45,542	11
Ocean Use: Adm for Oregon & Washington	Mining Mineral Ore		755	0	0		755	55
Ocean Use: Adm for Oregon & Washington	Mineral Bunting		5,646	20,749	8,296		34,791	18
Ocean Use: Adm for Oregon & Washington	Ocean Dumping		2,814	9,262	12,534		24,610	22
Ocean Use: Adm for Oregon & Washington	Offshore Off Energy		242	77	98		397	60
Ocean Use: Adm for Oregon & Washington	Paddling		1,756	285	2		2,044	41
Ocean Use: Adm for Oregon & Washington	Port Research Areas		5,646	12,599	7,657		25,901	20
Ocean Use: Adm for Oregon & Washington	Rac Dive Fishing		1,291	30	0		1,321	46
Ocean Use: Adm for Oregon & Washington	Rac Fishing Bait Boats		5,646	21,590	14,352		41,588	15
Ocean Use: Adm for Oregon & Washington	Rac Fishing Pel Boats		5,646	21,590	18,306		45,542	11
Ocean Use: Adm for Oregon & Washington	Rac Gathering Shores		380	5	0		385	61
Ocean Use: Adm for Oregon & Washington	Swimming		5,646	21,590	18,306		45,296	12
Ocean Use: Adm for Oregon & Washington	Scuba Bunting		1,211	35	1		1,247	47
Ocean Use: Adm for Oregon & Washington	Shopping		3,078	20,316	18,306		41,699	14
Ocean Use: Adm for Oregon & Washington	Shore Use		262	4	0		266	63
Ocean Use: Adm for Oregon & Washington	Surface Bunting		1,057	100	0		1,157	49

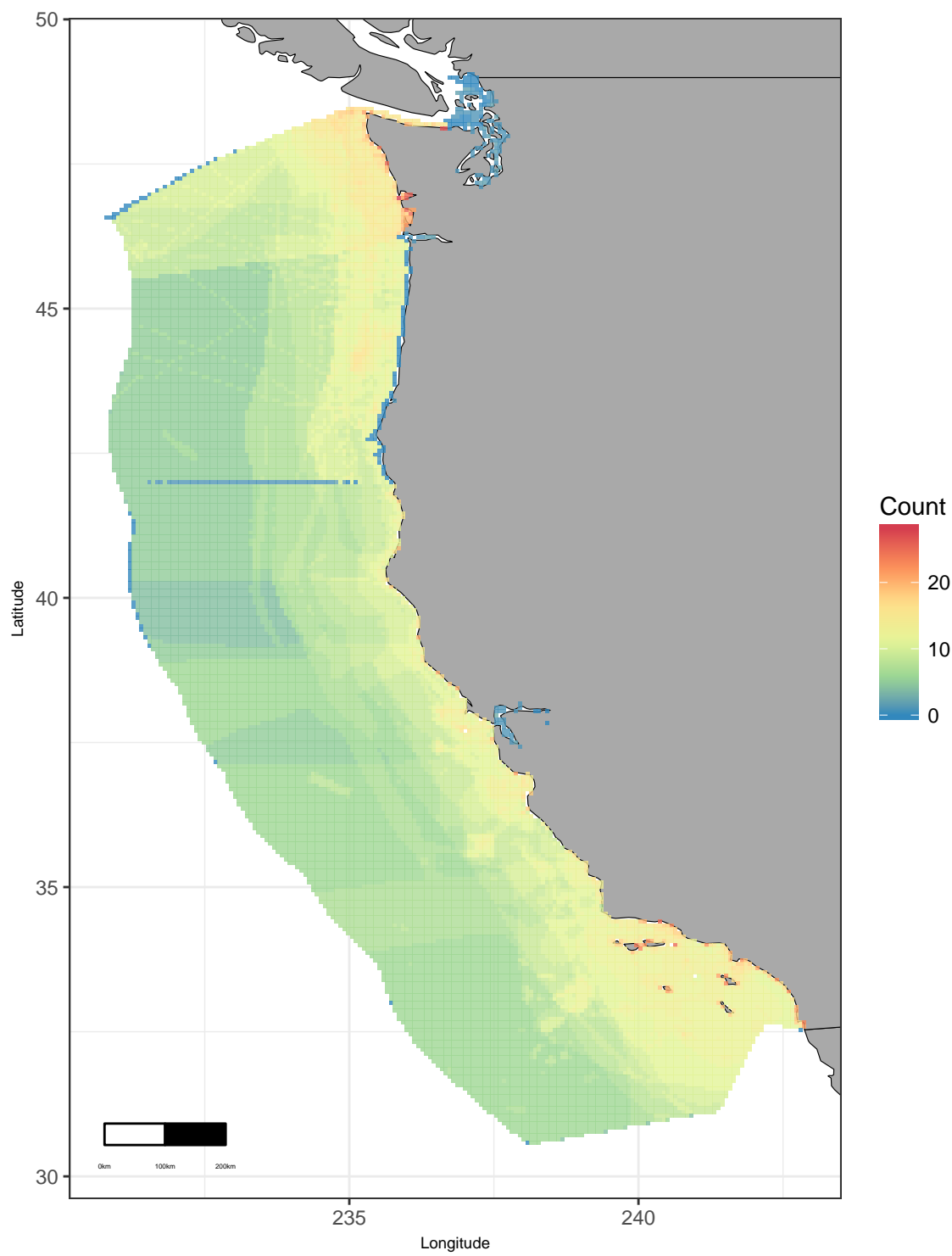


Figure 44: Map of cumulative ocean use in West region.

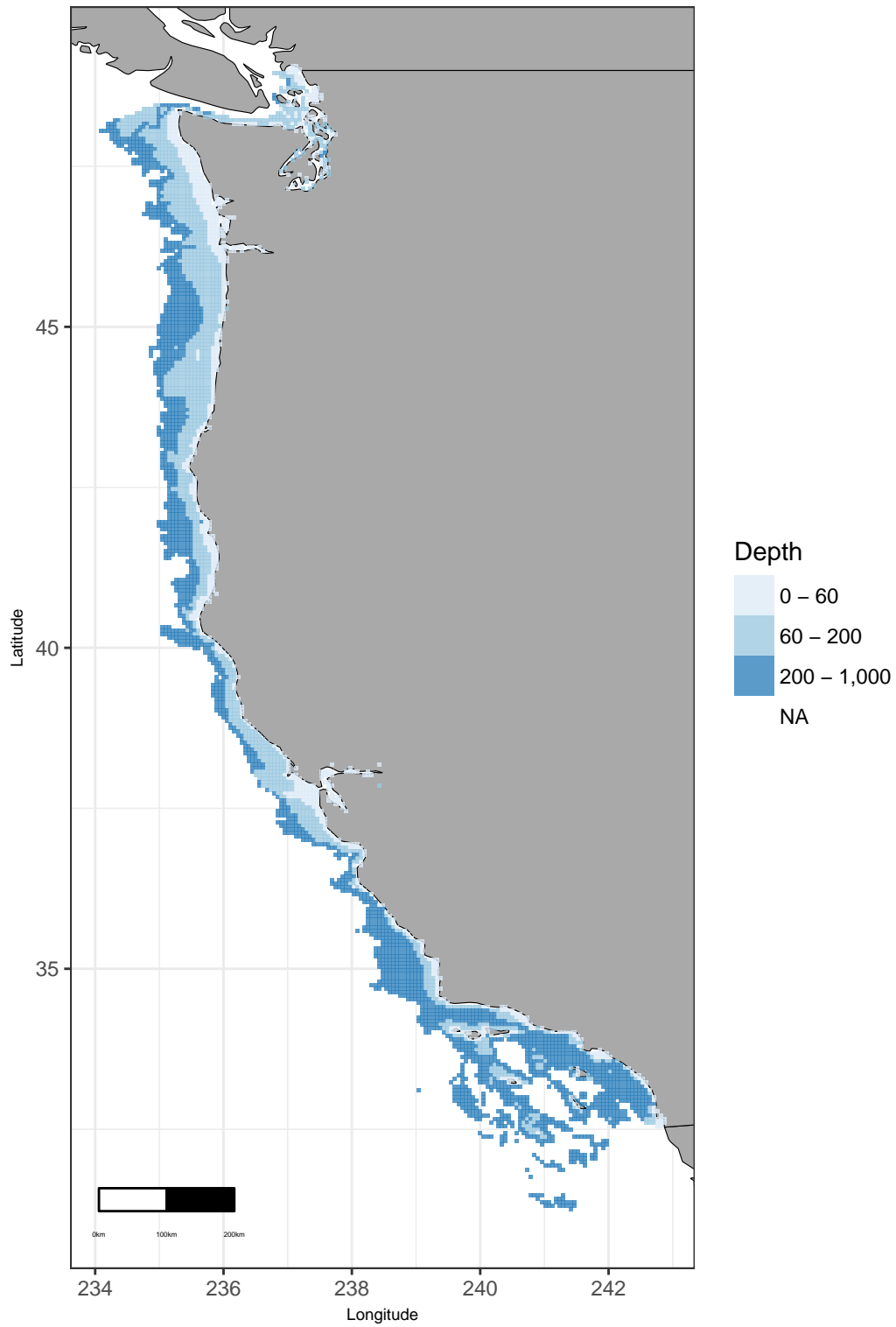


Figure 45: Map of viable depth in West region.

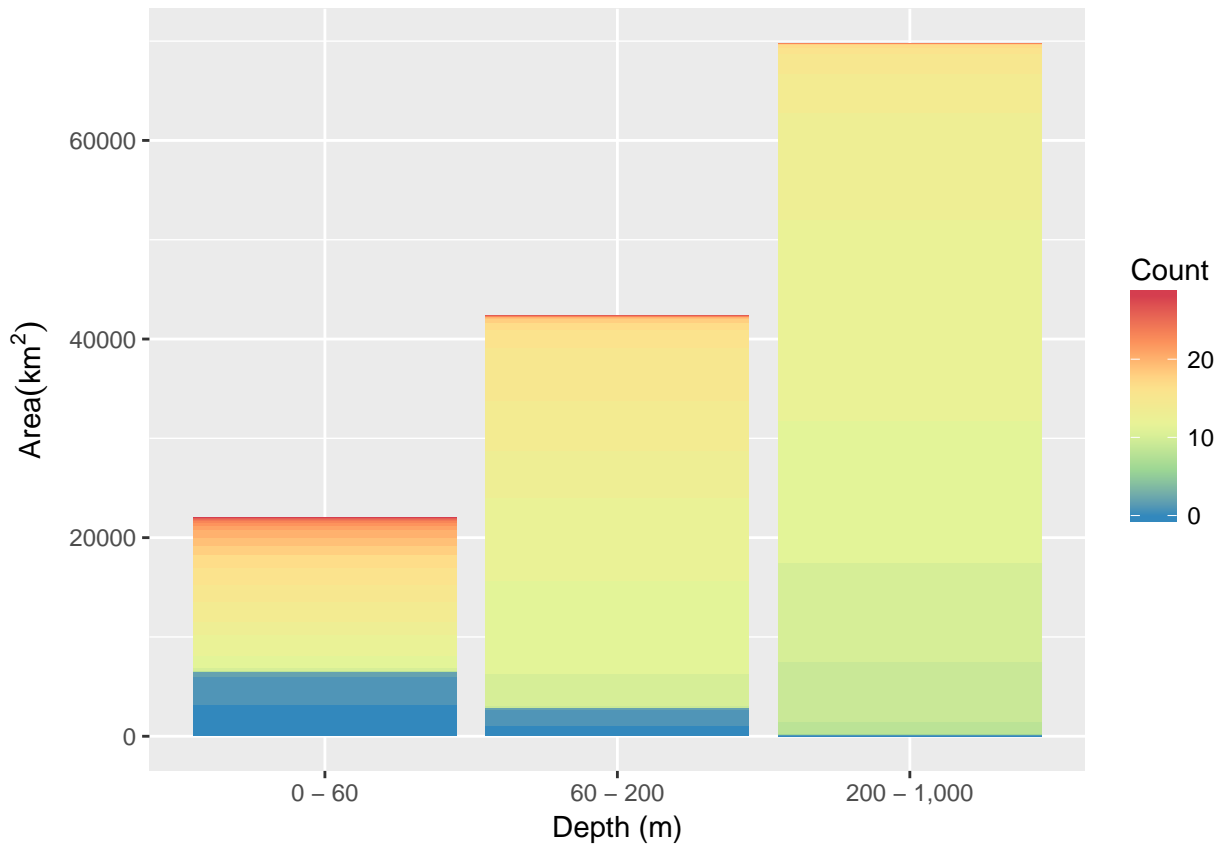


Figure 46: Area of Cumulative Ocean Use by Depth (m) for West region. Cumulative use are counted and summarized by Depth (m) and area.

West: Map of Tide

West: Plot of Uses by Tide

West: Table of Uses by Tide

Ocean Use			Area (km ²) by Tide (Win2)				Total	Rank
Category	Layer	Component	500 - 1,000	1000 - 1,500	>1,500			
	Total Area		82	20	26	131		0
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Sanctuaries	1	1	0	2		18
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Park Service	1	0	0	1		20
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Wildlife Refuge System	2	0	0	2		16
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		26
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Seagrass	0	1	1	1		23
Ocean Uses: Transportation: Commercial Shipping	Shipping Lanes		█ 23 █	2 █	7 █	32		2
	Ocean Use Atlas for California	Alt Energy Future	█ 5	0	0	5		12
	Ocean Use Atlas for California	Aquaculture	1	1	0	1		21
	Ocean Use Atlas for California	Beach	█ 7	1	1	8		7
	Ocean Use Atlas for California	Com Benthic Fixed	█ 8	1	1	9		4
	Ocean Use Atlas for California	Com Dive	1	1	0	1		22
	Ocean Use Atlas for California	Com Pelagic	█ 8	1	1	9		4
	Ocean Use Atlas for California	Hunting	3	1	1	4		14
	Ocean Use Atlas for California	Kayak Fishing	█ 8	1	1	9		4
	Ocean Use Atlas for California	Military	█ 7	1	1	9		5
	Ocean Use Atlas for California	Mining	1	0	0	1		24
	Ocean Use Atlas for California	Motorized Boating	█ 8	1	1	9		4
	Ocean Use Atlas for California	Oil	█ 6	0	0	6		10
	Ocean Use Atlas for California	Paddling	█ 8	1	1	9		4
	Ocean Use Atlas for California	Rec Boat	█ 8	1	1	9		4
	Ocean Use Atlas for California	Rec Dive	█ 8	1	1	9		4
	Ocean Use Atlas for California	Rec Shore Harvest	█ 7	1	1	8		7
	Ocean Use Atlas for California	Sailing	█ 8	1	1	9		4
	Ocean Use Atlas for California	Scuba	3	1	0	3		15
	Ocean Use Atlas for California	Shipping	█ 7	0	0	7		8
	Ocean Use Atlas for California	Shore Fishing	█ 7	1	1	8		7
	Ocean Use Atlas for California	Surface Sports	█ 7	1	1	8		6
	Ocean Use Atlas for California	Swimming	1	1	0	2		17
	Ocean Use Atlas for California	Tidepooling	█ 6	1	0	7		9
	Ocean Use Atlas for California	Wildlife Viewing	█ 8	1	1	9		4
	Ocean Use Atlas for Oregon & Washington	Aquaculture	1	0	0	1		26
	Ocean Use Atlas for Oregon & Washington	Com Fishing Fixed	4	1	1	6		11
	Ocean Use Atlas for Oregon & Washington	Com Fishing Mobile	4	1	1	6		11
	Ocean Use Atlas for Oregon & Washington	Com Pelagic Fishing	4	1	1	6		11
	Ocean Use Atlas for Oregon & Washington	Cruise Ships	4	1	1	5		13
	Ocean Use Atlas for Oregon & Washington	Cultural Use	4	1	1	6		11
	Ocean Use Atlas for Oregon & Washington	Fishing Shore	1	0	0	1		25
	Ocean Use Atlas for Oregon & Washington	Hunting	4	1	1	6		11
	Ocean Use Atlas for Oregon & Washington	Marine Debris	1	0	0	1		27
	Ocean Use Atlas for Oregon & Washington	Military Operations	4	1	1	6		11
	Ocean Use Atlas for Oregon & Washington	Mining Mineral Est	4	1	1	6		11
	Ocean Use Atlas for Oregon & Washington	Motorized Boating	4	1	1	6		11
	Ocean Use Atlas for Oregon & Washington	Ocean Dumping	2	0	0	2		19
	Ocean Use Atlas for Oregon & Washington	Paddling	4	1	1	6		11
	Ocean Use Atlas for Oregon & Washington	Perm Research Areas	4	1	1	6		11
	Ocean Use Atlas for Oregon & Washington	Rec Dive Fishing	4	1	1	6		11
	Ocean Use Atlas for Oregon & Washington	Rec Fishing Ben Boats	4	1	1	6		11
	Ocean Use Atlas for Oregon & Washington	Rec Fishing Pel Boats	4	1	1	6		11
	Ocean Use Atlas for Oregon & Washington	Rec Gathering Shore	1	0	0	1		25
	Ocean Use Atlas for Oregon & Washington	Sailing	4	1	1	6		11
	Ocean Use Atlas for Oregon & Washington	Shipping	4	1	1	6		11
	Ocean Use Atlas for Oregon & Washington	Surface Board Sports	4	1	1	6		11
	Ocean Use Atlas for Oregon & Washington	Swimming	4	1	1	5		13
	Ocean Use Atlas for Oregon & Washington	Tide Pooling	1	0	0	1		28
	Ocean Use Atlas for Oregon & Washington	Wildlife Viewing Sea	4	1	1	6		11

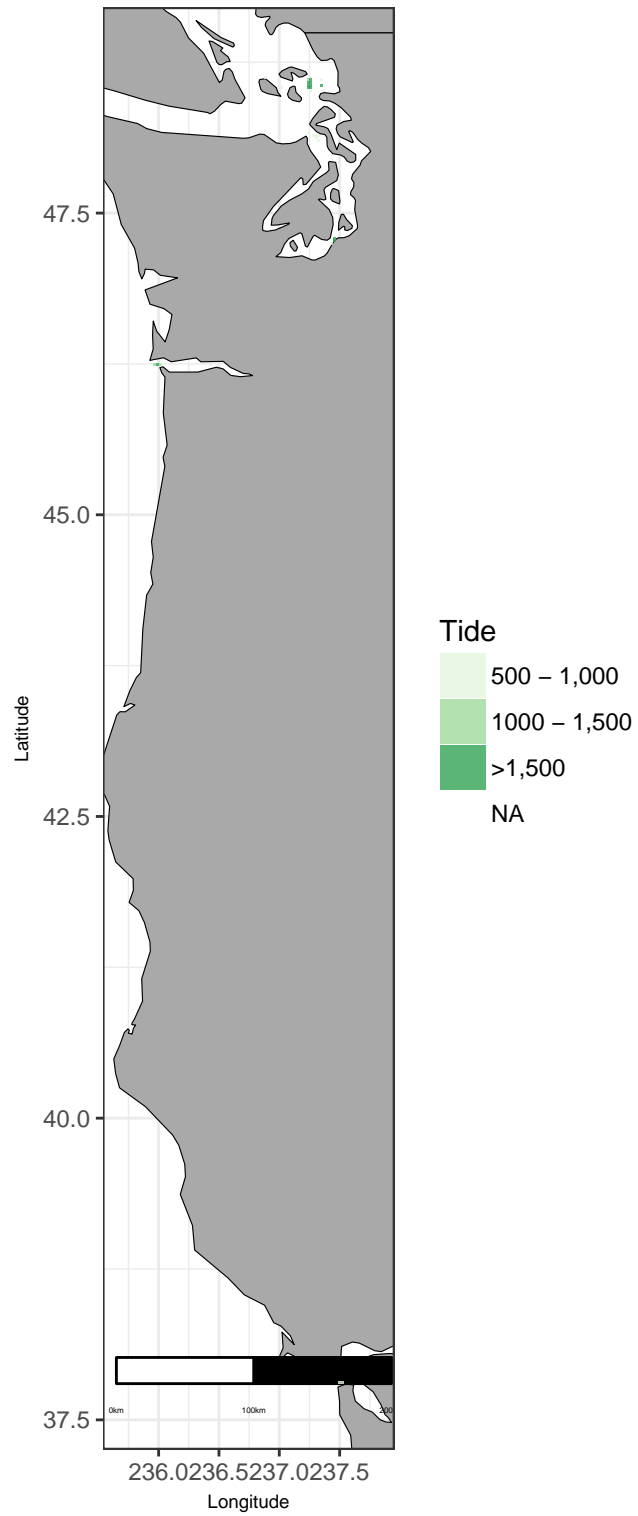


Figure 47: Map of viable tide in West region.

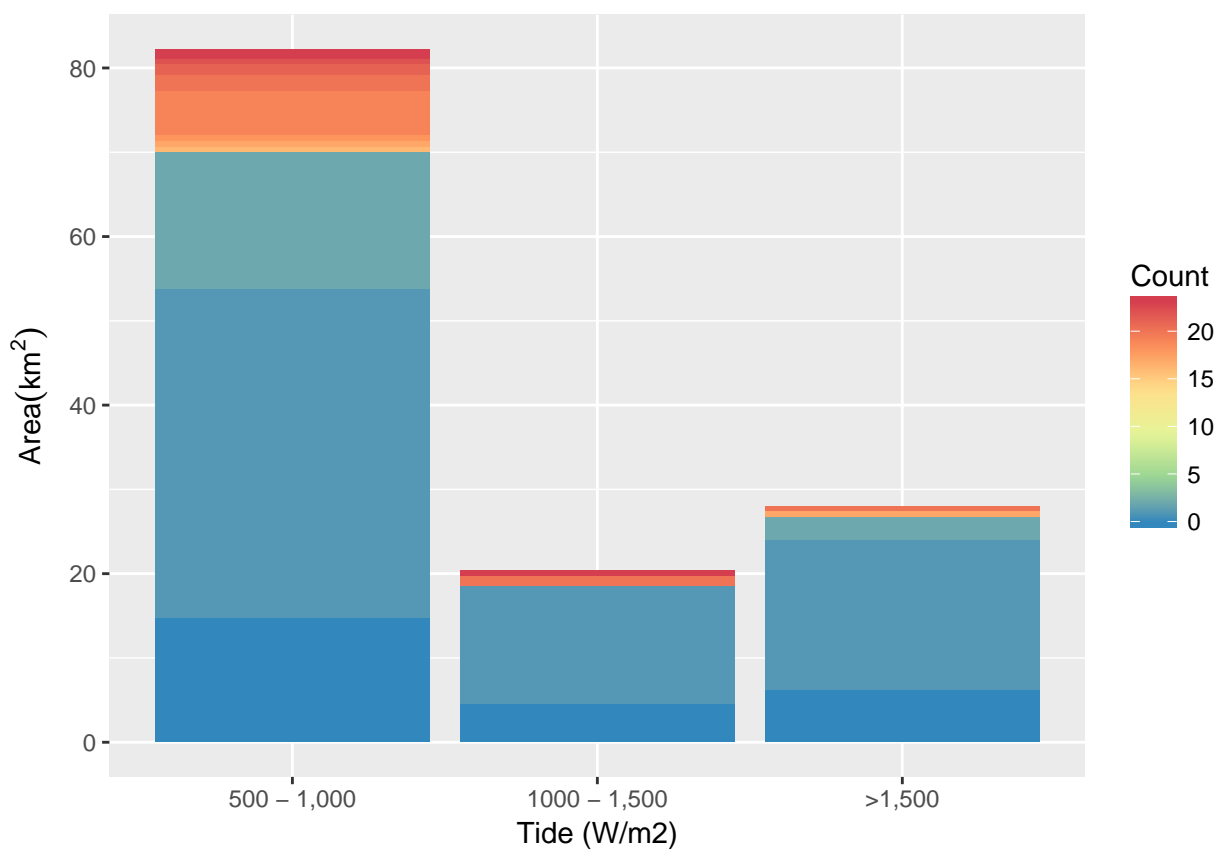


Figure 48: Area of Cumulative Ocean Use by Tide (W/m²) for West region. Cumulative use are counted and summarized by Tide (W/m²) and area.

West: Map of Wave

West: Plot of Uses by Wave

West: Table of Uses by Wave

Table 21: Area (km ²) of Ocean Use by Wave (Wave) 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 (Wave)					
Category	Layer	Component	0-20	20-30	>30	Total	Rank
Government: Commercial Leases	Active Oil & Gas Leases		0	128	13	140	49
		National Marine Fisheries Service	391	1,742	2,872	5,004	22
		National Marine Sanctuaries	2,463	4,399	7,884	14,745	12
Government: Marine Protected Areas (MPAs)	Marine Protected Areas	National Park Service	51	18	0	69	54
		State MPA	616	888	238	1,742	31
		Essential Fish Habitat	271	156	18	445	43
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Echinacea	7	33	0	40	37
		Groundfish	172	1,284	902	2,358	29
		Rocky Beach	348	997	2,334	3,680	23
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Seagrass	2	14	0	16	60
		Shipping Lanes	112	252	174	538	39
		Abalone	1	0	0	1	62
Ocean Use: Agriculture	Shellfish	Alfalfa	1,864	4,289	6,429	12,578	14
		Apples	30	0	0	30	58
		Banana	323	206	8	537	40
Ocean Use: Agriculture	Cattle	Cattle	485	735	640	1,860	30
		Corn	2,434	5,534	7,219	15,187	7
		Corn	2,494	5,634	5,937	14,065	13
Ocean Use: Agriculture	Cattle	Corn	557	492	65	1,114	35
		Cattle	384	399	73	857	37
		Corn	2,434	5,534	7,219	15,187	8
Ocean Use: Agriculture	Cattle	Hunting	942	1,449	158	2,549	26
		Kayak Fishing	2,666	3,711	1,896	8,213	19
		Military	4,609	8,813	7,453	20,875	5
Ocean Use: Agriculture	Cattle	Mining	39	11	0	50	55
		Mineral Bunting	4,609	8,813	7,453	20,875	5
		Oil	2,552	3,526	6,957	10,835	11
Ocean Use: Agriculture	Cattle	Paddling	2,775	3,512	1,322	7,609	20
		Rice Boat	4,709	8,271	7,219	20,975	6
		Rice Drive	2,696	2,865	438	5,981	21
Ocean Use: Agriculture	Cattle	Rice Harvest	1,171	1,551	186	2,908	24
		Sailing	4,609	8,813	7,453	20,875	5
		Seeds	1,084	1,046	280	2,393	28
Living Resources: Biological Occurrence: Fishes	Shipping	Shrimp Fishing	1,662	4,537	4,192	10,391	17
		Shrimp Fishing	332	224	10	567	38
		Surface Spots	1,482	1,030	172	2,684	25
Ocean Use: Agriculture	Seaweed	Seaweed	286	114	0	400	46
		Tidepooling	298	163	6	463	44
		Wildlife Viewing	4,709	8,440	7,213	19,499	9
Ocean Use: Agriculture	Cattle	Apples	2	0	0	2	61
		Cattle Drive Fishing	16	2	0	18	59
		Corn Fishing	149	1,289	999	25,433	1
Ocean Use: Agriculture	Cattle	Corn Fishing	149	1,289	999	25,433	1
		Corn Fishing	149	1,289	999	25,433	1
		Corn Fishing	149	1,289	999	25,433	1
Ocean Use: Agriculture	Cattle	Corn Fishing	149	1,289	999	25,433	1
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Ocean Use: Agriculture	Cattle	Corn Fishing	149	1,289	999	25,433	1
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Ocean Use: Agriculture	Cattle	Corn Fishing	149	1,289	999	25,433	1
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Ocean Use: Agriculture	Cattle	Corn Fishing	149	1,289	999	25,433	1
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Ocean Use: Agriculture	Cattle	Corn Fishing	149	1,289	999	25,433	1
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Ocean Use: Agriculture	Cattle	Corn Fishing	149	1,289	999	25,433	1
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Ocean Use: Agriculture	Cattle	Corn Fishing	149	1,289	999	25,433	1
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Ocean Use: Agriculture	Cattle	Corn Fishing	149	1,289	999	25,433	1
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Ocean Use: Agriculture	Cattle	Corn Fishing	149	1,289	999	25,433	1
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Ocean Use: Agriculture	Cattle	Corn Fishing	149	1,289	999	25,433	1
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		Corn Fishing	149	1,289	999	25,433	1
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Ocean Use: Agriculture	Cattle	Corn Fishing	149	1,289	999	25,433	1
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		Corn Fishing	149	1,289	999	25,433	1
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		Corn Fishing	149	1,289	999	25,433	1
		Corn Fishing	149	1,289	999	25,433	1
Ocean Use: Agriculture	Cattle	Corn Fishing	149	1,289	999	25,433	1
		Corn Fishing	149	1,289			

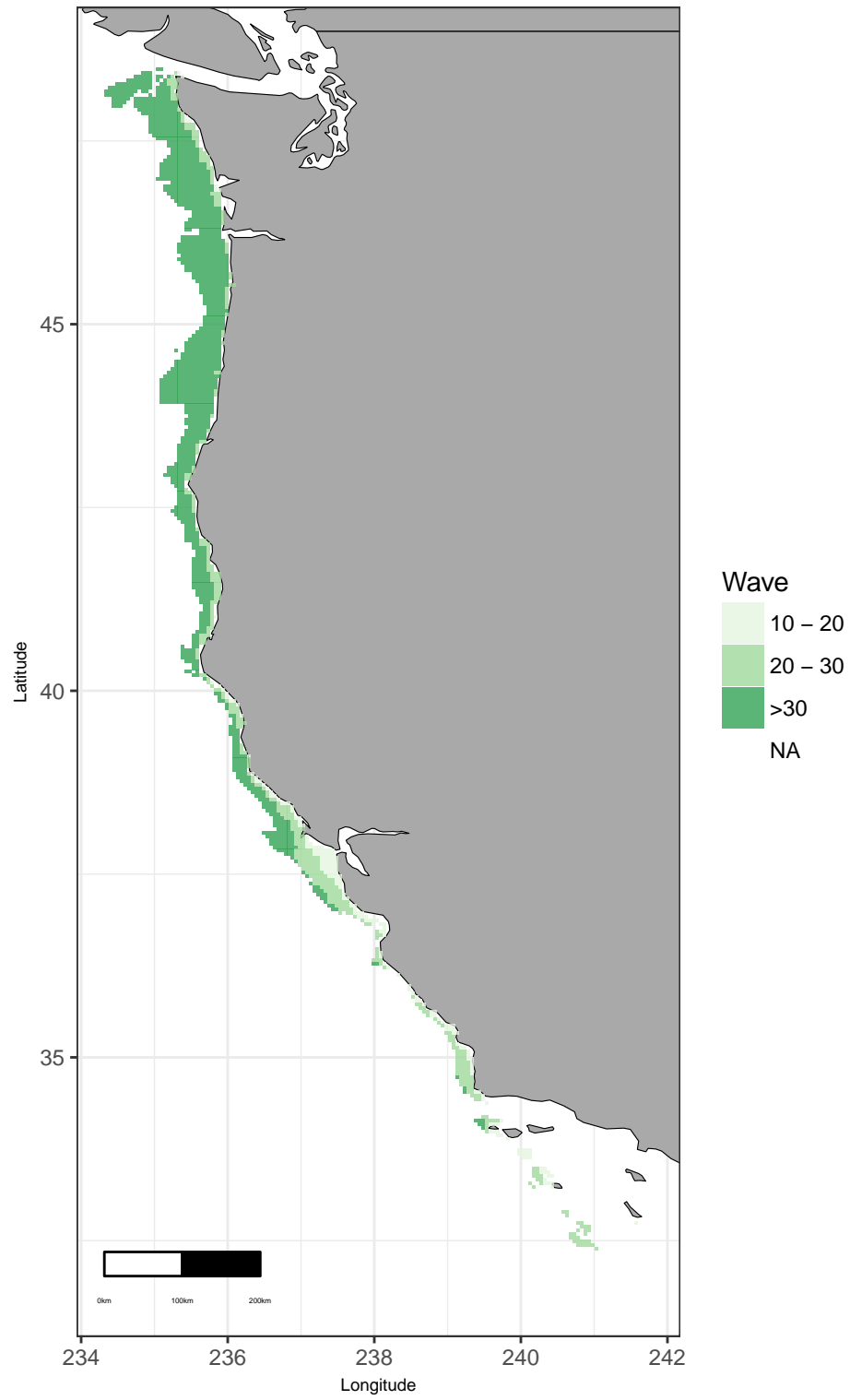


Figure 49: Map of viable wave in West region.

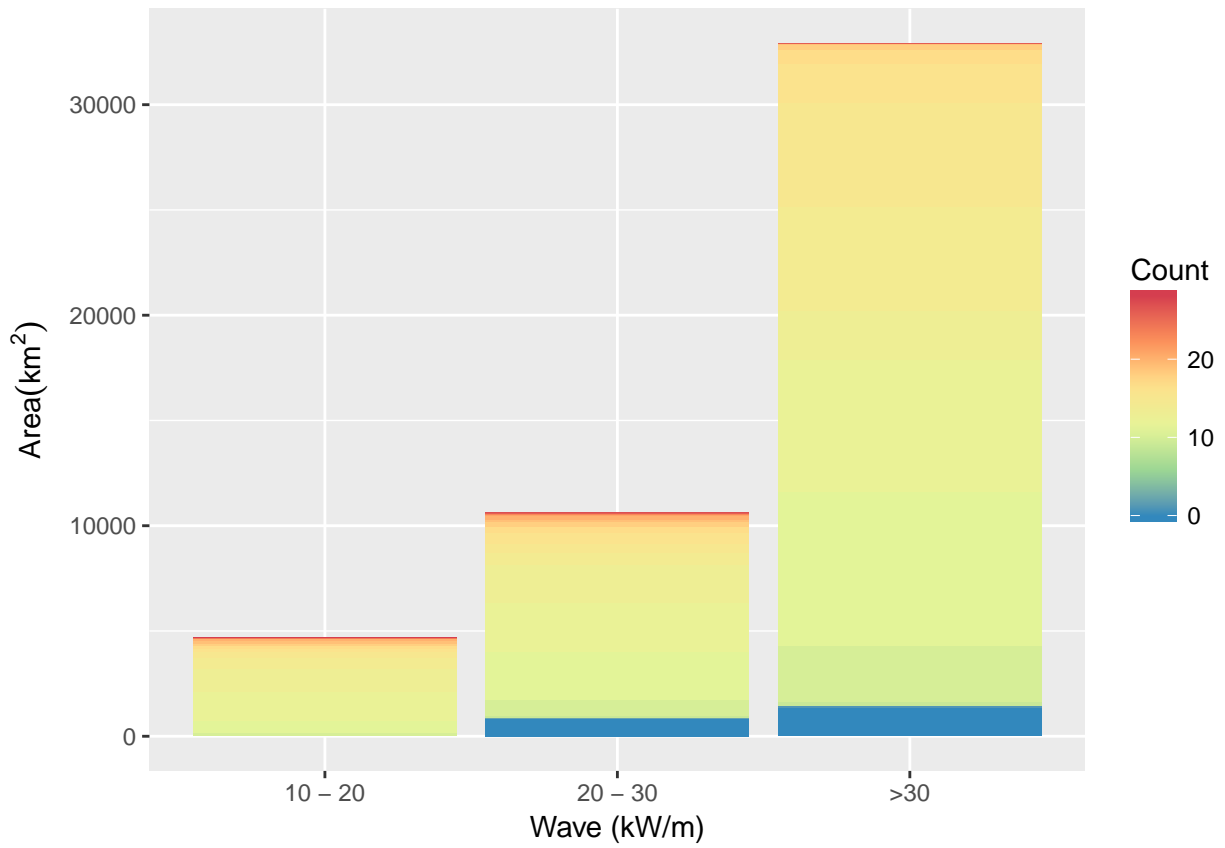


Figure 50: Area of Cumulative Ocean Use by Wave (kW/m) for West region. Cumulative use are counted and summarized by Wave (kW/m) and area.

West: Map of Wind

West: Plot of Uses by Wind

West: Table of Uses by Wind

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

Category	Layer	Component	Area (km ²) by Wind (m/s @ Wind)				Total	Rank
			7 - 8.5	8.5 - 10	>10			
	Total Area		18,111	33,008	4,211	196,501		0
Governance: Commercial Lanes	Active Oil & Gas		212	14	0	226	53	
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Fisheries Service	█ 10,171 █	3,645	9 █	13,826	25	
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Sanctuaries	█ 16,754 █	2,879	0 █	19,634	20	
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Park Service	208	66	0	274	49	
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Wildlife Refuge System	4	0	0	4	65	
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	State MPA	1,512	491	5	2,008	33	
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Canopy Kelp	138	29	0	167	55	
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Eumecetes	387	0	0	387	46	
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Groundfish	2,611	942	0	3,553	31	
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Rocky Beach	█ 4,132 █	2,097	182 █	6,401	27	
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Sargassum	106	0	0	106	59	
Ocean Use: Transportation: Commercial Shipping	Shipping Lanes		659	243	0	904	41	
Ocean Use: Adverse Impacts for California	Oil Energy Future		█ 11,048 █	5,379	36 █	16,462	23	
	Aggregations		24	0	0	24	64	
Ocean Use: Adverse Impacts for California	Beach		244	33	0	278	48	
	Cables		█ 6,446 █	561	0 █	7,007	26	
Ocean Use: Adverse Impacts for California	Com Benthic Food		█ 28,916 █	14,445 █	1,977 █	45,338	6	
	Com Benthic Mobile		█ 21,692 █	11,215 █	1,962 █	34,869	14	
Ocean Use: Adverse Impacts for California	Com Dive		954	143	0	1,077	37	
	Com Kelp		114	10	0	125	57	
Ocean Use: Adverse Impacts for California	Com Pelagic		█ 10,379 █	14,883 █	1,977 █	47,239	4	
	Hunting		█ 10,183 █	5,248	0 █	15,431	24	
Ocean Use: Adverse Impacts for California	Kayak Fishing		█ 3,899 █	734	30	4,662	29	
	Military		█ 10,698 █	15,243 █	1,977 █	48,018	1	
Ocean Use: Adverse Impacts for California	Mining		32	0	0	32	63	
	Material Bunting		█ 10,698 █	15,243 █	1,977 █	48,018	1	
Ocean Use: Adverse Impacts for California	Oil		█ 29,699 █	15,136 █	1,976 █	46,811	5	
	Puddling		█ 3,830 █	827	54	4,710	28	
Ocean Use: Adverse Impacts for California	Rec Boat		█ 10,516 █	14,942 █	1,977 █	47,435	3	
	Rec Dive		█ 3,693 █	242	0	3,335	32	
Ocean Use: Adverse Impacts for California	Rec Shore Harvest		█ 10,265 █	5,280	0 █	15,515	23	
	Sailing		█ 10,698 █	15,312 █	1,977 █	47,986	2	
Ocean Use: Adverse Impacts for California	Scuba		1,519	239	0	1,798	34	
	Shipping		█ 25,881 █	11,922 █	249 █	38,052	13	
Ocean Use: Adverse Impacts for California	Shore Fishing		193	6	0	199	54	
	Surface Sports		1,321	227	0	1,548	36	
Ocean Use: Adverse Impacts for California	Swimming		72	0	0	72	62	
	Tidepooling		219	23	0	242	51	
Ocean Use: Adverse Impacts for California	Wildlife Viewing		█ 23,693 █	14,671 █	1,962 █	39,326	12	
	Aggregations		266	0	0	266	50	
Ocean Use: Adverse Impacts for Oregon & Washington	Com Dive Fishing		1	0	0	1	67	
	Com Fishing Food		█ 25,336 █	16,056 █	2,163 █	43,554	7	
Ocean Use: Adverse Impacts for Oregon & Washington	Com Fishing Mobile		█ 25,324 █	16,030 █	2,163 █	43,517	9	
	Com Gathering Shore		237	0	0	237	62	
Ocean Use: Adverse Impacts for Oregon & Washington	Com Pelagic Fishing		█ 25,336 █	16,056 █	2,163 █	43,554	7	
	Cruise Ships		█ 12,866 █	9,948 █	409 █	23,223	19	
Ocean Use: Adverse Impacts for Oregon & Washington	Cultural Use		█ 25,336 █	16,056 █	2,163 █	43,554	7	
	Fishing Shores		86	0	0	86	60	
Ocean Use: Adverse Impacts for Oregon & Washington	Hunting		█ 17,590 █	0	0 █	17,590	21	
	Kayak Fishing		476	0	0	476	43	
Ocean Use: Adverse Impacts for Oregon & Washington	Marine Debris		1,622	0	0	1,622	35	
	Military Operations		█ 25,336 █	16,056 █	2,163 █	43,554	7	
Ocean Use: Adverse Impacts for Oregon & Washington	Mining Inland Est		533	0	0	533	42	
	Material Bunting		█ 19,728 █	12,202 █	1,076 █	33,008	15	
Ocean Use: Adverse Impacts for Oregon & Washington	Ocean Dumping		█ 18,184 █	6,202	0 █	24,386	17	
	Offshore Oil Energy		260	118	0	377	47	
Ocean Use: Adverse Impacts for Oregon & Washington	Puddling		984	0	0	984	39	
	Prime Research Areas		█ 19,044 █	5,027	1 █	24,071	18	
Ocean Use: Adverse Impacts for Oregon & Washington	Rec Dive Fishing		1,032	0	0	1,032	38	
	Rec Fishing Rec Boat		█ 24,833 █	12,613 █	2,163 █	39,609	11	
Ocean Use: Adverse Impacts for Oregon & Washington	Rec Fishing Pel Boats		█ 25,336 █	16,056 █	2,163 █	43,554	7	
	Rec Gathering Shore		126	0	0	126	56	
Ocean Use: Adverse Impacts for Oregon & Washington	Sailing		█ 25,336 █	16,055 █	2,163 █	43,554	8	
	Scuba Scuba Diving		962	0	0	962	40	
Ocean Use: Adverse Impacts for Oregon & Washington	Shipping		█ 22,248 █	16,056 █	2,163 █	40,467	10	
	Shore Use		79	0	0	79	61	
Ocean Use: Adverse Impacts for Oregon & Washington	Surface Board Sports		464	0	0	464	44	
	Swimming		406	0	0	406	45	
Ocean Use: Adverse Impacts for Oregon & Washington	Tide Pooling		119	0	0	119	58	
	Underwater Cables		3,047	1,217	0	4,264	30	
Ocean Use: Adverse Impacts for Oregon & Washington	Underwater Pipelines		1	0	0	1	66	
	Wildlife Viewing Sea		█ 16,741 █	9,954 █	855 █	27,550	16	

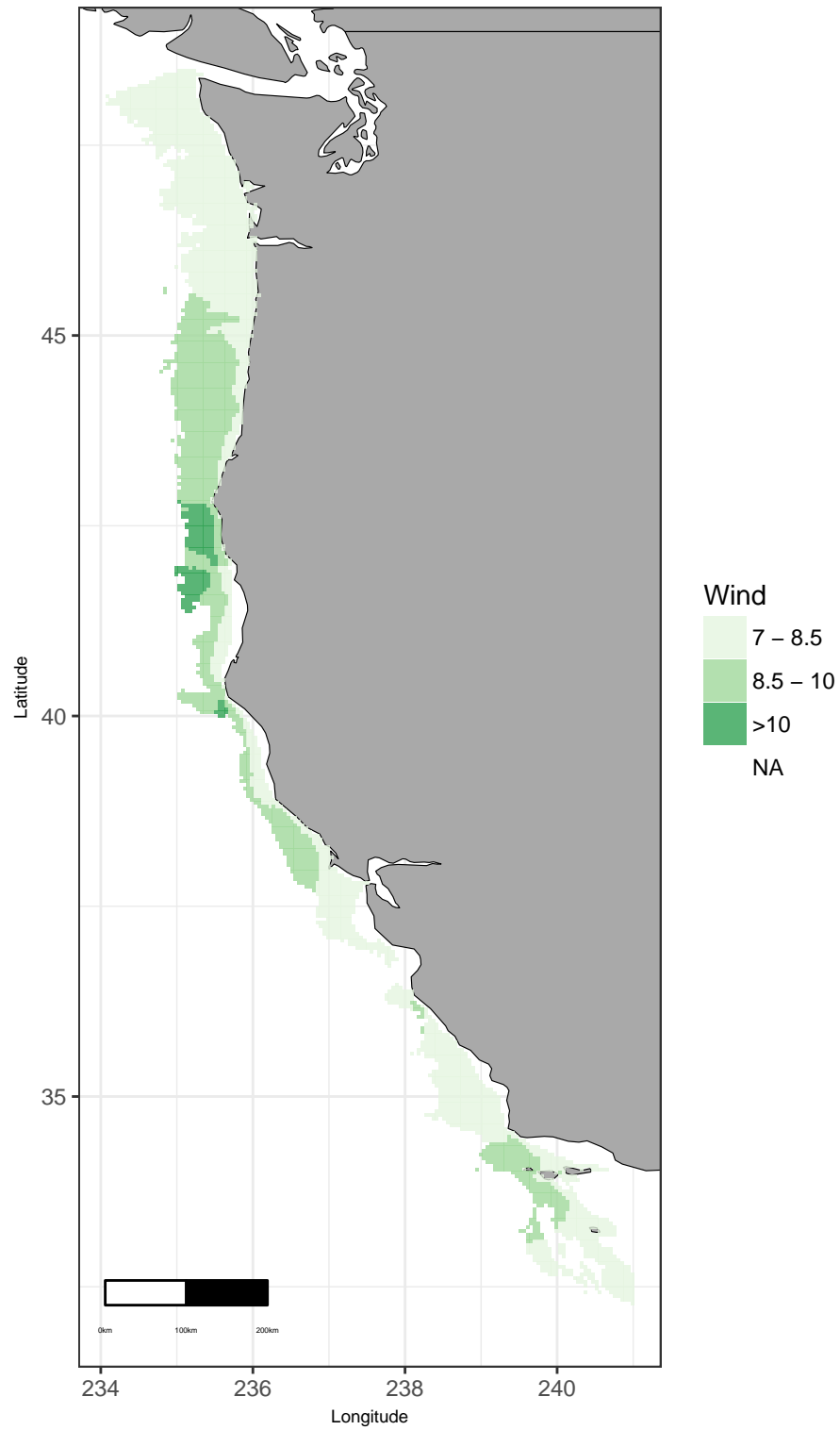


Figure 51: Map of viable wind in West region.

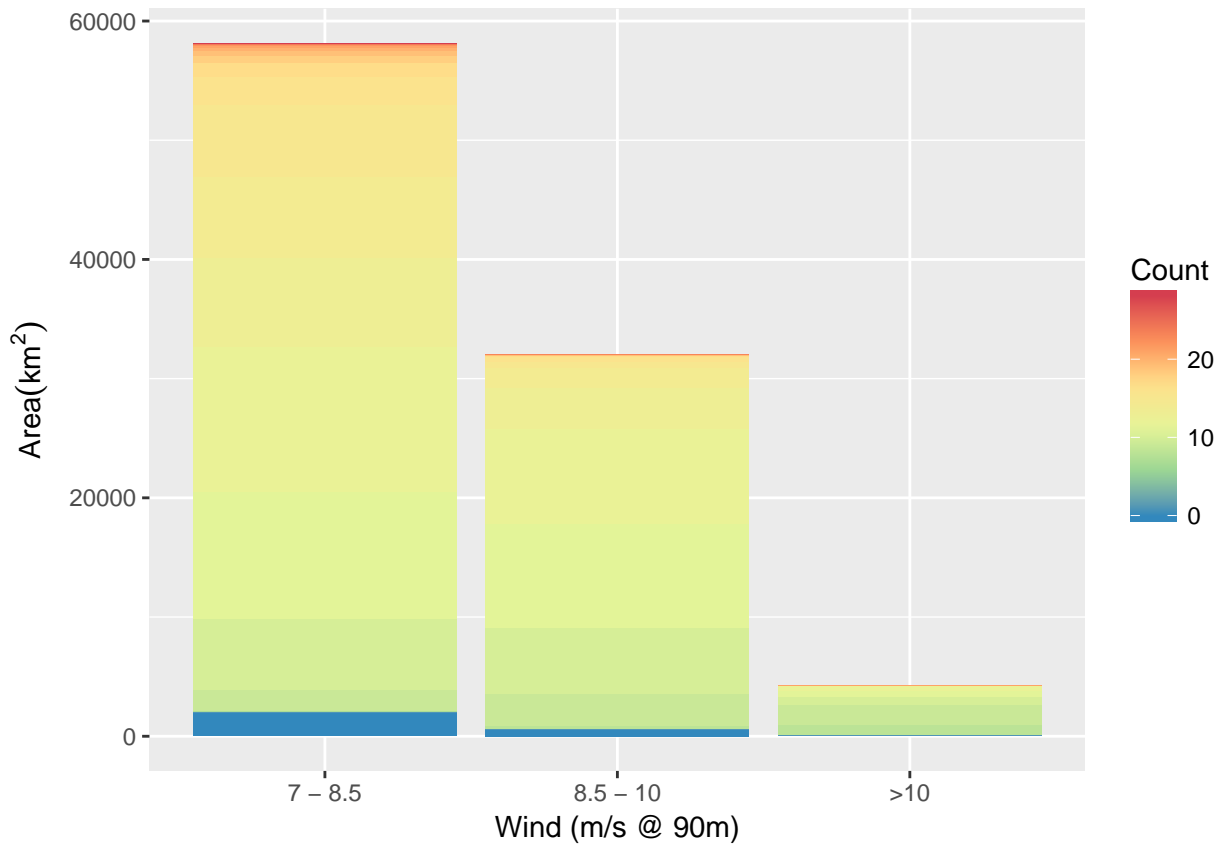


Figure 52: Area of Cumulative Ocean Use by Wind (m/s @ 90m) for West region. Cumulative use are counted and summarized by Wind (m/s @ 90m) and area.