Preliminary Results for West Region by Depth

Ben Best 2017-12-18

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$\mathrm{West} \ \dots \ \dots$			 				 					 				 						2!

Here are preliminary results of the form (table, plot, map) to be output with many more layers and for each of the 8 regions:

- 1. Alaska
- 2. Atlantic Islands
- 3. East
- 4. Great Lakes
- 5. Gulf of Mexico
- 6. Hawaii
- 7. Pacific Islands
- 8. West

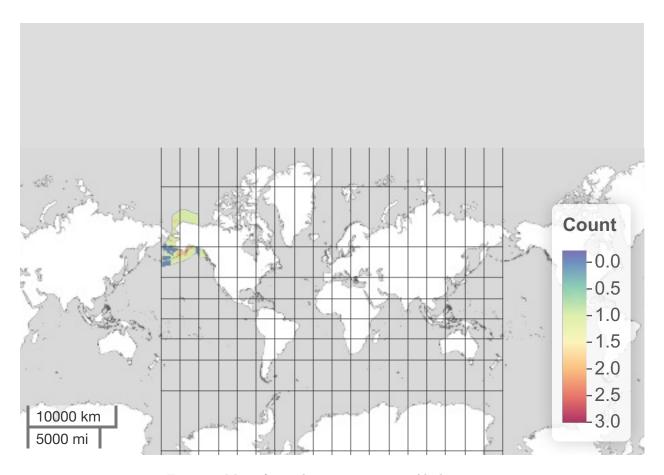


Figure 1: Map of cumulative ocean use in Alaska region.

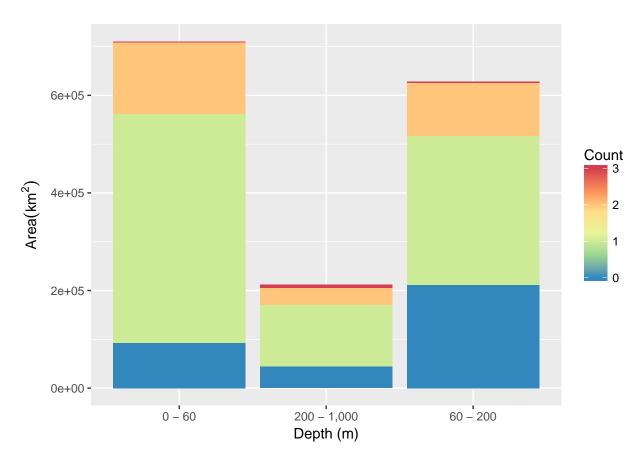


Figure 2: Area of Cumulative Ocean Use by Depth (m) for Alaska region. Cumulative use are counted and summarized by Depth (m) and area.

Alaska

Map of Ocean Use

Plot of Ocean Use by Depth (m)

Table of Ocean Use by Depth (m)

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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 (l	km²) b	y Depth (n	1)		
Category	Layer	Component		0 - 60		60 - 200	20	0 - 1,000		Total	Rank
	Total Area			709,865		627,590		212,112		1,549,566	0
Governance: Commercial Leases	Active Oil & Gas Leases		I	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	I	12,543		1,211	I	127	ı	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	ī	10,525		10,890	5
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Coral		0		42		5		47	12
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	1	165		279	11
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Slope		12		1,248	I	4,237		5,497	6
Ocean Uses: Transportation: Commercial Shipping	Shipping Lanes			21		2,956		444		3,421	7



Figure 3: Map of cumulative ocean use in Atlantic Islands region.

Atlantic Islands

Map of Ocean Use

Plot of Ocean Use by Depth (m)

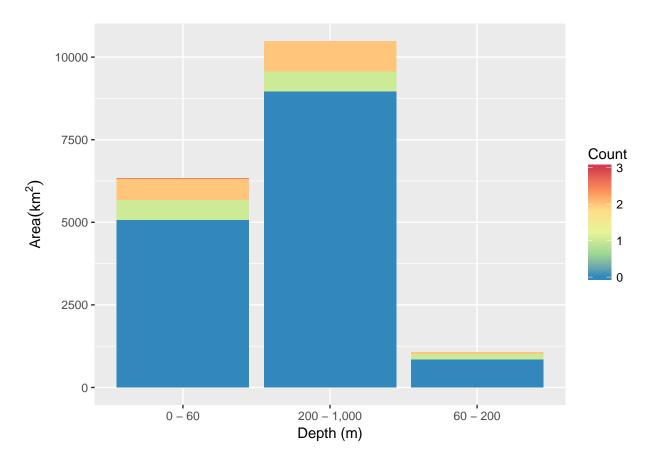


Figure 4: Area of Cumulative Ocean Use by Depth (m) for Atlantic Islands region. Cumulative use are counted and summarized by Depth (m) and area.

Table of Ocean Use by Depth (m)

--- title: datatables header-include: l- head: " background-color: white --Table 2: 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 (km²) by Depth (m)

Category	Layer	Component		0 - 60		60 - 200	20	00 - 1,000		Total	Rank
	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	I	97	ı	28		31	I	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	I	101		11		29		142	4
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	MPA		782		77		1,045		1,905	2

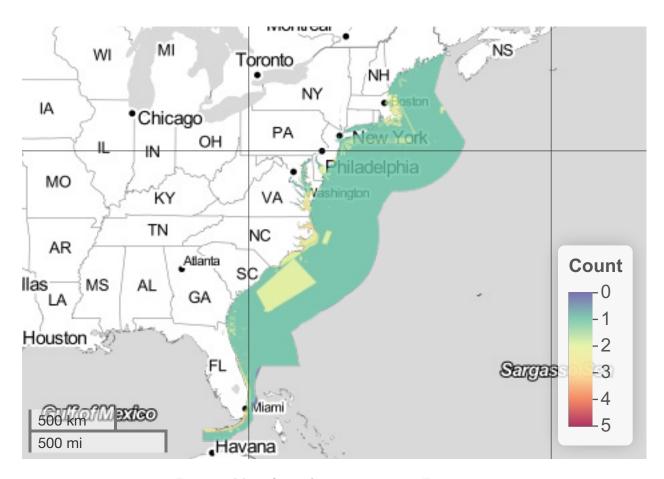


Figure 5: Map of cumulative ocean use in East region.

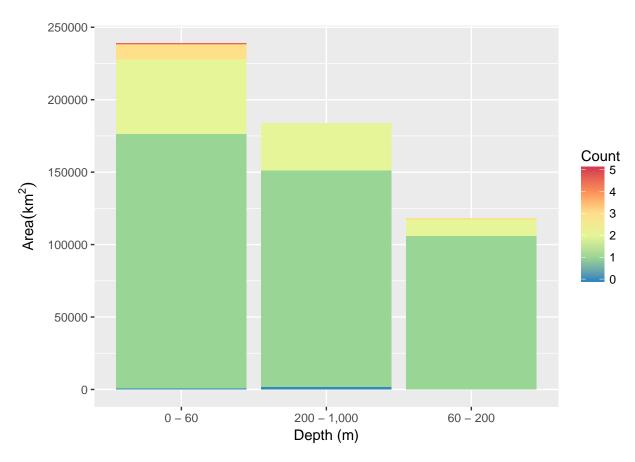


Figure 6: Area of Cumulative Ocean Use by Depth (m) for East region. Cumulative use are counted and summarized by Depth (m) and area.

East

Map of Ocean Use

Plot of Ocean Use by Depth (m)

Table of Ocean Use by Depth (m)

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Table 3: 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 (l	km²) by Depth (n	1)		
Category	Layer	Component		0 - 60		60 - 200	200 - 1,000		Total	Rank
	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	9
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Estuarine Research Reserve System	I	625		1	0	I	626	8
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	I	5,265	I	2,113	0	I	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	ı	16,339	3
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	MPA		49,636	ı	7,388	32,497		89,522	2
Ocean Uses: Transportation: Commercial Shipping	Shipping Lanes		ı	6,115	I	3,734	4	I	9,854	4

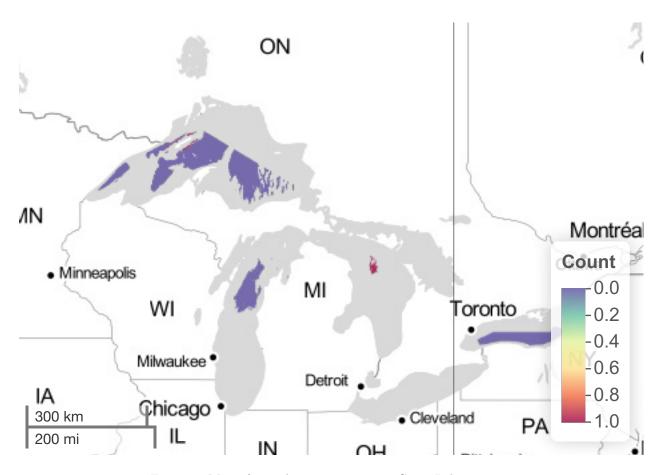


Figure 7: Map of cumulative ocean use in Great Lakes region.

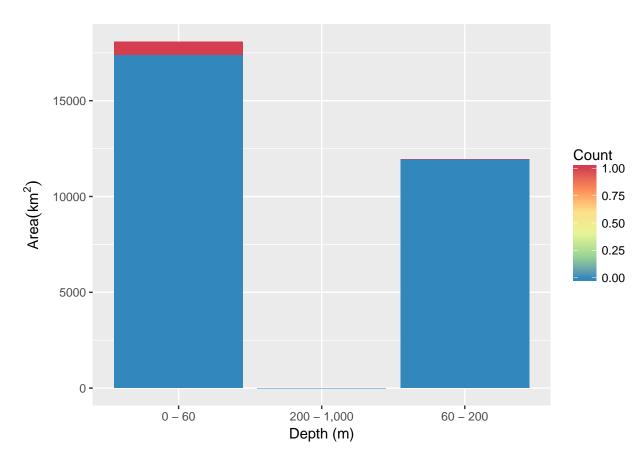


Figure 8: Area of Cumulative Ocean Use by Depth (m) for Great Lakes region. Cumulative use are counted and summarized by Depth (m) and area.

Great Lakes

Map of Ocean Use

Plot of Ocean Use by Depth (m)

Table of Ocean Use by Depth (m)

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Table 4: 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 (k	km ²) by Depth (m	1)		
Category	Layer	Component		0 - 60	60 - 200	200 - 1,000		Total	Rank
	Total Area			18,077	11,947	5		30,029	0
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Sanctuaries	I	432	0	0	I	432	1
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Park Service	I	250	1	0	I	250	2

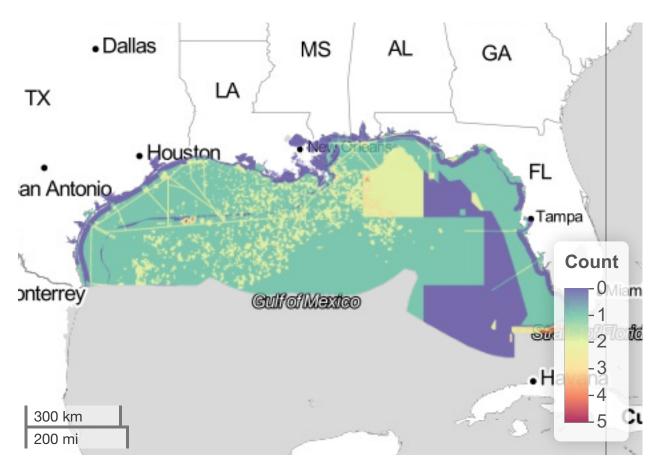


Figure 9: Map of cumulative ocean use in Gulf of Mexico region.

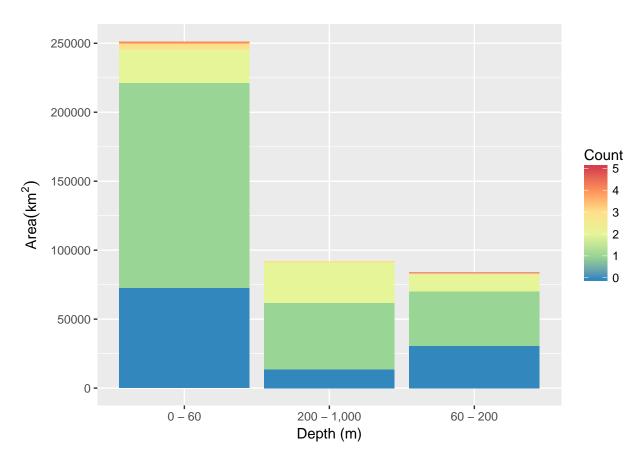


Figure 10: Area of Cumulative Ocean Use by Depth (m) for Gulf of Mexico region. Cumulative use are counted and summarized by Depth (m) and area.

Gulf of Mexico

Map of Ocean Use

Plot of Ocean Use by Depth (m)

Table of Ocean Use by Depth (m)

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Table 5: 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 (l	km²) by	y Depth (m	1)		
Category	Layer	Component		0 - 60		60 - 200	200) - 1,000		Total	Rank
	Total Area			251,128		83,535		92,050		426,713	0
Governance: Commercial Leases	Active Oil & Gas Leases		I	12,432	ı	6,239		8,747	ı	27,418	3
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	Bureau of Ocean Energy Management		437	I	1,642		561		2,640	8
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Estuarine Research Reserve System		996		0		0		996	10
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Fisheries Service		160,632		38,070		31,435		230,137	1
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Sanctuaries	I	4,283		201		55	ı	4,539	6
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Park Service	I	2,737		0		0		2,737	7
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Wildlife Refuge System		2,257		11		0		2,268	9
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	State MPA	ı	11,640		0		0	I	11,640	5
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	MPA	ı	7,437		18,711		66,459		92,607	2
Ocean Uses: Transportation: Commercial Shipping	Shipping Lanes		I	12,343	I	2,687	I	2,309	ı	17,338	4

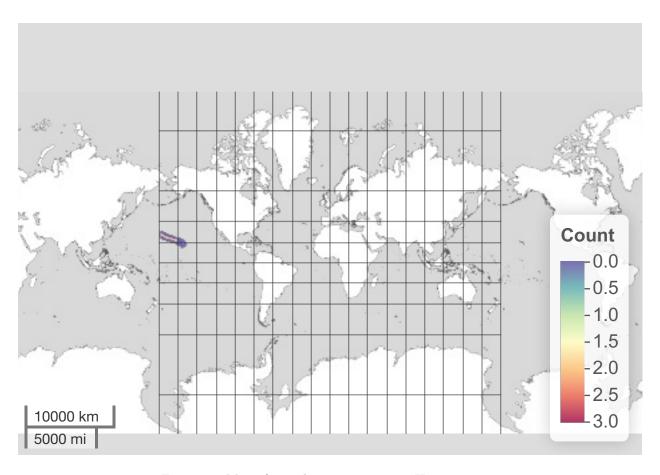


Figure 11: Map of cumulative ocean use in Hawaii region.

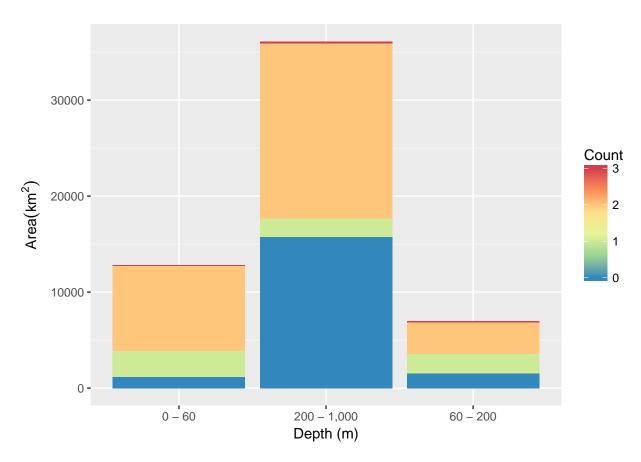


Figure 12: Area of Cumulative Ocean Use by Depth (m) for Hawaii region. Cumulative use are counted and summarized by Depth (m) and area.

Hawaii

Map of Ocean Use

Plot of Ocean Use by Depth (m)

Table of Ocean Use by Depth (m)

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Table 6: 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 (l	km²) b	y Depth (m	1)		
Category	Layer	Component		0 - 60		60 - 200	20	0 - 1,000		Total	Rank
	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	ı	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	I	165	I	173		200		538	5
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	State MPA	I	208		622	ı	1,407	I	2,238	4

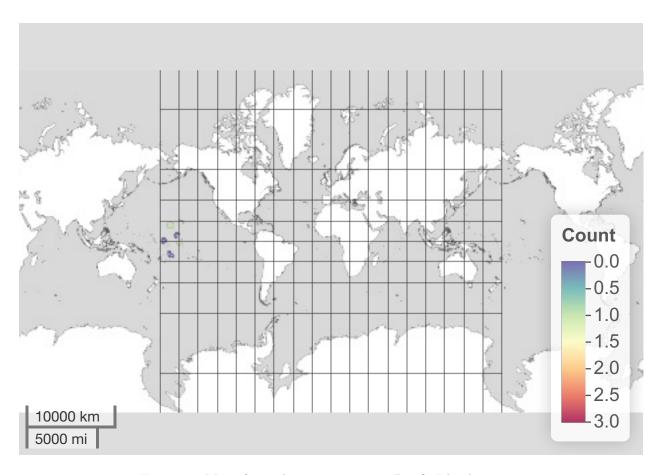


Figure 13: Map of cumulative ocean use in Pacific Islands region.

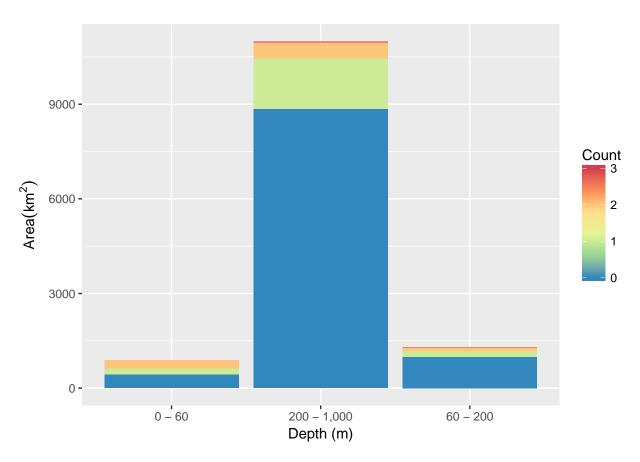


Figure 14: Area of Cumulative Ocean Use by Depth (m) for Pacific Islands region. Cumulative use are counted and summarized by Depth (m) and area.

Pacific Islands

Map of Ocean Use

Plot of Ocean Use by Depth (m)

Table of Ocean Use by Depth (m)

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Table 7: 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 (l	km²) b	y Depth (m	1)		
Category	Layer	Component		0 - 60		60 - 200	20	0 - 1,000		Total	Rank
	Total Area			888		1,294		10,982		13,164	0
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	American Samoa	Į	1		1		0		2	7
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	Guam	I	9	I	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		426		271		2,077		2,775	1
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Marine Sanctuaries		6	ı	24		63		93	3
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Park Service		3		1		0		4	6
Governance: Marine Protected Areas (MPAs)	Marine Protected Areas	National Wildlife Refuge System		258	ı	111	ı	529	ı	898	2

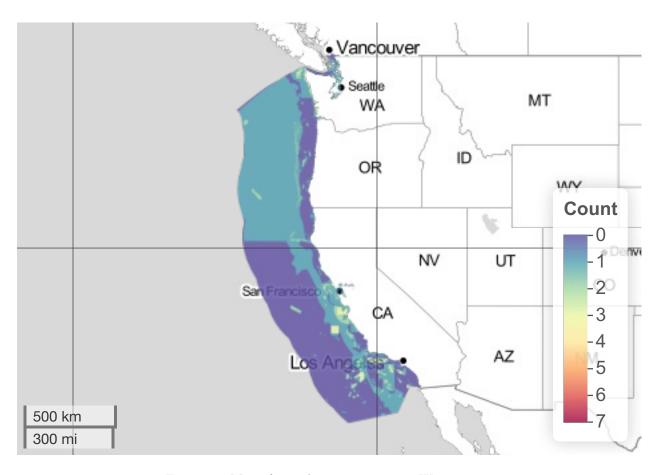


Figure 15: Map of cumulative ocean use in West region.

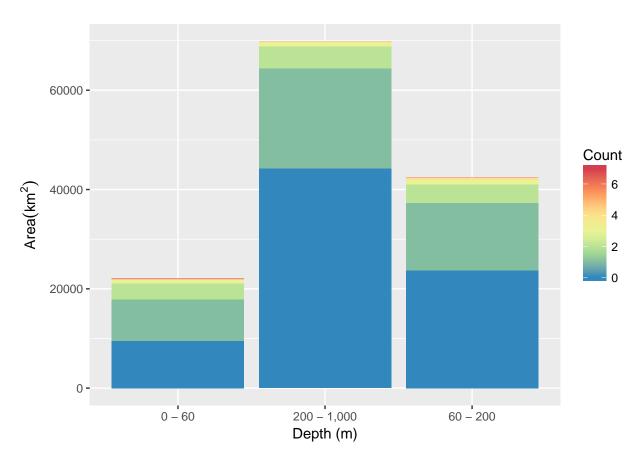


Figure 16: Area of Cumulative Ocean Use by Depth (m) for West region. Cumulative use are counted and summarized by Depth (m) and area.

West

Map of Ocean Use

Plot of Ocean Use by Depth (m)

Table of Ocean Use by Depth (m)

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Table 8: 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 (l	km²) l	by Depth (n	1)		
Category	Layer	Component		0 - 60		60 - 200	2	00 - 1,000		Total	Rank
	Total Area			22,032		42,357		69,766		134,156	0
Governance: Commercial Leases	Active Oil & Gas Leases		l	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	ı	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	I	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	ı	2,205		355	I	5,071	5
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Canopy Kelp	ı	818		27		1		847	9
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Estuaries	-	3,307	I	968		77	I	4,352	6
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Groundfish		2,256	I	1,052	ı	2,322	ī	5,630	4
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Rocky Reefs	ı	951		3,540	ı	4,813	ı	9,304	3
Living Resources: Biological Occurrence: Fishes	Essential Fish Habitat	Seagrass	ı	504		1		0		505	10
Ocean Uses: Transportation: Commercial Shipping	Shipping Lanes		I	215	ı	971	ı	1,256	I	2,442	7

TODO:

- contours of depth bins for map.
- zoom in for West (NOTE: 2x-clicking on html zooms)
- \bullet corresponding table/plot of "Area (km^2) by Tide/Wave/Wind" and map with contours of energy bins.