



Apr 6th, 11:30 AM - 11:45 AM

Recent progress toward reducing seawalls in Puget Sound

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Small, Doris J.; Shipman, Hugh; Jewett, Jenna; and Hamel, Nathalie, "Recent progress toward reducing seawalls in Puget Sound" (2018). *Salish Sea Ecosystem Conference*. 538.

<https://cedar.wwu.edu/ssec/2018ssec/allsessions/538>

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Recent progress toward reducing seawalls in Puget Sound



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Hugh Shipman, Washington Dept of Ecology
Jenna Jewett, Washington Dept Fish & Wildlife
Nathalie Hamel, Puget Sound Partnership



*Salish Sea Ecosystem Conference
Spring 2018*

Anna Smith Park, Kitsap County

Puget Sound Partnership



2011 Shoreline Armoring Target(s)

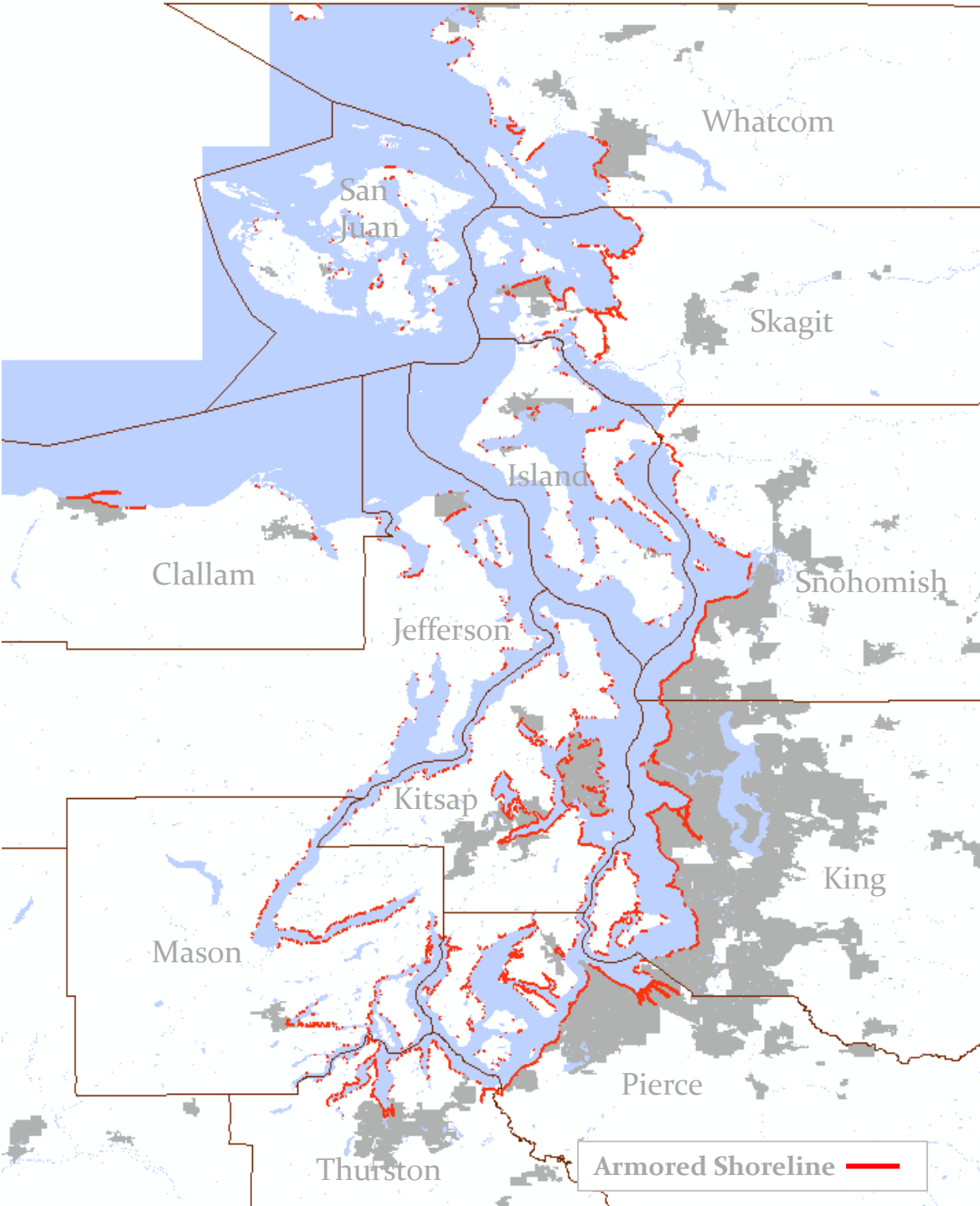
- By 2020, remove more armor than is newly constructed
- Avoid new armor on feeder bluffs, and focus removals on feeder bluffs
- Utilize soft shore stabilization where feasible

Puget Sound Shoreline

~2500 miles

- 666 miles armored (27%)
- highest in King (73%) & Pierce (51%)
- ~ 50 miles of RR on east shore of central PS
- lowest in San Juan (4%) & Jefferson (11%)

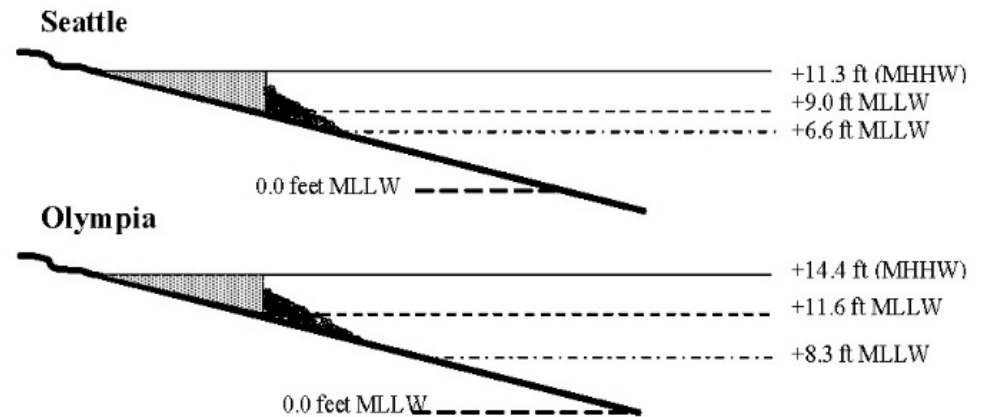
* PSNERP Change Analysis (2011)



We've come a long way...



1971 bulkhead criteria for vertical bulkhead construction.



1971 bulkhead criteria for sloping bulkhead construction.

“Bulkhead shall extend no more than 100’ seaward of MHHW”

➤ By 2020, removal

- Consistent across
- Available & re'
- Rate of change
- Informative

- Where
- By who
- Why

constructed



HYDRAULIC PROJECT APPROVAL

Issue Date: June 18, 2012
Project Expiration Date: June 17, 2014

Control Number:
FPA/Public Notice #: 127264-1
N/A

Coastal
48 Devonshire Road
Montesano, WA 98563
(360) 249-4628

PERMITTEE

Project Name:
Project Description: West Bulkhead Replacement Project
Existing falling rock to be replaced with large angular rock running approximately 110 feet at the toe of the bank, with height to be a maximum of 8' above then existing beach grade.

AUTHORIZED AGENT OR CONTRACTOR

Bay Marine Contractors
3348 Fishtrap Loop Rd NE
Olympia, WA 98506
360-956-3451
Fax: 360-786-6644

PROVISIONS

1. TIMING LIMITATIONS: The project may begin immediately and shall be completed by June 17, 2014, provided:
Work below the ordinary high water line shall not occur from March 15 through June 14 of any year for the protection of migrating juvenile salmonids.
2. APPROVED PLANS: Work shall be accomplished per plans and specifications approved by the Washington Department of Fish and Wildlife entitled 'Bulkhead Repair Proposal West Residence' and dated January 11, 2012, except as modified by this Hydraulic Project Approval. A copy of these plans and this HPA shall be available on site during construction.
3. NOTIFICATION REQUIREMENT: The permittee or contractor shall notify the Area Habitat Biologist (AHB) listed below by fax (360) 876-1894, or e-mail: chris.waldbillig@dfw.wa.gov of the project start date. Notification shall be received by the AHB prior to the start of construction.
4. NOTIFICATION REQUIREMENT: Officer Summit shall receive written notification (e-mail: Jeffrey.summit@dfw.wa.gov or FAX: 360-876-1894) from the person to whom this Hydraulic Project Approval (HPA) is issued (permittee) or the agent/contractor no less than three working days prior to start of work, and again within seven days of completion of work to arrange for a compliance inspection. The notification shall include the permittee's name, project location, starting date for work or completion date of work, and the control number for this HPA.
5. PHOTOGRAPHS: A minimum of 4 photographs portraying the newly replaced bulkhead from all sides shall be provided to the habitat biologist listed below, within 30 days of project completion.
6. All trash and unauthorized fill, including concrete blocks or pieces, angular rock, bricks, asphalt, metal, treated wood, glass, floating debris, and paper, below the ordinary high water line (OHWL) in and around the applicant's project area shall be removed and deposited at an approved upland



HPA Database for permit management

- Query HPA database for marine shoreline armor permits
- Remove HPAs that are
 - not marine shoreline armor
 - repairs (less than 20' and same location/material)

APPS 2016 data - raw 7.11.17 working copy.xlsx - Excel

File Home Insert Page Layout Formulas Data Review View ACROBAT Tell me what you want to do...

Small, Doris J (DFW) Sha

Clipboard Font Alignment Number Styles Cells Editing

U1 Location Zip

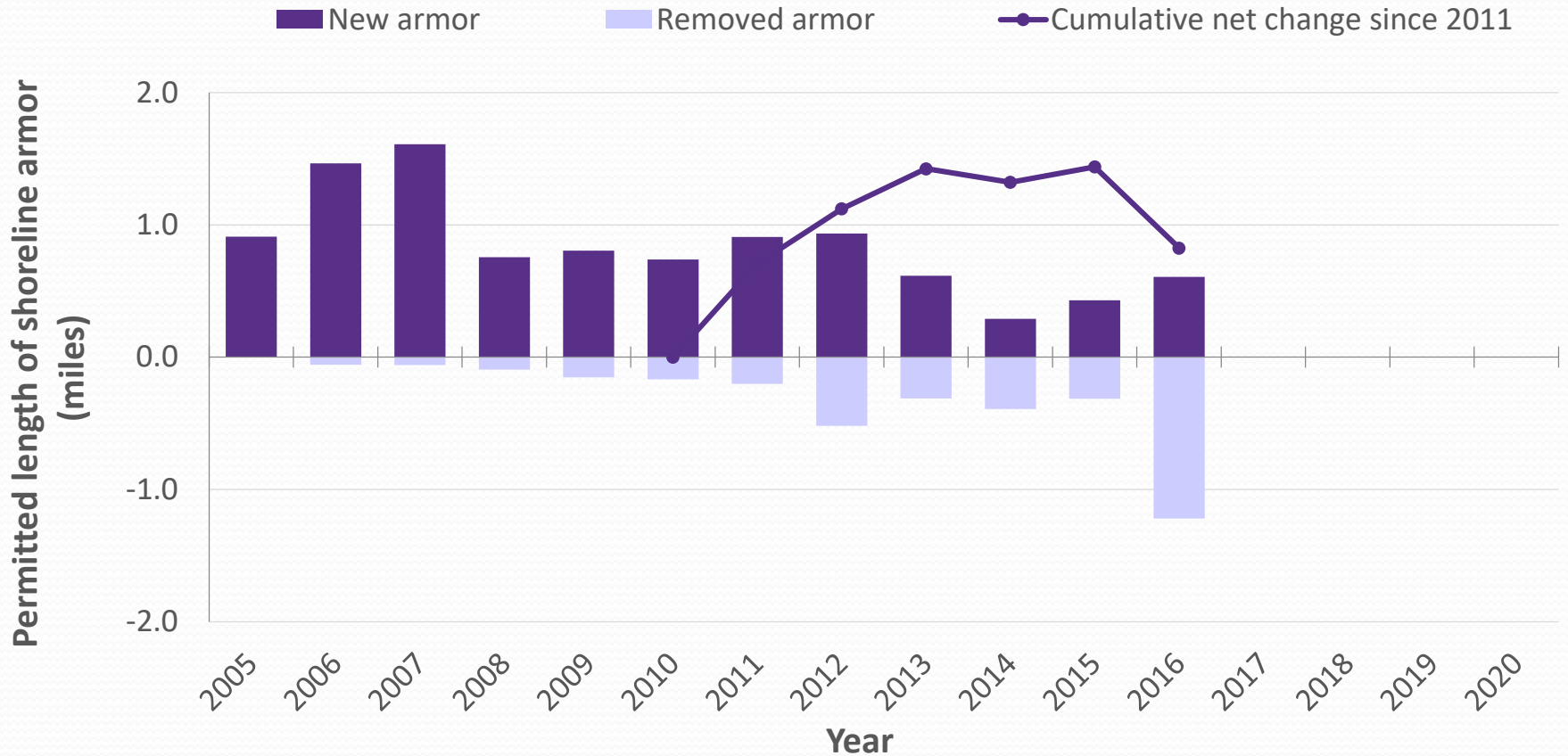
	A	G	H	T	U	V	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	
	Application ID	Project Name	Project Description	Location State	Location Zip	County	COMMENTS	Permit #	VERSION #	LOCATION #	ACTION	MATERIAL	LENGTH (FT)	DISTANCE TO OHW	POSITION RELATIVE TO OHW	REPLACEMENT POSITION	Notes	Land Owner Type	Land Owner Name(s)	PARCEL #	years'	
1																						
2	6262	Dawley Shoreline Res	natural shoreline	WA	98382	Clallam	Complete	2016-6-35+01,2016-6	2	1	Remove	Concrete - V	237		Waterward		Provision # 2	Government	United State	03290244C	No	
3	6262	Dawley Shoreline Res	natural shoreline	WA	98382	Clallam	Complete	2016-6-35+01,2016-6	2	1	Remove	Riprap	140		Waterward		Provision # 2	Government	United State	03290244C	No	
4	8117	Elwha Shoreline Armc	DNR owned tidelands	WA	98363	Clallam	Complete	2016-6-361+01	1	1	Remove	Rock	2500		Waterward		Reviewed wi Non-Profit Agenc	Coastal Wat	07-31-26-: No			
5	8766	Jamestown Road Sho	proposes to install	WA	98382	Clallam	Complete	2016-6-478+01	1	1	New	Soft	140		3 Waterward		APP ID # 663C	Single Family Res	Betsy Little	:03300512C	No	
6	6525	Tyee Beach Bulkhead	Works proposes to	WA	98282	Island	Complete	2016-4-116+01,2016-	2	1	Replace - New	Sheetpile	80			Landward		Replaced bul	Government	Island Count	Unable to	
7	6525	Tyee Beach Bulkhead	Works proposes to	WA	98282	Island	Complete	2016-4-116+01,2016-	2	1	Replace - Remove	Wood - Unsu	80					Replaced bul	Government	Island Count	Unable to	
8	6579	Slichter Bulkhead Rep	is to replace an	WA		Island	Complete	2016-4-199+01	1	1	Replace - New	Concrete - V	141	0	At	No Change		Distance and	Single Family Res	Sherrill Slich	S7530-00-4	No
9	6579	Slichter Bulkhead Rep	is to replace an	WA		Island	Complete	2016-4-199+01	1	1	Replace - Remove	Concrete - V	141	0	At	No Change		Distance and	Single Family Res	Sherrill Slich	S7530-00-4	No
10	6702	Dalton Bulkhead Repl	long, 2-foot tall,	WA		Island	Complete	2016-4-92+01	1	1	Replace - New	Wood - Unsu	38	10	Landward	No Change		Actual bulkh	Single Family Res	John Dalton	S8480-00-4	No
11	6702	Dalton Bulkhead Repl	long, 2-foot tall,	WA		Island	Complete	2016-4-92+01	1	1	Replace - Remove	Wood - Unsu	38	10	Landward	No Change		Actual bulkh	Single Family Res	John Dalton	S8480-00-4	No
12	6752	Swartz/Neuzil Bulke	log pile bulkhead	WA	98285	Island	Complete	2016-4-127+01	1	1	Replace - New	Wood - Unsu	87	0	At	No Change		Permit state:	Single Family Res	Alan Swartz,	S7715-00-4	No
13	6752	Swartz/Neuzil Bulke	log pile bulkhead	WA	98285	Island	Complete	2016-4-127+01	1	1	Replace - Remove	Wood - Unsu	87	0	At	No Change		Permit state:	Single Family Res	Alan Swartz,	S7715-00-4	No
14	6850	Smith Beach Nourishr	soft shore protection	WA	98236	Island	Complete	2016-4-106+01	1	1	New	Soft	65		Waterward		Materials rer	Single Family Res	Wendy Smit	R32805-20	No	
15	6850	Smith Beach Nourishr	soft shore protection	WA	98236	Island	Complete	2016-4-106+01	1	1	Replace - New	Soft	65		Waterward	No Change		Materials rer	Single Family Res	Wendy Smit	R32805-20	No
16	6850	Smith Beach Nourishr	soft shore protection	WA	98236	Island	Complete	2016-4-106+01	1	1	Replace - Remove	Other	65		Waterward			Materials rer	Single Family Res	Wendy Smit	R32805-20	No

Thank you Jenna!



Indicator: Shoreline Armor Extent 2011 - 2020

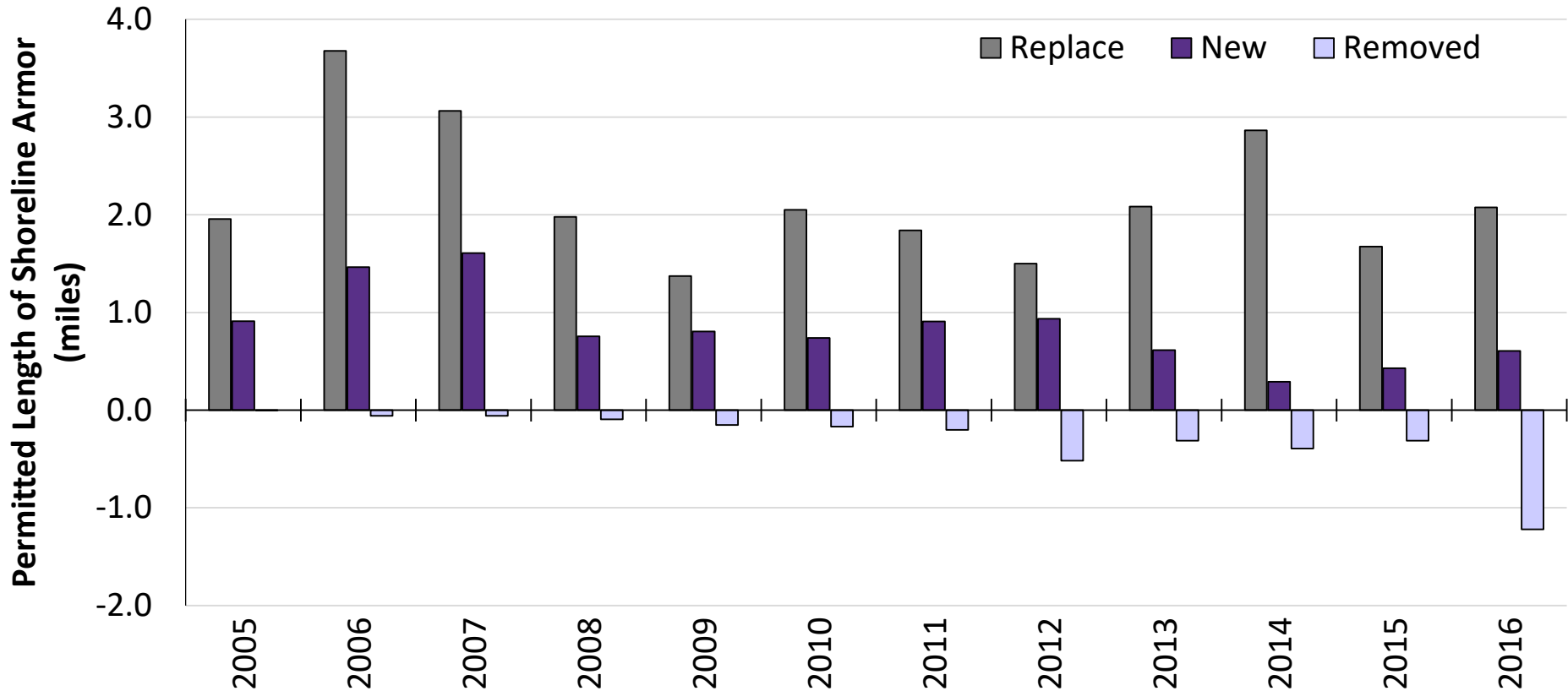
2005 - 2016		2011 - 2016		2011	2012	2013	2014	2015	2016	Ave	
Total	Ave	Total	Ave	New	Remove	New	Remove	New	Remove		
New	10.07 mi	0.84 mi	3.78 mi	0.63 mi	4798 ft	4934 ft	3244 ft	1530 ft	2271 ft	3205 ft	3300 ft
Remove	3.49 mi	0.29 mi	2.96 mi	0.49 mi	1070 ft	2739 ft	1647 ft	2070 ft	1657 ft	6442 ft	2604 ft



Shoreline Armor 2005- 2016

New, Remove, Replace

2005 - 2016		2011 - 2016		2011	2012	2013	2014	2015	2016	Ave	
Total	Ave	Total	Ave								
New	10.07 mi	0.84 mi	3.78 mi	0.63 mi	4798 ft	4934 ft	3244 ft	1530 ft	2271 ft	3205 ft	3300 ft
Remove	3.49 mi	0.29 mi	2.96 mi	0.49 mi	1070 ft	2739 ft	1647 ft	2070 ft	1657 ft	6442 ft	2604 ft
Replace	26.14 mi	2.18 mi	12.09 mi	2.01 mi	9721 ft	7916 ft	11007 ft	15121 ft	8836 ft	10953 ft	10592 ft



HPA Database – Replacements

2016 Replacement Armor Data:

- 70% replaced at same location
- 27% landward of existing location

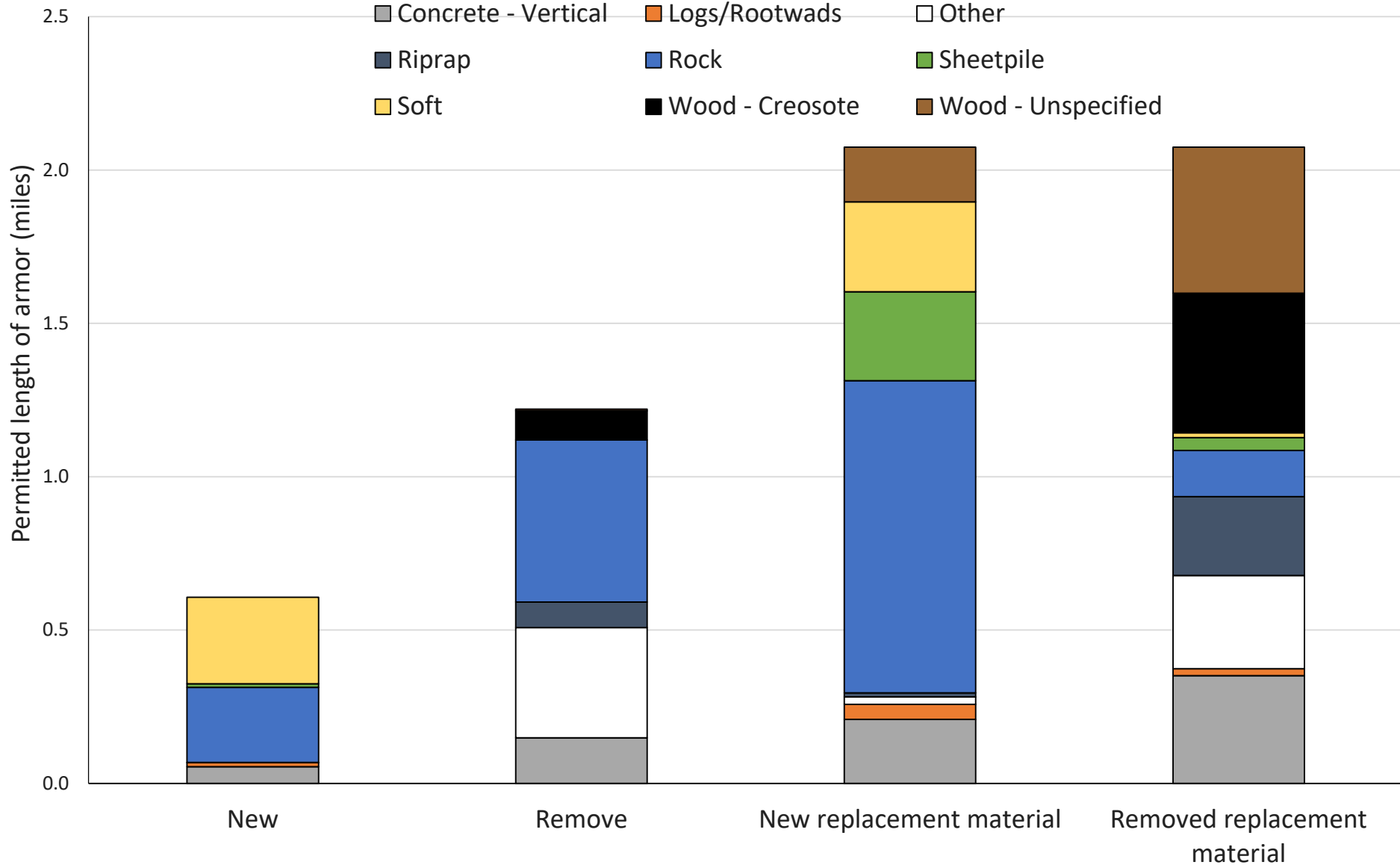
Needs more work:

- OHWM delineation
- Non-functional armor

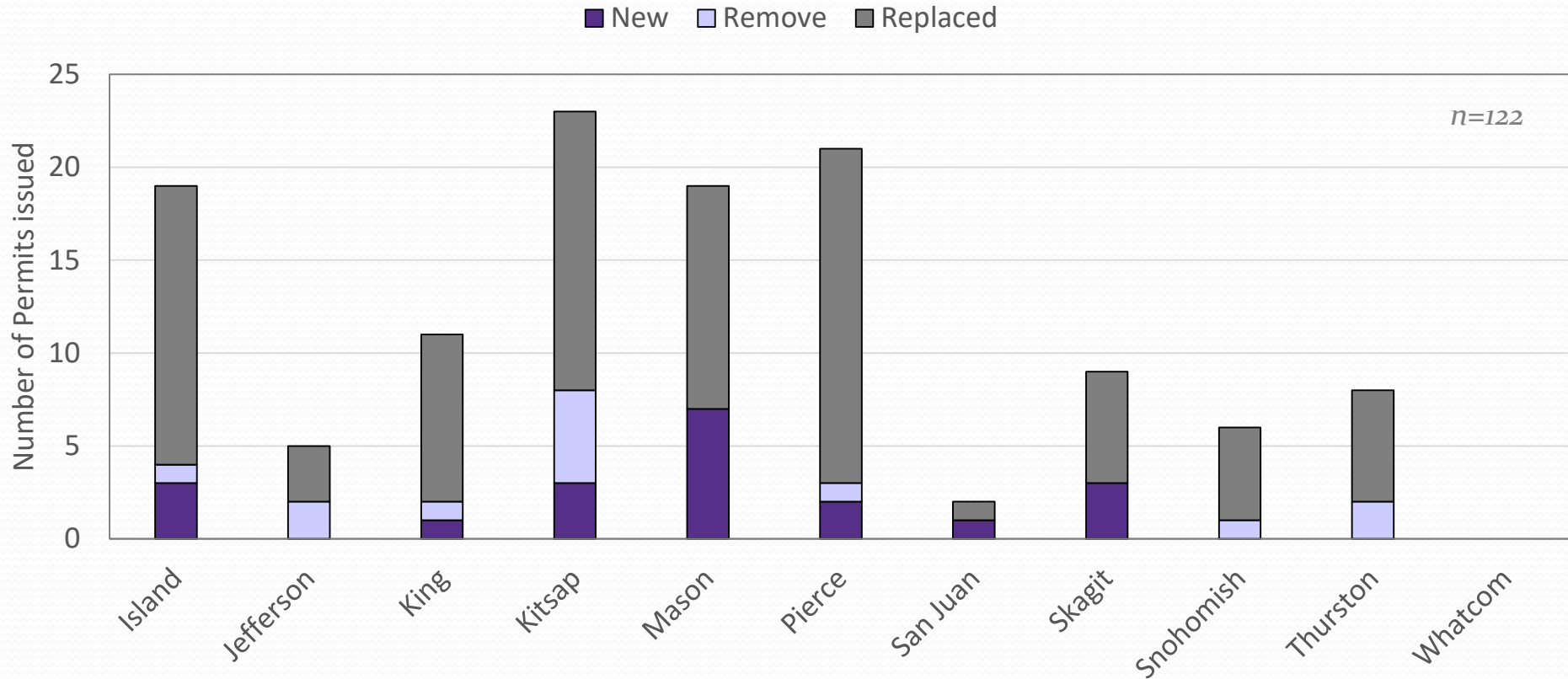
Better: square footage & tidal elevation



2016 HPA Data – Materials



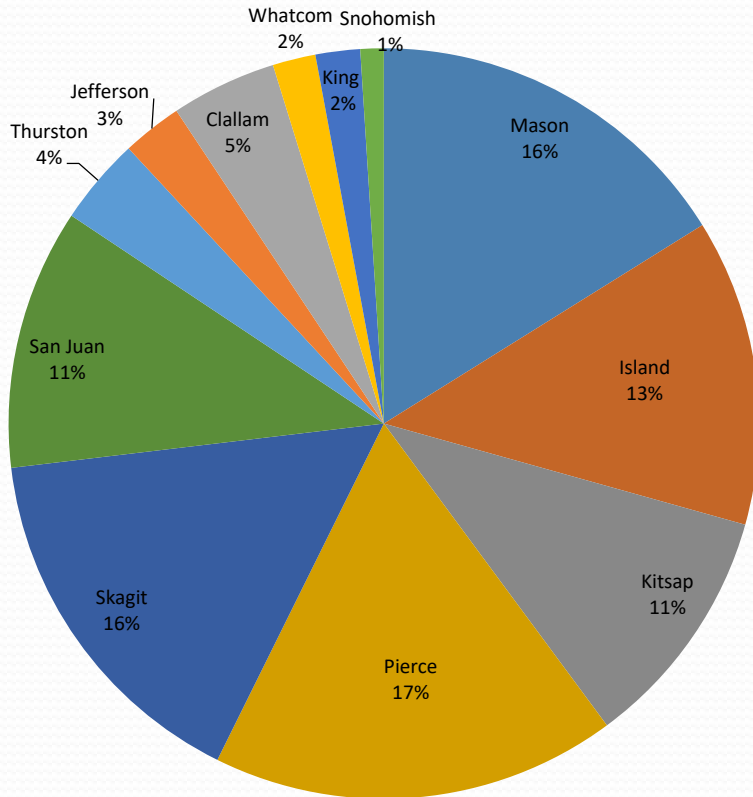
Permits Issued by County in 2016



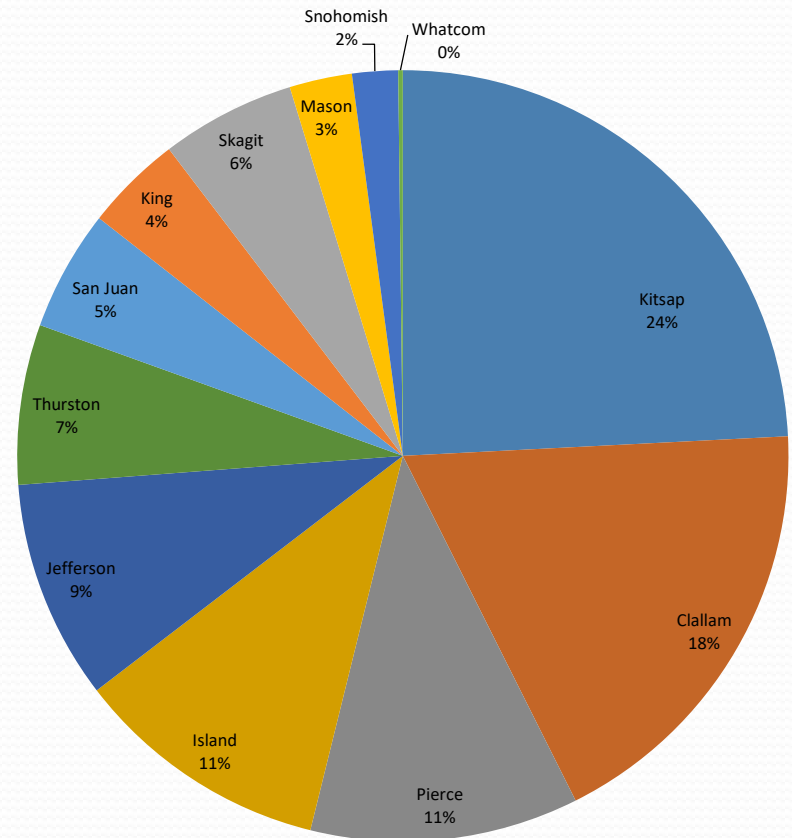
Can we find a way to identify projects not pursued due to regulations, incentives, outreach programs, denials, etc.?

Where is the work taking place?

NEW ARMOR



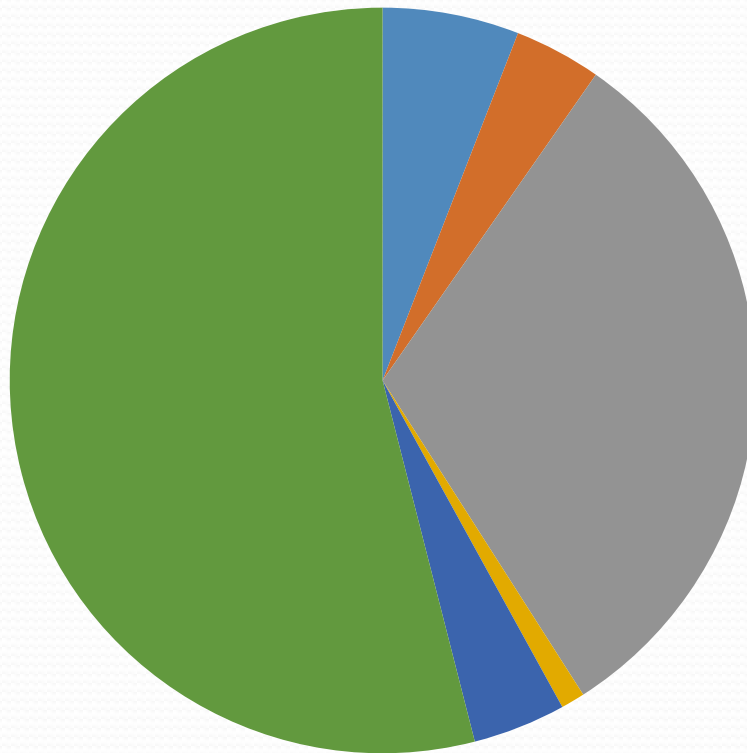
REMOVED ARMOR



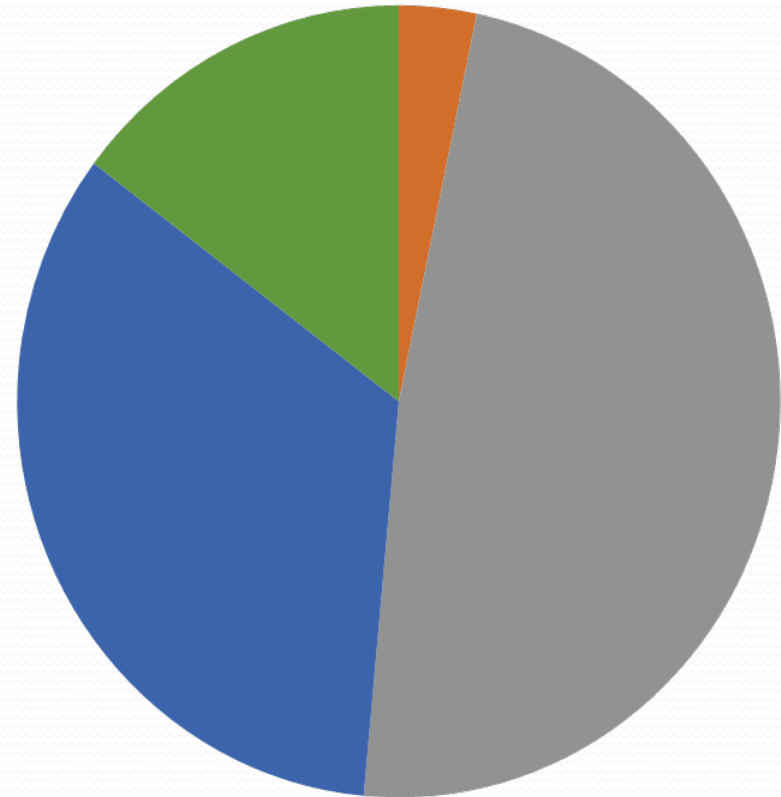
PERMITTED SHORELINE ARMOR LENGTH BY COUNTY 2011 – 2016

Who is doing the work?

NEW ARMOR



REMOVED ARMOR

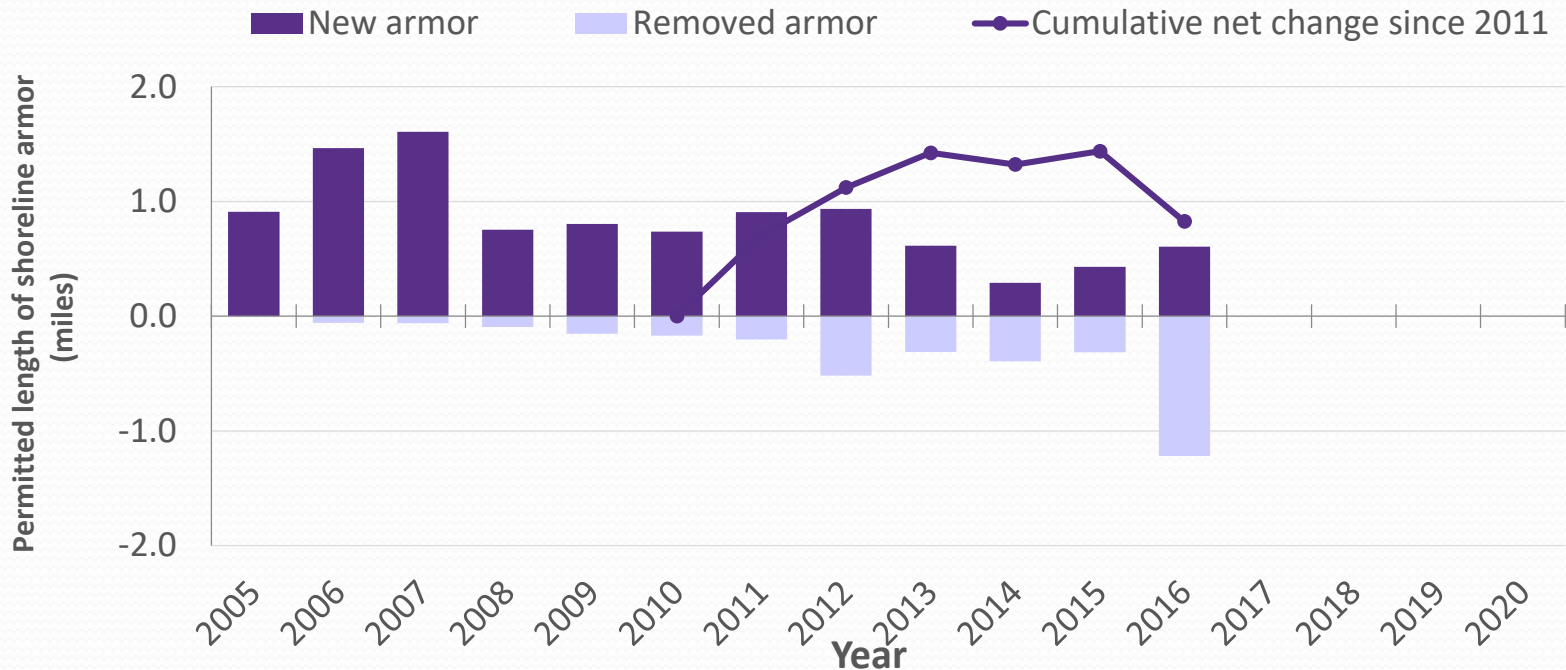


- Agriculture
- Commercial/Industrial
- Government
- Multiple Family Use
- Non-Profit Agency
- Single Family Residence

PERMITTED SHORELINE ARMOR LENGTH BY APPLICANT TYPE 2011 – 2016

HPA Database

- ***Issued permits – not completed projects***
 - *Annual update*
 - *Not built according to plans or completed without permits*
- ***Not all shoreline armor requires HPA (federal, tribal, cleanup)***
- ***Does not identify armor extent in spatial database***
- ***Definitions (e.g. softshore)***
- ***Data analysis is difficult without familiarity of database***



**The Use of Soft Shoreline Techniques:
Implications for the Shoreline Armor Vital Sign**

Prepared for the Puget Sound Partnership

**Hugh Shipman
Washington Department of Ecology
August 2017**



Supported with Puget Sound Partnership Assessing Recovery Funds for the 2015-2017 Biennium under Interagency Agreement #2017-13 with the Department of Ecology

**Armoring on Puget Sound Feeder Bluffs:
Implications for the Vital Sign**

Prepared for the Puget Sound Partnership

**Hugh Shipman
Washington Department of Ecology
June 2017**



Supported with Puget Sound Partnership Assessing Recovery Funds for the 2015-2017 Biennium under Interagency Agreement #2017-13 with the Department of Ecology.

www.psp.wa.gov/vitalsigns/shoreline_armoring



What's ahead?



- New ways of tracking shoreline armor extent
 - HPA database under revision
 - Boat survey protocol and data analysis
 - Informing many projects: PSP, Common Indicators, Regulatory, Incentives...
 - Combination in future?



Thank you!

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