

Shoreline Property Owner Motivations, Perceptions, and Drivers

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Living shoreline spectrum



Planted marsh



Oyster sill

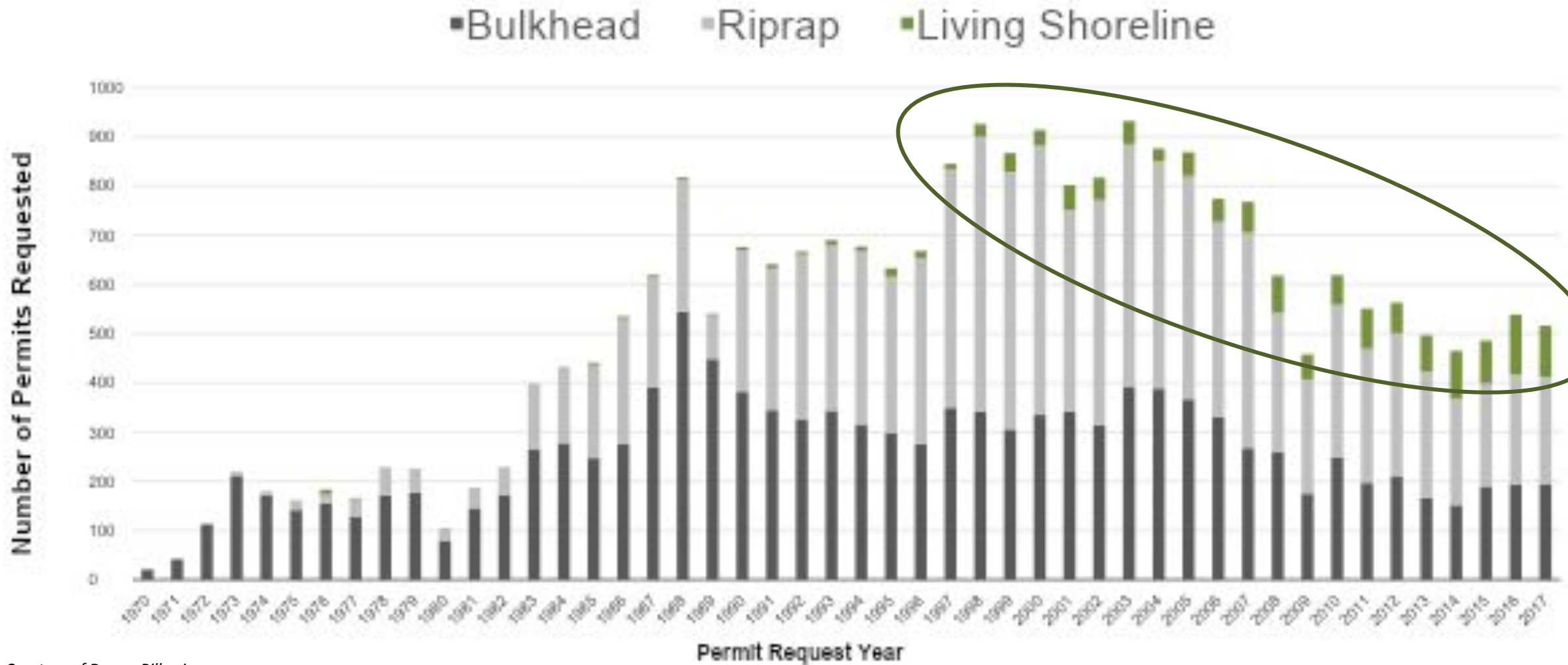


Rock sill



Breakwater

VA Living shorelines permits

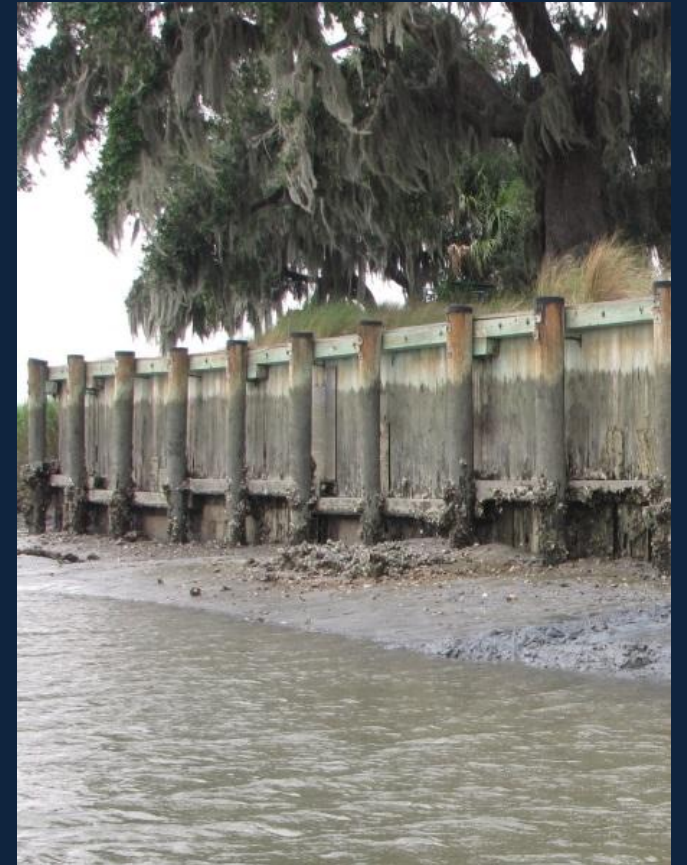


Courtesy of Donna Bilkovic

Image courtesy of D. Bilkovic

The Decision Process: Armoring

- Bulkheads are seen as *effective and durable*
- Natural shorelines are more aesthetic
- More likely to armor
 - More valuable properties
 - Lower elevation & higher erosion rates
- Neighboring shorelines often predict modification type



Objective

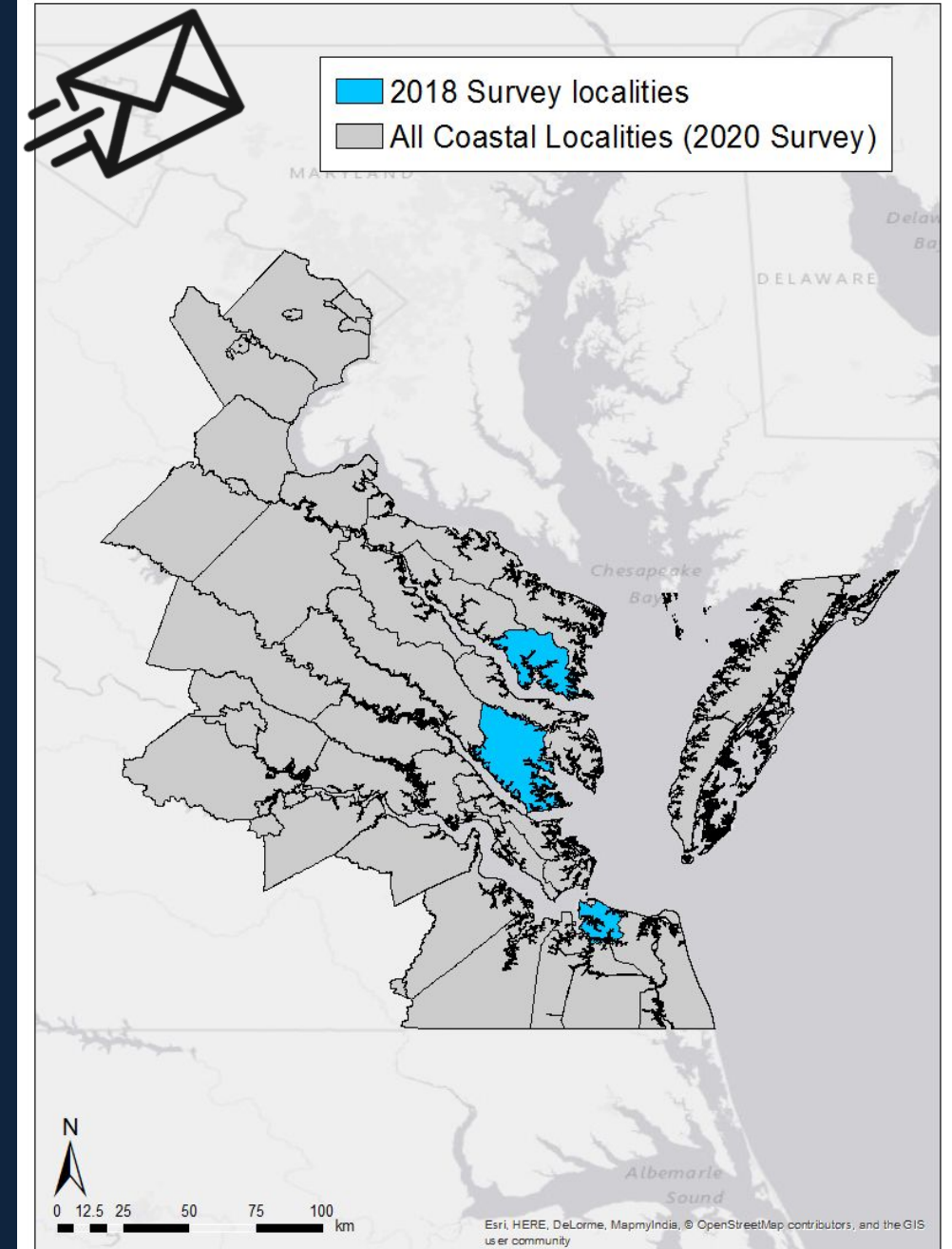
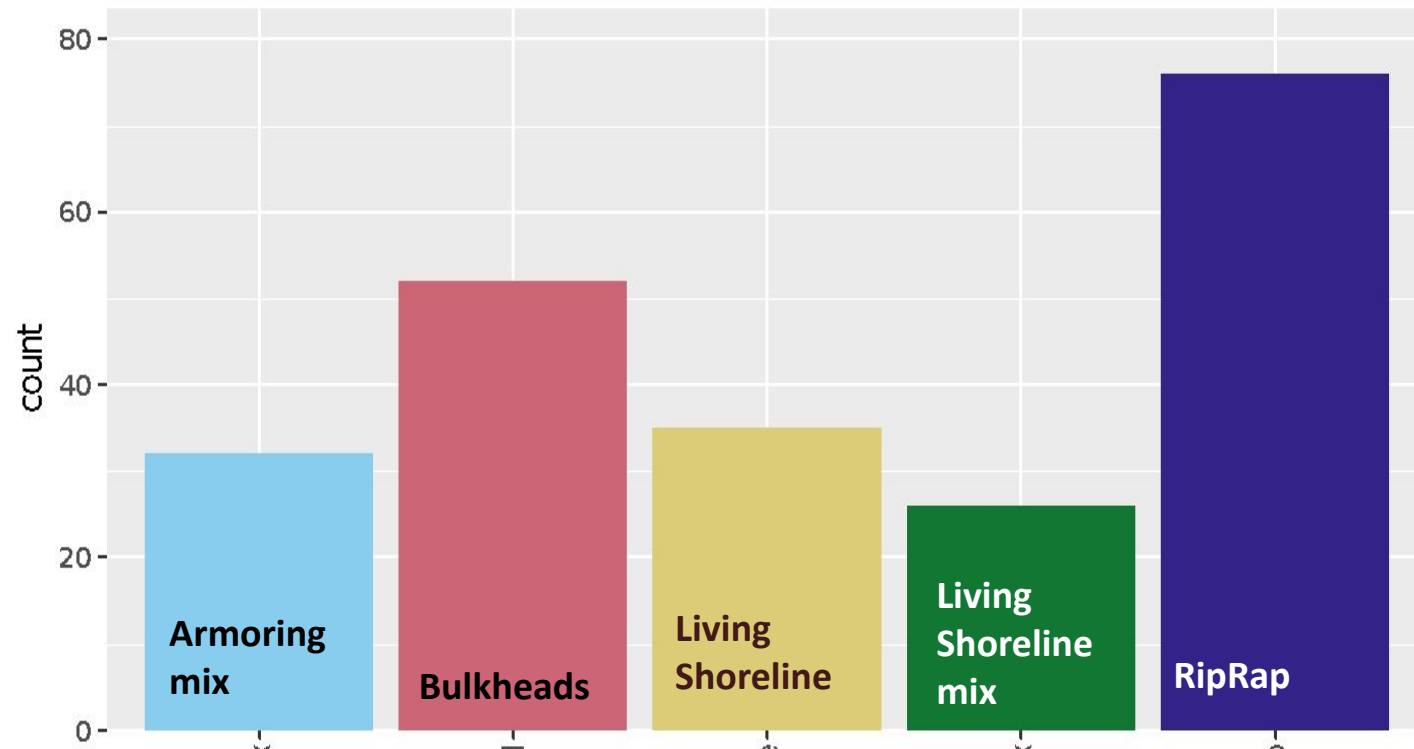
Evaluate property owners' motivations when deciding if and **how to alter their shoreline** for erosion control

2020 survey

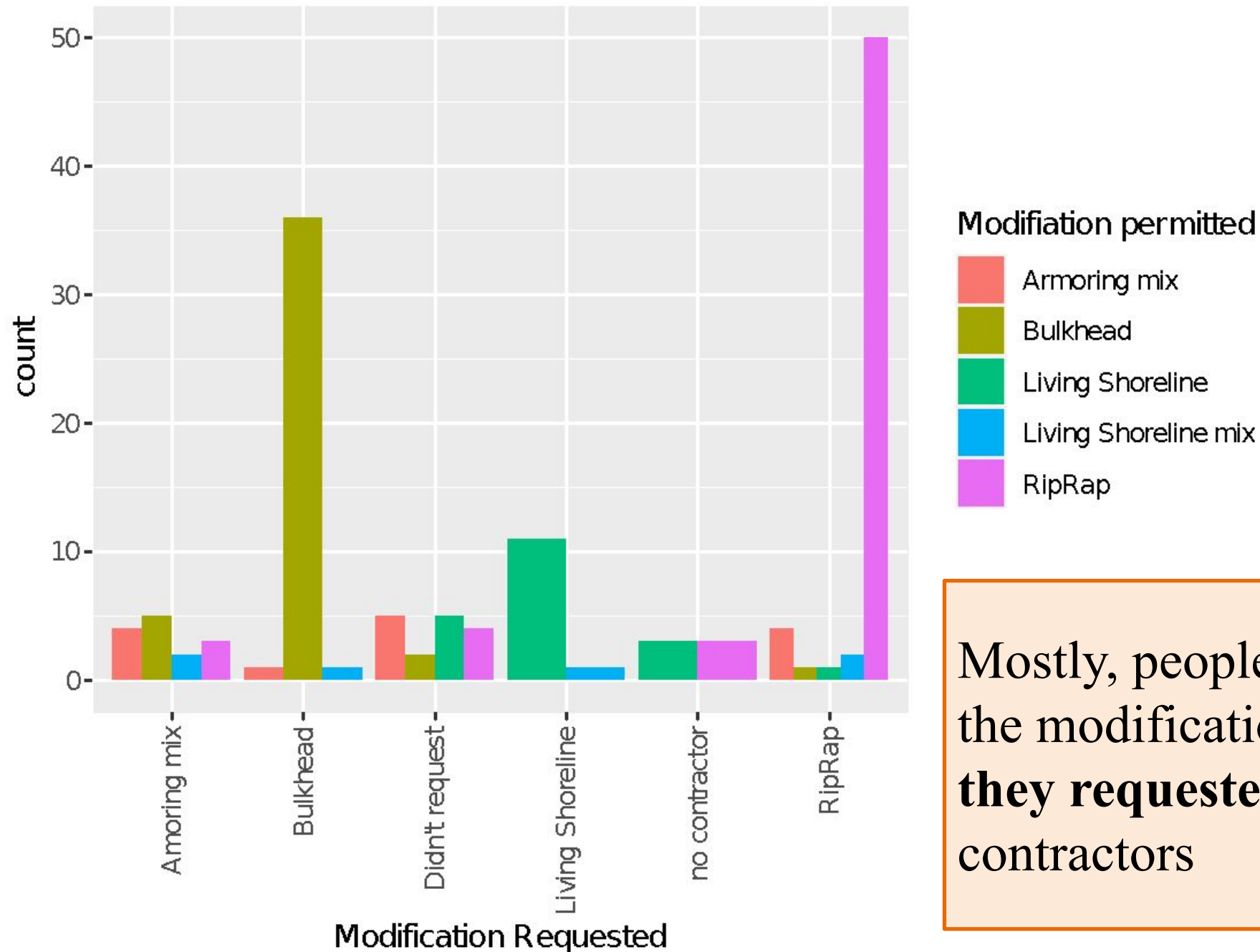
Mail survey: permit applications

- 40+% response / 500 surveys

2019 Permitted Modifications

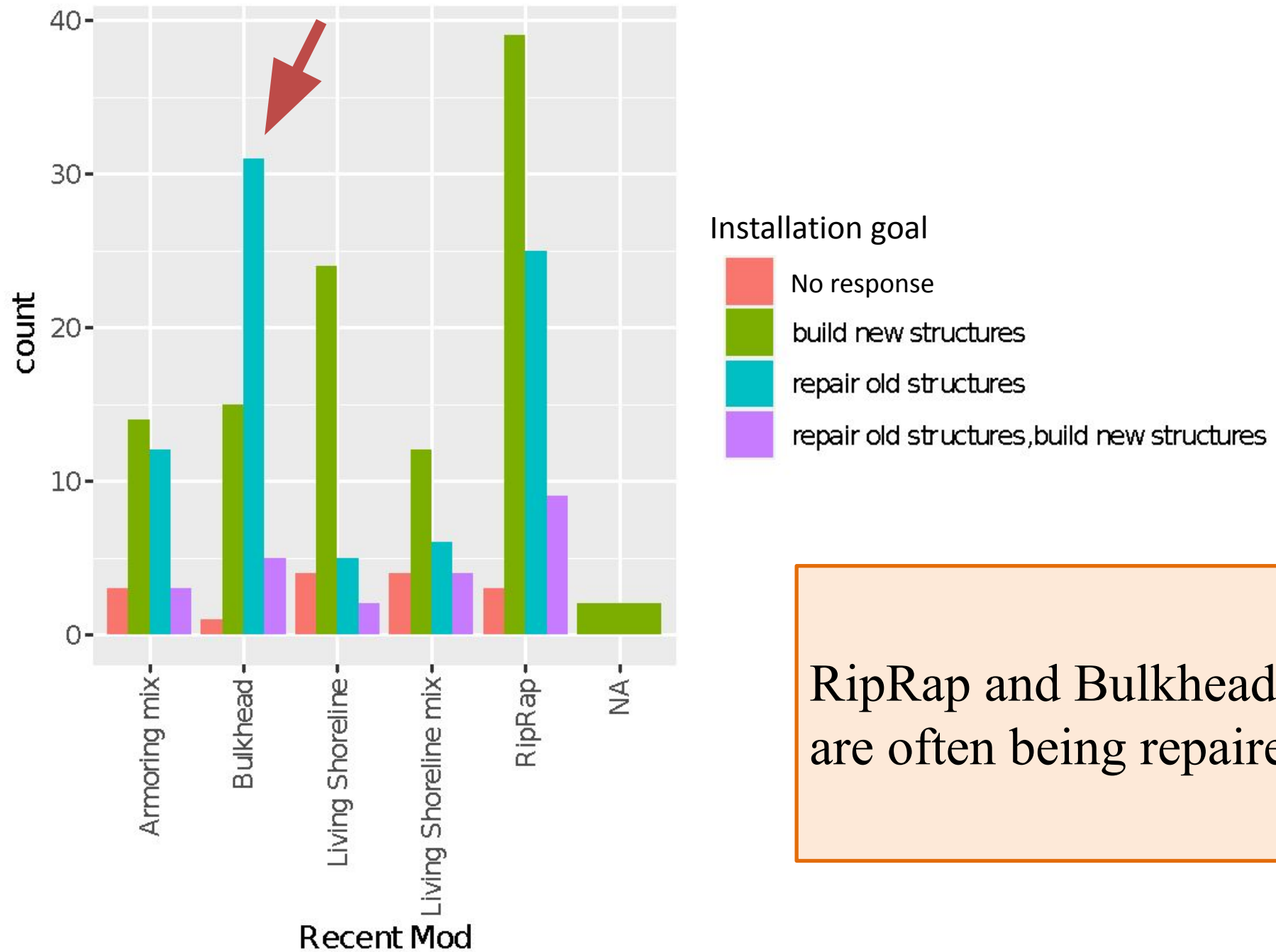


Modification requested vs permitted



Mostly, people received the modification that **they requested** from contractors

New or repair status



RipRap and Bulkheads
are often being repaired

Contractors Solicited

Modification Type	Num. contractors typically solicited	Frequency
Armoring Mix	1	56
Bulkhead	3 <i>(roughly even between 1-3 solicitations)</i>	27
RipRap	1	44
Living Shoreline Mix	1	41
Living Shoreline	1	46

Information Sources

By frequency –

1. Contractor
2. Agent
3. Neighbors; Websites
(similar values - tie)
4. State employee; city or county employees
(similar values - tie)
5. Friends
6. NGOs
7. Scientists; Family

Key points:

- often seek information (>1 source)
- Those that install **bulkheads** are expected to be **less likely to search** out information
□ *contractor is key messenger here*
- **Websites** are important;
- **Neighbor** influence
- People are **not** typically reaching out to scientists and NGOs
- *Next steps: trends across modification types*

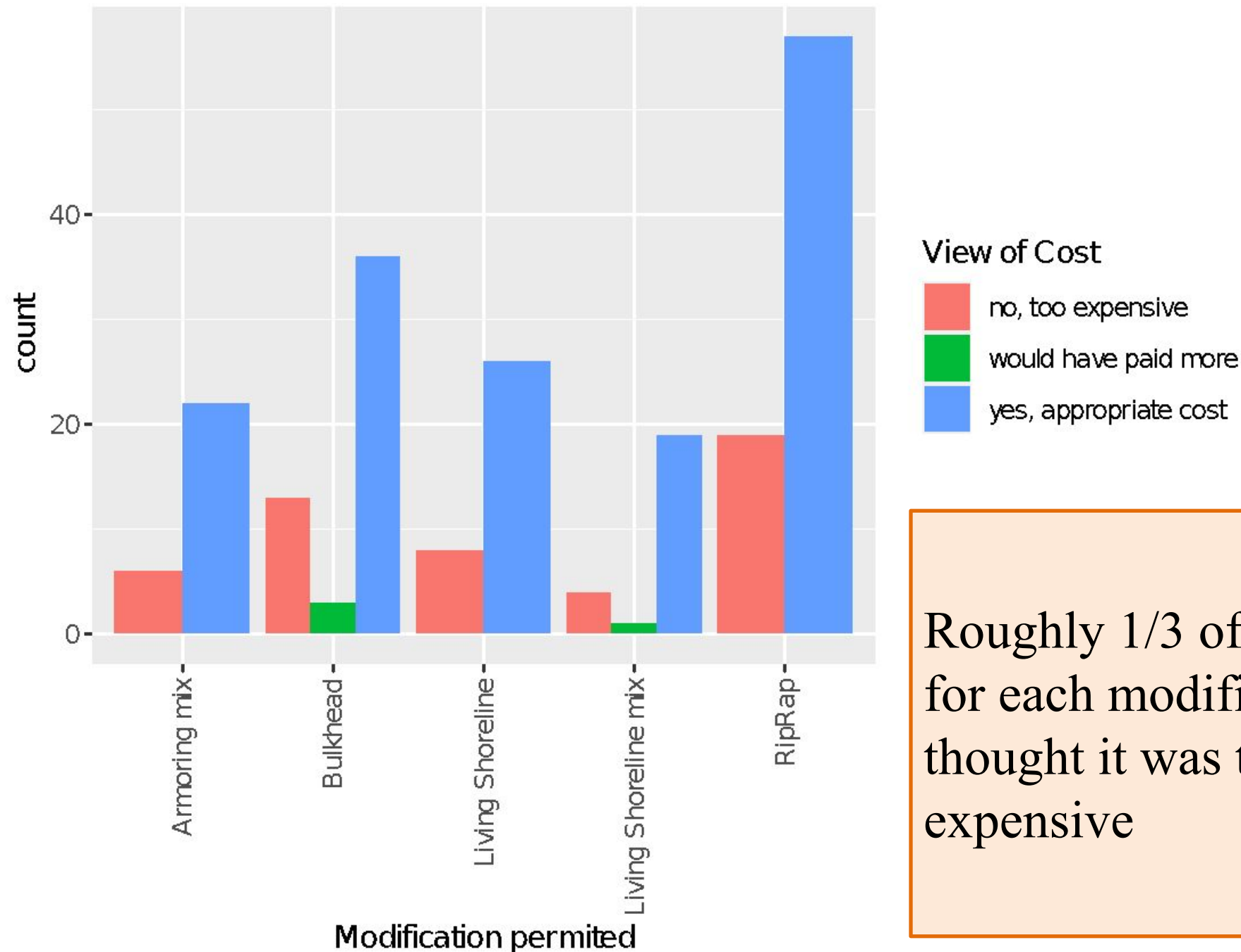
Most Frequent Motivations

	Effectiveness	Withstand storms	Restore the shoreline	Cost	Effect on property value
Armoring mix	1 st	2 nd	3 rd		
Bulkhead					
Rip Rap					
Living Shoreline mix					
Living Shoreline					

Most Frequent Motivations

	Effectiveness	Withstand storms	Restore the shoreline	Cost	Effect on property value
Armoring mix	1 st	2 nd	3 rd		
Bulkhead		2 nd		3 rd	1 st
Rip Rap	1 st	2 nd			3 rd
Living Shoreline mix	3 rd	1 st	2 nd		
Living Shoreline	2 nd	3 rd	1 st		

Modification permitted and cost

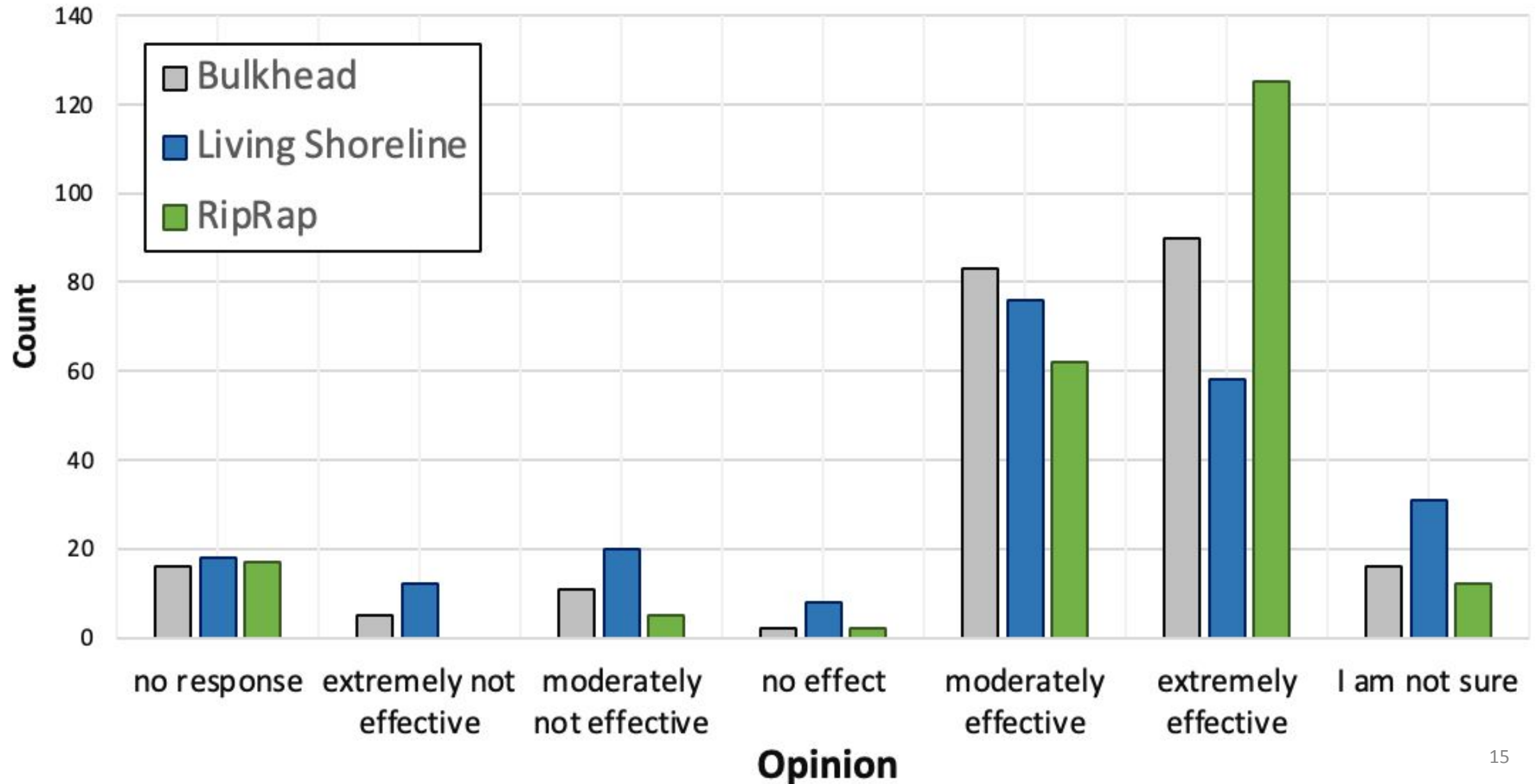


Roughly 1/3 of people for each modification thought it was too expensive

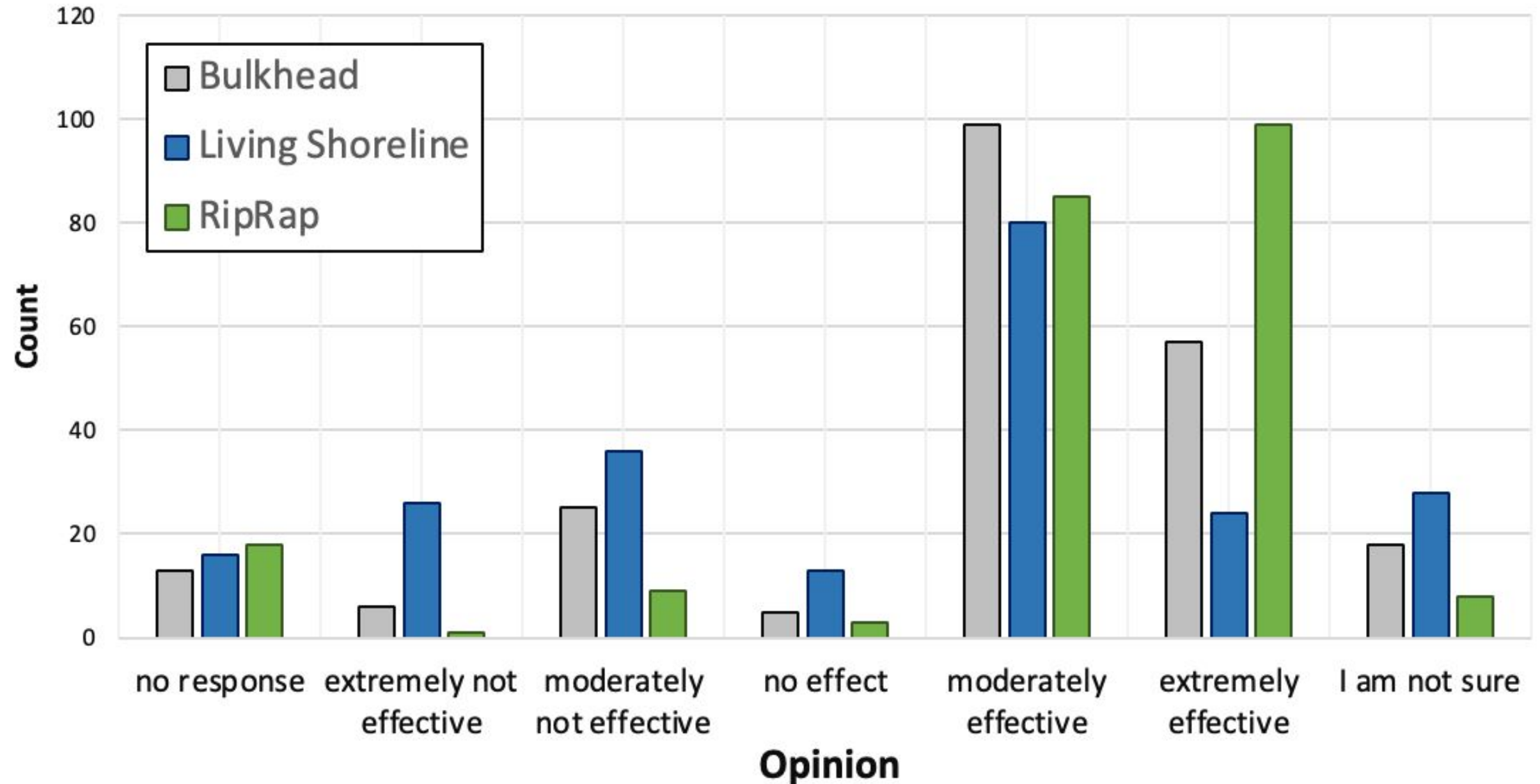
Perception of Modification benefits

- Asked property owners about **their perception** of ecosystem services for 3 modifications
- **Modifications:** *Living shoreline, Bulkhead, RipRap*
- **Ecosystem services:** *erosion effectiveness, withstand storms, SLR adaptability, species support, aesthetics, water quality support*

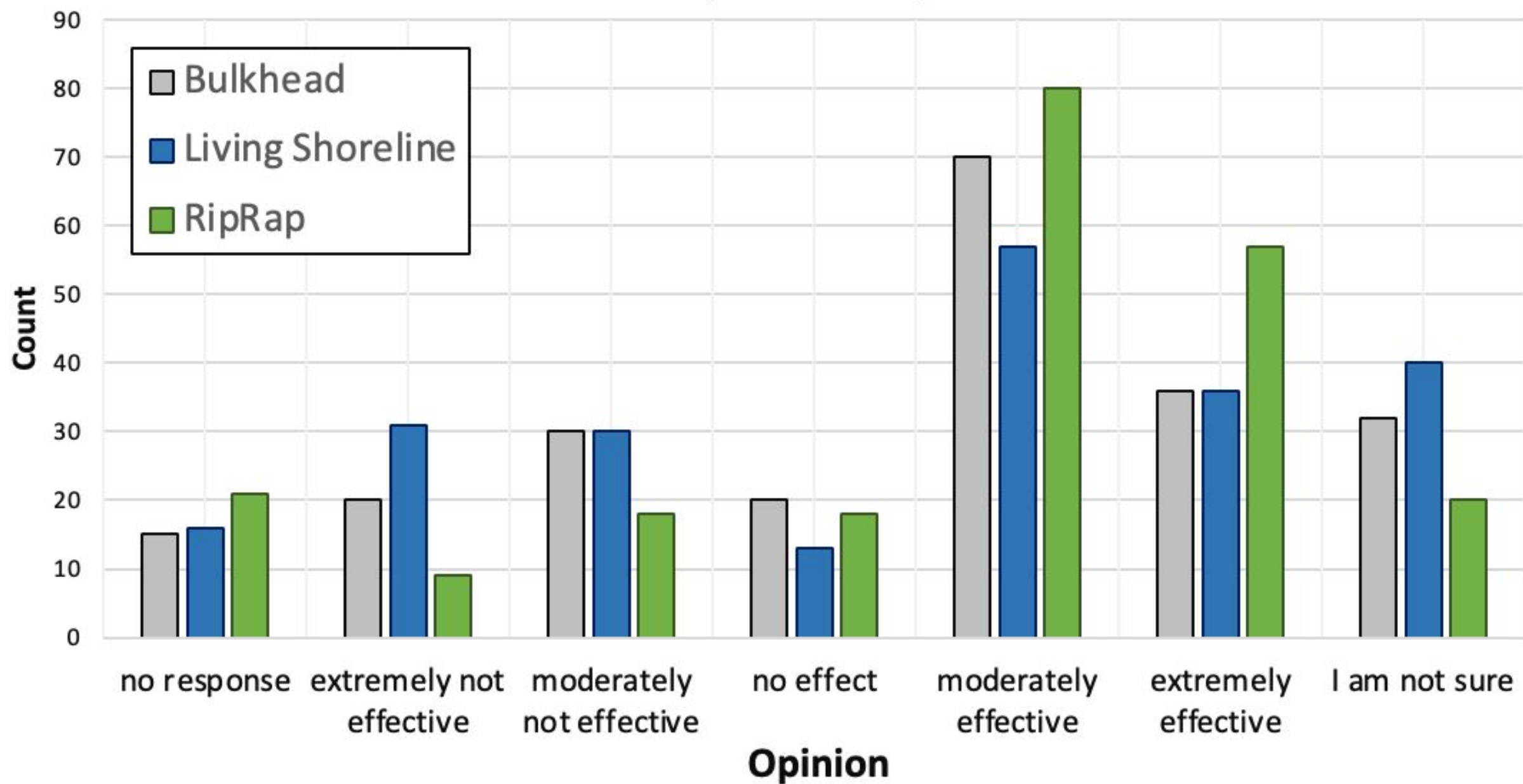
Erosion effectiveness



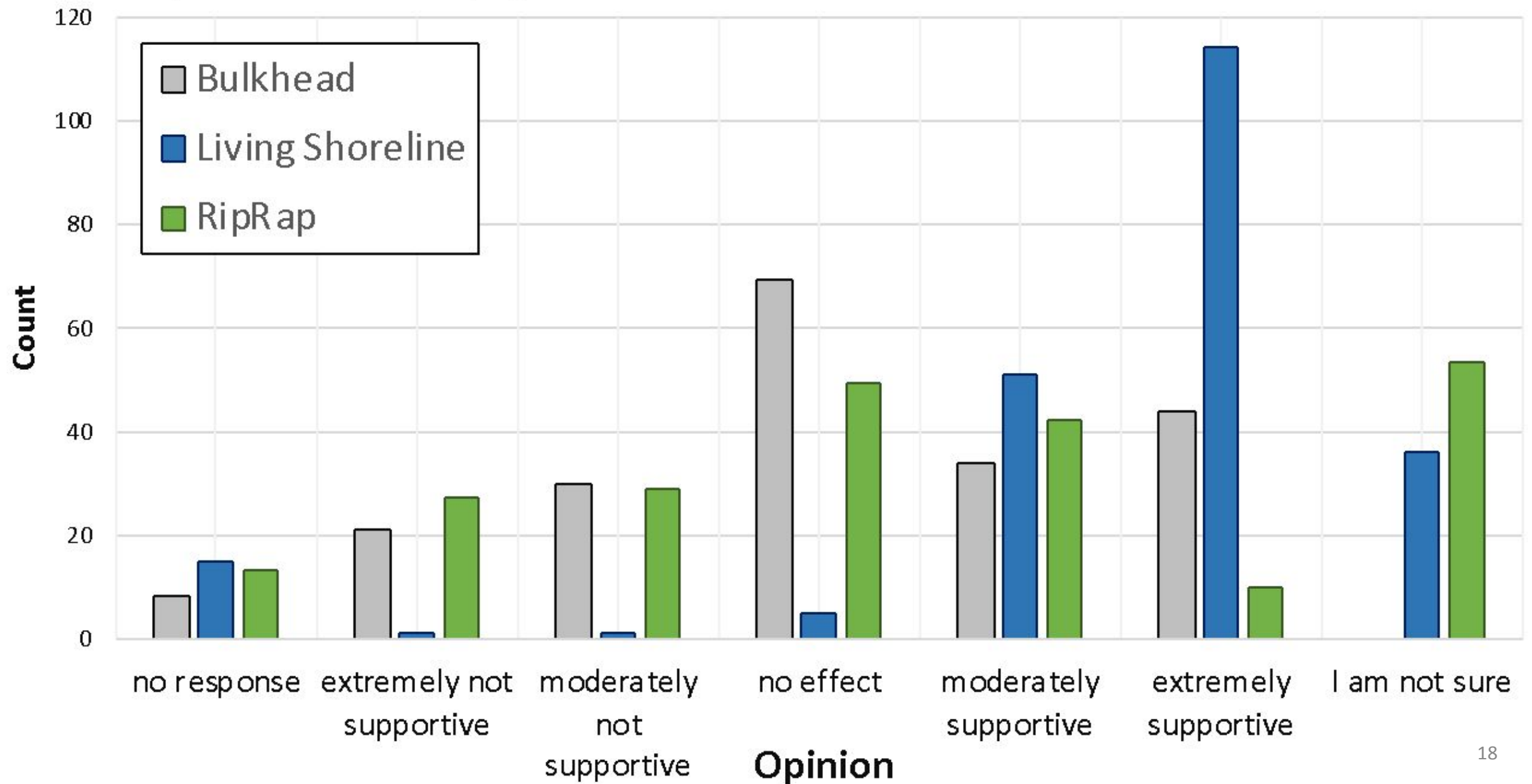
Withstand Storms



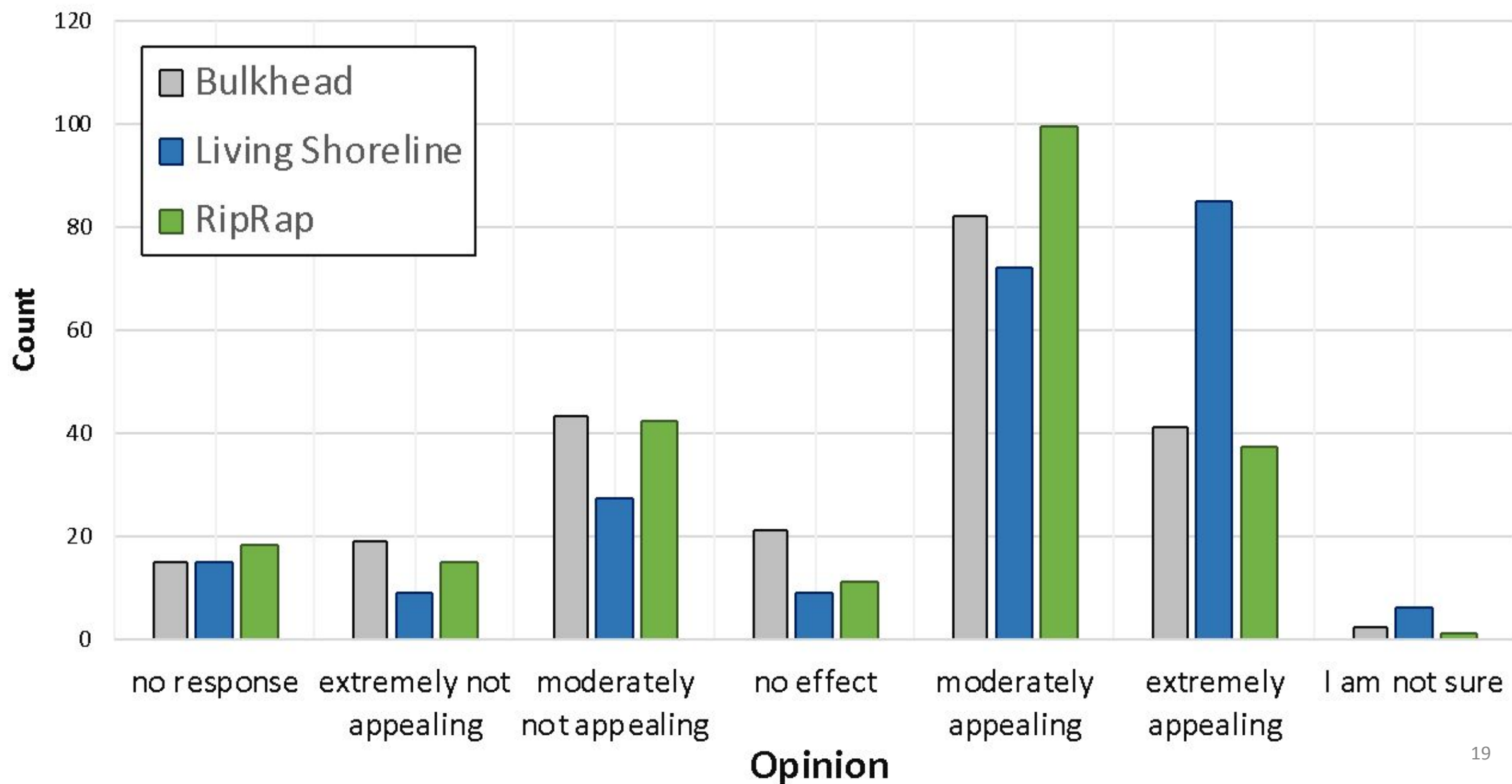
Sea Level Rise Adapability



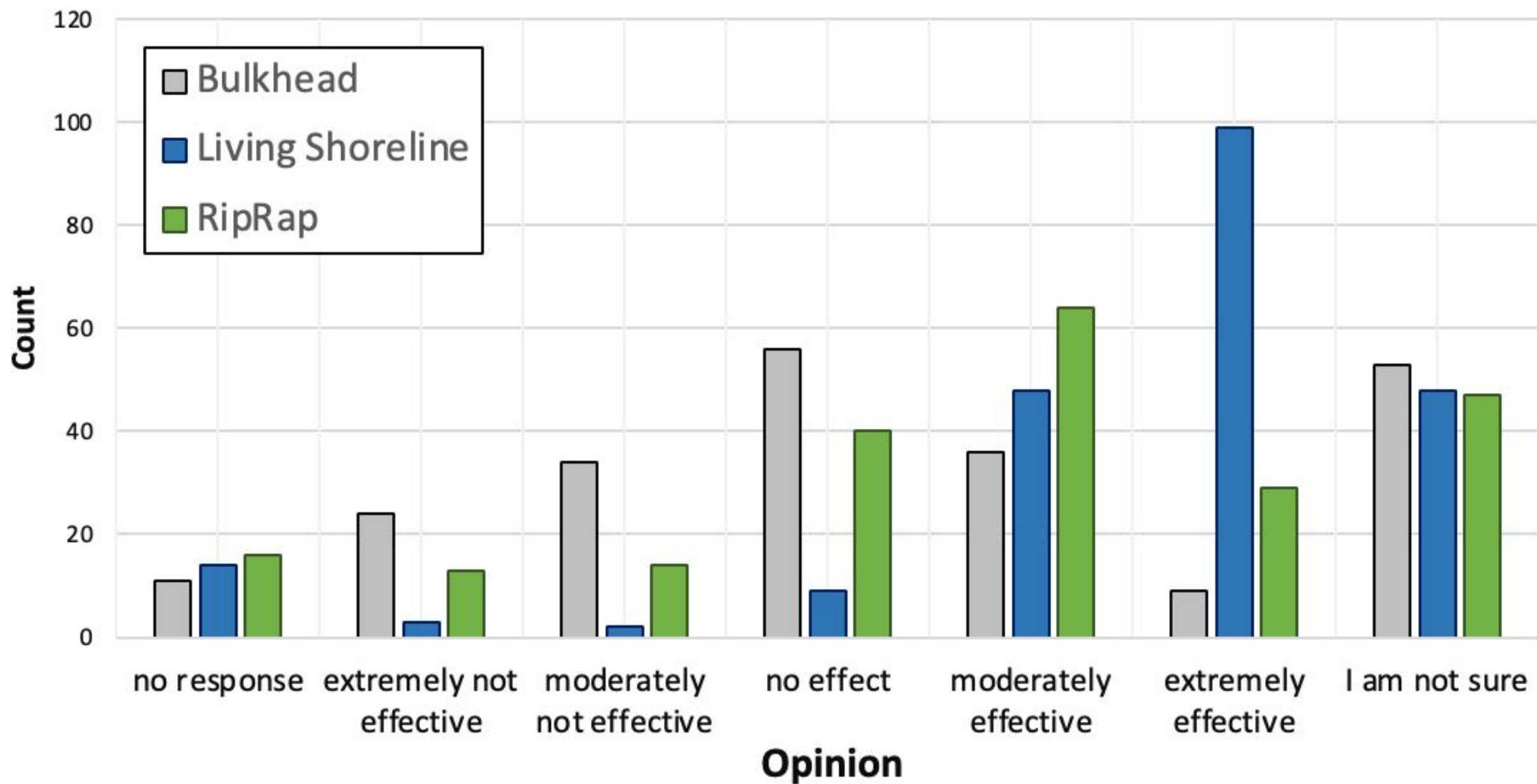
Species Support



Aesthetics



Water Quality Support



Perception and Decision making

- **Bulkhead** applicants may solicit multiple contractors
 - Also tend to be more focused on cost
- **Contractors** are key messengers
 - Property owners know what modification what they want
(potentially some “wiggle room” to sway their opinion)
- Other applicants may search other sources
 - **Websites** and neighbors,
 - Local and state government employees

Perception and Decision making

- Care about **erosion effectiveness**, and ability to **withstand storm damage**

- *(Bulkhead applicants are more concerned about cost)*

	Effectiveness	Withstand storms	Restore the shoreline	Cost	Effect on property value
Armoring mix	1 st	2 nd	3 rd		
Armoring		2 nd		3 rd	1 st
Rip Rap	1 st	2 nd			3 rd
Living Shoreline mix	3 rd	1 st	2 nd		
Living Shoreline	2 nd	3 rd	1 st		

- **Living shorelines** are valued aesthetically and are seen as good for species and water quality
 - but are ***not*** viewed as effective against erosion and storms

Questions or comments?

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Econometrics and 2018 survey

Stafford, S., and A. G. Guthrie. 2020. What Drives Property Owners to Modify Their Shorelines? A Case Study of Gloucester County, Virginia.

Wetlands.

<https://doi.org/10.1007/s13157-020-01358-6>

Thanks to **National Science Foundation**, Coastal SEES, Award #1600131,
and William & Mary Green Fee Fund