

Vulnerable Property Owners

At-Risk Communities

Roles & Responsibilities

Private Property Owner



There are three communities located in the area of unincorporated Humboldt County that are vulnerable to and at risk from sea level rise of 3.3 feet (1.0 meter):

King Salmon, Fields Landing, and Fairhaven (which includes the area referred to as Finntown). A significant area of each of these communities is located in the Coastal Commission's state retained jurisdiction area in the HBAP.

King Salmon has residential property owners, trailer park and RV park owners and residents, several commercial and recreational businesses, the region's largest privately-owned (PG&E) power generating station, public recreational facilities, public utilities and roads, and publicly utilized beach. Fields Landing has residential property owners and residents; several commercial and Coastal-Dependent Industrial properties, facilities, and businesses; and public roads, public facilities and public utilities. Humboldt County Public Works maintains community streets and several water control structures for stormwater runoff, and Humboldt Community Services District provides municipal water and wastewater service for both communities. PG&E provides natural gas and electricity, and several private companies maintain communications infrastructure to deliver their services to the communities.

Fairhaven was built on a sand dune formation located on the Samoa Peninsula/North Spit on the western shore of Humboldt Bay. It can be accessed from the County maintained New Navy Base Road and Highway 255. In the 19th century, this community area was associated with ship building. It currently includes a former pulp mill, which is now the Fairhaven Business Park, an unused bulk cargo dock, several commercial warehouses, and a residential area. The Samoa Peninsula Fire District Station is located adjacent to this residential area. Finntown has an active marine repair/dry dock facility, aquaculture pier, other commercial uses, and waterfront residential parcels. Both Fairhaven and Finntown are served by individual septic tank-leach field systems.

There is no known community entity or organization (i.e., homeowners association, special district, or municipality) to represent the specific interests of residents and business owners in these areas other than the County and HCSD.

Specific Hydrological Unit Assets and Concerns

Eureka Slough

- **Fairhaven/Finntown**
 - This is a SLR-vulnerable community with residential property owners and residents, several commercial businesses, and a Fairhaven Business Park.
 - Zerlang & Zerlang Marine Services and boat yard



South Bay

- **King Salmon**
 - King Salmon is a SLR-vulnerable community that has residential property owners and residents, and a trailer and RV park owners and residents. There are several privately owned commercial and recreational fishery service providers including a fuel dock, bilge, and sewage pump-out station, 80 boat berths, and many private docks.
 - EZ Landing boat launch ramp
 - Johnny’s Landing boat launch ramp

- **Fields Landing**
 - Fields Landing is a SLR-vulnerable community with residential property owners, residents, and commercial property as well as Coastal-Dependent Industrial properties, facilities, and businesses. There is also a multi-purpose dock and a commercial fishing dock in poor repair. The Harbor District owns and maintains the Fields Landing boat yard with dry dock facilities for commercial and recreational boat repairs. The County-owned boat launch ramp and parking lot are vulnerable to 1.6 feet of SLR.

General Concerns

✓	Shoreline Management		Sea Level Rise Impacts:
✓	Property Ownership and Adaptation Responsibility	✓	Erosion
✓	Regulatory Authorization and Compliance	✓	Tidal Inundation
✓	Feasible Adaptation Strategies	✓	Backwater and/or Emerging Groundwater Flooding
✓	Funding	✓	Saltwater Intrusion

Planning Efforts

As part of the update to the Humboldt Bay Area Plan (HBAP), a component of Humboldt County’s Local Coastal Program (LCP), the County conducted a Communities at Risk Vulnerability Assessment (2018) and an Adaptation Planning Report (2019) focused on these three communities. This work included interviews

with multiple residents from King Salmon (coordinated with HSU graduate research project 2019), one workshop for King Salmon and Fields Landing, and one workshop for Fairhaven and Finntown.

Relevant SLR Public Survey Findings

During the SLR Public Survey 2021, respondents were asked to self-identify if they belonged to one of the at-risk communities listed above. A total of 59 participants self-identified as such, only one of which identified as a resident of Fairhaven/Finntown. Survey participants were asked to report if they had considered relocating and/or selling their property due to SLR related hazards, and were given the option to provide additional comments to establish context for their answers, which garnered 25 comments illustrated in the word cloud to the right. Many of these comments expressed concern for particular properties or canals while some expressed very strong political views particularly regarding government spending on SLR planning or mitigation.



When asked to rate the priority of different assets in regard to flood protection and future SLR planning, most assets were rated by more than 50% of these at-risk community respondents as a moderate or higher priority, with the top three prioritized assets being “Sewer/wastewater collection and treatment facilities”, “Electric service facilities”, and “Stormwater Collection and treatment facilities”. The full results are reported in the graph on the next page.



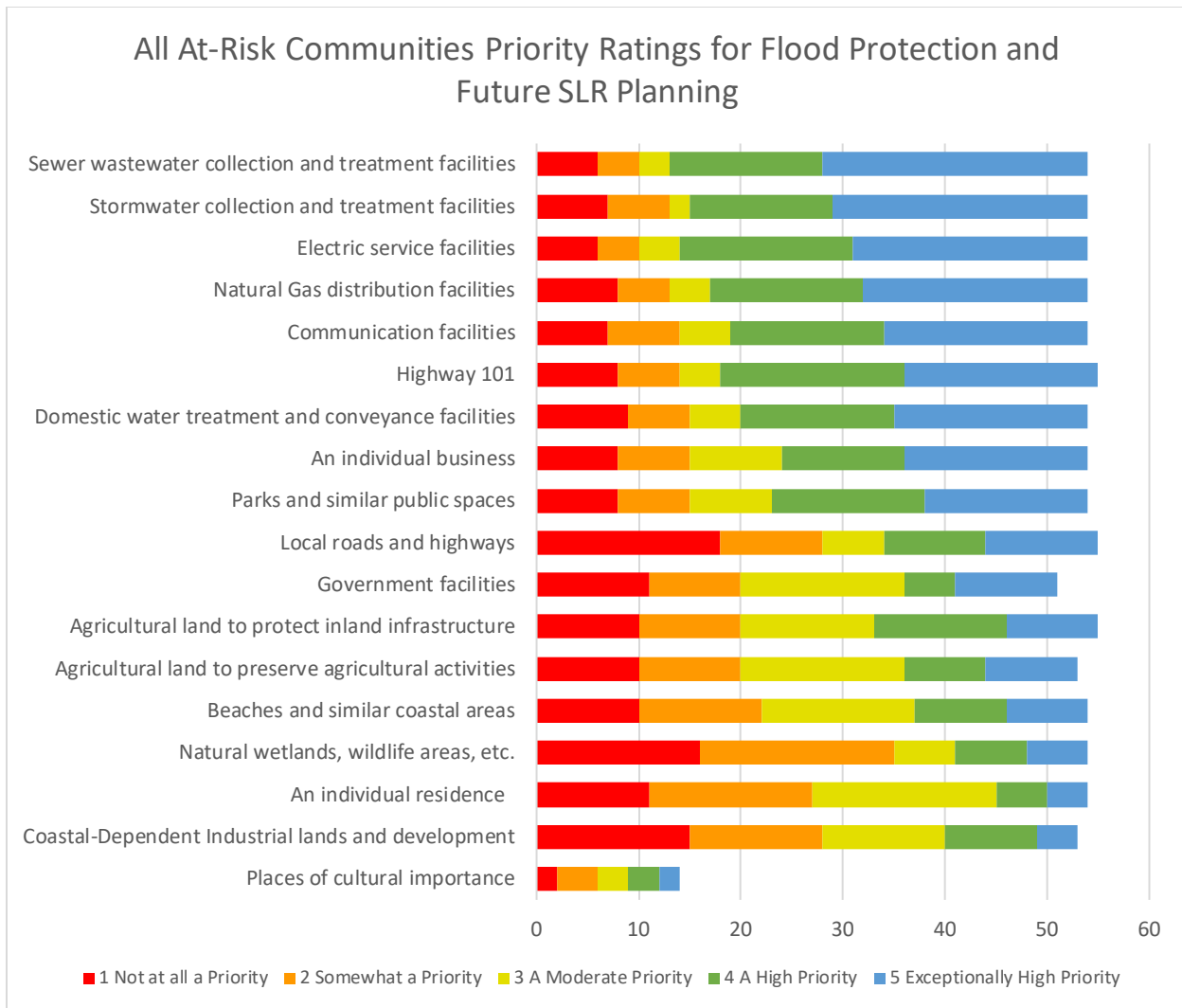


Figure 68. Priority Ratings for various assets (n=14-54) with priorities categorized as Not at all a Priority (red), Somewhat a Priority (orange), A moderate Priority (yellow), a High Priority (green), and Especially High Priority (blue) regarding Flood Protection and Future SLR Planning by participants who self-identified as part of the At-Risk Communities identified by the County as Fairhaven/Finntown, King Salmon, and Fields Landing in the SLR Public Survey 2021

Reference Links

Humboldt Bay Area Plan Communities at Risk Sea Level Rise Vulnerability Assessment (2018) <https://humboldt.gov/DocumentCenter/View/81418/Humboldt-Bay-Area-Plan-Communities-at-Risk-SLR-Vulnerability-Assessment-12-02-2019-?bidId=>

Humboldt Bay Area Plan Communities at Risk Strategic Sea Level Rise Adaptation Planning Report (2019) <https://humboldt.gov/DocumentCenter/View/81417/Humboldt-Bay-Area-Plan-Communities-at-Risk-Strategic-SLR-Adaptation-Report-11-30-2019-final-reduced>

Exploring Community Knowledge and Perceptions of Flooding and Sea-Level Rise in King Salmon, California (HSU 2019) https://digitalcommons.humboldt.edu/hsuslri_student/9/

Agricultural Properties

Roles & Responsibilities

Private Property Owner

A majority of land vulnerable to sea level rise in the Humboldt Bay region is planned and zoned for agricultural use. These lands are utilized as pastureland

for livestock grazing as well as for raising livestock feed.

Agricultural lands on Humboldt Bay have two origins that indicate different vulnerabilities: (1) alluvial bottom lands and 2) diked former tidelands. Alluvial bottom lands are generally higher in elevation than the current tidal regime. From 1880 to 1910, approximately 8,000 acres of salt marsh and tidal channel habitat (tidelands) on Humboldt Bay were diked off and drained for agricultural use. The earthen dikes are the primary source of protection for the agricultural lands from saltwater inundation during daily high tides. If these dikes were breached, tidal inundation would cover a substantial area around Humboldt Bay.

Significant portions of these diked former tideland areas are in the unincorporated area of the County, while much of the Fay Slough bottom land is in City of Eureka's jurisdiction, and similarly much of the Bayside bottom land is in the City of Arcata. Almost all of the diked former tidelands are within the retained jurisdiction area of the Coastal Commission. These agricultural lands have a mix of both private and public ownership, with much of the public lands being managed for wildlife and open space/recreation (City of Eureka and City of Arcata, California Department of Fish and Wildlife, Humboldt Bay National Wildlife Refuge, Bureau of Land Management, and several land trusts).

There are almost 8,000 acres of agricultural land that could be tidally inundated with 3 meters of SLR under current shoreline conditions within the Humboldt County's HBAP, and within Eureka and Arcata. This is close to 40% of all the approximately 20,000 acres agricultural land within these three areas. The majority of these lands are diked former tidelands.

According to Humboldt County 2016 Crop Report, the County's dairy livestock were valued at \$26,820,000, and livestock products, specifically milk products, were valued at almost \$75,000,000 excluding cheese and goat milk. The value of cheese was \$24,251,000 and based on the relatively lower value of goat milk (\$503,000) as compared to cow's milk, it is presumed the majority of the cheese value is also associated with conventional and organic cattle dairies. Together, these values total over \$125 million and are the County's leading commodities. Although these numbers are not all associated with the Humboldt Bay area, considering that dairies in Humboldt County and the HBAP are located on bottom lands that are most vulnerable to SLR, and considering that roughly 20,000 acres of the HBAP, Eureka, and Arcata is devoted to agricultural uses that include dairy uses, it is presumed that the value of these agricultural lands, and all bottom lands within the County that support dairies and related activities, is significant. These bottom lands are very vulnerable to SLR and cannot be relocated to upland areas in Humboldt County without displacing existing grazing operations or converting other land uses such as timberlands.

Various groups represent agricultural interests around Humboldt Bay, including Humboldt County Farm Bureau (see page 211), Buckeye Conservancy (page 202), UC Cooperative Extension - Humboldt (page 225), Humboldt County Resources Conservation District (page 121), and the USDA Natural Resource Conservation Service (page 99).

Specific Hydrological Unit Assets and Concerns

Mad River Slough

- There are 52 parcels within this HU that would be affected by SLR of one meter.

Arcata Bay

- There are 43 parcels within this HU that would be affected by SLR of one meter.

Eureka Slough

- There are 61 parcels within this HU that would be affected by SLR of one meter.

Eureka Bay

- There are 2 parcels within this HU that would be affected by SLR of one meter.

Elk River Slough

- There are 6 parcels within this HU that would be affected by SLR of one meter.

South Bay

- There are 33 parcels within this HU that would be affected by SLR of one meter.



General Concerns

✓	Shoreline Management		Sea Level Rise Impacts:	
✓	Property Ownership and Adaptation Responsibility		✓	Erosion
✓	Regulatory Authorization and Compliance		✓	Tidal Inundation
✓	Feasible Adaptation Strategies		✓	Backwater and/or Emerging Groundwater Flooding
✓	Funding		✓	Saltwater Intrusion

Planning Efforts

During the Humboldt Bay Sea Level Rise Adaptation Planning Project in 2015, the APWG utilized two critical assets as case studies, agricultural lands and Highway 101, to explore a regional approach to adaptation planning on Humboldt Bay (Humboldt Bay Sea Level Rise Adaptation Planning Project: Phase II Report). Agricultural dikes are important in protecting pastureland sensitive to saltwater flooding, the majority of which are also seasonal freshwater wetlands providing critical wildlife habitat. It is important to consider that protection agricultural lands from saltwater inundation will also serve to protect critical infrastructure assets such as utilities and transportation corridors located on or beneath these agricultural lands that are protected from saltwater inundation only by earthen dikes. The challenge of maintaining,

adapting, or relocating protective dike structures highlights the importance of regional coordination. The APWG report stated, “It is important to highlight that diked former tidelands cannot be protected on a parcel-by-parcel basis; where landowners who share a common dike need to hold back the tides, they must join together to protect their lands from flooding.” Multiple adaptation measures for agricultural land and dikes as well as regulatory constraints for adaptation are identified in the Phase II report.

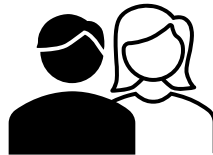
On May 4, 2017, a forum entitled Adapting to Sea Level Rise on Humboldt Bay’s Agricultural Lands was hosted by the Coastal Commission and Humboldt County at the Wharfinger Building. The forum was geared toward coastal agricultural landowners, resource management agencies, local governments, and the community, and was attended by over 100 people. Workshop information can be found at <https://www.coastal.ca.gov/agriculture/>.

Key Stakeholder Coordination Themes

During the SLR Stakeholder Interview 2021, 22 shared themes about SLR regional planning and adaptation were identified to have been explicitly mentioned by two or more stakeholder groups. The Agricultural Property Owner interview contained 6 of these shared themes as shown in the table to the right, reported from highest to lowest percent of stakeholder groups interviewed that shared each interview theme. For more description of themes, reference the Key Stakeholder Themes section of the Introduction on page 12.

Shared Interview Themes for Agricultural Property Owner

Shared Funding Coordination
Regional Coordination in General
Permitting
Diked Former Tidelands
Restoration and Mitigation
Interest in County Leading



Relevant SLR Public Survey Findings

There were 577 total participants during the SLR Public Survey 2021, though participation varied by individual question. Survey respondents were asked to rate the priority of assets located within the Humboldt Bay region for consideration in flood protection and future SLR planning, two of which are concerning agricultural land. Responses for priority ratings ranged from “not at all a priority” to “exceptionally high priority”. “Agricultural land to protect inland infrastructure” received higher overall ratings with 81% of respondents (n=545) rating this asset as a moderate or higher priority compared to “Agricultural land to preserve agricultural activities” which garnered 66% of respondents (n=542) priority rating it above moderate priority. Results are shown in the graph on the next page.

81% of the public survey respondents who provided a rating for "Agricultural land to protect inland infrastructure" rated them a moderate priority or higher for flood protection and future SLR planning.

66% of the public survey respondents who provided a rating for "Agricultural land to preserve agricultural activities" rated them a moderate priority or higher for flood protection and future SLR planning.

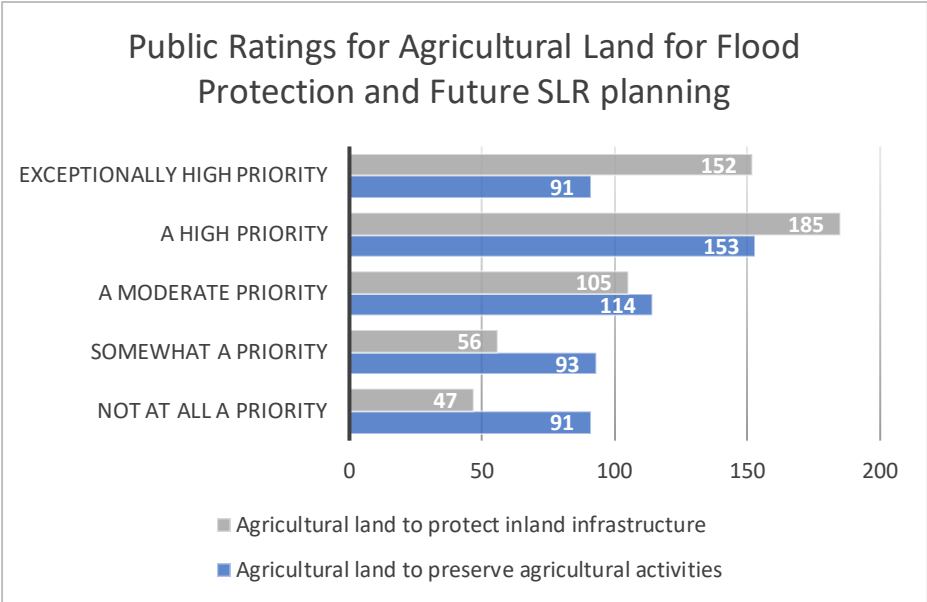


Figure 69. Priority Ratings for Agricultural land to preserve agricultural activities (n=542 in grey) and Agricultural land to protect inland infrastructure (n=545 in blue) in regard to Flood Protection and Future SLR Planning by participants of the SLR Public Survey 2021

Reference Links

- <http://humboldt.gov/sites/humboldt.gov/files/Humboldt%20Bay%20Sea%20Level%20Rise%20Adaptation%20Planning%20Project%20Phase%20I%20Report%20-%20Compressed.pdf>
- <https://humboldt.gov/623/Agricultural-Commissioner>
- <https://humboldt.gov/ArchiveCenter/ViewFile/Item/1216>
- https://digitalcommons.humboldt.edu/hsuslri_local/4/
- <https://www.coastal.ca.gov/agriculture/>
- https://ncrlt.org/sites/ncrlt.org/files/NRLTFarmPlan_Final6-05.pdf

Commercial & Industrial Properties

Roles & Responsibilities

Private Property Owner 

Property with commercial and industrial zoning can be found within the City of Arcata, City of Eureka, and unincorporated Humboldt County, with landowner

interests generally represented by their respective elected officials. Property may be directly vulnerable from inundation or flooding as well as indirectly vulnerable from impacts to utilities or transportation corridors. Many Coastal-Dependent Industrial zoned properties that support industries such as fishing, shipping, and wood products are located along Humboldt Bay and could face unique challenges with SLR.

Specific Hydrological Unit Assets and Concerns

Mad River Slough

- There are 4 parcels within this HU that would be affected by SLR of one meter.

Arcata Bay

- There are 42 parcels within this HU that would be affected by SLR of one meter.

Eureka Slough

- There are 75 parcels within this HU that would be affected by SLR of one meter.
- The vulnerable communities of Fairhaven and Finntown are located within this HU.

Eureka Bay

- There are 275 parcels within this HU that would be affected by SLR of one meter.

Elk River Slough

- There are 23 parcels within this HU that would be affected by SLR of one meter.

South Bay

- There are 57 parcels within this HU that would be affected by SLR of one meter.
- The vulnerable communities of King Salmon and Fields Landing are located within this HU.



General Concerns

✓	Shoreline Management		Sea Level Rise Impacts:
✓	Property Ownership and Adaptation Responsibility	✓	Erosion
✓	Regulatory Authorization and Compliance	✓	Tidal Inundation
✓	Feasible Adaptation Strategies	✓	Backwater and/or Emerging Groundwater Flooding
✓	Funding	✓	Saltwater Intrusion

Relevant SLR Public Survey Findings

There were 577 total participants during the SLR Public Survey 2021, though participation varied by individual question. Survey respondents were asked to rate the priority of assets located within the Humboldt Bay region for consideration in flood protection and future SLR planning, two of which are concerning commercial and industrial land. Responses for priority ratings ranged from “not at all a priority” to “exceptionally high priority”. “Coastal-Dependent Industrial lands” received higher overall ratings with 66% of respondents (n=534) rating this asset as a moderate or higher priority compared to “An individual business” which only received 37% of respondents (n=532) rating it above moderate priority. Both of these assets received lower than average survey participation. Results are shown in the graph below.

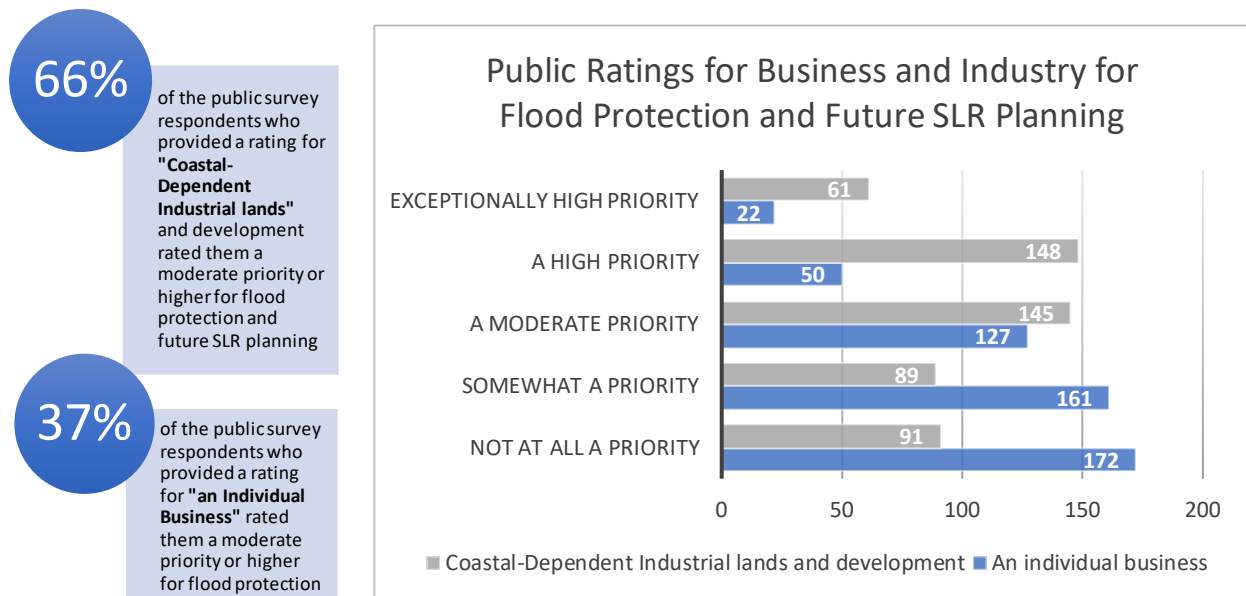


Figure 70. Priority Ratings for Coastal-Dependent Industrial land and development (n=534 in grey) and an individual business (n=532 in blue) regarding Flood Protection and Future SLR Planning by participants of the SLR Public Survey 2021

Planning Efforts

Currently City and County residents are able to participate in SLR planning mainly through public comment at public meetings (e.g., LCP update presentations at City Council, Board of Supervisors, or Planning Commission meetings) and SLR or LCP update workshops. Organizations that have been or could be engaged in SLR planning that may reflect the interests of commercial and industrial property owners include Rotary, Chambers of Commerce, and the Humboldt Fishermen’s Marketing Association.

Reference Links

None

Residential Properties

Roles & Responsibilities

Private Property Owner 

Residential property is located within the City of Arcata, City of Eureka, and Humboldt County, with residents' interests generally represented by their respective elected officials. Property may be directly vulnerable from inundation or flooding as well as indirectly vulnerable from impacts to utilities or transportation corridors.

Specific Hydrological Unit Assets and Concerns

Mad River Slough

- There are 17 parcels within this HU that would be affected by SLR of one meter.

Arcata Bay

- There are 231 parcels within this HU that would be affected by SLR of one meter.

Eureka Slough

- There are 213 parcels within this HU that would be affected by SLR of one meter.
- The vulnerable communities of Fairhaven and Finntown are located within this HU.

Eureka Bay

- There are 174 parcels within this HU that would be affected by SLR of one meter.

Elk River Slough

- There are 97 parcels within this HU that would be affected by SLR of one meter.
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South Bay

- There are 396 parcels within this HU that would be affected by SLR of one meter.
- The vulnerable communities of King Salmon and Fields Landing are located within this HU.



General Concerns

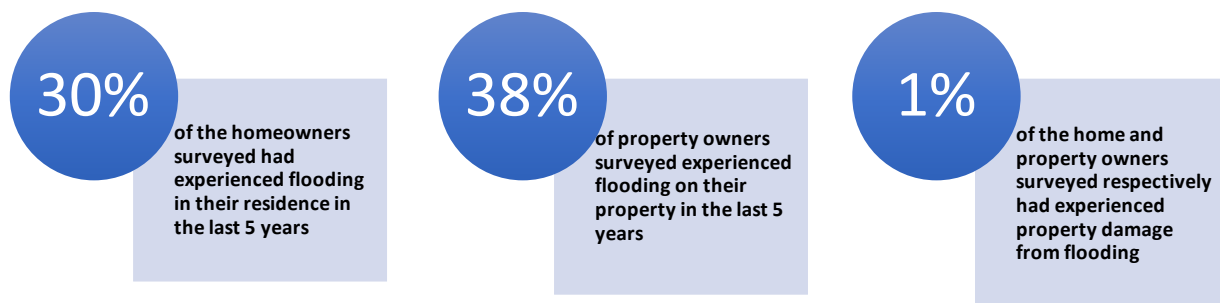
✓	Shoreline Management		Sea Level Rise Impacts:	
✓	Property Ownership and Adaptation Responsibility		✓	Erosion
✓	Regulatory Authorization and Compliance		✓	Tidal Inundation
✓	Feasible Adaptation Strategies		✓	Backwater and/or Emerging Groundwater Flooding
✓	Funding		✓	Saltwater Intrusion

Relevant SLR Public Survey Findings

During the SLR Public Survey, 984 surveys were sent out to landowners located in the 1-meter sea level rise inundation area; 159 completed surveys were successfully mailed back. An additional 418 surveys were completed online by the general public (notified of the survey via press releases, local newspapers and social media) and landowners who were mailed a survey but responded to the online survey. Survey respondents were asked to self-identify the HU in which they lived, owned property, worked, and/or visited/recreated based on a map with HU areas highlighted (See Appendix i - SLR Public Survey 2021 on page 229).



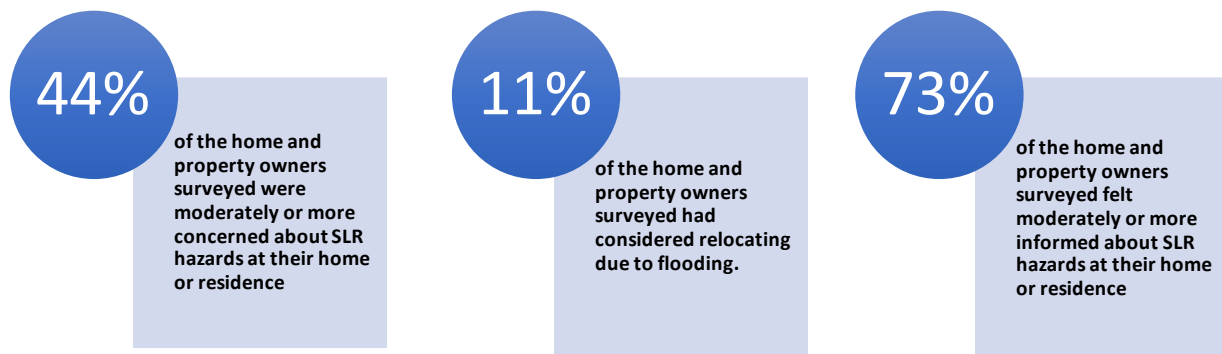
There were 314 survey respondents who identified themselves as homeowners and 95 who identified themselves as property owners within the six HU’s, for a total of 409 respondents. Of the home and property owners who responded to the question asking if they had experienced flooding at their property within the last five years, 30.3% of homeowners experienced flooding and 1% experienced property damage from flooding, while 38.2% of property owners experienced flooding and 1% experienced property damage from flooding.



Home and property owners were asked to report if they had considered relocating or selling their property due to SLR related hazards. Respondents were given the option to provide additional comments to

establish context for their answers, which garnered 115 comments illustrated in the word cloud above. Many of the comments were addressing specific locations and expressed concern for property values, but many said that these concerns were not pressing enough for them to relocate. Some expressed very strong political views or theories such as government spending on SLR research or mitigation was a waste and that the County wasn't doing enough to act on issues such as canal maintenance or landowner concerns.

When home and property owners were asked to rate their level of concern for their home or property ranging from "not concerned" to "very concerned", 42% (n=402) said they were moderately or more concerned about SLR hazards at their home or residence. Home and property owners were further asked if they had considered relocating due to flooding and only 11% (n=399) said "yes". To assess how familiar home and property owners felt about SLR hazards, these participants were asked to rate how informed/educated home and property owners felt they were about SLR hazards at their home or residence. These responses ranged from "not informed" to "extremely informed" and 73% of this subset of respondents (n=397) felt moderately or more informed.



One question asked of all public survey respondents (i.e., not just home or property owners) was to rate the priority of an individual residence located within the Humboldt Bay region for consideration in flood protection and future SLR planning. Responses for priority ratings ranged from "not at all a priority" to "exceptionally high priority". Of the 577 participants, 534 submitted a priority rating for an individual residence as an asset for flood protection and future SLR planning, and 35% of those respondents considered these residences a moderate or higher priority. Results are shown in the graph on the next page.

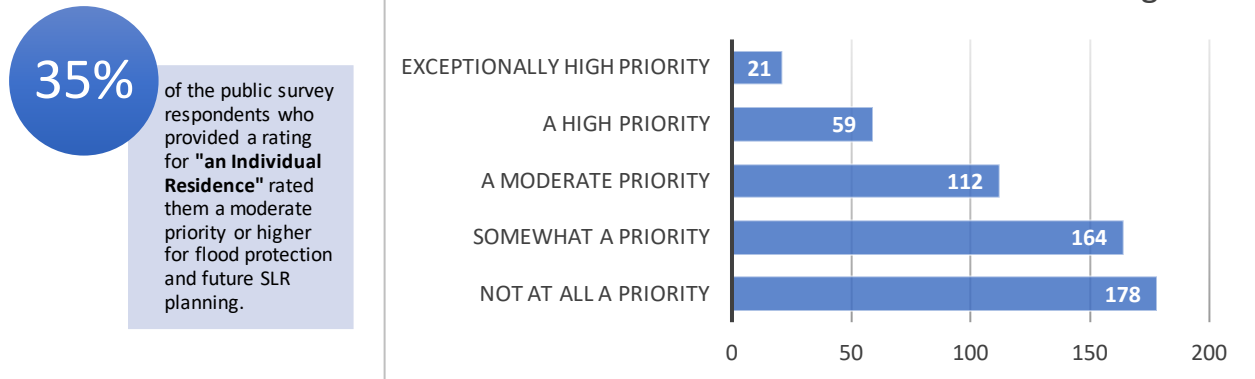


Figure 71. Priority Ratings for an Individual Residence regarding Flood Protection and Future SLR Planning by participants of the SLR Public Survey 2021 (n=534)

Planning Efforts

Currently City and County residents are able to participate in SLR planning mainly through public comment at public meetings (e.g., LCP update presentations at City Council, Board of Supervisors or Planning Commission meetings) and SLR or LCP update workshops that have been held by various jurisdictions (see Land Use Authorities section beginning on page 23, and At-Risk Communities section beginning on page 134).

During the SLR Public Survey, 120 general comments were collected illustrated in the word cloud to the right) in addition to the formal questions.



Reference Links

None