Media Analysis

Summary of Findings

Purpose

This media analysis is one component of a broader effort to develop public education and engagement products on river dynamics, sediment processes and climate change impacts on the Nooksack River and its floodplains. Working in close collaboration with Whatcom County's Floodplain Integrated Planning Steering Committee (FLIPSC), we identified a need to further understand local narratives around key floodplain issues and solutions that are currently circulating public discourse. To this end, this media analysis is intended to be an informal exploration of community values, experiences and perceptions around floodplain issues, which will inform the design of communication materials towards addressing public concerns. As the FLIPSC is our main touchpoint for this work, the media analysis also provides an additional means of identifying broader needs and interests that may not be represented by the members of the FLIPSC.

Research Method

As a key forum for the production, reproduction, and transformation of the meaning of public issues (e.g flood events, climate change), the media both influences and reflects public understandings of risks and citizen and government responsibilities in risk management. Following an extreme flood event in Whatcom County (November 2021), there was a large volume of media coverage on flood impacts and response in circulation across community-based social media forums (e.g Facebook, Twitter). Therefore, we conducted a media analysis of 33 articles from local, regional and international publications, investigating the public perception of the risks of climate change, specifically as it relates to flooding and sedimentation in Nooksack river. With the sample, we conducted a thematic analysis of content, guided by the following research questions:

1. How are flood impacts talked about in the media?
    a. Which interests or community groups are represented with these impacts?
2. How is climate change as a driver talked about in the media?
    a. (this would imply in relation to other drivers like sedimentation)
3. What are the types of solutions talked about in the media?
    a. Which interests or community groups are represented in the solutions discussed?
    b. What are attitudes towards solutions discussed?

This media analysis is intended to be an informal exploration, rather than a comprehensive analysis.

Key Findings and Implications for Communications

1. How are flood impacts talked about in the media?

Flooding impacts are well documented in the media, with a focus on the displacement of community members, damage to homes, buildings and infrastructure, and financial damages. Agricultural damage such as the loss of livestock and inundation of farms, as well as impacts to salmon habitat are also discussed. However, there is a lack of discussion on the emotional and social impacts caused by the November flood events. In addition, media articles fail to highlight the amount of resource-sharing, mutual aid and community support that has emerged as a response to flooding, which we have observed across local online forums (e.g. Nooksack River Flooding facebook group). Overall, there is an opportunity to focus public education materials towards a strengths-based approach to building community-based adaptive capacity.

2. How is climate change as a driver talked about in the media?

Climate change is generally not perceived to be the main driver of flooding in the Nooksack River, but rather seen as a threat multiplier. There is a misalignment across various stakeholders on how climate change should be used in framing flood management efforts, as it is politically contentious and could alienate key actors during a critical time for collaboration. For example, federal and state agencies were more likely to use climate change in their discussion of the November flood event, and also raised the need to address other impacts such as drought and extreme heat. While the County has progressively worked toward the development of a climate action plan, some local government officials and residents in areas most impacted by flood events have resisted these efforts and have advocated to frame flooding as an emergency management issue. As one County official states, “We are sometimes getting hung up on this climate change word, and it stops us from being able to address it”. However, framing climate impacts as an emergency condition can prevent an effective, forward-looking response and encourage planning to historic or current conditions, which will be insufficient in addressing more frequent and severe flood events in the future.

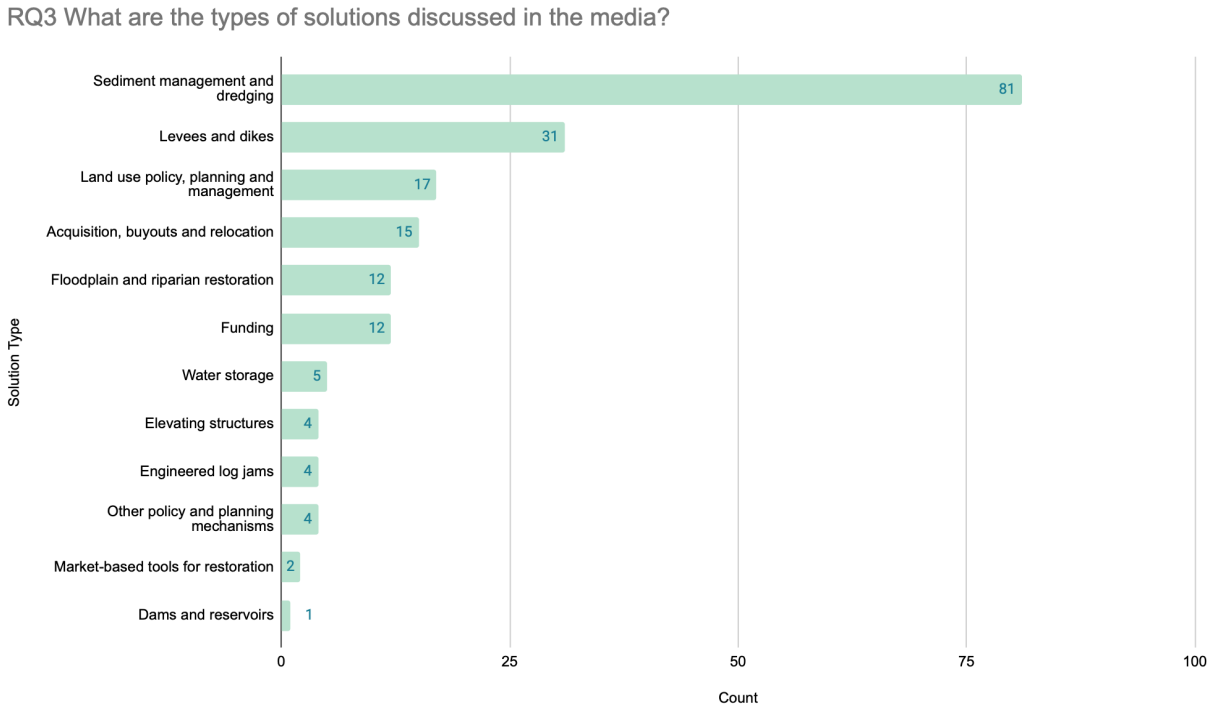
Other drivers of flooding that were discussed in media articles include aggradation, the Nooksack river’s geography, the history of colonialism and subsequent development and loss of natural floodplain functions, the lack of a comprehensive flood control system and government inaction.

Driver	Supporting Quote
Climate Change	• “The flooding issue is a complex problem which climate change is making worse. Warming temperatures result in more precipitation falling as rain (rather than snow) in the higher elevations of the watershed in winter,” Personius said. “That produces not only more erosion at higher elevations (further contributing to increased sediment loads) but also increases the amount of runoff for the river to accommodate.” • And heavier rains and more forceful streamflow – again the consequences of climate change – result in a river with greater capacity to transport sediment, which then settles out as the river slows down in low-lying areas.

Geography	● The Nooksack River is a special body of water: It carries more sediment than any other river that drains into Puget Sound, Harris said. That's because the river's upper watershed is home to an active volcano, the beloved Mount Baker. ● The Nooksack has always flooded. And even though it doesn't run through Canada, it has long spilled over the border from time to time, too, refilling ancient tributaries. The river swells and contracts based on rain and snow melt, and in part because its headwaters are so close to an active volcano it picks up a heavy load of silt, sand and gravel as it weaves through the mountains. That sediment creates fertile spawning grounds for salmon and other fish, but it also raises the water level, exacerbating the flooding.
Aggradation (Sediment Build-up)	● "It has been observed that the Nooksack River has been aggrading in certain locations including near Everson at the overflow location," engineers wrote in a flood-mitigation plan completed for the city of Abbotsford in November, 2020. "Aggrading" is a technical term meaning "filling with sediment." ● "It is reasonable to believe that sedimentation has settled in there along the Everson area," said Brent Bower, a senior service hydrologist for the National Weather Service Seattle. That could mean the Nooksack was "sitting higher in the stream and overflowed north." ● Over the years, Mr. Cunningham believes, sediment has built up in the river, making it more likely to burst its banks. He likens the river to a five-gallon pail full of water: The water will spill out if the pail is filled halfway with sand. ● Sumas Mayor Christensen believes sediment buildup and a lack of maintenance by humans is the reason that the Nooksack River keeps overflowing.
Colonialism, land use and Development	● Over the last 150 years, settler colonialism has altered flooding, whether by removing log jams and large woody debris that impact river flows or by installing levees, dikes, and dams that alter the river's configuration. When early settlers in the late 1800s and early 1900s developed the areas around the Nooksack for agriculture, its valley was transformed. The land was cleared for farming, forests were logged for timber, and the river was straightened. These modifications only made flooding worse. ● But the Nooksack's natural sediment dynamics have been upended, McLaughlin argues, because the massive logjams that are typical of Pacific Northwest rivers have been removed.
Lack of comprehensive flood control system	● "The Nooksack River system does not have a dam on it," says Jay Gordon, the Washington State Dairy Federation's policy director. "Not one. And so it comes roaring out [of the mountains] with no flood control system of any kind, and it hits the lowlands." Some lowland farming communities keep the waters at bay with dikes, but the Nooksack occasionally overwhelms them. Gordon describes parts of the lowlands as "a bathtub," where flood waters pool and can sit for weeks without draining.
Government Inaction	● "Nothing's been done," said one resident, whose home on the outskirts of Sumas flooded nearly two years ago during another storm.

3. What are the types of solutions talked about in the media?

During informational calls with key members of the FLIP, they expressed a concern about strong public perception that sediment management, particularly dredging, will provide immediate relief to flooding issues. However, county officials and ecologists argue that it is a resource-intensive mechanism that produces minimal benefits towards flood mitigation and negative impacts to habitat. The media analysis reflected this concern, as 43% of statements around solutions across 33 articles involved discussions around sediment management and dredging. Other solutions discussed included the construction or maintenance of dikes and levees (16.5%), land use policy, planning and management measures (9%), acquisition, buyouts and relocation of properties and infrastructure (8%) and floodplain and riparian restoration (6.4%).



Overall, decision-makers hold complexity, redundancy and multi-benefit solutions as high priority values in the development of flood risk reduction strategies, but these are not shared by landowners and residents. As displacement and the loss of homes and livelihoods are major flood impacts, residents are inclined towards what are perceived to be simple, near-term solutions that can immediately restore their security and well-being. We suggest that communication products focus on highlighting the multiple drivers of flood impacts, which not only include aggradation but settler-colonialism, development and forest management practices to orient local stakeholders towards considering other types of solutions. In addition, there are existing examples of floodplain management strategies that have included sediment management, along with a suite of other engineered, nature-based and policy solutions that could be used to illustrate the validity of and need for a long-term, comprehensive approach.

RQ3 Benefits and tradeoffs of the **top 5** flood mitigation solutions as discussed in the media

Solution Type	Benefits (Quotes)	Trade-offs (Quotes)
Sediment management and dredging	• Some residents affected by last year's floods invoke that history to argue that dredging gravel from the riverbed now would be a straightforward solution to lower the river level and help protect their homes and fields from flooding. • A specific frustration was voiced several times, eliciting claps of agreement from the crowd: Why didn't anyone remove sediment — eroded soil and debris — from the Nooksack River? It could have made more room for water to flow through the channel, rather than inundate communities, the commenters insisted. • A deeper river would carry a greater volume of water downstream, mitigating overflow during extreme precipitation events. This would require dredging the river by removing gravel and sediment from the bottom of the channel. • Now is not the time to wait for more studies — gravel and sediment in the Nooksack can be responsibly managed in ways that minimize any harm to salmon, and at the same time help prevent the devastation and loss of life that a choked waterway can cause.	• "Washington State public officials said while dredging, for example, might help, it was not a cure-all, and it would not have prevented flooding because of the enormous amounts of water in the river." • Recovering habitat for salmon is critically important," says David Radabaugh, coordinator of the National Flood Insurance Program at Washington's Department of Ecology. "You pull gravel out of a river, upset the system? That's going to degrade habitat." • While dredging the Nooksack hasn't been categorically ruled out by managing agencies, both the Nooksack Indian Tribe and the Lummi Nation have raised concerns about the potential effects on salmon, and any dredging proposal could run afoul of the Endangered Species Act. • Removing sediment from the Nooksack River isn't as straightforward as it sounds. It would require a slew of permits from the state and federal government and likely entail a federal environmental impact statement, a detailed and rigorous evaluation of a project's environmental consequences. • Sediment removal also wouldn't be a one-and-done deal, Radabaugh said. Mount Baker will keep sending sediment down into the Nooksack River each year, requiring the work to be done over and over again. • "Proposals to dredge the river would actually be eliminating a solution to the problem," says John McLaughlin, an environmental scientist at Western Washington University in Bellingham. The pores in between pieces of gravel represent a natural flood control system, he explains. "Gravel, both in the river and just immediately adjacent to the river where the floodwaters would go, stores water" and slows its release downstream. • What's more, dredging the channel at one location can make floodwaters all the fiercer for those located downstream (and, of course, fiercer floodwaters have more capacity to transport sediment). • At best, it's a temporary solution. "You can dig it out at a given location, but it will fill back in, that's what the river is going to do," says Scott McKinney of the Washington State Department of Ecology. "So you're in this sort of endless loop."
Levees and dikes	• Building a new levee farther away from the riverbank	• Among the flood mitigation measures most commonly employed by

	(and removing the old one) allows floodwaters to spread out horizontally and slow down, providing "a way to reduce the flood hazard for the community in that area and benefit salmon habitat at the same time," McKinney says. ● Maintaining and improving key levees — that have often been neglected — is crucial. These projects and other work on the Nooksack River waterway and its tributaries can help lessen floods and protect fish, such as improving habitat areas near streams and installing floodgates with new technology. Farmers are eager to help with these and other solutions.	Floodplains by Design are levee setbacks. Much of the lower Nooksack River, from Everson to Puget Sound, is contained within levees, which in the past were built as close as possible to the riverbank. That practice eliminated floodplain habitat behind the levee, which scientists now understand is important for salmon recovery. Close-in levees can also intensify flooding for communities downstream. ● A gravel mining operation would need to demonstrate compliance with federal environmental law, as would an expansion of levees or other potential fixes. ● And one in which a potential solution that works for B.C. — such as extending levees in Washington to block flood waters coming north at Everson — could have disastrous consequences for downstream communities on the Nooksack River.
Land use policy, planning and management	● The state and county already have rules and processes in place meant to prevent development from sprawling into rural areas and to protect critical habitat. ● Farmland is crucial to flood control and fish recovery. Farmers are ready and willing to be part of the solution, but they can't if their land is converted to development due to a lack of secure access to water. ● But Monday's flooding reinforces how important it is for local jurisdictions to reconsider how and where they allow development in the floodplain, Elder said.	● One possibility that has recently emerged is for the U.S. Federal Emergency Management Agency to declare lands north of Everson as a floodway. Some media reports have characterized this as an effort to funnel flood waters north of the border; ● Korthuis said the Whatcom County mayors do not feel that the bill in the Legislature to add salmon protection buffers on the sides of rivers and streams will help the problem, because it will "take 30,000 productive acres of ag land out of the 60,000 to 70,000 productive acres of ag land." ● Much of the land in the Nooksack River floodplain is agricultural. That can be positive, Elder said, since pasture land on dairy farms can actually recover from big floods relatively quickly…However, "the county isn't in the business of prioritizing which types of agriculture reside somewhere,"
Acquisition, buyouts and relocation	● Buyout programs like this reduce future risk. They don't change the direction water flows; they simply take people and homes out of harm's way. We are trying to provide a buyout option for people in Whatcom County who live in the highest risk areas and who sustained the most damage, so these people can recover and live in a safer place. ● "It's a more effective strategy to try to acquire those	● It's a "painful conversation," Elder said, and the county doesn't have a dedicated fund to buy out property owners in vulnerable areas.

	properties or acquire conservation easements on them so they don't get developed.It's more proactive ● While their properties were in the flood areas, they were not negatively impacted because the Trust had been removing infrastructure from the floodplain, putting habitat and trees in those areas.	
Floodplain and riparian restoration	● Riparian forests are critical elements of healthy river habitat. They filter sediment and pollutants out of stormwater, prevent riverbank erosion, keep water cool by offering shade and contribute woody debris to the river. ● Many river valley problems with silt and gravel runoff begin far upstream. Solutions require working throughout the Nooksack River drainage. Personius said revegetating and restoring degraded riparian areas with native tree cover can improve salmon habitat by filtering stormwater runoff and helping cool the water by providing more shade. These projects can also reduce silt flow that contributes to flooding below. ● "If you think about the natural process, you have the river eroding forest, those trees fall into the river and then they create pools, stabilizing banks and then creating islands – They're really the backbone of the river." ● Until riparian conditions can improve to where that process works on its own, Maudlin said the tribe does interim enhancement projects. Using engineered log jams, they recreate structures in the river that had disappeared due to riparian degradation, the history of wood removal and natural depletion. ● Many researchers and people involved in flood management say that the Nooksack's own natural features and processes – including the sediment that others want to remove – provide the solution to the problem of floods like those that occurred last November.	● No trade-offs were discussed.