1. Organization and/or Affiliation

- Government
- Educational Institutions
- Non-Profit
- Business/Consultant
- Public

“Other” includes citizens, consultants, government employees, journalists, and Conservation Corp.

2. Please select item which best represents your work/interest;

- Researcher
- Manager
- Educator
- Student
- Other

Other: policy, consultants, citizens, government, business, journalist, retiree, regulator, volunteer, activist, habitat restoration and monitoring, supervisor, non-profit, Corp employee

3. Helpfulness of Symposium in understanding local government perspective on key issues. (n = 90, 5 no answer)
4. Physical, Chemical/Water Quality, Biological Research Programs Knowledge Change Evaluation

![Histogram of Learning - Research Type and Extent](image1)

![Knowledge of Status and Trends](image2)
Histogram of Learning - Status and Trends

Knowledge of Climate Change

Histogram of Learning - Climate Change
Please rate the value of each of the following approaches in helping understand the status and trends of ecological systems in Bellingham Bay.

5. After attending the symposium, did your perspective on the top three issues change?

What would you now list as the top 3 issues?
- juvenile salmon, COB Shorelines, FC
- habitat restoration, water quantity (storm events), seasonal fluctuations and adaptation
- climate change - ocean acidification and food web dynamics, accurate risk communication
- funding clean-up, nearshore habitat, water quality
- shoreline and estuary habitat, Nooksack R water quality
- water quality, marine food webs, sediments
- water quality/chemistry, nutrient/sediment changes, vulnerable organisms
- nearshore habitat for juvenile salmon, understanding restoration; clean-up of legacy contaminants; long-term monitoring networks
- stormwater, restoration, data needs
- monitoring ocean chemistry, beach and habitat restoration
- finding what date we collected (N/P) means to bay health, buildup of river debris and silt, danger from runoff
- chemistry/water quality, habitat, human pollution
- local govt needs to make/implement environmental improvements
• water quality, floodplain restoration for sediment input; shoreline armoring
• sediment, nutrients, fc
• Climate change, salmon recovery, pollutants
• various chemicals being leached into Bay, debris, algal blooms
• changes in nutrients, sediment levels, and species composition
• sediment loading in Nooksack Delta; hypoxia and stratification seasonally; stormwater; habitat loss and fragmentation
• fecal coliform, heavy metals, low do
• water quality, stormwater retrofits/projects, lagoon and nearshore restoration
• sedimentation/nutrient loading; stormwater pollution; changes in aquatic benthos
• nutrients, sediments, toxics; which is all ecosystem decline
• sediment toxicity, hypoxia, urban development
• bacteria, sediment and circulation ob water now in Bellingham Bay, climate change
• How can I make a difference, what is our priority
• benthos decline; FC uptick (related?)
• turbidity, Lummi's voice/concerns; communities understanding of the meaning of restoration
• fecal coliform, contaminants effects on benthos and sediment characteristics, shoreline armoring and stabilization to reduce erosion; also shellfish habitat
• restoration technique development; reevaluation of monitoring programs
• climate change resiliency, water quality, restoring ecosystem functions
• contamination, nutrients, pollution; salmon habitat; stakeholder involvement and feeling like all voices have been recognized
• understanding whose involved in phytoplankton blooms; shellfish safety; salmon population restoration
• fecal coliform/Nooksack flows; armored shorelines; funding
• hydrology and sediment transport; climate change; chemical contaminants
• habitat, water quality, tribal rights
• not a good question if you want a good answer, a reminder would be helpful.
• bacteria contamination; sediment contamination; nutrient pollution and DO; fish migration and recovery
• sedimentation, sulfide levels, current flux
• communication with public and elected officials; research
• Nooksack quality; Nooksack sediments; unknowns in Bellingham Bay
• salmon health; water quality (eelgrass, sediments, etc.) starfish wasting
• sediment issues and shift of Nooksack discharge; cement debris on Bellingham shore; 100% adversely affected benthic organisms
• fecal contamination, sediment toxins, sea-level rise
• dredging; pollution police and habitat enforcement police
• moving Lummi Nation into 21st century and hunter gatherer life style not realistic in today's society
• Nooksack sedimentation; water quality; restoring shoreline
• Sedimentation, ?
• land use/input - ag, residential, forestry
• shoreline restoration, freshwater quality, education
• continued work in Nooksack drainage, understanding the benthic changes, flagellates
• contamination coastal access public
• sediment transport issues; phosphates and nitrogen - increasing nutrients
• removing toxins from soil by the bay; cleaning up the bay; preserving salmon streams
• managing inputs to the Nooksack and thus the Bay; restoration as control for pollutants and flooding; stormwater runoff and fecal contaminants
• need more research; management of upland land uses; political leadership/funding
• acidity, nitrogen, mercury
• global warming; pollutant control; logjam shoreline and stormwater issues
• Nooksack River sediment deposition; benthic biodiversity; stormwater quality
• change in nutrient loading to Bay and change in sediment loading
• nearshore, acidification, sediment
• climate change, over population, plankton blooms
• fecal coliform, sediments, stormwater runoff
• My priorities stay the same; I understand them better now and the complexities of the challenges and who is working on them

6. How useful was the symposium in identifying research needs and gaps?

7. Do you have suggestions for additional research needs that were not covered (and if so, please describe)?
• forage fish
• data on all such dynamics discussed today - along the?
• what is value added of federal and state regulatory oversight
• Need to monitor long-term at strait of Juan de Fuca to know what is entering water from Pacific and how this is changing over time - has great influence on Puget Sound conditions
• impact of radiation and migration of debris and invasive species from Japan
• agriculture impacts
• how wetland loss plays into WQ, flooding, sediment transport and potential for restoration
• How quickly do the levels peak and decline (ammonium) - any connection to on-site septic systems?
• biotoxins
• baseline marine sediment cores to pre-history depth ~10000 years
• affects of Bellingham Bay off shore disposal site
• the idea of using hemp for contaminant remediation deserves looking into
• PCPs endocrine disruptors and their effects
• more on phytoplankton
• economic research, how is the state of the Bay linked to our economy
• upriver issues - what is causing fecal coliform increase- maybe increased herds of deer
• local anthropogenic impact vs external effects such as Canadian pollution and climate change
• endocrine disruptors
• salt marsh (if ever present in Bay) can it be restored/can it migrate?
• hatchery and salmon forming impacts on wild salmon
• connect more directly with land use decisions
• inland source contribution to state of the bay such as land use, glacier melt and quality and forestry practices
• impacts of land use on water quality, solutions
• toxic soil
• effects of urbanization such as increased driving of gas powered vehicles in terms of runoff into Bay
• taking groups of data/presentations and synthesizing
• sociological/cultural effects - touched on a little bit but never a focus, economics?

8. Are there particular priorities you think should be focused on?
• changes in benthic, fish utilization various habitats
• symposium sidestepped the direct connection between the watershed and the bay
• commitment to a much more effective and efficient permit streamlining for restoration projects
• What can everyday people do?
• Status of Cherry point herring stock or forage fish status in general would have been useful to hear
  same as 5 and 7
• ocean acidification, toxic clean-up, restoring balance among low food chain microorganisms
• depends on availability of resources
• pollution, gp
• perhaps hot topics - stars, climate change session
• salmon recovery, restoration of nearshore habitats
• clean up efforts and regulations for preventing debris and chemicals from getting into water
• beach soft banking, less rip rap, seems doable
• data on wave action throughout bay; data on beach/sediment movement (seasonal); storm event
• bacteria and sediment
• What is going on 2009 that is recent and unique to Bellingham Bay?
• land use regulation
• legacy wood waste dumping in bay by GP and prior entities approx wM/yds 1950-1970
• infractions focused on contractors that install new projects without proper permits
• stormwater and its implication for contamination
• more focus on solutions and ways to move forward (not easy but need to push forward)
• I heard a lot of pointing fingers at times of how some people blamed others for the state - which I don’t see as productive. So using more collaboration team work so we were moving forward
• further outreach to community members
• shoreline restoration; deciding on priorities
• improved habitat
• what about Victoria sewage?
• upholding both ends of the Point Elliot Treaty
• this is a good start, let's focus on one topic next time; this is ground work. Lets focus on N next time
• see #12
• collaboration; turning research into action
• climate change
• reach out to City and County councils and public
• coastal restoration
• Bellingham and Whatcom County population management
• buy land, move development back from waterways. Allow the river to maintain active floodplain
• acidity
• land use change
• reduction of development in rural areas, better management practices on land use, storm water management
• education, what is working? What is not?
• successful restoration/habitat improvement programs; BMPs that are effective
• nutrients, HABs
• education materials developed for general public
• toxins from toxic bay shores by planting industrial hemp
• prevention of pollutions and maintenance of oxygen levels
• Nooksack runoff and sediment transport, ammonium, sediment benthic communities
• role of the Nooksack on condition of Bay
• acidity of water
• Why is Corp of Engineers not here?
• forage fish
  this was very comprehensive

9. How useful was the Symposium in networking and identifying potential partners or collaborators?

![Bar graph showing the distribution of responses to the question on the usefulness of the Symposium for networking and identifying partners.](image)

Do you anticipate any new partnerships and/or collaborative projects as a result of this Symposium?

![Bar graph showing the distribution of responses to the question on anticipated new partnerships and collaborative projects.](image)

10. Feedback given as part of the registration for this event indicated that many people obtain information on the Bay through various avenues (e.g. newspaper, agencies, and colleagues). How well do you think these avenues keep you informed about Bellingham Bay?

![Bar graph showing the distribution of responses to the question on the effectiveness of various information sources for keeping informed about Bellingham Bay.](image)
11. Do you think additional effort should be made to expand avenues for keeping informed about Bellingham Bay?

![Bar chart showing participant responses to question 11.]

12. One of the objectives of the Symposium is to identify possible approaches for on-going data sharing and enhancing communication and coordination. Please rate the following suggestions/actions in terms of how well you think they meet this objective.

- make data analysis and interpretation available on web
- On-going forum with opportunity for key stakeholders engagement would be ideal BBHAT sort of served this purpose but they meet too infrequently
- Most important this is drawing together proceedings and creating document (white, grey peer reviewed) describes major trends, findings, gaps, and future direction
- more effective link and coordination with MRC, Salish Sea Conference, Bham Bay Pilot, PSEMP; Coordinate with don’t compete with
- interactive map of all monitoring going on in the Bay of different parameters and by different agencies
- publishing video of the symposium online like Ted talks
- facebook page

Do you have any other suggestions that are not listed above (including any mentioned during this session)?

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- publishing video of the symposium online like Ted talks
- facebook page
• what about hatcheries? Very little mentioned
• the talks are good, but it was a long day. Too much information by ?; Salish Sea conference already so large
• A networking session, don't do posters during break
• more time for questions and collaboration
• hold a follow-up symposium focused on how upland influences Bay, actions/policy, market based approaches and funding and regulations and how to use to achieve goals
• compiled list of actions
• Very well organized schedule, it was valuable to have general introductions to the Bay (maps, history) followed by the research; combined perspective was also valuable
• As a student, access to the speakers presentation, papers and contact information would be very useful
• Maybe use social media (twitter, Instagram) to get attention of WWU students; contact WWU communication students maybe
• data gaps list - coordinate with Masters students or undergrrads at WWU and WCC and other research inst.
• document of key findings published after SOTB even for reference by researchers/managers, especially focusing on data gaps that were identified by participating researchers
• groups/action teams; defining zones
• A website organized by Bellingham Bay science consortium
• Have a subgroup? On a specific topic each year (e.g. year of the fecal)
• BNSF and ACOE should be here for resilience planning in face of climate changes impacts (e.g. increased waves surge vs shoreline arminging)
• facebook page, keep to county level; county should document every study by watershed
• slow change as difficult concept for humans to grasp as meaningful in present time and future
• more work on chemistry
• specific website with projects, links, work, etc. related to the bay
• water quality section of Grow Northwest Magazine, Cascadia weekly; public outreach campaign
• Need to reach outside of this audience, more school group, more local papers
• Reach K-12 students so they better understand problems and solutions. Very young kids are motivated when they get information they can understand
• have a symposium for educators showing how to use this data for educating the public. Feature column Bellingham Herald version of "Water Whys" (used to be KGM/KISM) to inform general public of issues and projects
• Need to focus good data to local and state policy makers to increase funding to increase "action"; County and City presentations including small cities
• Make SOB semi-annual
• Nwstraits.org

13. Were there some sessions that were especially important to you and if so, what were they?

• sediment, community structure over time, long-term trends
• Liked the general topics broken into section presentations. I don’t follow research so it was a lot of information and somewhat rushed
• Loved the Lummi welcoming and all those at beginning intro helped set the state. More audience engagement and facilitated discussions would have been great
• Important to connect to local government and governance
• salmon and estuary/nearshore habitats
• Local govt and regional research perspective were excellent sessions and complemented each other well
• Most were important because it is all connected
• biological, data
• I enjoyed the variety of information all were of equal importance as the ocean and all waters are linked
• each one had importance and benefits - too tough to choose
• all topics interact so all were very important
the actionable/synthesis is valiant effort but so many people had already left conference
regarding specific issues regarding seagrass, marine mammals, shellfish, sea stars
Physical processes as inspiration for Jeff Co. MRC (esp. restoration prioritization by CGS)
Juvenile salmon in the nearshore because I participated in that project
all
stormwater monitoring - some good data but still many data gaps; sediment quality in Bellingham Bay - drastic change in benthos in only a few years
Bert's history, PSAP monitoring gaps, combined perspective panel
biological processes
local govt.
All were great. Very interesting information shared
key issues
overall thank-you
chemistry/water quality presentation b/c I am interested in a potential career in stormwater management.
Biological ecosystems and water quality were important because the most current research and findings are useful in deciding where to direct efforts of student research in the field of ecology
I found Randy's message very interesting about the need to move forward when do we have enough science to make good decisions?
I found the local govt perspective, biological processes, PSEM
The ones introducing models for monitoring (directly help make my research more thorough)
session about regulations and what they are dealing with; nutrient and do session
habitat, this is direct impact to improve conditions
starfish, physical processes
all were equally useful
I got something out of each session
all physical, Valerie, Brandi
data driven presentations best
history from Bert Webber; DOH web managing; overall stormwater data
last couple panels for symposium synthesis
last session wrap up and hearing from audience
ones with rich discussion
combined perspective, making the parts fit
local government perspective
physical processes; chemistry and water quality
all were valuable, good to have all sides of the story
understanding research?
chemistry, physical, biological - a good group of presenters in each session
coastal restoration work
Bert's overview
I'm glad Native Americans were given chances to share their needs and perspectives. We need to work with them not against them
sea star wasting, key issues session, review by Bert Webber
physical processes - closest to my work focus
the chemistry and water quality session, Bert Webbers talk, physical process session
Jon Hutchings session on funding
all technical sessions
Eric Grossmans and Chris Krembs presentations were great!
Bert Webber! Also Lummi welcoming, biological ecosystems
Bert Webber, Valerie Partridge, Ben Miner
I got most out of the physical processes panel; probably I leaned the most and the quality of the presenters
14. Please rate the overall value of this Symposium.

15. Do you have any other questions, comments, or suggestions?
• More time for questions and interaction
• Compile and make list of data gaps available; more about public engagement efforts, this was heavy in research but devoid of discussion over? Efforts to address these issues including how to communicate about them; more time for questions throughout the symposium. Almost every panel was full of men, consider potential to diversify by gender
• Great symposium
• Panel focusing on key hurdles and or creative solutions; not enough time to look at posters; would love to serve on next planning committee for next symposium Hilary@VedEnv.com
• Water cooler would be great, loved the specific focus, Bellingham Bay field trip?, include some social science, crowded agenda, break necessary for networking
• Thank-you, so cool!
• Make available resources pertinent to all presentations for further info on the topic, Post presentation videos; more outreach - publicly available accurate and balanced and detailed info isn't coming out
• It was a long day of presentations - keeping to the schedule and not cutting breaks short would keep the audience more refreshed and engaged. Overall great symposium.
• Need more time for breaks to be valuable; Speakers should be encouraged to stay on time by having someone keep time and raise a sign when they have 2 minutes left (for example). This has worked well in past conferences so everyone sticks to their allotted time slot. Should be enforced so breaks don't get cut down.
• Please compile and share recommended data gaps, more networking time needed
• There was so much similar data presented very fast and some of the overlap was redundant yet confusing
• Next time had an option for composting of used plates, food and napkins for food services
• All hatchery managers should be invited; maybe get BTC fisheries students informed; wish all salmonids were of concern not just listed species
• Keeping approximately this size is good. Perhaps less speakers
• A pamphlet with resources, where presenters are from/what they do, use, etc.; less sitting time, keep us moving
• Break out groups? Set timer for speakers so room for questions, hard to sit through 2.5 - 3 hours with 15 minute break
• Summarize data needs from various stakeholders and agencies and collaborate to secure funding
• More networking time, maybe fewer speakers or make it a couple of days so there isn't such a time crunch
• This was an incredibly long time to be sitting. I might suggest letting everyone stand in their place and stretch for a minute in between each presentation.
• Trying to keep speakers to a specific time limit; emphasizing conclusions in a basic way so people without a science background can understand
• Thanks, congratulations on a good event
• Really great idea. But there was a lot of info and a long time to sit and listen to lectures, But I really enjoyed hearing about all the data that out there about Bellingham Bay
not enough time for networking; more time for interaction. I encourage you to look at Salish Sea Forum format (Nichole Fagin) where there are presentation but majority of time is small group work then larger interactive workshop

Low do in Silver Creek and link to low return of juvenile Chinook.

Thank you so much! This was so helpful to me personally in bringing me up to speed on the general overview of the state of the bay. I hope that the many other scientists, students, policy makers, educators who would be interested in it can easily access and become aware of the video and presentations from today.

Thank you

Disposal of lunch plates, cups etc unclear. Should be zero waste event.

Not everyone is well versed in the terminology. Definitions and why they are important e.g. stratification, hypoxia, flatu... Also the maps with scientific data I was not sure what I was looking at. More networking time.

Thanks!

get all info in one place; The video going on in the background during introductions was incredibly distracting. The projection screen was too low; obscured for people sitting in the back. It was incredibly powerful to sit and overlook the Bay during this conference! Very good venue thanks for the delicious food, thanks to keeping with the schedule as well.

great work

build in more time for questions, work with WWU to build in some of these projects into class curriculums

great food; a bigger venue so more people can attend; I really like that we all heard the same presentations though - having to decide which track to attend like at bigger conferences is stressful. I liked that I didn’t have to decide here. Also likes that the event was held the same week as the state of the union address.

subgroups for continued collaboration on specific research and/or management topics

Hard to read many slides - graphs and charts; no time for questions a lot of empty seats for a full event that people were turned away from

The symposium was excellent. Not being science based may have affected my rating to be low as I won't utilize the networking as much.

session chairs need to moderate their speakers to stay within given time limits. Most all ran too long.

graphic Chris Krembs with data; get together; big questions and develop models around them ??

Thanks for a very well organized symposium

presenters should explain scientific terms better

would love to partner in water level implementation from Bellingham Bay to Padilla Bay

put time limit on presentations; shorten symposium or split into two days

thanks!

connect with educated activists

The most useful thing for advocacy understanding of Bell Bay science/health/processes would be longer term funding, 1-2 year duration grants are not appropriate

as 80 yrs old opening speakers were not heard by me - please have mikes ready for switch

We need a proceedings or published summary available (and directory and contacts for speakers) on a website for all - the posters, the conclusions and the research needs at the minimum. Not so much about organizing the conference - you have lived it for others but we the audience aren't really concerned with this. Whish more elected officials had stayed. this is important. They should listen with their own ears, not staffers.

more information on acid water

Keep on time! The lack of presenter moderation took away from questions and networking time.

The folks here today are the choir, we need other groups present. Too many agencies and organizations working independently on water issues. We need a coordinated approach and effort and outreach materials. Lets not confuse the citizens we work with and for.

Well done! I appreciated having Lummi Nation representatives but

list of poster presenters and their topics especially students who stepped up to present. Lunch was awesome, Avenue rocks! More networking time

Thank you! Need contact information name, email, and association. Send us email address of presenters plus list of participants and post presenters power points and posters on-line; summary of all needs and gaps identified by speakers
• maybe a time for facilitated discussion groups earlier in the day; the general public is not well-informed about water quality issues; have presenters summarize their scientific data and explain implications as a higher percentage of their presentations (less time on the details of their studies)
• Initially I missed the symposium and wasn't happy, better advertising
• great to have experts doing current research involved in the symposium, like the session format, good PowerPoint’s by all the presenters, like the Lummi involvement
• Thanks to Sue and sub-committee; few policy makers here. Mayor and Executive left. Carl Weimer and Pinky Vargus; Get exposure to electeds beyond Carl; Pinky here was only City Council person attending; Mayor and Executive welcome us then leave. So much for political support.
• Loved the Lummi greeting albeit a bit long
• Have brainstorm for not just research needs but actions that can be taken and how citizens can get involved
• Publish presentations
• shorter presentations, more panel discussion
• Breaks/networking opportunities could be longer or more frequent. It's difficult to sit through ~ 8 hours of presentations and it would be great to be able to interact with people more.
• Do it again next year!
• too much, too heavy, need more time