Coastal Hazards and Risk Communication Forum

Program & Summary

Friday, June 14, 2019, 1:00 pm to 3:45 pm

MEOPAR Annual Scientific Meeting Delta Ocean Pointe Resort, Victoria, BC

Coast and Ocean Risk Communication
Community of Practice

About the Coast and Ocean Risk Communication Community of Practice…

A forum for collaborating, sharing expertise, and improving our understanding and practice of marine and coastal risk communication.

The Coast and Ocean Risk Communication Community of Practice (CORC CoP), established in February 2018, is a forum for people and organizations interested in building knowledge and best practices for communicating risk of coastal or marine hazards such as marine pollution, extreme weather events, tsunamis and earthquakes, sea level rise, coastal flooding, storm surge, sea-ice, or others.

The community is sponsored by the Marine Environmental Observation, Prediction and Response Network (MEOPAR), a part of the Networks of Centres of Excellence (NCE) program.

Interested in exchanging knowledge about marine and coastal risk communication?

- Join our online forum hosted on the Future Earth Open Network platform at **network.futureearth.org/corccop**
- **Subscribe** to our communications list to receive notice of future events, resources, or activities

Please visit our website at **corccop.com** for more information, or email **corccom@gmail.com**.

CoP Leads: Ron Pelot, Dalhousie University, NS; Joel Finnis, Memorial University, NL; Amber Silver, University at Albany, NY
CoP Coordinator: Cindy Marven, Victoria, BC

COASTAL HAZARDS AND RISK COMMUNICATION FORUM
June 14, 2019 1:00pm – 3:45pm

Program

1:00PM – 2:40PM	**Panel Session: Lost in Translation? Communicating Coastal Hazards - From Observations and Models to Risk Messages**
Panelists	Andrea Minano, Armel Castellan, Ryan Reynolds & Thomas James
2:15PM – 2:40PM	Refreshment Break
2:40PM - 3:40PM	**Presentation Session: Coastal Hazard and Risk Communication: Perspectives from Practitioners, Policy-Makers, and Researchers**
2:40PM – 2:55PM	*Surrey Coastal Flood Adaptation Strategy* – Matt Osler
2:55PM – 3:10PM	*Challenges when evacuating First Nations' coastal communities* – Laurie Pearce
3:10PM – 3:25PM	*Improving end-to-end tsunami notification along Canada's West Coast: Current challenges and new opportunities* – Peter Anderson
3:25PM – 3:40PM	*Marine Forecast Production & Application in Newfoundland Fisheries* – Joel Finnis
3:40PM – 3:45PM	Forum – Concluding remarks
3:45PM – 4:00PM	MEOPAR Annual Scientific Meeting Concluding Remarks – Doug Wallace, MEOPAR Scientific Director

1:00-2:15 PANEL DISCUSSION: Lost in Translation? Communicating Coastal Hazards: From Observations and Models to Risk Messages

SESSION MODERATOR: Joel Finnis, Memorial University of Newfoundland, NL, CORC CoP Co-Lead

The communication of hazard-related information usually begins with the detection of a potential hazard through observation of phenomena. The data are analyzed and/or modeled and meaning or implications are drawn from the results. Depending on the time scale of the anticipated hazard, this is then communicated in a variety of ways (reports, sirens, alerts, images, simulation, maps, narrative, graphs, numerical equations), to one or many audiences (same agency, different agencies, decision-makers, public). At each step of the communication process, the message format and content can be (or may need to be) altered to fit the audience, channel, or circumstances. The selection of data or model outcome to communicate, the communication of uncertainty or probability, as well as aspects of the message format and content may result in the communication of a meaning different than initially intended or a message that amplifies one aspect but attenuates another. Testing processes and messages with the end-user and obtaining feedback, is critical, but may not always occur. Traditional media (radio, TV, print or electronic media) and social media play a strong role in hazard information dissemination exchange with both challenges and opportunities for interaction, multi-directional information flow, information gathering and dissemination. The panelists will discuss the challenges of maintaining the fidelity of the message meaning for each audience through the multi-step communication process for a variety of coastal hazards such as sea-level rise, flooding, extreme weather events, and tsunamis.

MEET THE PANELISTS

Andrea Minano, PhD Candidate, Department of Geography and Environment, University of Waterloo, Waterloo, ON. Focus: Geographic Information Systems (GIS); visualization; simulation; flood risk; mapping

Andrea is a specialist in Geographic Information Systems and has previously worked for municipal, provincial and federal governments as well as the insurance industry. Andrea's research and work experience are highly interdisciplinary ranging from visualization of flood risk, community-based climate adaptation and flood risk management policy. Andrea's current research focuses on public and private responsibilities in flood risk management and identifying opportunities for strengthening flood resiliency in Canada.

Armel Castellan, Warning Preparedness Meteorologist, Environment and Climate Change Canada (ECCC), Victoria, BC. Focus: customized weather and climate information for emergency preparedness and response; climate and weather communication and interpretation

Armel works with external and internal clients to assist them in understanding custom interpreted weather and climate information and to make operational decisions to optimize safety, efficiency and business continuity. Clients include emergency management organizations, Emergency Management BC, municipalities, provincial and federal ministries, departments and the media. In Spring 2018, he represented the Meteorological Service of Canada in a collaborative engagement effort in the Beaufort Arctic where UVic Geography researchers Dr. David Atkinson and Dr. Laura Eerkes-Medrano have established relationships with communities allowing for meaningful exchanges on what is required to provide better weather products for hunting and safety purposes. Armel is responsible for the production and delivery of weather-related contributions to the BC Provincial Technical Drought Working Group. He collaborates with other regional and national working groups and coordinated ECCC's role in federal government exercise *Pacific Quake 2016* paralleling *Cascadia Rising* (NOAA) and *Coastal Response* (Province of BC). Armel also conducts outreach and educational events for many agencies around the province including the Climate Action Secretariat and the Coast Guard Auxiliary.

Ryan Reynolds, Post-Doctoral Research Fellow, University of British Columbia, Vancouver, BC. Focus: tsunami risk, warning, and evacuation; GIS and online tools for vulnerable households to increase resilience.

Ryan's research explores how Geographic Information Systems (GIS) and other spatial analysis tools can be used to communicate natural hazards risk, assist vulnerable households and communities to prepare for and respond to hazards-related emergencies, and to drive for more resilient communities. His work specifically addresses hazards risk mapping, risk communication, and how online and mobile tools can be used to assist vulnerable households to prepare for and respond to hazards-related emergencies. As part of the MEOPAR-funded Resilient-C team, he is helping to improve coastal hazards resilience by connecting similar communities across Canada in order to share lessons learned and best practices. Recent research with Alexa Tanner

(UBC) focused on an analysis and evaluation of public and official perceptions of the tsunami warning and evacuation of the Alberni Valley, following the 2018 tsunami warning. He is also in the process of redeveloping his tsunami alert monitoring system, WAVE, to improve how alerts are presented to potentially affected B.C. residents.

Thomas James, Research Scientist, Geological Survey of Canada-Pacific, Sidney BC. Focus: past and present-day sea-level change; sea-level projections; natural hazards, climate change

Tom joined the Geological Survey of Canada (GSC) in 1991 and has carried out research on past and present-day sea-level change and crustal motion. Much of his research has focused on the tectonically active and earthquake-prone Cascadia Subduction Zone of coastal British Columbia. He has also studied the Canadian Arctic and Antarctica and has led projects on coastal geoscience and on natural hazards in the climate change and natural hazards programs of the Earth Science Sector, Natural Resources Canada. Tom was lead guest editor for a special volume on the 2012 Haida Gwaii earthquake, which was Canada's second largest historical (instrumentally recorded) earthquake. In recent years he has been working on sea-level projections. He is an editor for a volume on climate change and Canada's coasts.

PANEL DISCUSSION

Discussion Theme: Lost in Translation? Communicating Coastal Hazards: From Observations and Models to Risk Messages

Key Points

1. Communication and information quality can *improve with closer physical proximity and/or by building relationships and communication connections* among people in the information exchange system.
2. Find out what information *decision-makers need* to make a decision, and provide it to them in a way that *makes sense to them* and meets *their* needs in the time frame available.
3. If there is an audience for whom the information you provide is critically important, *test the message and mode of communication* with them and get feedback to improve it, before it is needed.
4. *Geovisualization can help make distant or remote hazards seem 'real' and pertinent* to people in their communities, helping them to understand the potential hazard impacts and accept and endorse decisions relating to climate change mitigation and adaptation and disaster risk reduction. Geovisualization can also be used by communities to communicate about hazards to others (e.g., funding agencies or government).
5. Communicating about *hazards with high levels of uncertainty* is challenging but critically important. For example, how should we communicate about uncertain, low-likelihood, high-end cases for sea-level rise? Decisions about how to communicate need to reflect the context of the hazard and the level of risk tolerance.
6. It may be useful to establish principles for communicating about sea-level rise – for example:
    i. Focus on certainty, not uncertainty - communicate what we *do* know with confidence, as well as the high impact, low-probability extreme cases.
    ii. Don't base the guidance a single research finding. Instead, rely on the body of evidence, and don't 'add hazard' until there is a body of literature supporting it.

iii. Be conservative in communications, but at the same time, recognize there is the potential for an extreme case so that situations of low risk tolerance (situations with high consequences should the hazard materialize) can be adequately addressed.

iv. Adopt the precautionary principle without being alarmist and focus on providing a consistent message to retain public confidence.

v. There are large differences in the impacts between the low and high emission pathways. Reduction of emissions is an effective way to lessen the impact of climate change.

vi. The media tend to focus on extreme and attention-grabbing messages and may not emphasize the more likely outcome.

vii. Decision-makers need to assess risk tolerance contexts when deciding whether or not to follow high-end cases (e.g. low likelihood, high uncertainty, high sea-level scenarios) for their case.

7. It's difficult to communicate uncertainty using geovisualization techniques; geovisualizing climate change-related hazards, using the emissions scenarios can be useful (e.g., showing sea level rise assuming a future with high carbon emissions vs. low carbon emissions).

8. Decision-makers can only make decisions based on the best available evidence at the time. Weigh the potential negative consequences and costs of overstating the problem versus the consequences and costs of understating the problem – it comes back to risk tolerance. We need to update plans as time passes.

9. Generally, we usually err on the side of caution if time for weighing response options is short and the alternatives involve weighing inconvenience against potential loss of lives. With short time frames, it's often advisable to prepare for the worst case scenario, while weighing risks of actions or inaction.

10. How prepared are we, as a nation, or province? The BC Auditor General, along with other provinces, and the Canadian Auditor General assessed our climate risk preparedness. For BC, our preparation was found to be inadequate but the BC Government has committed to developing a preparedness strategy by 2020.

Podium: Joel Finnis Seated L-R: Tom James, Armel Castellan, Ryan Reynolds, Andrea Minano

Discussion Summary

1. Information quality and understanding improves with closer physical proximity and/or building relationships among people in the information exchange system.

- People who are primarily information users can not only indicate what modes or formats work best for them, but they can also contribute valuable local knowledge that improves the overall quality and/or utility of the information exchanged.
- On southern Vancouver Island (Sidney, BC), the Meteorological Service of Canada and Emergency Management BC are housed in the same building, allowing forecasters and EMBC staff to interact frequently, enhancing mutual understanding of each organization's operations and improved communication.
- A trip to the Beaufort Sea by meteorologists who normally operate in southern Canada allowed them to develop connections with people who live and work there who have local knowledge about conditions and practices/activities (e.g., air travel), creating long-term relationships and improvements in forecasts.
- A geovisualization tool was built by researchers to understand the perceptions of people living in a Nova Scotia community about climate change and to communicate local sea-level rise impacts to their community. The tool was improved by feedback and contributions from community members and was later used by the community to communicate needed changes in a funding request to government for carry out adaptation measures to a key transportation route identified by residents which is threatened by projected sea-level rise.

2. Find out what information decision-makers need and provide it to them in a way that makes sense to them and meets their needs. Meeting and talking together makes this process more effective. For example:

- Canadian Forces members needed to know the sea-ice extent in an operational area. The vessel crew was not familiar with the specialized language used by meteorologists to communicate about sea-ice extent. Meteorologists isolated the information needed, and created maps with 'go' and 'no go' zones to communicate the required information to the vessel crew. Being able to speak directly to people using the information helps the provider understand what is needed and provide it in a way that works well for the user.
- During emergencies, in briefings to emergency managers, forecasters familiar with the decision-making needs of emergency managers due to their workspace proximity and/or ongoing professional relationships, are able to focus on communicating only the conclusive or summarized information needed by emergency management (EM) decision-makers for their decisions. Giving EM decision-makers too much information means delay as EMs would have to connect the dots themselves wasting valuable time.
- Maps of flood risk or tsunami inundation zones need to be accessible and available and show people where their property (or their location) is relative to the hazard zone boundaries so they can make an informed decision about whether or not they *need* to evacuate, what route to take, and safe destinations, if they do need to evacuate. We need to consider how this information (or information about how to find the maps) could be made available so that it can reach people.

3. If it is critically important for your audience to reliably and quickly receive and understand your message, it is extremely important to test the message and mode of communication with them and get feedback to improve it before it is needed. A few examples from a tsunami warning event:

- Don't assume that people understand the message or that they receive it. Step through the full process from the perspective of the audience, from obtaining information, making decisions, and taking protective action.
- People who are accustomed to hearing a test siren may not recognize the sound of the real-event siren if it is different. Make sure everyone in the community can hear the siren. It is not sufficient to alert people to get to 'higher ground' in the event of a tsunami without clearly indicating where 'higher ground' is, how to get there, and letting them know when they've reached safety.
- Make sure people have multiple ways of getting updated information during an emergency and they know where to get more information. Delays occur, as people try to confirm information they have received and/or try to find out more information before they make decisions about taking protective actions.

4. Geovisualization can make hazards seem 'real' and pertinent to people in their communities, helping them to understand the potential hazard impacts or implications of decisions relating to mitigation or adaptation. There are many different types of geovisualization methods and approaches including augmented reality and three-dimensional (3D) visualizations.

- Climate change impacts are sometimes thought of as distant in time, and remote, and happening to others. Geovisualization techniques help people visualize impacts of climate change that could occur to them in their communities, under different climate scenarios.
- Communicating levels of uncertainty when using geovisualization techniques can be difficult.
- Geovisualization tools can be used to communicate *with* communities, but also *by* communities to agencies or governments to support requests for funding to make adaptations (e.g., flood risk adaptations; sea-level rise adaptations)
- Geovisualization can be used to communicate the extent and/or urgency of hazard (e.g., the Weather Channel's use of 3D storm surge visualization to show potential water depth).

5. Communicating uncertainty is challenging but critically important for all types of hazards. Decisions about how to communicate or whether to communicate about uncertainty need to be made incontext of the hazard and the valued activities and artifacts that are at risk. Uncertainty in hazard communication is inherent given that the uncertain likelihood of an event or process is an aspect of risk, and decisions about protective actions, adaptation or risk mitigation must be made in the face of uncertainty.

- There is uncertainty around the amount of sea-level rise expected due to incomplete understanding of the projected behaviour of the Antarctic ice sheets (projections could be low) that could introduce positive feedback in the system, accelerating sea-level rise, even if we reduce emissions. Canada's report on marine coasts, which includes sea-level projections, states that the numbers might be off by tens of centimetres due to insufficient understanding of this part of the system.

- There *is* relative certainty about what might happen up to 2050-2060 in terms of sea-level rise.
- It's probably not wise to immediately follow the findings of one paper; wait for the body of evidence
- *Focus on communicating what we know with confidence and certainty first* (e.g., sea-level rise projections up to 2050-2060); so if you have a 30 to 40 year planning horizon these are fairly robust projections for any scenario.
- Sea-level is projected to continue to rise by many metres under a high-emission scenarios in coming centuries, while strong emission reductions may limit global sea-level rise to about one metre.
- Countries have approached the question of providing a 'high-end' case differently (high-end referring to lower-likelihood, larger amounts of global sea-level rise). A few countries (including Canada) include high-end cases, and the USA considers an extreme case (very low likelihood) of 2.5 m by 2100. This case is based on literature that was viewed with lower confidence by the Intergovernmental Panel on Climate Change (IPCC). Many countries base their guidance on the IPCC reports.

- The next IPCC report will likely include an increase of tens of centimetres (at 2100) for a high-emission scenario.
- Principles for communicating about sea-level change could include:
  - Communicate what we *do* know with confidence, such as projected sea-level change in the coming few decades, as well as the uncertainty of projected sea-level rise at later times, which includes low-probability, high-impact amounts of projected sea-level rise.
  - Don't base the guidance a single research finding. Instead, rely on the body of evidence, and don't 'add hazard' until there is a body of literature supporting it.
  - Be conservative, but at the same time, recognize there is the potential for an extreme case so that situations of low risk tolerance (situations with high consequences should the hazard materialize) can be considered for the purpose of preparation.
  - Adopt the precautionary principle without being alarmist and focus on providing a consistent message to retain public confidence.
  - There are large differences in the impacts between the low and high emission pathways. Reduction of emissions is an effective way to lessen the impact of climate change.

Audience and Panel Discussion

1. How can we communicate uncertainty across different hazard types (slow and fast onset for example) and with geovisualization?

- It's difficult to communicate uncertainty using geovisualization techniques. For climate change related hazards, using the emissions scenarios is useful.
- Communicating probabilities to the public can be difficult. Hurricane communication uses a 'cone of uncertainty' to visualize and communicate the uncertainty of the potential hurricane track. Focus on providing information in advance and continue to refine information as the event nears.
- Forecasters take the approach of providing a worst case scenario (e.g, 300-500 mm) but also a more likely scenario (200 mm). People making decisions can then choose which case to follow, depending on their purpose, and decide whether to prepare for the unlikely worst, or the more likely less extreme situation. For example, for low risk tolerance situations, preparations costing $50,000 to $60,000 are made to prevent costs in the millions if the worst case materializes.
- It is useful to define the risk tolerance in different situations. For example, a low tolerance to risk of sea-level rise could be represented by the case of a choosing a location for a nuclear facility. It is good practice to communicate the likely sea-level rise and the high-end case, under different assumptions about future emissions. A challenge is that high-end cases may be reported by the media as likely rather than a low-likelihood scenario.
- In some cases, we can plan to adapt to projected changes by 2050-2060, and, at a later date, make further adaptations in response to actual changes and to updated projections.

2. What if we make adaptations and then it is worse than what we were told?

- This may happen – but we can only make decisions on the best available evidence at the time.
- We could also ask what are the potential negative consequences of having to increase adaptation actions versus overpreparing (the costs of overstating the hazard versus the costs of understating the hazard).
- There is the question of risk tolerance – in some situations, decisions would be best made assuming a worst case, due to a lower tolerance to risk. In other situations, with less sensitivity to risk, decision-makers may be able to accept the risk of an extreme outcome as there is less at stake or a greater capacity to respond, should the extreme situation occur.

3. What if we overstate or understate shorter-term hazards (e.g., tsunami warning and evacuation; weather forecasting)?

- With tsunamis, sometimes we may choose to evacuate a larger area to be safe (under conditions of uncertainty) rather than the alternative, which is not to evacuate the larger area, and risk greater loss of life. Inconvenience to individuals is weighed against potential loss of life – usually emergency managers err on the side of caution. If you are operating on a very short time frame, you go with the worst-case scenario. If you have a bit longer you may be able to evacuate in stages as the situation unfolds.
- From the hazardous weather perspective, there are a very large number of alerts issued. There is the chance that decision-makers get overwhelmed by them. The forecaster has to focus on the core messages and use timed (beginning a week or days in advance) releases of alerts. If you have 15

minutes to communicate weather information to a wildfire manager with 400 people on the phone, you need to be brief and selective about what you impart.

- With sea-level rise, the time-frame is decades and centuries, although some locations currently experience nuisance flooding that is increasing and needs to be dealt with immediately. As time passes we may have increasing certainty about the emissions pathways we are following. In many localities, it will be possible to make adjustments to our adaptation activities in response to changing conditions and projections.

4. How well are we prepared for climate change risk, as a nation, in terms of infrastructure investments, with respect to sea-level rise?

- BC has sea-level guidelines and we know what sea-levels will be up to 2050 to 2060. Are we preparing? The effects of projected sea-level change are under consideration and being discussed.
- It also goes much beyond just infrastructure – policy change, capacity building, information (e.g., flood maps), land-use planning – all politically contentious.
- "Never let a disaster go to waste" - we need to speak up when the window of opportunity is open and people are receptive to listening to requests for change; this builds support for funding and changes that are needed.
- Neither the human, nor natural worlds are static – always changing. You may make a plan today, but it's going to need to be updated and modified. For example, our communities are ageing, and the needs of elderly with respect to hazards are different than younger people.
- With respect to weather, the intensifying heat over longer periods of time is hazardous in particular to older people. The World Meteorological Association discussed and noted the change in frequency and amplitude of these events due to the vulnerability of elderly people to heat, particularly following the multi-week >38 °C event in France in 2003 when thousands of seniors died as a result of the heat wave. We are now thinking about how to prepare for this hazard.
- The BC Auditor General's report for BC showed that the response to the threat of climate risk was inadequate and the BC government has committed to developing a strategy by 2020 to better manage this risk.

2:40PM – 3:40PM PRESENTATION SESSION: Coastal Hazard and Risk Communication: Perspectives from Practitioners, Policy-Makers, and Researchers

MEET THE PRESENTERS

Laurie Pearce, Research Associate, Justice Institute of BC; Associate Faculty, Royal Roads University; Partner at Pearces 2 Consulting Corporation

Laurie has lived in the District of North Vancouver since 1985 and is an associate faculty member at Royal Roads University, a Research Associate at the Justice Institute of British Columbia (JIBC) and adjunct faculty member at the British Columbia Institute of Technology. She currently sits on Canada's Platform for Disaster Risk Reduction Advisory Committee she also contributes to the not-for-profit sector and is a member of the BC Disaster Psychosocial Services (DPS) Council and a volunteer of the DPS Team; and is an executive member of the Woodlands, Sunshine and Cascades Ratepayers Society. Laurie is engaged in a number of projects regarding disaster resiliency and First Nations in partnership with Wilfrid Laurier University and she continues to assist governments and other organizations in policy evaluation, training and education through Pearces 2 Consulting Corporation. Laurie also brings with her 30 years of experience working with the provincial government in British Columbia with responsibilities in direct service delivery, staff training, policy and research, and strategic planning.

Matt Osler, Senior Project Engineer, City of Surrey

Matt has been leading Surrey's coastal flood and sea level rise related climate adaptation work for the past six years. He studied Civil Engineering at Queen's University and completed a Master of Business Administration from Simon Fraser University. He has over 10 years of flood management experience and previously worked in the Canadian Coast Guard before joining the City of Surrey Engineering Department.

Peter Anderson, Director of the Telematics Research Lab and Associate Professor of Communication at Simon Fraser University

Peter Anderson is the Director of the Telematics Research Lab and Associate Professor of Communication at Simon Fraser University. He has an international background in research and teaching in the fields of telecommunications, media, information systems, communication policy and risk communication. During the past thirty years he has participated in the design and implementation of electronic communication and information systems for disaster risk reduction in collaboration with the United Nations, NATO, scientific, government and non-government disaster management organizations and is frequently called upon to assist during emergency and disaster events. Peter is currently collaborating with Canadian federal, provincial and territorial agencies, local authorities

and responders on new methods for improving intra and interagency communications for mission critical operations, public warning and situational awareness. Most recent projects include carrying out a comprehensive review of British Columbia's West Coast tsunami notification arrangements and establishing Canada's first in-field test facility for deployable mobile cellular systems in support of Canada's new national Public Safety Broadband Network initiative.

Joel Finnis, Associate Professor, Memorial University of Newfoundland

Joel is a geographer, atmospheric scientist, and Co-Lead of the Coast & Ocean Risk Communication Community of Practice. His research interests include climate dynamics, marine weather, and climate/weather communication; current efforts include the development of novel forecast techniques and analyses of marine forecast use in fisheries.

PRESENTATIONS

Laurie Pearce, Research Associate, Justice Institute of BC; Associate Faculty, Royal Roads University, Victoria, BC; Partner at Pearces 2 Consulting Corporation, North Van, BC

Title: Challenges when Evacuating First Nations' Coastal Communities

Funded by Indigenous Services Canada, Drs. Laurie Pearce and Brenda Murphy, led a research team in 2017/2108 to meet with First Nations communities across Canada who had been either subjected to a disaster-related evacuation or had been a host community to a First Nations community that had been evacuated. Our findings led to a series of recommendations for evacuating First Nations communities and for host communities (Indigenous and non-Indigenous). This presentation will touch upon some the findings, the challenges and some steps for moving forward. ***From Displacement to Hope: Indigenous Stories*: Videos / Written Format (Posted on Canadian Risk and Hazard Network website).**

Matt Osler, Senior Project Engineer, City of Surrey, BC

Title: Surrey Coastal Flood Adaptation Strategy

Over the past 3 years, City of Surrey has engaged a variety of stakeholders and partners in developing a coastal flood adaptation strategy. This presentation will introduce the communications materials developed, results, challenges and lessons learned. View the Phase 1-3 Engagement Report here.

Peter Anderson, Director of the Telematics Research Lab and Associate Professor of Communication at Simon Fraser University, Burnaby, BC.

Title: Improving end-to-end tsunami notification along Canada's West Coast: Current challenges and new opportunities.

In the past decade, many improvements have taken place to strengthen the means and processes required to notify at-risk-populations about tsunamis hazard events along the West Coast of Canada. Despite these efforts, numerous challenges remain that impede effective communication in many regions. Among them are: complex geography, poor line-of-sight, widely varying levels of access to services (especially basic fixed and cellular telephone, Internet and local broadcasting services) due to high infrastructure costs, small supporting populations, greater distances from larger centres and widely dispersed populations that

fluctuate according to seasonal variations and economic circumstances (tourism, fishing, logging, aquaculture, etc.). Consequently, authorities and partner agencies must employ an array of methods to receive official tsunami event notifications and disseminate alerts and messages to populations-at-risk.

Joel Finnis, Associate Professor, Memorial University of Newfoundland, St. John's, NL

Title: Marine Forecast Production & Application in Newfoundland Fisheries

Marine areas present a uniquely challenging working environment, in part due to the variety of ocean & weather hazards present. Marine forecasts remain a key tool for mitigating the impact of these hazards, while informing risk-based decision-making. The practice forecast production and dissemination is evolving rapidly with new technology, identified needs, and growth in the private forecast industry; at the same time, forecast users continue to explore new sources and means of accessing information in an attempt to better meet their needs. It is not, however, clear that marine forecast production and use are always evolving together, particularly in sectors with limited direct contact with meteorological service providers. Through interviews with forecast producers and users, we contrast current practices of forecast production, communication, and application in a hazard-rich cold-ocean environment. In addition to exploring user needs, we look at ways practitioners and end-users think about marine forecasting, balance observations and predictions, and adjust behavior in response to critical events. Communication between producers and end-users, as well as between colleagues, is considered, and parallels are drawn between forecast production practices and in-situ interpretation among fisheries workers.

Resources

AR5 – IPCC Fifth Assessment Report
https://www.ipcc.ch/assessment-report/ar5/

Canada's Changing Climate Report. https://www.nrcan.gc.ca/environment/impacts-adaptation/21177

Canadian Centre for Climate Services https://www.canada.ca/en/environment-climate-change/services/climate-change/canadian-centre-climate-services.html

Managing Climate Change Risks: An Independent Audit. https://www.bcauditor.com/pubs/2018/managing-climate-change-risks-independent-audit

What's That Sound? Public & Official Perceptions of the January 2018 Tsunami Warning and Evacuation in the Alberni Valley. Final Findings – March 2019
https://www.portalberni.ca/sites/default/files/What%27s%20That%20Sound%20-%20Final%20Report.pdf

City of Surrey Coastal Flood Adaptation Strategy. https://www.surrey.ca/city-services/19888.aspx

From Displacement to Hope. First Nations Evacuation Stories – Videos: http://bit.ly/2ZYvdLS and in written form: https://crhnet.ca/sites/default/files/library/From_Displacement_to_Hope__Stories_.pdf . (Located on Canadian Risk and Hazards (Knowledge and Practice) Network Website)

The Coast and Ocean Risk Communication Community of Practice sincerely thank the panelists and presenters for their generous contributions of time, effort, and expertise to this event.

L-R: Ryan Reynolds (Panelist) Cindy Marven (CoP Coordinator), Peter Anderson (Presenter), Ron Pelot (CoP Lead), Joel Finnis (CoP Lead and Presenter), Tom James (Panelist), Matt Osler (Presenter), Laurie Pearce (Presenter), Armel Castellan (Panelist). Missing: Andrea Minano (Panelist).

We respectfully acknowledge that the ASM and Forum took place on the territory of the Lkwungen-speaking peoples and the Songhees, Esquimalt, and Saanich First Nations whose ongoing historical relationships with the land continue to this day.