

WASHINGTON STATE
Academy of Sciences
Science in the Service of Washington State

May 12, 2020

Julie Watson
Killer Whale Policy Lead
Washington Department of Fish & Wildlife
PO Box 43200
Olympia, WA 98504-3200

Dear Julie,

The Washington State Academy of Sciences (WSAS), in order to fulfill the Statement of Work for the Underwater Acoustics and Orca Project with the Washington Department of Fish and Wildlife (WDFW Contract 19-14506), organized a convening to engage stakeholders and provide stakeholders with experience on the impact of whale watching, small vessel impacts, and underwater acoustics an opportunity to share relevant research and stakeholder perspectives with the committee.

The workshop was held on May 6, 1:00-3:00 pm PT virtually, via videoconference, and resulted in stakeholder perspectives on the research for the WSAS committee to consider.

To accompany this memo, I have attached the following workshop materials that were provided to participants:

- Workshop invitation
- List of invitees and participants
- Workshop agenda
- List of WSAS committee members
- WSAS code of conduct
- WSAS: Who are we

Please let me know if you have any questions.

Sincerely,



Donna Gerardi Riordan
Executive Director

C: Yasmeen Hussain, Associate Program Officer

From: Yasmeen Hussain <Yasmeen.Hussain@washacad.org>
Sent: Thursday, April 30, 2020
To: Yasmeen Hussain <Yasmeen.Hussain@washacad.org>
Cc: Donna Riordan <donna.riordan@washacad.org>; Devon Thorsell <Devon.Thorsell@washacad.org>
Subject: Invitation to Stakeholder Workshop on SRKW Underwater Acoustics and Disturbance

We are writing to invite you to a stakeholder workshop on vessel-related underwater acoustics and disturbance of Southern Resident Killer Whales, hosted by the Washington State Academy of Sciences (WSAS) study committee on underwater acoustics and disturbance. This workshop will be held on **Wednesday, May 6, 1pm-3pm PT**. This workshop will be held fully **virtually**, by videoconference.

The Washington Department of Fish and Wildlife (WDFW) has asked WSAS to conduct a scientific and technical review of the best available science on disturbance and noise impacts to Southern Resident Killer Whales (SRKW) from small vessels and commercial whale watching, as requested by the Washington State Legislature (SSSB 5577). This Underwater Acoustics and Disturbance Project will inform the development of new WDFW regulations for a commercial whale watching licensing program in Washington State.

As part of the WSAS process, the study committee is hosting this workshop to engage stakeholders. This workshop provides an opportunity for stakeholders with experience on the impact of whale watching, small vessel impacts, and underwater acoustics to share relevant research and stakeholder perspectives with the committee.

RSVP for this workshop by responding to yasmeen.hussain@washacad.org as soon as possible, by May 4, 2020. Please also complete the following pre-meeting **questionnaire** to ensure the study committee is able to hear from you: https://wsu.co1.qualtrics.com/jfe/form/SV_cTMNZRoWTGFy1Zr .

The meeting materials attached to this email are:

- WSAS Code of Conduct
- List of WSAS committee members
- WSAS: Who Are We

Additional meeting materials will be sent to confirmed attendees prior to the workshop, including:

- Workshop Call-In Information
- Workshop Agenda

For meeting security, only individuals who have RSVP'd will be admitted to the workshop. If there are other individuals who you believe should be invited, please send their contact information to yasmeen.hussain@washacad.org as soon as possible.

Please RSVP for this Stakeholder Workshop by emailing yasmeen.hussain@washacad.org by COB May 4, 2020 and complete the [pre-meeting questionnaire](#).

Sincerely,

Yasmeen Hussain
Associate Program Officer

Cc: Donna Gerardi Riordan, Executive Director; Devon Thorsell, Program Operations Manager

You are receiving this message because of you or your organization's participation in the Southern Resident Orca Task Force. We apologize for the inconvenience if you received this email twice.

You are receiving this message because of your participation or interest in the Vessels Working Group of the Southern Resident Orca Task Force. We apologize for the inconvenience if you received this email twice.

From: Yasmeen Hussain <Yasmeen.Hussain@washacad.org>
Sent: Tuesday, May 05, 2020
To: Yasmeen Hussain <Yasmeen.Hussain@washacad.org>
Cc: Donna Riordan <donna.riordan@washacad.org>; Devon Thorsell <Devon.Thorsell@washacad.org>
Subject: Call-In and Agenda – 5/6 Underwater Acoustics and Disturbance Workshop

We are looking forward to the Underwater Acoustics and Disturbance workshop on Wednesday, May 6, 1-3pm PT. In addition to the workshop materials provided previously, attached you will find the **workshop agenda** and a **list of invitees** to the workshop.

We will be using Zoom **videoconferencing** for this workshop. For meeting security, only individuals who have RSVP'd will be admitted to the workshop. Please use the below information to access the meeting:

Join from PC, Mac, Linux, iOS, or Android:

<https://wsu.zoom.us/j/96846254076?pwd=YUNMM1ZNampjbXRTVnZHV2hHVmNMdz09>

Meeting ID: 968 4625 4076

Password: 931662

Phone Call (US) +1 253 215 8782 ; Meeting ID: 968 4625 4076

One Tap Mobile Call (US) +12532158782,,96846254076#

Find your international phone number: <https://wsu.zoom.us/u/ac0qn22Mwz>

If you think you may need to call into the meeting by telephone, you must email your phone number to devon.thorsell@washacad.org by May 6 at 12pm (1 hr before the meeting begins), so that we can identify you to let you in to the meeting.

Due to increased security concerns, our Zoom administrator has instituted the following requirements:

1. All participants must have a Zoom account to access the meeting by video. You may use a work account or a personal account to join. The invitation to this workshop was due to your own expertise, and you will not be expected to represent your organization/institution at the meeting. If you run into issues with the internet bandwidth required for Zoom or are concerned about technical difficulties, we encourage you to use the dial-in telephone option ([more info](#) about meeting controls by phone).
2. All Zoom meetings will be password protected and have additional meeting controls to prevent unauthorized access. **If you think you may need to call into the meeting by telephone, you must email your phone number to devon.thorsell@washacad.org by May 6 at 12pm (1 hr before the meeting begins)**, so that we can identify you to let you in to the meeting. For meeting security, only individuals who we can identify as RSVP'd invitees will be admitted to the workshop.

We will go over logistics for the meeting before getting started on Monday, but in the meantime, please reach out to our Program Manager at devon.thorsell@washacad.org if you have any questions or concerns about the platform. Attached you will find a **Zoom cheat sheet**. If you are unfamiliar with Zoom, please plan to log in 10 minutes early to ensure that the program is working for you.

We are looking forward to hearing from you at this workshop. All of the guidelines we have put in place are designed to ensure that the committee is able to hear from each one of you at this meeting. Please feel welcome to email me with any additional thoughts.

Regards,
Yasmeen

From: Devon Thorsell <Devon.Thorsell@washacad.org>
Sent: Thursday, May 7, 2020
Subject: Provide Feedback on 5/6 Underwater Acoustics and Disturbance Stakeholder Workshop

Dear Workshop Participants,

Thank you for your engaged participation in the **WSAS Underwater Acoustics and Disturbance Stakeholder Workshop** on May 6.

Please take a few minutes to **provide WSAS feedback on the virtual workshop experience by Thursday, May 14**. The survey will take about 5 minutes. Your feedback will help us structure future virtual workshops.

https://wsu.co1.qualtrics.com/jfe/form/SV_5msM0YBjbd9bkUJ

Please feel welcome to contact yasmeen.hussain@washacad.org with any additional thoughts about relevant studies or data that may be helpful to the committee.

We will keep the pre-meeting questionnaire open through Thursday, May 14 as well to collect additional responses from this group. Thank you again!

Best,

Devon Emily Thorsell
Program Operations Manager

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INVITEES TO STAKEHOLDER WORKSHOP ON
 UNDERWATER ACOUSTICS AND DISTURBANCE OF SRKW
 UNDERWATER ACOUSTICS AND DISTURBANCE STUDY
 MAY 6, 2020, 1:00-3:00 PM PT

(in alphabetical order)

	First name	Last name	Affiliation	Attended
1	Shane	Aggergaard	Island Adventures	Y
2	Susan	Andersson	WildOrca	Y
3	Rachel	Assink	WA Department of Ecology	Y
4	Rein	Attemann	Washington Environmental Council	Y
5	David	Bain	UW; Orca Conservancy	Y
6	Kelley	Balcomb-Bartok	Pacific Whale Watch Association	Y
7	Lynne	Barre	National Oceanic and Atmospheric Administration	Y
8	Gary	Chandler	Association of Washington Business	Y
9	Christopher	Clark	Cornell University	Y
10	Amanda	Colbert	Orca Network	Y
11	Peter	Dahl	University of Washington Applied Physics Lab	Y
12	Jeff	Dickison	Squaxin Island Tribe	Y
13	Margaret	Dour	US Navy	Y
14	Grace	Ferrara	National Oceanic and Atmospheric Administration	Y
15	Steve	Finney	Recreational Boaters Association of Washington	Y
16	Denien	Ford	BC Chamber of Shipping	Y
17	Jeff	Friedman	Pacific Whale Watch Association	Y
18	Deborah	Giles	WildOrca	Y
19	Wayne	Gilham	FlowDesign, Inc.	Y
20	Cecilia	Gobin	Northwest Indian Fisheries Commission	Y
21	Dawn	Grebner	US Navy	Y
22	Cindy	Hansen	Orca Network	Y
23	Todd	Hass	Puget Sound Partnership	Y
24	Sonja	Henneman	Transport Canada	Y
25	Marla	Holt	National Oceanic and Atmospheric Administration	Y
26	Michael	Jasny	NRDC	Y
27	Christina	Koons	Northwest Straits Commission	Y
28	David	Lusseau	University of Aberdeen	Y
29	Nicole	Mathews	Transport Canada	Y
30	Paul	McCollum	Port Gamble S'Klallam Tribe	Y
31	Kendra	Moore	Fisheries and Oceans Canada	Y

32	Whitney	Neugebauer	Whale Scout	Y
33	Nora	Nickum	Seattle Aquarium	Y
34	Dawn	Noren	National Oceanic and Atmospheric Administration	Y
35	Gerry	O'Keefe	Washington Public Ports Association	Y
36	Joe	Olson	Cetacean Research Technology	Y
37	Rich	Osborne	UW Olympic Natural Resources Center	Y
38	Susan	Parks	Syracuse University	Y
39	Kathy	Pittis	Commissioner, Port of Anacortes	Y
40	Ivan	Reiff	Western Prince Cruises	Y
41	Sophia	Ressler	Center for Biological Diversity	Y
42	Frances	Robertson	San Juan County	Y
43	Michelle	Sanders	Transport Canada	Y
44	Donna	Sandstrom	The Whale Trail	Y
45	Joe	Scordino	Retired, former NOAA Deputy Regional Administrator	Y
46	Raymond	Scott	Kitsap Transit	Y
47	Jessica	Stocking	Washington Department of Fish and Wildlife	Y
48	Kristin	Swenddal	Washington State Department of Natural Resources	Y
49	Ron	Thom	Pacific Northwest National Laboratory	Y
50	Janet	Thomas	Orca Relief Citizens' Alliance	Y
51	Dom	Tollit	SMRU Consulting	Y
52	John	Veentjer	Marine Exchange of Puget Sound	Y
53	Scott	Veirs	BeamReach	Y
54	Susie	Washington-Smyth	Saturna Island resident	Y
55	Julie	Watson	Washington Department of Fish and Wildlife	Y
56	Monika	Weiland-Sheilds	Orca Behavior Institute	Y
57	Jacques	White	Long Live The Kings	Y
58	Allen	Agor	US Navy	
59	Amos	Almy	Washington State Parks and Recreation	
60	Mary	Anderson	US Navy	
61	Erin	Ashe	Oceans Initiative	
62	Jenny	Atkinson	The Whale Museum	
63	JT	Austin	Governor's office	
64	Ken	Balcomb	Center for Whale Research	
65	Andrea	Ballaholden	US Navy	
66	Lance	Barrett-Lennard	Oceanwise	
67	Kevin	Bartoy	WA State Ferries, WA DOT	
68	Maia	Bellon	Washington State Department of Ecology	
69	JB	Bennis	WA Department of Commerce	
70	Joshua	Berger	WA Department of Commerce	
71	Laura	Blackmore	Puget Sound Partnership	
72	Brian	Blake	Rep. District 19 (Aberdeen)	
73	Elias	Boddy	US Navy	
74	David	Bonnett	Retired submarine commander	
75	Chad	Bowechop	Makah Tribal Council Office of Marine Affairs	

76	Danielle	Butsick	Port of Seattle	
77	Brian	Cladoosby	Swinomish Indian Tribal Community	
78	Karen	Condon	Colville Confederated Tribes	
79	Cyrilla	Cook	DNR	
80	Brian	Corrigan	US Coast Guard	
81	Kaleen	Cottingham	Washington State Recreation and Conservation Office	
82	Fred	Felleman	Port of Seattle	
83	Antonio	Fins	Palm Beach Post	
84	Joe	Fitzgibbon	Rep that sponsored bill	
85	John	Ford	University of British Columbia	
86	Leonard	Forsman	Suquamish Tribe	
87	Alanna	Frayne	The Whale Museum	
88	Ron	Garner	Puget Sound Anglers	
89	Howard	Garrett	Orca Network	
90	Tim	Gates	Washington State Department of Ecology	
91	Joe	Gaydos	SeaDoc Society	
92	Laird	Hail	US Coast Guard	
93	Will	Hall	Mayor, City of Shoreline	
94	George	Harris	NW Marine Trade Association	
95	Dave	Herrera	Skokomish Tribe	
96	Andy	Hover	Okanogan County	
97	Erich	Hoyt	Whale/Dolphin Conservation UK	
98	Rick	Hughes	San Juan County Council	
99	Christopher	Hunt	US Navy	
100	Jay	Julius	Lummi Nation	
101	Jostein	Kalvoy	Puget Sound Pilots	
102	Haley	Kennard	Makah Tribal Council Office of Marine Affairs	
103	B.J.	Kieffer	Spokane Tribe	
104	Lisa	Lantz	Washington State Parks	
105	Debra	Lekanoff	Rep. District 40	
106	Robert	Lewis-Manning	BC Chamber of Shipping	
107	Misty	MacDuffe	RainCoast Conservation Society	
108	Drew	MacEwen	Rep. District 35 (Union)	
109	Scott	McGrew	US Coast Guard	
110	Chris	McKesson	University of British Columbia	
111	Kelly	McLain	Washington State Department of Agriculture	
112	Mike	Moore	Pacific Merchants Shipping Association	
113	Gretchen	Muller	Cascadia Consulting	
114	Russ	Mullins	Washington Department of Fish and Wildlife	
115	Tom	Murphy	Outdoor Odysseys	
116	Alan	Myers	Washington Department of Fish and Wildlife	
117	Megan	Nichols	Transport Canada	
118	Sorrel	North	Lopez Island resident and community organizer	
119	Heather	Parker	US Navy	

120	Jeff	Pelton	Transport Canada	
121	Lovel	Pratt	Friends of the San Juans	
122	Thomas (Les)	Purce	formerly president of Evergreen State College	
123	Mindy	Roberts	Washington Environmental Council	
124	Orla	Robinson	Port of Vancouver	
125	Christina	Rolfes	Sen that sponsored bill	
126	Jordan	Royer	Pacific Merchants Shipping Association	
127	Kurt	Russo	Lummi Nation	
128	Sheida	Sahandy	Puget Sound Partnership	
129	Amy	Scarton	Washington State Department of Transportation	
130	Ron	Schulz	Washington State Conservation Commission	
131	Taylor	Shedd	The Whale Museum	
132	Evan	Sheffels	Washington State Farm Bureau	
133	Jon	Sloan	Port of Seattle	
134	Butch	Smith	Ilwaco Charters	
135	Brad	Smith	Washington Fish and Wildlife Commission	
136	Kendra	Smith	San Juan County	
137	Stephanie	Solien	vice chair of the Puget Sound Partnership Leadership Council	
138	Jamie	Stephens	Commissioner, San Juan County	
139	Craig	The.wall	US Navy	
140	Sarah	Thompson	WA Department of Ecology	
141	Derek	VanDyke	Washington State Parks and Recreation Commission	
142	Eric	Von Brandenfels	Puget Sound Pilots	
143	Lynn	Wall	US Navy	
144	Trina	Wellman	Northern Economics, Inc.	
145	Terry	Williams	Tulalip Tribes	
146	Rob	Williams	Oceans Initiative	
147	Amy	Windrope	Washington Department of Fish and Wildlife	
148	Tom	Wooten	Samish Indian Nation	
149	Harald	Yurk	Transport Canada	
150	Virgil	Zetterlind	ProtectedSeas	

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AGENDA– STAKEHOLDER WORKSHOP
UNDERWATER ACOUSTICS AND DISTURBANCE STUDY
MAY 6, 2020, 1:00-3:00 PM PT

1:00 pm **Opening and introduction to the project and workshop objectives; Workshop logistics**
(Donna Gerardi Riordan; Devon Emily Thorsell; Julie Watson)

1:10 pm **Icebreaker**
Activity to acquaint workshop participants with each other using virtual tools

1:15 pm **Regulations and Adaptive Management**

- What opportunities are there in the regulatory process? What challenges are there?
- What practical mitigation measures would reduce threats to SRKW? What short-term management measures would you prioritize to further reduce small vessel disturbance given current regulations by WA state on distance and speed?
- What key evidence is there for the potential success or limitations of mitigation measures?
- Should measures specifically consider other cumulative threats, demographic groupings, or specific behavioral activities?
- What regulations could align to address both conservation and business concerns?

2:00 pm *Break*

2:10pm **Stakeholder Perspectives: Key Issues in Conservation, Business, and Governance**

What key studies/sources of information should the committee prioritize in understanding:

- Small vessel density and distribution, and SRKW exposure
- Vessel noise and sound propagation
- Effects of vessel presence and noise on SRKW behavior, physiology, and communication

What additional research is needed?

2:55pm **Workshop Wrap-Up and Summary**

3:00 pm **Adjourn**

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WSAS COMMITTEE FOR
UNDERWATER ACOUSTICS AND DISTURBANCE

Peter Dahl – Senior Principal Engineer, Acoustics Department, Applied Physics Laboratory; Professor, Mechanical Engineering, University of Washington – dahl@apl.washington.edu

Dr. Peter H. Dahl is a Senior Principal Engineer with the University of Washington Applied Physics Laboratory, and a Professor of Mechanical Engineering at the University of Washington. His research focuses on underwater sound. He has published extensively on the physics of acoustic propagation as influenced by the sea surface and seabed, vector acoustic properties of underwater and airborne sound, and studies on underwater noise from explosives and marine pile driving. Dr. Dahl has conducted several ocean-going experiments in underwater acoustics, sponsored by the U.S. Office of Naval Research involving international collaborative teams, and is currently a Principal Investigator for two projects under the purview of the Navy's Living Marine Resource program concerning the effects of sound on marine life. Dr. Dahl received his Ph.D. from the Massachusetts Institute of Technology and Woods Hole Oceanographic Institution Joint Program in Ocean Engineering. He is a Fellow of the Acoustical Society of America (ASA), has served as the chair of the ASA technical committee on Underwater Acoustics (2002-2005), on its Executive Council (2008-2011), and was the ASA Vice President (2013-2014). ([link](#))

Marla Holt – Research Wildlife Biologist, NOAA Fisheries – marla.holt@noaa.gov

Dr. Marla Holt is a Research Wildlife Biologist for the Marine Mammal Ecology Team; she joined the Northwest Fisheries Science Center as a National Research Council (NRC) Postdoctoral Associate for the Marine Mammal Program. Dr. Holt's postdoctoral research was an investigation on the effects of vessel noise on the acoustic signals of Southern Resident killer whales. She also wrote a review paper which focused on sound exposure in Southern Resident killer whales. Dr. Holt received her Ph.D. from the University of California, Santa Cruz in Ocean Sciences. Her dissertation focused on pinniped spatial acoustics including sound localization and auditory masking in captive seals and sea lions and call directionality in free-ranging northern elephant seals. Dr. Holt also has an M.S. in Marine Sciences and a B.A. in Marine Biology from the University of California, Santa Cruz. Her current research focuses on marine mammal acoustics including the effects of noise on the acoustic signals and behavior of Southern Resident killer whales, their use of sound during different activity states, and the cost of sound production in odontocetes. Dr. Holt's research interests include marine mammal sound production and acoustic communication, sensory ecology (including hearing capabilities and auditory scene analysis), sound exposure and acoustic risk factors, and passive acoustic monitoring. ([link](#))

David Lusseau – Professor, School of Biological Sciences, University of Aberdeen – d.lusseau@abdn.ac.uk

Dr. David Lusseau works at the intersection of life, formal, and social sciences to understand how individuals make decisions when uncertain and what the consequences of those decisions are for their health, social life, and demographic contributions. He has been at the University of Aberdeen since 2007. He obtained his BSc in marine biology at the Florida Institute of Technology and his PhD in

Zoology at the University of Otago (New Zealand). He then received a Killam fellowship for postdoctoral work at Dalhousie University. He was elected member of the Young Academy of Scotland in 2007, Fellow of the Royal Statistical Society in 2009, and Fellow of the Royal Society of Biology in 2016. Dr. Lusseau has worked on sustainable wildlife management since his PhD at Otago, particularly focussing on developing quantitative methods to detect and avoid wicked problems when managing these socioecological systems. He is a member of IUCN's Cetacean Specialist Group and Sustainable Use and Livelihoods Specialist Group and recently convened the marine mammal assessment chapter of the 2nd UN World Ocean Assessment. ([link](#))

Dawn Noren – Research Fish Biologist, Conservation Biology Division, National Oceanic and Atmospheric Administration – dawn.noren@noaa.gov

Dr. Dawn Noren is a research fishery biologist, with expertise in physiological ecology, at the NOAA Fisheries Northwest Fisheries Science Center in Seattle, WA. She is currently a member of the International Whaling Commission Scientific Committee and primarily works with the environmental concerns and whale watching sub-committees. Her research includes energetics and metabolism, assessment of body condition, diving physiology, and anthropogenic impacts. Her recent work focuses on killer whale prey requirements, the effects of vessels and sound on cetacean behavior and energetics, factors influencing killer whale body condition indices, the transfer of contaminants from female dolphins and killer whales to their calves, and Southern Resident killer whale habitat use patterns. Her earlier research focused on Steller sea lion, northern elephant seal, and bottlenose dolphin physiology. Previously, Dr. Noren was a National Research Council (NRC) Postdoctoral Research Associate at the National Marine Mammal Laboratory at the NOAA NMFS Alaska Fisheries Science Center in Seattle, WA. Dr. Noren earned a M.S. in Marine Sciences and a Ph.D. in Ecology and Evolutionary Biology, both from the University of California, Santa Cruz. She earned a B.S. in Biological Sciences with an emphasis in Marine Sciences from the University of Maryland, College Park. ([link](#))

Susan Parks – Associate Professor, Biology, Syracuse University – sparks@syr.edu

Dr. Susan Parks' research focuses on the ecology and evolution of acoustic signaling. Diverse research topics in the lab span the fields of behavioral ecology, bioacoustics, biological oceanography, and conservation biology. Current projects in the lab involve studies of marine and terrestrial animals ranging from observational studies characterizing the acoustic behavior of species to experimental studies investigating behavioral functions of sounds and the impacts of noise on communication. Dr. Parks holds a PhD from Massachusetts Institute of Technology/ Woods Hole Oceanographic Institution and a BA from Cornell University ([link](#))

Ron Thom – Staff Scientist Emeritus, Coastal Sciences Division, Pacific Northwest National Laboratory – ron.thom@pnnl.gov

Dr. Ron Thom has conducted applied research in coastal and estuarine ecosystems since 1971. His research includes coastal ecosystem restoration; adaptive management of restored systems; benthic primary production; ecosystem monitoring; climate change and adaptation; carbon storage in restored coastal systems, and ecology of fisheries resources. Dr. Thom has directed approximately 200 multidisciplinary ecological studies and worked on systems in California, Washington, Oregon, Alaska, Massachusetts, New York, Nebraska, and Alabama. He chaired the original Technical Advisory Committee of the EPA's Puget Sound Estuary Program, was appointed by the Governor of Washington to the 2015 Northwest Straits Commission, and served as a member of US EPA Science Advisory Board panel reviewing the Great Lakes Restoration Program in 2011. Dr. Thom served on the National Academy panel that developed recommendations for monitoring the effectiveness

recovery actions in the Gulf of Mexico coastal ecosystem following the 2010 oil spill. He co-chaired the 2015 conference of the Coastal and Estuarine Research Federation (CERF), and co-chaired the 2016 Salish Sea Ecosystem Conference. In 2010, he was elected to the Washington State Academy of Sciences, and in 2016 was elected president-elect of the Academy to serve in 2018-2020. Dr. Thom managed the Coastal Ecosystem technical group at PNNL until 2013. He currently serves as the Senior Science Advisor to the Puget Sound Partnership, which is the EPA National Estuary Program in Puget Sound. ([link](#))

Dom Tollit – Senior Research Scientist, SMRU Consulting – djt@smruconsulting.com

Dr. Dom Tollit is a Principal Scientist with SMRU Consulting. He has over 28 years of experience studying the behavioural ecology, foraging, and population dynamics of marine predators. His primary research interests are to understand the ecological role of pinnipeds in coastal habitats and to define key parameters within multi-species environmental risk assessment frameworks. Following a PhD at the University of Aberdeen in Scotland, Dr. Tollit worked for SMRU in St. Andrews University, the University of Tasmania and the National Trust for Fiji, before leading a Steller sea lion foraging ecology research program at the University of British Columbia. Since 2009, Dr. Tollit has undertaken a variety of North American based consultancy projects, including noise impact assessment, environmental and acoustic-based monitoring programs and pinniped ecological research. His collaborative research has led to more than 35 journal publications in the field of marine mammal science. Recent project experience includes working with industry, NGOs, federal and local regulators (DFO, NOAA, CSLC) and a variety of academic institutions in Canada and the USA. He is currently the technical advisor to Vancouver Fraser Port Authority's ECHO program and actively involved in improving Population Consequences of Disturbance (PCOD) assessments. ([link](#))

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Code of Conduct

Values Statement

- The Washington State Academy of Sciences (WSAS) is committed to increasing both the scientific and technical knowledge concerning challenges facing Washington State and the use of such knowledge to improve the condition of the citizens, government, and businesses of Washington State.
- WSAS respects civil and human rights and the central importance of freedom of inquiry and expression in research, teaching, and publication. We strive to help public policymakers in developing informed regulations and policies concerning Washington State.
- WSAS values the diversity of our membership and endeavors to be inclusive and welcoming to our members, partners and staff

WSAS was created by Governor Christine Gregoire as an independent, non-profit, self-perpetuating honorary society of the state's leading scientists to provide unbiased advice to the state on any matter for which evidence can inform sound public policy. The credibility of the advice from WSAS rests on its reputation, which depends on the reputation of its members. Membership in WSAS is a privilege predicated on its members adhering to certain standards of conduct. WSAS members, by accepting membership in the Academy, agree to abide by the following Code of Conduct. The Code of Conduct also applies to WSAS staff, consultants and subcontractors, study committee members, and WSAS meeting participants.*

Principles

This Code of Conduct provides a common set of principles and standards upon which WSAS and our members build their professional and scientific work on behalf of the state.

- We are committed to providing a respectful, safe and welcoming environment for all, free from discrimination and harassment based on race, sex/gender, sexual orientation, gender identity/expression, age, color, religion, creed, national or ethnic origin, physical, mental, or sensory disability, including the use of a trained service animal, marital status, genetic information, status as an honorably discharged veteran or member of the military, or socioeconomic status.
- Scientific integrity—including the independence of the scientific process and the rigorous application of science-based knowledge—should be upheld throughout all levels of WSAS. Study committee members are expected to provide comprehensive, transparent, unbiased, and understandable technical analyses.

*This Code applies to WSAS activities across a variety of contexts, such as in person, postal, telephone, internet, and other electronic transmissions. This Code of Conduct applies to behavior and actions occurring outside the scope of WSAS activities when such behavior has the potential to adversely affect the safety and well-being of members or WSAS as an organization. Members are furthermore expected to conform to the codes of ethics that govern their employing institution (if any). Lack of awareness or misunderstanding of an Ethical Standard is not itself a defense to a charge of unethical conduct. If you have questions about to Code of Conduct and would like clarification, please contact the WSAS Office or a member of the Board of Directors.

Expectations and Standards

Members in an academic community have the right to equal treatment and opportunity regardless of race, sex/gender, sexual orientation, gender identity/expression, age, color, religion, creed, national or ethnic origin, physical, mental, or sensory disability, including the use of a trained service animal, marital status, genetic information, status as an honorably discharged veteran or member of the military, or socioeconomic status. This includes a community free of intimidation, coercion, exploitation, discrimination, and all forms of harassment. Membership in WSAS should be based on professional and service capabilities alone, in addition to adherence to the standards set forth in this Code of Conduct.

Members, study committee volunteers, and staff have a professional responsibility to serve the public interest and welfare and to further the public understanding of science and engineering. Attention should be focused on the highest standards of scientific integrity as well as the personal responsibility of the individual members or staff. In conformance with these principals, the following examples of expected and unacceptable behavior are provided; however, the list is not intended to be exhaustive.

Expected Behavior

- Scientific integrity is expected of all members.
- Exercise consideration and respect in speech and actions.
- Attempt collaboration before conflict.
- Maintain confidentiality with respect to discussions of candidates for WSAS election and the deliberations of WSAS committees and working groups.
- Be mindful of your surroundings and of your fellow Academy members. Alert staff, Board members, and/or other members if you notice a dangerous situation, someone in distress, or violations of this Code of Conduct, even if they seem inconsequential.
- Remember that event venues may be shared with members of the public; please be respectful to all patrons of these locations.

Unacceptable Behavior

- Plagiarism, falsification of data, misuse of grant funds and other breaches of scientific integrity.
- Violence, threats of violence or violent language directed against another person.
- Sexist, racist, homophobic, transphobic, ableist or otherwise discriminatory or harassing behavior.
- Posting or threatening to post other people's personal information ("doxing").
- Bullying behavior, including but not limited to personal insults, yelling, undermining, or belittling others.
- Inappropriate photography or recording, for example, recording a private conversation without the consent of all parties
- Sexually harassing behavior, including but not limited to unwelcome sexual attention, sexualized comments or jokes; inappropriate touching, groping, and unwelcome sexual advances.
- Intimidation, stalking or following (online or in person).
- Advocating for, or encouraging, any of the above behavior.

- Sustained disruption of Academy events, including talks and presentations.

Board Members, Committees, and Staff

Board Members, study committee members, and staff should act in good faith and with honesty, accuracy, personal and professional integrity, and reasonable competence. Reasonable competence may require gaining a comprehensive knowledge of WSAS, its aspirations, missions, programs, and financial conditions and general non-profit issues to ensure compliance with WSAS's governing documents and applicable state and federal laws.

Board Members, study committee members, and staff should act in a manner that promotes board and committee unity and confidence. This means engaging in candid, open, and honest discussion, while keeping disagreements impersonal and accepting decisions made on a majority or consensus basis. However, Board Members and Committee Members (when acting with delegated authority) have the right to dissent or abstain from voting and have their dissent or abstention recorded.

Board Members, study committee members, and staff must comply with federal, state, and local laws and should adhere to the policies, goals, and principles of WSAS.

Sanctions

The WSAS Board of Directors may impose sanctions on WSAS members and study committee members, including Officers and Board Members, for violations of the standards of the Code of Conduct, up to and including removal from office, exclusion from WSAS activities, and/or suspension or termination of WSAS membership. The Board of Directors may notify other bodies and individuals of its actions consistent with state and federal law.

Sanctions may be imposed only by the affirmative vote of a majority of Board Members, after reasonable notice and an opportunity to respond has been provided to the individual accused of violating this Code of Conduct (see also WSAS Bylaws, Section 3.12, Term-Removal of Officers).

Staff members may be disciplined or terminated for violations of this Code of Conduct consistent with the terms and conditions of their employment.

This Code of Conduct may be amended by a majority vote of the Board of Directors, in accordance with the WSAS Bylaws.

WASHINGTON STATE

Academy of Sciences

Science in the Service of Washington State

We live in a time of extraordinary opportunities and challenges – many of which involve science or technology with impacts to jobs, health, the environment and other aspects of the quality of life in the state of Washington. The Washington State Academy of Sciences (WSAS) is a unique state resource for the government, organizations and citizens as they confront these challenges and seize opportunities to improve their lives.

WSAS serves and leads by

- Identifying and recruiting as Members the state's most distinguished scientific and technical experts
- Conducting relevant time-sensitive unbiased studies that inform state and local planners and decision makers
- Organizing in-depth discussions about important issues confronting Washington State
- Identifying emerging trends and needs that will have significant impact on our citizens' future.

About WSAS

The Washington State Legislature authorized WSAS in 2005 as a private, nonprofit 501 (c)(3) organization whose work is nonpartisan, independent and funded from both private and public sources.

WSAS Members are nominated and recognized by their peers as outstanding leaders in their respective scientific and technical fields and are committed to serving the citizens of Washington. Its nearly 260 members' expertise cuts across the physical sciences and mathematics, engineering and technology, biological sciences, health sciences, and behavioral and social sciences. Most are also members of the National Academies of Sciences, Engineering or Medicine, and a significant proportion of them have served extensively on National Academies' study committees.

WSAS engages Members' expertise in specific scientific and technical reviews and analyses using a committee structure modeled after the one used by the National Academies. Great care is taken to appoint committees and working groups of specialists to conduct high-quality studies; subject draft reports to rigorous, independent science and technical peer review; and secure WSAS Board of Directors approval before the release of reports to ensure that they are free from bias and conflict of interest.

WSAS addresses a range of challenging public issues – environmental quality; sustainability and climate change; jobs, infrastructure and economic development; and quality of life, health, education and workforce development. Its reports do not contain policy recommendations; rather, they contain the best available scientific and technical analyses to inform public discussion and decision making.

How WSAS Serves Washington State

WSAS provides authoritative, independent scientific and technical advice to inform policy development and decision making in Washington State. It responds to requests from the Governor, the State Legislature, and other state entities or private organizations. It also is a source of independent scientific information for the public.

WSAS conducts its work for the State primarily by convening study committees and issuing objective reports that are funded by the government and non-governmental organizations.

In addition, WSAS develops and sustains a culture of scientific and technical excellence in Washington State through annual scientific symposia, public and K-12 education programs, and support for students in science and engineering.

Topical Working Groups

In 2016 the WSAS established three Topical Working Groups (TWGs) aligned with the state's key scientific and technological policy interests. TWGs are designed to engage members in critical policy issues facing the state, organize and conduct projects addressing these issues, and help coordinate efforts to connect with other state and local organizations. The initial TWGs are:

- Environmental Quality, Sustainability and Climate Change
- Jobs, Infrastructure and Economic Environment
- Quality of Life, Health, Education and Workforce Preparedness

Selected Examples of WSAS impact on Washington state

Washington State continually faces vexing issues that are controversial, fraught with uncertainty, and politically contentious. Those entrusted to develop policies and make decisions to address these issues benefit greatly from the rigorous and objective scientific and technical analyses that WSAS provides in the public interest. Examples include:

COMMISSIONED REPORTS, REVIEWS AND REQUESTED ADVICE

Evaluation with Recommendations by the Washington State Academy of Sciences of Interim Report: 2015 Drought and Agriculture. December 2016.

This evaluation responded to a request from the Washington State Department of Agriculture to review the science supporting the methodologies and interpretation of the results of its study of the 2015 drought on Washington agriculture.

*Opportunities for Addressing Laminated Root Rot Caused by *Phellinus Sulphurascens* in Washington's Forests.* December 2013.

This report responded to a request from the Washington State Department of Natural Resources to identify approaches and opportunities ripe for research on understanding and managing of root diseases of Douglas fir.

White paper on Washington State Initiative 522 (I-522): Labeling of Foods Containing Genetically Modified Ingredients. November 2013.

Six legislators requested WSAS to provide an independent white paper addressing the science underlying the use of products from genetically modified plants and/or animals in food and the impacts of required labeling of foods containing ingredients from genetically modified plants and/or animals.

Sound Indicators: A Review for the Puget Sound Partnership. August 2012.

The State Legislature asked WSAS to assess the progress of the Puget Sound Partnership's (PSP) 2020 Action Agenda to protect and restore Puget Sound.

WSAS ANNUAL SYMPOSIA PROCEEDINGS

Proceedings of the Ninth Annual Symposium, Columbia River Treaty, Issues for the 21st Century, 2016.

Proceedings of the Eighth Annual Symposium, Accelerating Science's Impact: Translating Discoveries into Solutions, 2015.

Proceedings of the Seventh Annual Symposium, Health Disparities in Washington State: Narrowing the Gap, 2014.

Proceedings of the Sixth Annual Symposium, Energy: Environmentally Acceptable Choices for Washington State, 2013.

Proceedings of the Fifth Annual Symposium, Water, Washington and the World, Ensuring Economically and Environmentally Sustainable Water Resources, 2012.

Proceedings of the Fourth Annual Symposium, Rising Above the Gathering Storm: STEM Education in Washington State, 2011.