Sebago Lake Symposium - Abstracts
February 2, 2019, Saint Joseph's College

8:45-9:30	Registration, coffee

9:30-10:05	**Sebago Lake: Past, Present, and Future** **Paul Hunt (PWD), Brie Holme (PWD), Emily Lesher (SJC)** As the source of drinking water for 1 in 6 Mainers, Sebago Lake is one of the most important natural resources in the state. It also has some of the best water quality of any lake in Maine, in part because of the mostly forested watershed. Because the lake is shared by so many, maintaining water quality into the future will require the cooperation of everyone from landowners and anglers to voters and city planners. To better steward the lake into the future, Portland Water District and Saint Joseph's College collaborated to deploy a water quality data monitoring buoy that takes measurements every 15 minutes and broadcasts them in real time. This continuous data will help us better understand the physical and ecological dynamics of the lake, the factors that affect water quality, and will support the operation of the Sebago Lake Water Treatment Facility. PWD and SJC scientists seek to further their collaboration by including members of the public in the conversation and working together to continue protecting the lake. The decisions – big and small – that we all make impact the lake. Increasing our collective knowledge by bringing together stakeholders and scientists can help us make better-informed decisions.

10:15-10:35	**The Impact of Weather and Climate on Sebago Lake** **Ryan Dorland (SJC)** Sebago Lake Buoy data combined with local weather station data in 2018 provide clear examples of how daily weather events immediately influence lake conditions. Strong storm events rapidly change the depth of the warm-water mixed layer, heat fluxes, and daily surface temperatures. Individual events can also be responsible for the timing of seasonal vertical turn-over in the lake. Longer-term changes to the thermal structure of Sebago Lake are inferred from historical ice-out data and modeling results.	**Climate change impacts to Maine's lakes** **Jessie Meeks (Bates College)** Maine has been experiencing record droughts, intense microbursts, and crippling ice storms more and more frequently. And while it may not feel like it some winters, over the last 60 years, ME has experienced warmer winter conditions that have resulted in an overall 22% reduction in seasonal ice coverage. Although warmer lakes in the summer season might seem nice, these intense weather phenomena can result in negative impacts to lake health and overall water quality. We will explore how increased storm intensity and warming temperatures may result in degraded water quality that, when recreated in or consumed, can affect human health.
10:35-11:05	**My Beach is closed. Now what?** **Chad Thompson, Laurel Jackson (PWD)** There is nothing nicer than swimming in Sebago Lake's crystal clear water, but along with the development of swimming beaches comes the potential for bacterial contamination. The Portland Water District monitors 15 swimming beaches around the lake and results show that E. coli levels are higher where people are swimming. PWD's beach monitoring program is designed to help beach managers protect water quality and public health by providing free weekly testing and beach management technical assistance. The success of the program is a result of collaboration with public and private beach managers, lake residents, and beach-goers. This talk will provide valuable insights into what high E. coli results mean and how to manage a beach to keep dangerous bacteria out of the water.	**Sebago Lake Coldwater Fisheries Management: History, Current Status, and Recent Research** **Jim Pellerin (IFW)** Sebago Lake is well suited for cold-water fisheries management, particularly for Landlocked Salmon and Lake Trout (aka Togue). At 30,513 acres, it is the second largest lake in Maine and represents over 56% and 73% of the total surface water acreage actively managed for Landlocked Salmon and Lake Trout within the Sebago Lake Fisheries Management Region. The lake is unusually deep, water quality is exceptional, and the lake supports a large volume of cold, oxygenated water. Sebago Lake is home to one of Maine's few indigenous Landlocked Salmon populations, making it both historically and genetically important. Lake Trout were stocked from 1972-1982 and established a self-sustaining population. Although Lake Trout had and have supporters, their introduction later became more controversial due to direct and indirect impacts on other species, and their presence has certainly complicated fisheries management of the lake. This presentation will focus on: 1. Historical issues and management practices related to the lake fishery including rainbow smelt population fluctuations and the composition (wild versus hatchery) of the salmon population; 2. Recent research projects including Summer Profundal Index Netting (SPIN), a new portable picket weir that enables wild salmon research, and Passive Integrated Transponder (PIT) tagging. 3. Results from this newer research along with long-term clerk creel and fish trapping surveys provides a clearer understanding of the current state of these fisheries including the size and characteristics of the lake trout population, age and growth data of the salmon population and the relationships between these species.

11:05-11:15	Break

11:15-11:45	**Neighbor's Roundtable and Panel Discussion**
	  -What have you noticed changing about the lake?
	  -What are future concerns?
	  -What are current concerns?
	
	Panelists: Paul Hunt, Kirsten Ness, Roberta Hill
	Moderator: Nina Eduljee
		Angler's Roundtable and Panel Discussion topics:
		  -Is the buoy data useful for fishing?
		  -How do anglers want to access information about the lake?
		  -How have you noticed the fishing/lake changing?
		Panelists: Jim Pellerin, David Garcia, Chad Thompson
		Moderator: Firooza Pavri

12	Lunch
1-1:20	LakeTemps Network - Citizen Science on Sebago Lake **Todd Rodgers (Rodgers Research Group LLC)** The St. Joseph's College of Maine / Portland Water District data buoy located in the southern portion of Sebago Lake has produced a wealth of valuable data to help scientists better understand what is happening in the water over a lengthy vertical profile (from the surface to the bottom). The buoy, however, is moored in position and can only provide data at that one location. The LakeTemps Network is a proposed effort to field very low cost buoy sensors all around Sebago Lake near the lake front homes of participating "citizen scientists". Using WiFi Internet connectivity, LakeTemps sensors, within 100 yards of a participants shoreline home will measure and relay temperature (and perhaps pH) data every 5 minutes to a centralized server. The sensors will cost less than $200 and can be assembled, deployed and maintained by interested participants. With even only a handful of deployed sensors, the data obtained (coupled with the existing buoy data), can provide a more complete picture of the state of our lake. This presentation will describe the project in detail and will solicit the help of local, citizen scientists so that we may all better understand and monitor the health of Sebago Lake.	Aliens Among Us: Invasive Plants in Sebago **Mary Jewett (Lakes Environmental Association)** Invasive aquatic species pose a huge threat to Maine Lakes both environmentally, and economically. Sebago Lake already has invasive variable leaf milfoil, and boats from other waterways pose a risk of bringing in potentially more aggressive invaders. Lakes Environmental Association's teacher/naturalist, Mary Jewett, talks about the impacts of invasive species, the ongoing control work, and the potential future of invasive species in Sebago. New data on boat movement between lakes is examined and compared to potential new invaders.
1:20-1:40	The Value of Ecosystem Services and Forest Conservation in the Sebago Lake Watershed **Adam Daigneault (U Maine)** **Spencer Meyer (Highstead Foundation)** The Sebago Lake watershed is so pure, it's one of the few public supplies in the country that requires absolutely no filtration before treatment. The watershed is a model for how healthy forests naturally filter water to produce clean drinking water while offering myriad other social and environmental benefits for Maine residents, tourists, and businesses. Sebago Clean Waters was formed by established local, regional and national partners to protect water quality, community well-being, and the health of fish and wildlife in the Sebago watershed through voluntary forest and community conservation. Sebago Clean Waters is pioneering innovative	The Hunt for Aquatic Invaders: building and sustaining an effective citizen-powered early-detection effort on Sebago Lake **Roberta Hill, Lake Stewards of Maine** With over 6000 lakes and ponds, and thousands of miles of stream habitat, the task of preventing the spread of invasive aquatic species (IAS) in Maine waters is one of the greatest environmental challenges of our time. Prevention is the first step in fighting new infestations. But, no matter how comprehensive and aggressive our statewide prevention effort, risk remains that invaders will manage, sooner or later, to slip through inevitable cracks in the system. It is crucial, therefore, that a second line of defense be in place, one that ensures that any invasive aquatic organism that makes its way to Maine waters will be detected as early as possible, before it has an opportunity to cause significant damage, to become uncontainable, and/or to spread to other waterbodies. Sebago lake—water supply for Greater Portland and veritable magnet for tourists and local lake enthusiasts alike—is arguably one of Maine's most valuable natural resources. If early-detection is essential to the long-term protection of all Maine waters, surely Sebago's early-detection system should be among the state's most vibrant efforts. And indeed, when one considers Sebago's vast

approaches to financing the clean water, community and recreation benefits of the healthy Sebago Lake watershed, and will serve as a model for other watersheds in the northeast and beyond. Spencer Meyer will first introduce Sebago Clean Waters, its goals, how the partnership came together and where it's headed. Adam Daigneault will then describe a recent study looking at the economic impact and environmental benefits of protecting the Sebago watershed for water quality, recreational opportunities and other ecosystem services.	array of stakeholders (including local year-round residents, town and state officials, hundreds of local business and their employees, the State's largest water utility and its thousands of customers, summer residents and tourists, etc.) it is clear that all of the resources needed to form a highly-effective early-detection system are close at hand. Roberta will draw from nearly 20-years of experience helping to create Maine's Invasive Plant Patrol—widely seen, nationally and internationally, as a model for citizen-based early-detection program—to provide an overview of the basic elements required for an effective, sustainable early-detection effort. She will also offer some specific suggestions for overcoming current hurdles in order to apply these principles to the development of a robust, state-of the-art early-detection system for Sebago Lake.

1:50-2:35	**Taking action - Policies to protect lakes** **Colin Holme (LEA), Susan Gallo (MLS), Bill Diamond (District 26 Senator), Richard Cebra (District 68 Representative)** In the spring and summer of 2018, policy workshops were held around the state of Maine to engage interested citizens and parties in a discussion about the current and future state of our lakes and freshwater resources. This session will begin with an overview of the findings from this broad coalition and then narrow in to issues that were most prominent during these discussions and proposed legislation that has emerged as a result.
2:30-3:30	**Beer tasting, Conversation, and Posters/Exhibits** Featuring beers from our sponsors: Allagash Brewery, Rising Tide Brewery, and Goodfire Brewery