



Friends of Merrymeeting Bay (FOMB) is a 501(c)(3) non-profit organization. Our mission is to preserve, protect, and improve the unique ecosystems of the Bay through:

## Education

## Conservation & Stewardship

## Research & Advocacy

## Member Events

Support comes from members' tax-deductible donations and gifts.

Merrymeeting News is published seasonally and is sent to FOMB members and other friends of the Bay.

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## LAWSUIT CHALLENGES FDA'S APPROVAL OF GENETICALLY ENGINEERED SALMON

### *Coalition of Fishing, Consumer, and Environmental Groups Say First-ever Approval of Laboratory-Created Food Animal Violated Laws and Ignored Risks to Wild Salmon and Fishing Communities*

SAN FRANCISCO, CA 3/30/2016 - Friends of Merrymeeting Bay joined with a broad coalition of environmental, consumer, and commercial and recreational fishing organizations in suing the U.S. Food and Drug Administration (FDA) for approving the first-ever genetically engineered (GE) food animal, an Atlantic salmon engineered to grow quickly. The man-made salmon was created by AquaBounty Technologies, Inc. with DNA from three fish: Atlantic salmon, Pacific king salmon, and Arctic ocean eelpout. This marks the first time any government in the world has approved a GE animal for commercial sale and consumption.

The plaintiff coalition, jointly represented by legal counsel from Center for Food Safety and Earthjustice, includes Pacific Coast Federation of Fishermen's Associations, Institute for Fisheries Resources, Golden Gate Salmon Association, Kennebec Reborn, Friends of Merrymeeting Bay, Ecology Action Centre, Food & Water Watch, Center for Biological Diversity, Friends of the Earth, Cascadia Wildlands, and Center for Food Safety.

In approving the GE salmon, FDA determined it would not require labeling of the GE fish to



let consumers know what they are buying; which led Congress to call for labeling in the 2016 omnibus spending bill. FDA's approval also ignored comments from nearly 2 million people opposed to the approval because the agency failed to analyze and prevent the risks to wild salmon and the environment, as well as fishing communities, including the risk that GE salmon could escape and threaten endangered wild salmon stocks.

AquaBounty's GE salmon will undertake a 5,000-mile journey to reach

U.S. supermarkets. The company plans to produce the GE salmon eggs on Prince Edward Island, Canada. The GE salmon will then be grown to market-size in a facility in Panama, processed into fillets, and shipped to the U.S. for sale. That complicated scheme is only for the initial approval, however. AquaBounty has publicly announced plans to ultimately grow its GE fish in the U.S. rather than Panama, and sell it around the world. Despite this, FDA's approval only considered the current plans for the far-flung facilities in Canada and Panama, leaving the risk of escape and contamination of U.S. salmon runs unstudied.

The lawsuit challenges FDA's claim that it has authority to approve and regulate GE animals as "animal drugs" under the 1938 Federal Food, Drug, and Cosmetic Act. Those provisions were meant to ensure the safety of veterinary drugs administered to treat disease in livestock and



## FRANKENFISH (CONTINUED)

were not intended to address entirely new GE animals that can pass along their altered genes to the next generation. The approval of GE salmon opens the door to other genetically engineered fish and shellfish, as well as chickens, cows, sheep, goats, rabbits and pigs that are reportedly in development.

*“FDA’s decision is as unlawful as it is irresponsible,” said George Kimbrell, senior attorney for Center for Food Safety and co-counsel for the plaintiffs. “This case is about protecting our fisheries and ocean ecosystems from the foreseeable harms of the first-ever GE fish, harms FDA refused to even consider, let alone prevent. But it’s also about the future of our food: FDA should not, and cannot, responsibly regulate this GE animal, nor any future GE animals, by treating them as drugs under a 1938 law.”*

The lawsuit also highlights FDA’s failure to protect the environment and consult wildlife agencies in its review process, as required by federal law. U.S. Atlantic salmon, and many populations of Pacific salmon, are protected by the Endangered Species Act and in danger of extinction. Salmon is a keystone species and unique runs have been treasured by residents for thousands of years. Diverse salmon runs today sustain thousands of American fishing families, and are highly valued in domestic markets as a healthy, domestic, “green” food.

When GE salmon escape or are accidentally released into the environment, the new species could threaten wild populations by mating with endangered salmon species, out-competing them for scarce resources and habitat, and/or introducing new diseases. Studies have shown that there is a high risk for GE organisms to escape into the natural environment, and that GE salmon can crossbreed with native fish. Transgenic contamination has become common in the GE plant context, where contamination episodes have cost U.S. farmers billions of dollars over the past decade. In wild organisms like fish, it could be even more damaging.

*“There’s never been a farmed salmon that hasn’t eventually escaped into the natural environment. Why should we believe that long term, these frankenfish won’t be the same?” asked Golden Gate Salmon Association Executive Director John McManus.*

The world’s preeminent experts on GE fish and risk assessment, as well as biologists at U.S. wildlife agencies charged with protecting fish and wildlife heavily criticized the FDA decision for failing to evaluate these impacts. FDA ignored their concerns in the final approval.

## THOUGHTS FROM ANDREW KIMBRELL

Excerpted from an address entitled: Salmon Economics (and other lessons).  
23rd ANNUAL E. F. SCHUMACHER LECTURES, October, 2003, Stockbridge, MA

It was early September, and I was standing at the mouth of the Tsiu River on central Alaska’s little explored Lost Coast. It was about an hour into the incoming tide, and the water was just above my waist. I was midway in the fifty-foot-wide entrance to the river and could see the waves breaking in front of me with their rhythmic wakes swelling against and around me. The sleek bodies of the silver salmon were everywhere, filling the incoming waves. These beautiful and powerful spawning cohos were rushing en masse into the Tsiu, riding the tide on their last, determined journey.

I stood with legs wide, arms outstretched in the waves, watching and feeling the urgent swell of life coming from the sea to spawn in these chilled waters, which were rushing and tumbling from the melting Bering Glacier eight miles upstream. As the cohos pushed upstream through the narrow inlet, they brushed my thighs and torso, touched my arms and hands. I found myself laughing in surprise and awe.

That day began my multi-year tutelage under the cohos. Over time I have learned many lessons from these beloved wilderness teachers, and just as their return each year keeps a promise, so the promise of ever new lessons is also kept.

## THOUGHTS (CONTINUED)

When the Pacific salmon return to the rivers of their birth, they carry in their bodies a number of nutrients, including nitrogen and phosphorous garnered from their ocean sojourn. In fact, isotopic analyses indicate that riverside vegetation near spawning streams receives 22 to 24 percent of its nitrogen—the nutrient that most commonly encourages plant growth—from salmon. As a result, trees on the banks of salmon-stocked rivers grow more than three times faster than their counterparts along a salmon-free river. Alongside spawning streams Sitka spruce (*Picea sitchensis*) have been found to take eighty-six years instead of the usual three hundred to reach 50 cm. in thickness. Research also shows that at least one-fifth of the nitrogen in the needles of Sitka spruce trees and other plants near spawning sites comes from the ocean via Pacific salmon carcasses. These same trees that have been fertilized by the carcasses enhance the quality of breeding and rearing habitats for the fish by providing shade, sediment and nutrient filtration, and large woody debris.

In more recent years a variety of companies and scientists intensified their efforts to ratchet up the natural salmon growth rates in hopes of maximizing the profitability of aquaculture. With much experimentation it was discovered that salmon size and growth speed could be boosted most efficiently by engineering them with growth genes from other fish species. In 2000 a Massachusetts and Canadian company, Aqua Bounty, was the first to seek permission from the U.S. Food and Drug Administration to grow and sell Atlantic salmon genetically engineered to grow faster and larger.

Subsequently, however, it was discovered during laboratory experiments that the new genes in the salmon were potentially catastrophic to the species. Researchers called them “Trojan” genes, reminiscent of Homer’s account of the horse that entered Troy and ultimately caused its destruction. It turned out that the larger, engineered salmon were more attractive to mates during reproduction, but because of unexpected physiological havoc caused by the new genes, there was one-third greater die-off in the offspring of the gene-altered fish. This stood the concept of evolution on its head. It was survival of the unfittest. The engineered fish were triumphant in dominating reproduction, but they were destroying the species as they reproduced. When the researchers looked at the terrible reproductive arithmetic, they calculated that the release of only 60 of these genetically engineered salmon into the environment could result in the extinction of a native species of 60,000 salmon in just 40 generations.

It is important to realize that once the salmon engineered with the Trojan genes escape or are released, they cannot be recalled or eliminated. Chemical pollution most often dilutes over time, but biological pollution such as that caused by these engineered salmon is irreversible. The altered salmon, once in rivers or the ocean, will reproduce, mutate, and disseminate. Their polluting power will only gain with time. Extinction of the wild salmon will be impossible to halt.

Concrete steps such as filing law suits, protecting habitat, and staging protests are critical in protecting salmon, and nature itself, from the onslaught of the demands of capital, technology, and the market. It is becoming ever more evident, however, that these and similar actions will not be sufficient in and of themselves to generate the paradigm shift to a new Earth-centered economics.

The repeated refrains of the silver salmon’s cycle and journey vibrate in me still. They have not left me, nor will they. The silvers have become actual and symbolic companions, both comforting and inspiring. Since my first encounter with them many years ago I have often returned to the Tsiu and nearby wilderness streams to be with the cohos for the mystery of their seasonal life-and-death journey (a time that includes my own birthday). Despite the frightening realities our current economic and technological systems have brought us and them, the salmon continue to teach me calmness and courage in my search, no longer for perfection or progress but for completeness and a life-giving return journey. I understand why they have so often attained the highest place in the hierarchy of native Alaskan totems. They have become for me, an often disillusioned child of Christian culture, both a sacrament (something that embodies the sacred) and a lesson about the cyclical journey of giving one’s life so others may live.

*Andrew Kimbrell is an internationally recognized writer, an activist, and public interest lawyer. He founded and is Executive Director of the Center for Food Safety. As an attorney, Kimbrell has successfully challenged federal agencies in several historic court cases. He initiated the court challenge that resulted in a U.S. Supreme Court victory forcing, for the first time, EPA regulation of greenhouse gases and their impact on climate change. He also pioneered the legal strategy that led to the Supreme Court ruling that DNA is not patentable due to being a “product of nature.” Through his leadership at CFS, Kimbrell has been at the forefront of legal challenges to genetically engineered crops and lawsuits forcing FDA to adopt new food safety regulations.*

## NIH STUDY FINDS CELL PHONE/SMART METER RADIATION CAUSES BRAIN & HEART CANCERS

The National Toxicology Program (NTP) under the National Institutes of Health has completed the largest-ever animal (rats and mice) study on nonionizing radiation and cancer. Partial results released on May 26th confirm whole body exposures to low level radiofrequency radiation (RFR) of the type emitted by cell phones, smart meters and other wireless devices and within currently allowable safety limits, are the “*likely cause*” of brain and heart cancers in these animals, according to Dr. John Bucher, Associate Director of the NTP.

The \$25 million dollar study planned since 1999 showed one in twelve (12) male rats (8.3%) developed either malignant cancer (brain and rare heart tumors) or pre-cancerous lesions that can lead to cancer. Tumors called schwannomas were induced in the heart, and in the same kind of brain cells that have led to acoustic neuromas seen in human studies. The NTP says it is important to release these completed findings now given the implications to global health. No cancers occurred in the control group.

Dr. Lennart Hardell, MD, PhD of Sweden’s Orebro University and an expert witness in the Maine Smart Meter Health Investigation says “*(T)he animal study confirms our findings in epidemiological studies of an increased risk for glioma and acoustic neuroma among people that use wireless phones, both cell phones and cordless phones (DECT). Acoustic neuroma is a type of Schwannoma, so interestingly this study confirms findings in humans of increased risk for glioma and acoustic neuroma. In 2013 we called for upgrading the risk in humans to Group 1, the agent is carcinogenic to humans. It is now time to re-evaluate both the cancer risk and other potential health effects in humans from radiofrequency radiation and also inform the public,*” says Hardell. “*This NTP evidence is greatly strengthening the evidence of risk, is sufficient to reclassify cell phone radiation as a known cancer-causing agent, and confirms the inadequacy of existing public safety limits.*”

Dr. Christopher Portier, formerly with the NTP commented this is not just an associated finding—but that the relationship between radiation exposure and cancer is clear. “*I would call it a causative study, absolutely. They controlled everything in the study. It’s [the cancer] because of the exposure. This is by far—far and away—the most carefully done cell phone bioassay, a biological assessment. This is a classic study that is done for trying to understand cancers in humans*”.

We have written in Merrymeeting News since 2011 about the dangers of radiofrequency radiation from wireless devices, particularly smart meters which bring exposures to rural Maine. Birds, bees, other insects and mammals all show adverse responses to low-level electromagnetic field exposures. As levels of “electrosmog” grow with wireless proliferation not only from land sources but now also space-based platforms, the harbinger of an “Electronic Silent Spring” should alarm anyone who cares about our wildlife and civilization, much the same as Rachel Carson’s alarm did in bringing the effects of pesticide exposure to the public eye.

Dr. Jerry Phillips, PhD, is biochemist and director of the Excel Science Center at the University of Colorado at Colorado Springs. An educator and research scientist, Phillips conducted Motorola-funded research into the potential health impacts of cell phones during the 1990s while he was with the U.S. Department of Veterans Affairs’ Pettis VA Medical Center in Loma Linda, California. Phillips and his colleagues looked at the effects of different radiofrequency signals on rats, and on cells in a dish. Phillips also testified for health advocates in Maine’s smart meter investigation.

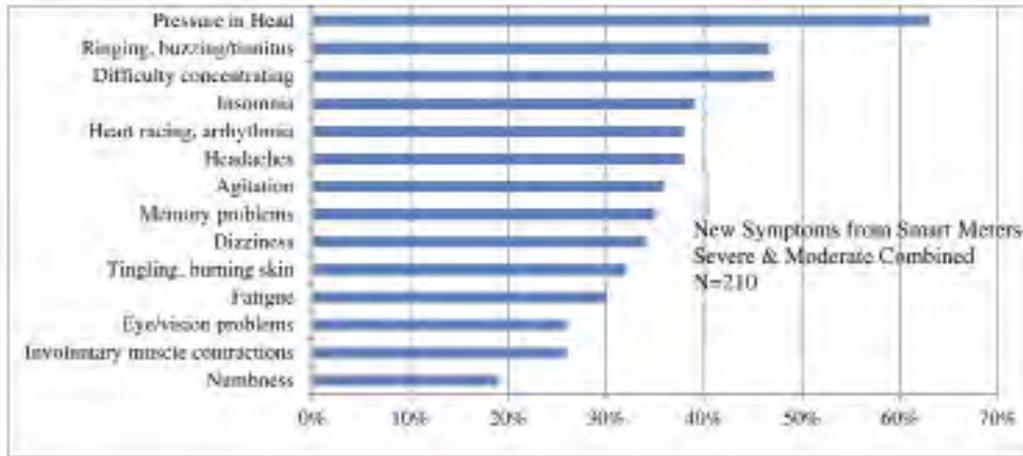
“*The most troublesome finding to Motorola at the time is that these radiofrequency signals could interact with living tissues, which is what we saw in the rats,*” he said in a recent [Scientific American](#) interview, adding:

“*But you have to realize that this issue opens up a much bigger can of worms than cell phones. If this radiation, this form of energy can interact with biological tissue then it’s going to reopen a lot of what were supposedly settled issues regarding the safety of wireless communications. If we’re going to be bathed in a whole new electromagnetic environment, how safe is it?*”

While cancers from RFR are certainly of great concern, perhaps of greater concern are debilitating non-cancer symptoms disorienting and causing avoidance behavior and other biological and behavioral responses in wildlife and humans. In people,

## NTP STUDY (CONTINUED)

relationships have commonly been stressed and destroyed, jobs have been lost and homes of many years sold or abandoned as a result of sensitivities to RFR. Consider if you suffer any or a number of the common RFR symptoms found in an international survey of those affected by smart meters as shown in this chart:



Conrad & Friedman, 2013. Smart Meter Health Effects Survey & Report

Smart meters in particular have sensitized many to any wireless device including routers and cell phones. The inability to use these common tools severely inhibits folks in their personal and economic lives. Their ability to live normal lives in the 21st century has been severely compromised immediately versus 10-30 year latency periods typical in cancer development. This change in ability to use these devices is directly correlated to smart meter exposure.

The suffering and the social and economic effects of chronic debilitating symptoms victims have experienced since smart meter exposure simply cannot be ignored, and provides ample evidence there is something about smart meters (evidence suggests the RF from up to 170,000 transmissions/day is conducted on home wiring) causing extreme harm to at least some, and possibly eventually all persons. While there is obviously only a portion of our population manifesting acute electromagnetic hypersensitivity (EHS) symptoms now (the canaries), and even fewer recognizing their source, we are all being exposed and are all susceptible.

*“This is a game changer, there is no question,”* said Dr. David Carpenter, MD, PhD, director of the Institute for Health and the Environment at the University of Albany and also an expert witness in Maine. *“It confirms what we have been seeing for many years —though now we have evidence in animals as well as in humans.”* Quoted in *Microwave News*, Carpenter went on to add, *“The NTP has the credibility of the federal government. It will be very difficult for the naysayers to deny the association any longer.”*

## KENNEBEC AND ANDROSCOGGIN PROPOSED CRITICAL HABITAT FOR ATLANTIC STURGEON

NOAA Fisheries announced June 2, two proposed rules designating critical habitat for five distinct population segments [DPS] of federally listed Atlantic sturgeon. The proposed areas provide important protected river habitats for the threatened Gulf of Maine population segment and the endangered population segments of the New York Bight, Chesapeake Bay, Carolina and South Atlantic. NOAA Fisheries listed the Atlantic sturgeon under the Endangered Species Act in 2012. The two local designations include the Kennebec to Lockwood dam in Waterville and the Androscoggin to the Brunswick-Topsham dam.

The ESA requires NOAA Fisheries [formerly and often still known as the National Marine Fisheries Service or NMFS] designate critical habitat when a species is listed as threatened or endangered. Under the ESA, critical habitat is defined as geographic areas occupied by the species, and containing features essential to the conservation of that species. Critical habitat can also include geographical areas that are not currently occupied by the species, but that are essential to its conservation, historical habitat for example.

Critical habitat does not create preserves or refuges. Instead, when a federal agency is carrying out funding or authorizing an activity that may affect the critical habitat, the federal agency works with NOAA NOAA Fisheries to avoid or minimize

## ATLANTIC STURGEON (CONTINUED)



potential impacts to the species' habitat. The activity of the federal agency may need to be modified to avoid destroying or adversely modifying the critical habitat.

Shortnose sturgeon, smaller, relative to the threatened Atlantic sturgeon, are listed as endangered but are more abundant in the Merrymeeting Bay estuary. Sturgeon evolved over 200 million years ago. The species has been drastically diminished by over-fishing, toxics, habitat loss and dredging.

*Photo credit - NOAA Fisheries*

## SPRING BAY DAY

May 17th dawned a spectacular Spring Bay Day at Chop Pt. School with blue skies and great temperatures. Students from Pittston, Chop Pt. and for the first time since consolidation of their schools, Brunswick, congregated at this lovely site to have fun learning about "things Bay" while getting their hands and feet dirty. Highlights included Angela Kimberk's Found Art session located right at the Chops being treated to an eagle from the new nest on West Chop Pt. catching a fish in front of them and a seal popping up to check student art works. Although, perhaps it was looking a bit further up the hill to where Lynda Doughty and Dominique Walk from Marine Mammals of Maine taught a session on marine mammal rescue!



Meanwhile over on the east side of the Point students tried their hands at beach seining with Nate Gray and caught a male stickleback in courtship colors while up on the grassy knoll, mud flew in the perennial favorite, watershed modeling taught by Steve Eagles and Kent Cooper. Also on the grass Kathleen McGee, taking a break [not really!] from her awesome job of scheduling students, chaperones and guides with classes for the day, spoke with students about anadromous and catadromous fish using the Bay for spawning and nursery habitat and then coached kids in the ancient practice of gyo-taku or fish printing, using our custom school of rubber anadromous species, alewives, blueback herring, American shad, Atlantic salmon, rainbow smelt and striped bass.

Without our volunteers the day couldn't work. Thanks so much to our guides: Betsy Steen, Leslie Anderson, Kathleen McGee, Kent Cooper, Steve Eagles, Steve Musica, Angela Kimberk, Kerry Hardy, Geri Vistein, Jamie Silvestri, Nate Gray, Tom Weddle, Grant Connors, Lynda Doughty, Dominique Walk, Tina and Hannah Goodman, Blaine Carter, Cathy Reynolds, Helen Watts, George Sergeant, Mark Gershman and Amanda Troxell.

Chaperones: Eleanor Wilson, Tom Walling, Bob Fesler, Dana Cary, Jen Jones, Kennon Wilson, Kathie Duncan, David Whittlesey, Judith Clarke, Tina Phillips, Anne Harwood, Bert Singer, Carole Sargent, Tom Foote, David Hammond, Jeff Sebell, Martha Spiess, Joan McDuff, Madelyn Jones-Cressy, Tom Hughes, and Bob Goldman.

Lunch and Critter Wranglers: Joan Llorente and Martin McDonough

And special thanks to our wonderful hosts at Chop Pt. School and to Wild Oats for the fantastic lunch wraps!

# WE NEED YOU! PLEASE SUPPORT OUR IMPORTANT WORK

## FOMB Leadership

Our accomplishments are due to the hard work of dedicated volunteers, especially those who serve on our committees. If you want to get involved and serve, please contact the committee chair or Kathleen McGee. We always welcome member input and we'd love for you to join us!

### Steering Committee

Ed Friedman, Chair (Bowdoinham)  
 Nate Gray, Treasurer (Freeport)  
 Tom Walling, Secretary (Bowdoinham)  
 Steve Musica (Richmond)

### Education Committee

Betsy Steen, Co-Chair, 666-3468  
 Tom Walling, Co-Chair, 666-5837

### Conservation and Stewardship Committee

Chair Vacancy

### Membership and Fundraising Committee

Nate Gray, Chair, 446-8870

### Research and Advocacy Committee

Ed Friedman, Chair, 666-3372

### Coordinator/Organizer

Kathleen McGee, 666-1118

Friends of Merrymeeting Bay · PO Box 233 · Richmond, Maine 04357

### Membership Levels

- |   |   |                                     |
|---|---|-------------------------------------|
| <input type="checkbox"/> \$1,000+ Sturgeon  | <input type="checkbox"/> \$250 Striped Bass | <input type="checkbox"/> \$20 Smelt |
| <input type="checkbox"/> \$750 American Eel | <input type="checkbox"/> \$100 Shad         | <input type="checkbox"/> Other      |
| <input type="checkbox"/> \$500 Wild Salmon  | <input type="checkbox"/> \$50 Alewife       |                                     |

Name \_\_\_\_\_

Address \_\_\_\_\_

Town/State/Zip \_\_\_\_\_

Phone \_\_\_\_\_

Email \_\_\_\_\_

- |                                     |   |
|-------------------------------------|---|
| <input type="checkbox"/> Renewal    | <input type="checkbox"/> Send information about volunteer opportunities |
| <input type="checkbox"/> New Member | <input type="checkbox"/> I would like a sticker                         |

\$7 Enclosed (optional) for a copy of *Conservation Options: A Guide for Maine Land Owners* [\$5 for book, \$2 for postage].



*Thanks to Will Zell and Zellous.org for newsletter layout.*

## OUTSIDE 2016!

ALL PROGRAMS ARE FREE AND OPEN TO THE PUBLIC

- July 9** Bird Sounds Walk with Will Broussard - Bowdoinham, 7 - 9am, Call: Ed Friedman at 666-3372
- July 17** Forest Insect Walk with Cathy Reynolds - Topsham, 1 - 3:00 pm, Call: Ed Friedman at 666-3372
- Aug 18** Mushroom Walk with Michaelene Mulvey - Dresden, 6 pm, Call: Ed Friedman at 666-3372
- Aug 23** Little Swan Island Evening Paddle with Warren Whitney - Richmond, 5:30 - 7:30 pm, Warren Whitney at 666-3376
- Sep 16** Swan Island Outings with Jay Robbins\*(\$8 Island Fee)\* - Richmond, 9:00 am - 1 pm, Call: Jay Robbins at 737-2239
- Sep 18** Swan Island Circumnavigation by Boat with Jay Robbins  
 \*(\$ Island Donation Appreciated)\* - Richmond, 3:15 pm - 5:30 pm, Call: Jay Robbins at 737-2239

**PRE-REGISTRATION REQUIRED.** To register for a program or for questions, please call the contact number for each individual trip.

**PADDLERS PLEASE NOTE:** Participants must bring own boat and possess at least intermediate paddling skills. PFDs required.



Friends of Merrymeeting Bay  
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ORGAINIZATION

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## Spring Bay Day, A good time was had by all!



*Beach Seining and Marine Mammals - Photo Credit: Ed Friedman*