



LIGHTHOUSE PARK PRESERVATION SOCIETY NEWSLETTER

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lighthouseparkps@gmail.com
www.lpps.ca

Sunflower Sea Star Wasting Syndrome Hits Salish Sea by Dr. Jeff Marliave

ECHINODERM POPULATION EXPLOSIONS

For many years there have been population explosions of sea urchins and sea stars (echinoderms) in the Strait of Georgia. In Howe Sound, there have been such dense populations of sunflower sea stars, *Pycnopodia helianthoides*, the Vancouver Aquarium posted a video of a sea star landslide showing how these crowded starfish can literally fall over each other when in a flight response. The southern shore of Bowen Island had such high densities of echinoderms that the Aquarium posted a blog on the topic. Further it was noted that local kelp beds were in decline because green sea urchins prefer to eat this type of seaweed. Sea urchins are known to create barren underwater areas from their foraging habits.

SUNFLOWER SEA STAR WASTING SYNDROME

Last fall sunflower sea stars were observed to disintegrate in a fashion that progressed like an infectious disease, spreading to other starfish and even to other species. In early September last year, thousands died and disintegrated in shallow water where their numbers were most dense. The die-off first centred on the east side of Howe Sound, including Point Atkinson. The south-western corner of Howe Sound and areas across the Strait of Georgia appeared unaffected at first but were all hit by October. In the present situation with sunflower sea stars, it appears that all individuals are susceptible where they are crowded in close proximity.

It might be well to consider the Malthusian principle, which states that human populations will be kept in check by war, famine and pestilence. These sunflower stars have few enemies and they can eat almost anything, so pestilence is a likely suspect for this mysterious and sudden control of their overpopulation. From an ecological perspective, it is likely a healthy thing for the entire ecosystem.



Sunflower sea stars, *Pycnopodia helianthoides*, crowded together on Croker Island, Indian Arm, Oct. 9, 2013
Photo: Neil McDaniel

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Lighthouse Park Preservation Society is a membership based non-profit organization formed in 1998 to:

- Protect the natural integrity of Lighthouse Park
- Promote public awareness of its natural features
- And support the development of biological zones near the park boundaries.

President - Alexandra Mancini

Vice President - Jeff Marliave

Past Pres. - Marja de Jong Westman

Treasurer - Nick Miller

Membership - Ruth Erskine

Directors

Ann Crosby

Thibault Doix

Ed Donaldson

Elaine Graham

Areta Sanders

Keith Wade



WEST VANCOUVER
COMMUNITY FOUNDATION



Croker Island site after complete die-off of sunflower sea stars, Oct. 29, 2013.

photo: Neil McDaniel

THE SPREAD OF WASTING SYNDROME

In September and October, the wasting syndrome had spread rapidly up through Howe Sound and Burrard Inlet. Where the sunflower sea star population density had been extremely high for about a decade around Lookout Point in Whytecliff Park in West Vancouver, the sunflower sea stars were already dead and nearly gone by the time Aquarium staff were able to explore in early October. During November it spread across to Vancouver Island, first appearing in Chemainus. Now the syndrome has spread through the Salish Sea as far as Powell River and Seattle. Back at Lookout Point, however, signs of seabed recovery are already evident. On October 24 there were no longer any piles of necrotic debris there, but instead, an abundance of snail species and sea urchins that had moved into an area that is blossoming with new red and green seaweed growths.

OTHER SPECIES SUSCEPTIBILITY

Where the sunflower sea star population has been hit with the wasting syndrome, other species have been similarly affected. The majority of these are members of the same sea star family, which includes the familiar intertidal ochre star, *Pisaster ochraceus*, as well as the mottled and rainbow stars (*Evasterias troschelii*, *Orthasterias koehlerii*). The next most closely related sea star family includes the major sea star predator of sunflower stars, the morning sun star, *Solaster dawsoni*, which was eating affected sunflower sea stars and then evidently becoming infected by these meals. Similarly, when the Howe Sound dive team visited a reef off Gower Point at the southern extreme of the Sunshine Coast, most of the sunflower sea stars had already died, but their close family relatives, the giant pink sea star, *Pisaster brevispinis*, were moving into the reef, eating necrotic debris, and rapidly falling ill as a result. In contrast, the unrelated sea stars, blood star, *Henricica leviuscula*, and leather star, *Dermasterias imbricata*, are apparently immune to the infection, even though the leather stars actively feed on the dying sunflowers.

CONCLUSION

The spread of this syndrome may be limited to adjacent areas with extreme overpopulation, or it could continue to spread into areas with more normal abundance levels. That remains to be seen, and the Aquarium's Howe Sound dive team will continue to monitor locations where baseline data are available. Videos and photos on these subjects can be found at www.aquablog.ca under the marine biodiversity tab on the left column of the blog.

President's Message by Alexandra Mancini

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Dear Members, Volunteers and Friends who love Lighthouse Park,

I hope that 2014 will bring you the best of health and that you will be able to enjoy the fabulous natural beauty of our West Vancouver parks. We are so fortunate to have them right at our doorsteps.

A big part of what we do as environmental stewards of the Six-Park Network (Lighthouse Park and five nearby parks) focuses on removal of invasive plants and restoration planting. We began working in these other parks in January 2008, and since then our volunteers have contributed approximately 4300 hours of hands-on work as follows: Caulfeild Park (1590 hours), Lighthouse Park (1350), North Piccadilly Park (810), The Dale Park (280), Trails Park (190), and Klootchman Park (100). Many thanks to our volunteers for this impressive effort and what it has achieved! Watch for updates on our website to document our progress in each of these parks. www.lpps.ca

Work in The Dale began in earnest in February, 2012, when 66 Grade-Six Mulgrave School students and their teachers removed an amazing 104 bags of English ivy! The Dale is the last of the six parks for us to tackle. We hesitated to do much there before now because the steep slopes along the creek make many parts of the park inaccessible to volunteer work parties. It made sense to work in the parks with easier terrain first. For The Dale we will need to use professional services in the difficult areas, which we have estimated may cost around \$45,000. In December we received a very generous donation of \$4000 from one of our members and a matching contribution of professional labour worth \$2500 from another member. What a fantastic beginning! We will be applying for grants from other agencies this year and will earmark all other donations for this cause unless otherwise specified. As a registered charity, the LPPS is able to provide official donation receipts for tax purposes, so please keep us in mind! Come and join us if you can on February 22 for an ivy pull in the easy parts of this park.

In October 2012, a pilot project for the removal and control of lamium using non-chemical methods was initiated by one of our members, Dr. Richard Beard of Green Admiral Nature Restoration. The preliminary one-year results are very encouraging. Covering with black plastic, either alone or preceded by weeding, was an effective method in the relatively flat test plots. We will apply what has been learned to treatment of lamium in The Dale, Lighthouse Park, and North Piccadilly Park. Steep and irregular terrain locations will require more test data before we know if this control method is widely applicable.

In 2013 we were delighted to begin a new restoration project in Lighthouse Park. What started as a Capilano University student's project to document trail degradation, culminated in the restoration of a 30-metre section of the Juniper Loop trail, close to the parking lot. The District of West Vancouver Parks Department provided five cubic metres of soil amender and about 40 large native plants; the LPPS provided about 140 homegrown native plants and 13 eager volunteers who managed to complete the whole thing on one very rewarding Saturday morning in early October. It was indeed satisfying work to start and finish it all in one go, so we plan to tackle other sections of degraded trails in small "bites" like this one. Check out the finished product below!



Juniper Loop Restoration, October 2013 before and after.

Photos: Alexandra Mancini

PROFILE of a VOLUNTEER by Elaine Graham

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Harold Neufeldt photo: Elaine Graham

Harold Neufeldt was born 900 miles south of Winnipeg, in the flatlands of Kansas where he now shares a little farm with his sister, and to which he returns every year. Harold came to Vancouver in 1975 to work as a Landscape Architect, and still lives on the same street block in Kitsilano.

A love of hiking and sea-kayaking has been bringing Harold to Lighthouse Park for several years, where he traces the entire perimeter to watch birds and take photographs. On one of his weekend walks seven years ago, Harold came across volunteers pulling ivy and offered to help. He soon began attending many of the Lighthouse Park Preservation Society's weed pulls and restoration plantings. "I like to give back to the natural world I enjoy so much", says Harold, who has spent most of his professional life designing hard landscapes for the downtown core of Vancouver. He finds his outdoor excursions "exciting", providing him with the opportunity to learn about plants in their natural world. "Lighthouse Park is definitely a draw. Coming to the park is just rich. I love the interplay of ocean and the scarred granite. I feel like I'm on a Gulf Island, detached from the city".

It's rare to find a volunteer who will travel by bus from Vancouver to pull invasive weeds and plant indigenous shrubs on the North Shore, yet this feels "local" to Harold, whose other volunteer work takes him much further afield. In the fall Harold visits Saskatchewan's Grasslands National Park, where he has been monitoring prairie dog colonies and raptor nests. He also walks with parks staff over potential nature trails and campground sites. Harold likes to experience

"the prairie wind, open hills, bison, black-footed ferrets and, yes, rattlesnakes". Sleeping under the stars he is awed by their numbers and brightness.

Harold is also drawn to the windswept beauty of the five Channel Island parks in California. On Santa Barbara Island he helped to plant 800 endemic *Dudleya* plants, close to where seed was collected on adjacent cliff faces. *Dudleya* is a succulent well-adapted to arid conditions.

The Santa Rosa Island project involved planting a range of native plants. Here, Harold had to watch his footing as he jumped Cholla cactus fragments to avoid the fish-hook thorns that can impale hands or ankles. In the native plant nursery, he removed cages from around endangered Hoffman's rockcress, *Arabis hoffmannii*. He also collected native plant seeds and pulled up invasive escapees from farm yard plantings, including jade plant, pelargonium, ornamental grasses and eucalyptus.



Volunteers planting on Santa Rosa Island

photo: Harold Neufeldt

On Anacapa Island Harold watered thousands of native plants on areas cleared of invasive Ice Plants, plus seedlings in a shade house nursery. He also set out wind screens beside each new plant to collect fog drip in this parched environment.

These volunteer projects which draw Harold to such interesting places, reward him with good exercise, a little sweat, fresh air and satisfaction. He likes to feel that his hands have restored a bit of the natural world that he loves and enjoys. Lighthouse Park is one of these interesting places that provide people like Harold with the opportunity to give back. Thank you Harold!

VOLUNTEER ACTIVITIES

For all volunteer events please wear old clothes, sturdy shoes and work gloves.

SATURDAY, FEBRUARY 1st, 9:00 am - noon
IVY PULL, NORTH PICCADILLY PARK

Meet at the corner of Clovelly Walk & North Piccadilly.

SATURDAY, FEBRUARY 22, 9:00 am - noon
IVY PULL, THE DALE

Meet at the corner of Water Lane and The Dale.

SATURDAY, MARCH 8th, 9:00 am - noon
IVY PULL, LIGHTHOUSE PARK

Meet at the upper kiosk in the parking lot.

SATURDAY, MARCH 29th, 9:00 am - noon
MULCHING at Juniper Loop in LIGHTHOUSE PARK & then at the anchor in CAULFEILD PARK

Meet at the lower kiosk in the parking lot, Lighthouse Park.

SATURDAY, MAY 10th, 10:00 am - 1:00 pm
BROOM PULL, LIGHTHOUSE PARK with the

support of the Lower Mainland Green Team.

Meet at the upper kiosk in the parking lot.

MONTHLY BIRD COUNTS

Meet at the upper kiosk of the parking lot in Lighthouse Park on the first Sunday of the month at **8:30 a.m.**

Feb. 2nd, March 2nd, April 6th

and at **7:30 a.m.**

on May 4th, June 1st, July 6th, August 3rd



A series of free informative evening lectures sponsored by Capilano University's EarthWorks.....join us

February 27th
UBC's Dr. Daniel Pauly,
"Fishing Down the Food Chain"

March 6th
SFU's Dr. Elizabeth Elle, "Pollination Crisis"

March 12th
UVIC's Dr. Tom Reimchen,
"Salmon and Forests are Linked"

Location: Performing Arts Centre
(Birch Building)

Time: 7:00 pm

EarthWorks



December Bird Watchers

photo: Sally McDermott



Deer on Bowen Island

photo: Donna Gibbs

ANNUAL GENERAL MEETING

1:30 p.m.

SUNDAY, JUNE 8th, 2014

followed by an illustrated presentation by

STEPHEN FOSTER

“Howe Sound at a Crossroads - Standing Strong for a Fragile Recovery”

2:30 - 4:00 p.m.

Sk’iwitsut Hut, Lighthouse Park

Film, television producer, and Ambassador of the David Suzuki Foundation, Stephen Foster became a local advocate for nature when Parks Canada sought to establish a National Park on Bowen Island in 2010-11. The Howe Sound campaign emerged from this Parks initiative and in 2014 will culminate in the Howe Sound Aquatic Forum. Stephen's presentation will focus on the extraordinary recovery of Howe Sound’s marine and terrestrial ecosystems and on the widespread effort underway to preserve this incredible fjord and help shape its future.

**“From Herring to Gray Whales:
One Bird’s Partnerships in a Changing Sea”**

with

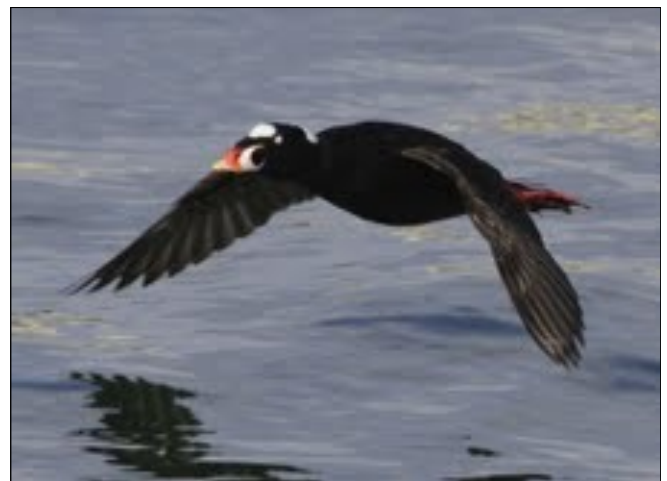
DR. ERIC M. ANDERSON

SATURDAY, APRIL 5th, 2014

1:30 - 2:30 p.m.

West Vancouver Memorial Library

Dr. Eric M. Anderson is a faculty member in the Ecological Restoration Program at the British Columbia Institute of Technology. He is also a Research Fellow of the Pacific Wildlife Foundation, and an instructor at the University of Washington, Friday Harbor Labs. His research focuses on the ecology and conservation of marine birds along the Pacific coast. Eric will talk about surf scoters, a species of sea duck that he has studied for many years and address their interactions with other marine species. He will also discuss conservation issues facing marine birds generally.



Surf scoter, *Melanitta perspicillata*

photo: Jason Otto