

The Heron Herald



Rainier Audubon Society

January 2015

January 19 2014
RAS Membership Meeting

“ South Georgia Island”

Jim Danzenbaker

Meeting begins at 7:00 PM.

The sub-Antarctic Island of South Georgia is home to a huge biomass of life from millions of breeding pairs of penguins to elegant albatrosses to tens of thousands of Fur Seals and Elephant Seals. In addition to the wildlife, the island is dotted with reminders of the past. Famed Antarctic explorer Sir Earnest Shackleton launched his epic journey of discovery to the South Pole from South Georgia and the island was also used as a center for whaling the southern oceans. We'll explore all these aspects of South Georgia through a photo travelogue.



Jim Danzenbaker has visited South Georgia 13 times as a guide on a ship-based natural history tour of the Falkland Islands, South Georgia, and the Antarctic Peninsula. Jim is a lifelong birder and nature enthusiast. He started in southern New Jersey and after years of exploring and learning about the wildlife of the East Coast, he migrated to California and then eventually to Washington. In addition to birding and guiding on many pelagic trips, he has led birding trips to such destinations as Panama, Guyana, Venezuela and Ecuador. Jim is a nine year resident of Battle Ground, Washington and is looking forward to sharing the beautiful island of South Georgia with you.

Join us at 6:30 PM for conversation and refreshments.



**Rainier Audubon programs are held at Federal Way United Methodist Church,
29645 - 51st Ave. So. 98001 (in unincorporated Auburn)**

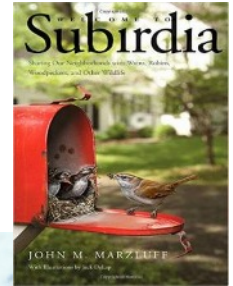
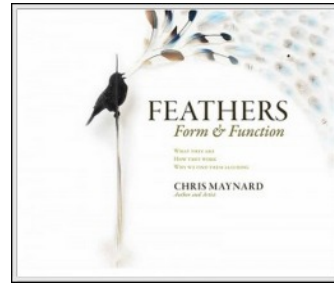
Directions: In Federal Way, take 320th St. EAST past The Commons, crossing over I-5 and Military Rd.

At 321st St, turn left. Stay on 321st as it becomes 51st Ave. So. Follow 51st Ave. to 296th. Church will be on your left.

Upcoming Programs

by Dale Meland

- **February 16** - Chris Maynard will do a presentation entitled "Feather's Beauty and Biology." He did this program for Tahoma in late spring or early fall 2014. I heard it was pretty good. He also has a new book out called Feathers, Form and Function.
- **March 16** - Charlie Wright - The Coastal Observation and Seabird Survey (COASST) believes citizens of coastal communities are essential scientific partners in monitoring marine ecosystem health. By collaborating with citizens, natural resource management agencies and environmental organizations, COASST works to translate long-term monitoring into effective marine conservation solutions.
- **April 20** - John Marzluff - He and his wife did the Ravens in Maine program for us a few years back. He has a new book out called Welcome to Subirdia, which the Seattle Times recently did an article on. He will be doing a program based on that.
- **May 18** - Dan Streiffert - Yellowstone in Winter - from a tour in February, 2015.



Rainier Audubon Officers

President	Dan Streiffert*	253-796-2203
Vice President	Steve Feldman*	360-802-5211
Treasurer	Laura Lavington*	253-941-7372
Secretary	Heather Gibson*	253-856-9812
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Field Trip Chair	Michele Phiffer	206-246-0873
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Christmas Bird Count Coordinator	Alex Juchems	253-529-8996
Board Member	Max Prinsen	425-432-9965
Board Member	Erin Wojewodski-Prinsen	425-432-9965
Board Member	Lisa Mesplay	253-946-3820
Board Member	Ed Stanton	206-870-3107
Publicity	Tom Sernka	253-529-8970

*Also serves as Board Member

Board meetings are held the 2nd Tuesday of each month at 6:30 PM at the Federal Way United Methodist Church, and are open to all members.

Volunteers Needed

- Door Greeters for Membership Meetings
- Articles for Heron Herald—send to dan_streiffert@hotmail.com
- Projection & Sound setup person for meetings.

RAS Mission Statement

To conserve and restore natural ecosystems and protect birds and other wildlife for the benefit of humanity and biological diversity in South King County and the world we live in.

Seen & Heard by Calen Randall

There were no sightings reported this month



Olympic BirdFest 2015

April 10-12, 2015

Sequim, WA

Description: The festival with the most spectacular setting! Visit the rain shadow of the Olympic Peninsula to discover the birds of the coastal Pacific Northwest—Marbled Murrelets, Rhinoceros Auklets, Harlequin Ducks, dippers, Black Oystercatchers, Long-

tailed Ducks, and more. Guided field trips, a boat cruise in the Strait of Juan de Fuca, silent auction, and a gala banquet. Our featured speaker is Lynsy Smithson Stanley:

“Climate Change as a ‘Bird Issue’.” Join the Birdfest Pre-trip on April 8-9, 2015, two days exploring northwest coastal Washington, a region rarely seen by birders.

Immediately following BirdFest, join us for a three-day, two-night birding cruise of the San Juan Islands, April 12-14, 2015. Cruise registration: separately at www.pugetsoundexpress.com/audubon.

Birdfest website address: www.olympicbirdfest.org

E-mail address: info@olympicbirdfest.org

Contact name: Olympic Peninsula Audubon Society, 360-681-4076

Bio: Calen is a 15 year old birder. He enjoys birding around Lake Fenwick, Frager Road, and Boeing Ponds—especially with Charlie Wright. Calen is thrilled to revive Charlie’s ‘Seen and Heard’. When not birding, Calen can be seen flying up and down the ice at Kent Valley Ice Center

Field Trips by Michele Phiffer



Weekly Birdwalks at Nisqually

Wednesdays 8:00 am to Noon
Leader: Phil Kelley

Join Phil Kelley on his weekly bird walks as he counts the birds at Nisqually NWR. The group walks over to an area near the visitor's center to view the entry road estuary, and then takes the boardwalk/trail loop out to the Twin Barns, and the Nisqually overlook area. From there, the group walks the dike, and back to the Riparian Forest.

Some may choose to continue on the new boardwalk extension which goes out toward the mouth of McAlister Creek. It has benches and covered viewing areas.

The walk totals 2.0 miles roundtrip to the boardwalk extension. In winter the estuary boardwalk will add an additional 1 3/4 miles total, so the whole walk including the boardwalk extension is up to 3 3/4 miles.

Bring: Good walking shoes or boots, rain gear, water, snacks, and \$3 for entry fee unless you have a pass. Scopes are welcome.

Meet: At the Visitor's Center Pond Overlook.

Directions: Take I-5 south from Tacoma and exit to Nisqually NWR at exit 114. Take a right at the light.

Sign-up is not necessary. Call or email Phil Kelley if you have questions. Phil Kelley, Lacey, (360) 459 1499, scrubjay323@aol.com

There are no trips being offered yet during late January.

Watch for a posting of a possible field trip on our website at www.rainieraudubon.org.

Raptors of the Auburn/Kent Valley

Sunday, Feb 15, 2015; 8:00 AM to 2:00 PM.

Leader: Roger Orness

Roger Orness will take us to prime raptor viewing spots in the valley during this very-popular field trip. Past trips have been productive for falcons, accipiters and many red-tails to compare the different color morphs. Eagles could be occupying their nest and there is a chance for an early nesting red-tail, if we are lucky.

Meet: We will meet at the Auburn Super Mall parking lot north of McDonalds on 15th SW off I-167 at 08:00 and start at 08:30. We will carpool and return by 2 PM.

Bring: Bring your lunch, drinks and snacks, dress warm for the weather and be prepared for a short walk on a level gravel road inside a closed area of the Kent ponds.

Space is limited, so email or call Roger soon to reserve your spot.

Roger Orness, r.orness41@gmail.com, [253-922-7516](tel:253-922-7516), [253-312-6561](tel:253-312-6561)(cell)

Soos Creek Owl Prowls

Saturday Night, [Feb 07, 2015](#) - or Sat. Night, [Mar 07, 2015](#); 10:30 p.m. to 1:30 a.m.

Leaders: Joe and Liz Miles

Join Friends of Soos Creek Park volunteers Joe and Liz Miles for this late night program and walk exploring the world of owls. We'll start indoors for the first hour learning calls, ID, and info about our local owls, then venture outdoors to prowl for owls.

There is limited space for this program. Reservations are required. Best for adults and children over 13 years. Group size is limited to 15. The owls program is sponsored by Kent City Recreation Dept.

Meet: Meet at the Soos Creek Park Maintenance Shop. Soos Creek Park/Trail 24810 148th Avenue SE, Kent.

Directions: Take James Street east from Kent. To reach James St, exit I-167 at Willis, turn east to Central, and North to James. Travel east on James as it becomes SE 240th St. Travel about 4 miles, as 240th dips and turns downhill. Turn right (south) on 148th Ave near the bottom of the hill. The Soos Creek maintenance yard will be down the road about 1/4 mile on the left at a barn and chainlink-fenced parking lot.

Sign-up: Call Kent Commons, Kent City Parks and Recreation, [253-856-5000](tel:253-856-5000). This trip FILLS EARLY. Please register in advance.

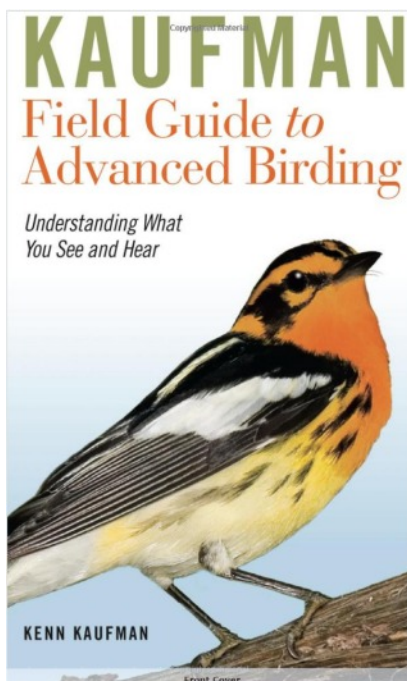
For further info: E-mail or call Joe Miles, friendsofsooscreekpark@q.com, (253) 639-0123. Joe can answer your questions but cannot arrange the sign-ups.

Don't forget the link to the Tahoma Audubon Field trips: fieldtrips@tahomaudubon.org

Book Reviews by Laura Lavington



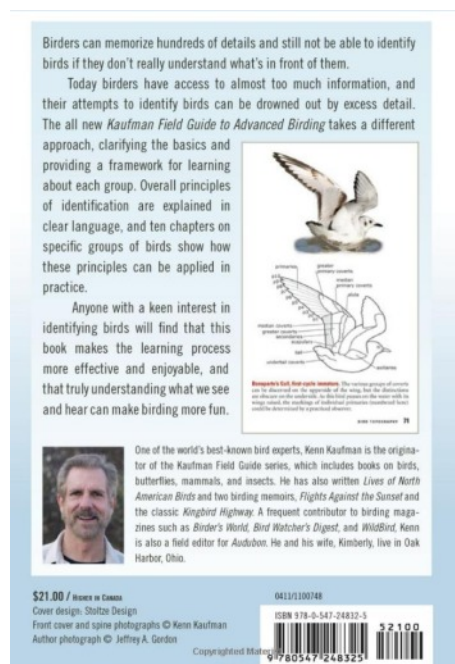
Many of us are not as proficient as birders as we might like to be. I, personally, feel comfortable with songbirds, but I am a little more hesitant when watching water birds. Kenn Kaufman published *Kaufman Field Guide to Advanced Birding: Understanding What You See and Hear* in 2011, and the book's intent is to make readers more adept birders. The book's field guide size belies the amount of information packed between its covers.



you're a great birder. If, as a great birder, you decide to learn more about identifying difficult species, I hope this book will help you. But if you decide not to tackle these challenges, please continue to pursue your birding in whatever way brings you the most satisfaction."

or when the birds zoom past my head so fast that they're a blur.

I have looked through Kaufman's book, but I have neither intently studied it nor applied its contents in the field, so I cannot give you a testimonial as to whether this book improves one's birdwatching abilities. However, it is my general philosophy that if you are not sure about a book, check it out from the library. It is my intention to go through the book more closely when I have time: even if the project just helps me with a few birds, it is worthwhile. I am already, after all, a "great birder" according to Kaufman's definition, but my identification skills could still improve.



Kaufman begins his book with his principles and pitfalls of field identification. I like principle thirteen in particular: learn to leave some birds unidentified. It can be frustrating to only get a brief glimpse of a bird and be unable to identify it with confidence, so it is encouraging that even the masters of birdwatching (such as Kenn Kaufman) leave some birds unidentified. Similarly, Kaufman ends the section with principle fourteen: don't let it get you down. After reading the text following the principle I got a warm fuzzy feeling, as if I were reading a self-help book! In all seriousness, I like what Kaufman has to say here: "I've often said that birding is something that we do for enjoyment—so, if you enjoy it, you're a good birder. If you enjoy it a lot,

The book continues by discussing the bodily areas used in bird identification, from the many different regions of the birds' heads that may show color variation to the numerous wing feathers. A few more general sections follow that, including one on behavior and vocalization, and then the book begins its coverage of individual types of birds. There are quite a few pages about the birds I loosely call "water birds"—I guess I'm not the only one that has a tough time with them. I naturally found myself turning to the section about identifying gulls, at which point I read that entire books have been devoted to identifying gulls! My mom has a house on Hood Canal where the gulls are numerous, so I will carefully read through the gull chapter shortly before the summer season there begins. Hmm, I thought I would not need the section about identifying hummingbirds, and then I remembered the juveniles. Well, it is mostly just a problem when I travel—

Mewsings from Millie

Reprint Courtesy of Wild Birds Unlimited, Burien

Millie is the big, beautiful cat who hangs out at the Wild Birds Unlimited store in Burien. Millie is very observant and has decided to write this monthly column to pass on to us what she sees and overhears while supposedly sleeping



HELLO again and welcome to my world! Here are some things I have heard and learned about over the last few weeks.

Juncos practice a very interesting foraging method. It's called "riding." They fly up to the top of a seed cluster on a stem and "ride" it to the ground, where they pick off the seeds.

One of my people visited the zoo recently and learned why flamingos stand on one leg. It's to keep the other leg warm!

Speaking of staying warm, you may have wondered, as I have, what birds do during these long, cold winter nights. On KPLU's "Birdnote," I learned, to my surprise, that they are not hunkered down in cozy little nests. The only time of the year when birds sleep in nests is when they are sitting on eggs or keeping their young warm. During the rest of the year, birds select a roosting spot. Songbirds find a protected place to perch that is out of the rain and safe from nocturnal predators. Small forest birds may spend the night huddled together in tree cavities. Ducks float in protected bays, woodpeckers cling to vertical tree trunks, and crows roost communally:

Birds fluff up their feathers for insulation and often crouch down over their legs and feet to keep them warm. Counter to what most of us believe, birds cannot tuck their heads under their wings to sleep.

But they can turn their heads and poke their beaks under their shoulder feathers to keep their beaks warm.

I also learned why birds' little feet don't freeze and stick to metal perches and ducks' feet don't freeze and stick to the ice. Birds' feet are not much more than bone, sinew, and scale with very few nerves. A fine pattern of arteries called "rete mirabile" carries warm blood from the bird's heart and is interwoven with the veins carrying cold blood from the feet



and legs. This interweaving warms the cold blood before it reaches the bird's heart and keeps the legs and feet warm. Also, birds' feet don't have sweat glands, so they stay dry. That is why they don't freeze and stick to things.

Chickadees beat their wings 27 times a second compared to a hummingbird's 80 times a second.

The "cedar" part of the Cedar Waxwing's name comes from the bird's fondness for cedar berries. The "waxwing" portion comes from the tips of their secondary flight feathers looking like they were dipped in red wax.

And now for this month's collective nouns describing groups of birds:

A CONGRESS of eagles

A SCREECH of gulls

A BEVY of quail

A DESCENT of woodpeckers

Until next time,

— Millie, the Muse of Mews

FREE DISCOVER PASSES FOR MEMBERS OF RAINIER AUDUBON SOCIETY

To support our state parks – and to boost membership - the local chapter of the Audubon Society, called the Rainier Audubon Society, is giving away free Discover Passes to any new member who joins Rainier Audubon during 2014.

All you have to do is come to a meeting, join up and get your free Discover Pass. The cost of joining is \$25.00/individual and \$30/family. The cost of a Discover Pass is normally \$35.00 dollars so you've just saved \$10.00 and you have a year's membership in the Audubon Society and a year's free access to all of the state parks in Washington.

Each Discover Pass can be used for any two vehicles you own. Just fill out two license plate numbers on the Pass, hang it from the rear view mirror of whichever car you're taking, and you're good to go for a full year of state park recreation.

The Rainier Audubon Society meets monthly at the United Methodist Church in Federal Way, and presents programs on all aspects of nature, birding, conservation, outdoor photography, and many other topics that adults and children who love the outdoors enjoy. For more information go to www.RainierAudubon.org.

The Great Blue Heron

Reprint Courtesy of Wild Birds Unlimited, Burien

THE Great Blue Heron is a majestic sight whether it is standing motionless at a river bend or cruising along the coastline with slow, deliberate wingbeats. This stately bird with its beautiful blue-gray plumage will poise without moving, scanning for prey or wade belly deep with long, deliberate strides. Great Blue Herons may move slowly but they can strike like lightning to snag a fish or grab a frog.

Great Blue Herons live in both freshwater and saltwater habitats. They usually hunt alone eating fish, reptiles, insects and other birds. They will also forage in grasslands and agricultural fields looking for frogs and small mammals.

When building a nest, the male Great Blue Herons collect much of the material, gathering sticks from the ground, shrubs, trees and unguarded or abandoned nests. They present the sticks to the females. If the sticks are accepted, the females proceed to weave a platform and a saucer-shaped nest cup. The nest is lined with pine needles, moss, reeds, dry grass and small twigs. Building the nest can take from 3 days up to 2 weeks. Each female will lay 3 - 6 pale, blue eggs.

Great Blue Herons nest mainly in trees but will also nest on the ground, on bushes and on structures such as duck blinds, channel markers or nesting platforms. Males arrive at the colony first and select a nest site. They then begin to court the females. Large, successful colonies may have hundreds of nests.

Great Blue Herons are monogamous during a breeding season but choose new partners each year. They display elaborate courtship and pair-bonding behaviors including a ritualized greeting, stick transfers and a nest relief ceremony in which the birds erect their plumes and clap their bill tips together.

Great Blue Herons defend their feeding territories with much drama, approaching intruders with head thrown back, wings outstretched and bill pointing skyward. Offending humans may also witness this behavior.

OTHER COOL FACTS ABOUT GREAT BLUE HERONS

Great Blue Herons are the largest heron in North America.

Great Blue Herons can curl their neck into an S shape for more aerodynamic flight and to quickly strike prey at a distance due to specially shaped neck vertebrae.

Great Blue Herons have specialized feathers on their chest that continually grow and fray. The herons comb this "powder down" with a fringed claw on their middle toes, using the down like a washcloth to remove fish slime and other oils from their feathers as they preen. The powder protects their feathers against the slime and oils of swamps.

Great Blue Herons can hunt day and night due to a high percentage of rod-type photoreceptors in their eyes.

Even though Great Blue Herons are impressive standing about 4 feet tall and having a 6 foot wing span, they only weigh 5 to 6 pounds because of their hollow bones.

Great Blue Herons on the coast can be seen poised atop a floating bed of kelp waiting for lunch to swim by.

On March 17, 2003 the Seattle City Council named the Great Blue Heron the official bird of Seattle.

Based on banding records, the oldest Great Blue Heron was 24 years old.

Fish farmers worry about Great Blue Herons congregating at fish hatcheries, but a study found that the birds ate mostly diseased fish that would have died shortly anyway. The sick fish spent more time near the surface of the water where they were more easily snagged by the herons.

It is quiet now but come spring a local heronry will be stirring to life. More than 30 nests were accounted for last year at the colony behind the King County Animal Shelter at 21615 64th Ave. S. in Kent. Visit, observe and be awestruck by these magnificent and interesting birds



Dan Streiffert

Avian Advocacy in the 2015 Washington State Legislative Session

By Jen Syrowitz, Chapter Conservation Manager
Audubon Washington

Avian advocates across Washington are gearing up for the 2015 Washington State Legislative Session. The Governor's newly announced [climate legislation](#), focused on curbing pollution and transitioning Washington to cleaner sources of energy, ensures we will have a full plate of issues we care about, and plenty of opportunities for important activist participation.

What we are working on

Audubon advocacy efforts in Washington during the 2015 session will focus on marine birds, forage fish and climate change, including carbon emissions reduction, clean energy options and fossil fuel transport and export. In September 2014, Audubon released the [results of a seven year study](#) predicting how climate change could affect the ranges of 588 North American birds. A few weeks later at a meeting of all Audubon chapters in Washington, the Washington State Audubon Conservation Committee (WSACC) passed a resolution [opposing increased oil transport and export](#) through Washington State. And we continue to work with flyway, state, and local partners to advocate for the needs of marine birds in Puget Sound, throughout the Salish Sea and along our outer coast. Our network's advocacy actions re-inforce our conservation work.

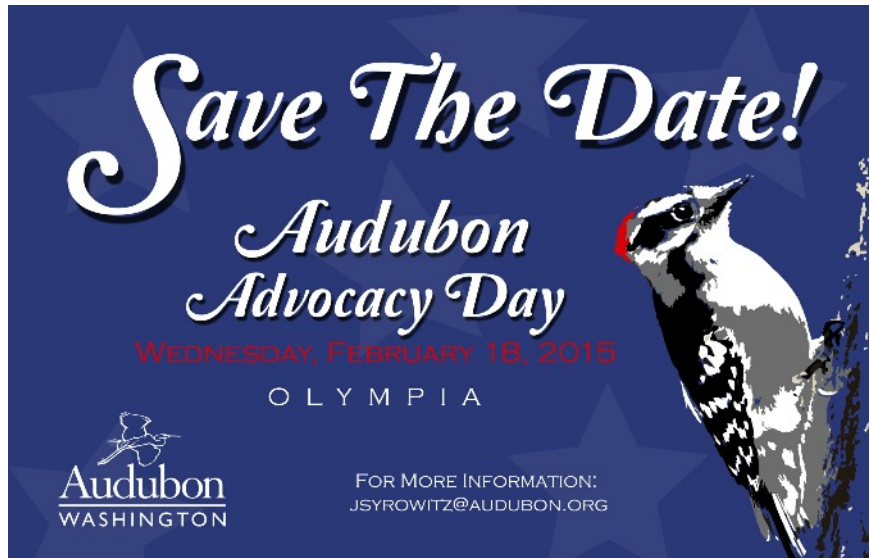
Who we are working with

We are working with several collaborative organizations including the Environmental Priorities Coalition (EPC), the West Coast Climate Campaign (WCC), Sound Action, and others to achieve legislation that is good for birds and people. Since 2003, Audubon has been a member of the [Environmental Priorities Coalition](#), a collaboration of over 20 leading environmental groups in Washington state that work to influence policy at the state level. Each legislative session the Coalition selects priority issues that are important to protecting our state; the upcoming 2015 legislative session will focus on oil transport and climate/carbon reduction. Audubon Washington is also partnered with the [West Coast Climate Campaign](#), a collaborative group of environmental organizations in California, Oregon, and Washington working on strategies to combat climate change in the Pacific Northwest through carbon pricing, replacing coal with clean energy, and reducing carbon pollution from transportation with a clean fuel standard. [Sound Action](#) is a strong shoreline health advocate whose mission aligns with our coastal stewardship work.

Plan of action

Audubon Washington and Black Hills Audubon Society are hosting an [AUDUBON ADVOCACY DAY](#) on Wednesday, February 18, 2015. Please join us for a day of constituent conversations on issues of concern to Audubon members – let's make our voices heard on behalf of birds with our elected officials. More information and logistical updates are available at <http://wa.audubon.org/legislative-session-2015>.

Weekly legislative updates will be sent from the state office to the WaGeneral and WSACC listservs. If you are not on one of these lists, please sign up now to be among the first to know about



statewide Audubon issues! To sign up, visit <http://wa.audubon.org/communication-tools>.

New in 2015, Audubon Washington will send out participatory action alerts around our most pressing issues. Be sure to take advantage of these easy activist actions and help us show the power and extent of our grassroots network!

The 2015 legislative session begins on Monday, January 12, 2015 and is scheduled to end Monday, April 27, 2015. Your participation is vital to avian conservation in Washington state – please consider joining our efforts to affect positive environmental change this session. As stated by Audubon President and CEO, David Yarnold, you are what hope looks like to a bird.

Article links in order of appearance in text:

<http://www.governor.wa.gov/issues/climate/waleg15.aspx>
<http://wa.audubon.org/climate-change-0>
http://wa.audubon.org/sites/default/files/documents/wsacc_oil_transport_resolution_9.2014.pdf
<http://environmentalpriorities.org/>
<http://www.climatesolutions.org/campaigns/west-coast-climate-campaign>
<http://soundaction.org/>
<http://wa.audubon.org/legislative-session-2015>
<http://wa.audubon.org/communication-tools>

2014 Hottest year in history

by Joseph Ryan

The World Meteorological Organization released its annual report on global temperatures. The results are startling, but not surprising. Another reminder that the work we are doing is critically important for addressing a challenge much larger than ourselves. - Joe

WEATHER:

WMO says 2014 will be hottest year ever measured on Earth

Gayathri Vaidyanathan, E&E reporter

Published: Thursday, December 4, 2014

This year will likely be the hottest on record for the planet, with global temperatures 1.03 degrees Fahrenheit higher than the 1961-to-1990 average, according to a new report from the World Meteorological Organization.

This would make 2014 the 38th consecutive year with an anomalously high annual global temperature.

The estimate comes from the WMO's annual compendium on the "Status of the Global Climate." This year's report was released during the U.N. climate talks in Lima, Peru, where diplomats are negotiating a new global climate deal to be signed in Paris next year.

The report uses data from the National Oceanic and Atmospheric Administration, NASA and the United Kingdom's Met Office. To place the findings in a historical context, scientists usually compare temperatures with "normal" temperatures averaged over a 30-year stretch, usually 1961 to 1990.

Driving the temperature rise in 2014 were the oceans -- the Pacific, the polar and subtropical north Atlantic, parts of the south Atlantic, and the Indian Ocean all experienced the warmest temperatures ever recorded. Global sea surface temperatures were 0.45 degree Celsius above the 1961-90 normal.

On land, temperatures were 0.86 C above normal.

A year for extremes

Scientists do not know what is going on with the oceans this year. In general, oceans absorb much of the heat of global warming, but scientists do not have a good grasp on the phenomenon. They are beginning to study this parameter in the deep oceans, and data for 2014 are available to a depth of 2,000 meters (ClimateWire, Oct. 7). Scientists have found that the ocean heat content in 2014 was similar to 2013, which set a heat-content record since measurements began in 1955.

As the oceans absorb heat, the water molecules expand and sea levels rise. In early 2014, sea levels rose to a record high. The average sea-level rise over the past two decades has been 3.2 millimeters per year.

The Arctic in 2014 saw the sixth-lowest ice cover in September, covering 1.24 million square kilometers less than the 1981-2010 normal.

Meanwhile, the Antarctic set a high record for ice cover, covering 560,000 square kilometers more than the previous record set in 2013. Scientists are studying the Antarctic to understand why its sea ice extent has been growing since 1979.

Notable heat waves were recorded in South Africa and Tunisia. High temperatures were recorded in Arctic regions of Russia, particularly in the spring.

"In April, ice break up began on the River Ob in Siberia two weeks earlier than normal, the earliest it has happened in the last 100 years," the report states.

Above-average temperatures were recorded in parts of South America, Asia, Europe and Australia. In fact, the United States was the only cool spot in an otherwise sweltering world.

Droughts were recorded in parts of South Africa, China and Brazil, and, in the United States, California, Nevada and Texas were in exceptional drought, receiving just 40 percent of the normal expected rainfall.

India received 12 percent less rainfall than average during its monsoon season. Rainfall deficits were also recorded in New Zealand and Western Europe.



Flooding up, tropical storms down

Floods affected parts of South Africa in March and had an impact on more than 4,000 families. In Kenya, flash floods due to rainfall killed 10 in February. Floods were recorded in northern Pakistan and India in September, which killed 250 people and displaced 100,000.

Extremely heavy rainfall was recorded in parts of Russia, Japan, the United States, Argentina, Serbia and France.

Some 72 tropical storms have occurred in 2014 so far, which is below the 1981-2010 average.

Levels of CO2 in the atmosphere climbed to 396 parts per million in 2013, the latest year for which data are available. That was 142 percent higher than the levels in the atmosphere at the start of the Industrial Revolution in the 1800s.

About 45 percent of the CO2 emitted by humans since 2003 went into the atmosphere; the rest was taken up by oceans and land.



Rainier Audubon Society
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“The opposite of love is not hate, it's indifference.
The opposite of art is not ugliness, it's indifference.
The opposite of faith is not heresy, it's indifference.
And the opposite of life is not death, it's indifference.”
— Elie Wiesel



Rainier Audubon Membership Subscription or Renewal Form

One-year Membership in Rainier Audubon

- \$25—Individual Membership
- \$30—Family Membership

To join or renew, mail this application with your payment to:

Rainier Audubon Society - Membership
PO Box 778
Auburn, WA 98071



Name: _____
Address _____
City _____ State _____ Zip _____
Email _____ Phone _____

RAS Chapter membership includes 9 issues of the Heron Herald annually but does not include AUDUBON magazine.