Mono Lake

Newsletter

Summer 2017

Mono Lake is Rising

Record Winter, Record Runoff

Gulls Nesting Safely

Mono Lake Map

The benchmarks in this issue of the *Mono Lake Newsletter* show the smallest change in lake level that I think we've ever published (see page 13).

Out on the landbridge where we installed the temporary fence to keep the nesting gulls safe, wildlife cameras capture the lake's rise on some of the very flattest exposed lakebed, so even small changes in lake level are clearly visible. The 2.3-inch-rise shown in the photos is only the beginning this year.

After five years of streams slowing to a trickle and Mono Lake dropping, this is a year of renewal and revival for the Mono Basin's resilient natural systems. Streams are overflowing their banks, meadows are flooded, and thirsty cottonwoods are plunging their roots into the saturated soil. Mono Lake is rising fast—water is lapping higher on the tufa towers and salt-tolerant plants along the shore now have wet feet.

It's a year of benchmarks for human-engineered systems too. Grant Lake Reservoir will flow over the spillway, too full to contain the immense volumes of snowmelt from the upper Rush Creek watershed. Mono Lake will sequentially flood the posts of the temporary fence, shortening the length needed to protect the gulls. Salty lake water will change the paths at South Tufa, forcing visitors to walk higher above the new shore.

This is a year not to be missed. It has already joined the ranks of other big years: 1969, 1983, 1995 ... 2017.

So come to Mono Lake, find a spot on the shore, and take note. The edge of the lake wasn't there yesterday, and it won't be there tomorrow—Mono Lake is refilling before our eyes. At the end of your stay in the Mono Basin, return to your benchmark spot and see how the shoreline has changed. You'll be able to say that you were here during the amazing summer of 2017 and saw it happening.

—Elin Ljung, Communications Coordinator

COVER PHOTO COURTESY OF ROBB HIRSCH, ROBBHIRSCHPHOTO.COM

MONO LAKE COMMITTEE WILDLIFE CAMERA

The temporary electric fence stretching one mile across the landbridge has 11 motion-activated wildlife cameras with infrared nighttime flash capability along its length. In late April, camera #5 documented a coyote walking the fence line, confirming that the fence is functioning as a coyote barrier.

Mono Lake Committee Mission

The Mono Lake Committee is a non-profit citizens' group dedicated to protecting and restoring the Mono Basin ecosystem, educating the public about Mono Lake and the impacts on the environment of excessive water use, and promoting cooperative solutions that protect Mono Lake and meet real water needs without transferring environmental problems to other areas.

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Record winter snowpack melt underway

Epic winter to produce epic results downstream

by Geoffrey McQuilkin

Mono Lake, and all of us here at the Mono Lake Committee, have just been through the biggest winter on record. It is an abrupt and welcome end to drought conditions (though not to all the effects of the drought), made all the more enjoyable by the way it crept up unannounced and surprised us with its intensity.

Stories abound of Highway 395 being closed for days, snow blanketing every facet of the Sierra Nevada crest, and backcountry snowfields that measure taller than any building in Mono County. Speculation about an opening date for Tioga Pass—certain to be among the latest ever—is a popular springtime guessing game in town.

So what does it all mean for Mono Lake, its tributary streams, and the operation of the Los Angeles Aqueduct? Here's the exciting outlook:

BARTSHÉ MILLER

So much snow arrived in the Mono Basin this winter that even ephemeral streams far east of the Sierra flowed with water this spring.

Mono Lake on the rise

With a deep snowpack fueling runoff that is forecast at 206% of average, Mono Lake is expected to rise over three feet between April 2017 and March 2018. That is a *lot* of water, especially when you recall that Mono Lake is almost twice the size of San Francisco.

The lake typically rises a bit during winter; this year it rose an impressive 1.2 feet prior to April, largely due to precipitation on the lake and lower-elevation rainfall (see page 5).

Still, California's five-year drought caused Mono Lake to drop nearly seven feet, so while this will be an impressively fast recovery, it will not be complete: the forecast puts the lake on April 1, 2018 at an elevation of 6381.4 feet above sea level, still 2.6 feet below the lake level at the beginning of the drought.

Aqueduct exports limited

The Los Angeles Department of Water & Power (DWP) is allowed to export 4,500 acre feet of water this year in the aqueduct system. The relatively small allocation this year means that 98% of the big winter's snowmelt will flow directly down the tributary streams to Mono Lake.

Export amounts are determined by the lake level as measured on April 1. Committee and DWP staff routinely read the official set of surveyed lake level gauges throughout the year. On April 1 we read them together due to the importance of that reading in determining exports. For example, had the drought continued and the lake dropped below 6377 feet, DWP exports would have been reduced to zero.

This year Committee staff met DWP representatives at the lakeshore early on the calm Saturday morning for the measurement. Conversation centered around the wet winter and the change on the lakeshore due to a level that was visibly higher than the prior year's reading. The consensus reading was 6378.3 feet above sea level. A subsequent jointly-signed letter from the Committee and DWP reported the results to the State Water Resources Control Board.

Mono Lake enthusiasts have been asking a logical question: DWP may be allowed to export 4,500 acre feet of water, but does it really need to do so in this wet year? It is a good question, and the Committee has put it directly to DWP leaders. Why not just let the water flow down the creeks to the lake, where it has ecosystem benefits and,

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Owens Valley awash

Visitors to the Owens Valley will be impressed to see water running in just about every historic ditch and filling every pond and percolating area. The Los Angeles Aqueduct has also been running brim-full since spring in anticipation of April–September runoff exceeding 200% of average in the Owens River watershed. Even so, significant volumes of water are still expected to make their way to the watershed's natural endpoint at Owens Lake, expanding the remnant brine pool there to a much larger shallow lake. In March, Los Angeles Mayor Eric Garcetti declared a state of emergency in anticipation of the high flows and the damage that may be done to the extensive dust control facilities DWP has constructed on the bed of Owens Lake.

California Gulls safe for the season

Temporary electric fence up and running on schedule

by Geoffrey McQuilkin

A mile of citizen-funded solar-powered electric fence is up and running, protecting Mono Lake's nesting gulls—one of the three largest colonies in the world—from mainland predators. The fence is the result of a year and a half of planning by the Mono Lake Committee and California State Parks along with other agency partners, a dedicated local installation team, and generous funding from Mono Lake supporters across the country.

Why is the temporary fence—which will be removed when nesting is finished—needed? Five years of drought lowered Mono Lake seven feet, shrinking the protective moat of water between the lake's north shore and Negit Island and adjacent islets—exposing a landbridge that allows coyotes access to the lake's long-established nesting colony of California Gulls. Last summer signs were found on a few of these islets that coyotes had indeed walked the landbridge and then swum the remaining 500 feet or so of shallow water to prey on eggs and chicks, disrupting nesting and causing gulls to be suspicious of returning to these sites in future years.

GEOFF MCQUILKIN

The fence is made up of five sections, three electrified and two that extend into the water on either end that are not charged.

Not a typical fence site

The electric mesh netting fence used for the project comes from a company whose catalog features photos with lush green pastures where the fence product is easily moved by truck and the firm ground holds up fence posts to protect livestock from coyotes. The task at Mono Lake was to take this proven-effective fencing and install it more than a mile from the nearest road, on exposed silty lakebed known for its thigh-sucking mud qualities, in a barren environment subject to 70 mile-per-hour winds and baking sun. Not to mention that the ends of the fence run into Mono Lake, so there is water, wave action, and the rising lake level to contend with.

The local installation team did an excellent job, aided by their knowledge

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Crowd-funding a fence

In February, when the first returning gulls of the season were spotted, the albeit confusing reality of needing to put up a fence to protect the gull colony was sinking in.

We had hoped that with all the rain and snow there wouldn't be a need for a fence, but were prepared with plans, permits, and people just in case. Luckily, in December, an amazing thing had happened—we received an unsolicited, and significant, donation from a thoughtful Mono Lake Committee member specifically for the fence. By our calculations, we were going to need an additional $15,000 in order to fully fund the fence.

That fortuitous donation made us wonder if we could crowd-fund the difference. We launched the #LongLivetheGulls campaign on Indiegogo, complete with a video and gull-themed perks, on February 15. We watched the campaign with anxious anticipation—every single donation felt like a little miracle. By March 28 we had raised $15,460 from 231 backers, and were able to order the fence materials in time!

Many thanks are in order for all who contributed. Thank you for chipping in. Thank you for telling your friends. Thank you for making the fence a reality. And, most importantly, thanks to you the fence is up, and the gulls have a much better chance of a successful nesting season.

Big winter, warming climate

A water year to remember

by Bartshé Miller

The winter of 2017 was precedent-setting. It was the wettest, warmest winter (October–March) on record, and a preview of how big winters will behave in the future.

Multiple atmospheric river events lashed the Sierra Nevada with intense winds, rain, and snow. Storms were warmer than average with higher snow levels and more snow piling up at the highest elevations. April 1 snow surveys in the Tioga Pass region revealed a snowpack rivaling the biggest years on record (1983 and 1969) for this part of the Sierra. NASA Airborne Snow Observatory data in the Central Sierra indicated snow depths reaching more than 50 feet in certain high elevation drainages (see page 6). The Northern Sierra logged its wettest year ever, just eclipsing the record set in 1983.

Despite the large volume of precipitation, there was less snow and relatively more rain throughout the Sierra at low- to mid-elevations, with a number of lower-elevation snow sensors falling far below their April 1 average snowpack. Statewide, the last 18 winters have been warmer than normal, and this is likely part of the picture in understanding this year's decline in lower-elevation snowpack. But after missing the cumulative equivalent of two winters' worth of snowpack since 2011, this year's impressive precipitation was universally hailed as a big relief.

Lee Vining drenching

Here in the Sierra Nevada rain shadow, Lee Vining data was a small reflection of the larger winter picture. In conjunction with the National Oceanic & Atmospheric Administration, the Mono Lake Committee has been recording weather data since May 1988, and the data recorded at the Lee Vining station appears to track with larger Sierra- and California-wide long-term weather trends.

This winter, January was not only the wettest on record in town, but it also set a record for the single wettest calendar month in any year of recorded data. With 11.23 inches of precipitation, January 2017 eclipsed the former record from March 1995 of 9.85 inches. February 2017 also logged an impressive amount of precipitation, ranking as the second-wettest February on record behind 1998.

After a relative lull in March, significant precipitation returned again in April, placing the month as the second-wettest April in Lee Vining weather station history. The water year (October 2016–September 2017) is already at a record with 26.24 inches of water, over 175% of average so far for Lee Vining.

Lee Vining winter temperatures were also warmer than average in November, December, February, and March. Most of the winter's precipitation arrived as rain—66%. Contrast this with the last wet year this decade, 2011, when 37% of precipitation arrived as rain. 2011 was also the last time winter temperatures in Lee Vining fell consistently below average; significantly more snow fell in town in 2011—133 inches versus 83 in 2017.

Warming changes everything

Compared to the last big winter in California (2011), Sierra Nevada snowpack in 2017 was considerably reduced in area. Total snow volume is impressive at upper elevations, but the reduced total area is a symptom of warmer winters as global atmospheric and ocean temperatures increase.

Millions of years of ecosystem evolution as well as the history of human civilization in California is intertwined

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BARTSHÉ MILLER

After missing the cumulative equivalent of two winters' worth of snowpack since 2011, this year's impressive precipitation was universally hailed as a big relief.

Counting snowflakes—all of them

Talking with Dr. Tom Painter about the Airborne Snow Observatory

interview by Geoffrey McQuilkin

Just how much water is contained in the Sierra Nevada snowpack? NASA and the Jet Propulsion Laboratory, along with the California Department of Water Resources and the USDA Agricultural Research Service, have developed the high-tech Airborne Snow Observatory (ASO) to answer that question with greater precision and clarity than ever before.

Flying out of nearby Mammoth Lakes, a plane equipped with an imaging spectrometer and an incredibly precise LIDAR laser measurement system has been gathering vast quantities of data that allow scientists to calculate how much water is contained in every square meter of snowpack in the high Sierra. Knowing how much water is stored in the snowpack and waiting to flow down Rush Creek, for example, is incredibly valuable. The details of how ASO works are fascinating and the big-picture implications for Mono Lake and all of California water management are exciting. I talked with ASO Principal Investigator Dr. Tom Painter in May during a break in his schedule between flights, project development, and a roster of presentations worldwide.

Geoff: Thanks for taking time to talk, Tom. We're just coming out of a huge winter; how notable was it from your perspective?

Tom: For me the coolest thing has been to be in the lucky position with ASO to quantitatively document "Drought-o-rama" to "Snowpocalypse."

We could evaluate that transition during the three-week period when we had the big atmospheric events in January. Using our ASO data and combining it with satellite retrievals and some modeling results with colleagues at the University of Colorado, we found that 25% more water than the entire annual flow of the Colorado River fell onto the Sierra Nevada as snow, just in those few weeks.

That's amazing—an atmospheric river compared to a traditional river—you can see this kind of thing because ASO is measuring total water in the snowpack, right?

Exactly. It was a pair of atmospheric river events that came and dumped that much water—25% more than the average year in the Colorado River basin, which is in seven different states—and it all came to the Sierra. It was just absolutely stunning.

And what we've been finding in the Central Sierra is that the accumulation of snow and then the redistribution has put us in a place where we have tens of meters of snow in places.

What is snow redistribution?

Redistribution is avalanching, blowing, and wind scouring of the western slopes up and over onto the eastern side.

PHOTO COURTESY OF TOM PAINTER, NASA/JPL-CALTECH

Using a plane with an imaging spectrometer and a precise LIDAR measurement system, ASO scientists can calculate how much water is contained in every square meter of snowpack in the Sierra Nevada.

Snow doesn't just sit all winter where it falls, it's incredibly dynamic in the high country. The cool thing is that Mono Lake benefits a lot from wind redistribution and scouring. You can see it from the satellite views and the ASO data. Up high in the mountains the west aspects tend to be bare and their snow has blown in the wind and sublimated or been deposited on the east side. It drops down and becomes part of the melt for Mono Lake and the Owens Valley in summer.

So we should feel a little better in Lee Vining when these winter storms blow in that give us a lot of wind but little precipitation—because up high the wind is augmenting the Mono Basin snowpack?

That's right. In this year, those accumulations from snowfall and redistribution are in depths of 60, 70, 80, 90 feet. It's unbelievable. All over—in the upper Rush Creek watershed, San Joaquin, the Lakes Basin in Mammoth.

So that's about the height of a nine-story building. Do we have any buildings that tall in Mono County?

Nope. The wind is the biggest builder. And during the height of the winter it put snow just everywhere across the landscape.

Is the redistribution, which ASO can measure, one of the ways ASO is going to the next level of snow measurement, compared to the traditional fixed point measurement sites?

Yes, that's one part of it. Here's another important element: The measurements historically have been automated snow

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Counting snowflakes from page 6

pillow sensors and snow courses measured each spring by snow surveyors, which tend to be at lower- to middle-elevations—they sit in the 8,000–10,000 foot range. Up higher we are as blind as can be.

And what is the history of that? Rugged terrain up high?

It's hard to get to the higher elevations, but the big reason is that historically there has been enough accumulation in those middle elevations that you could index off of that—leverage that information to get a pretty good handle on what the total summer runoff was going to be.

But those were also established at a time when the population of California was less than half what it is today. And even though the water rights were all nailed down, the stress on the state water system was lower. There was more flexibility. There was less population demand for water, less agricultural need, fewer river flow and environmental protections. You could be 20–40% off in the runoff forecast and it wasn't that big of a deal. Now if you are 40% off it is a huge deal because the water is more precisely allocated and one resource or another downstream is going to lose out when the forecast is wrong. So there used to be more latitude with water management, and that has been going away.

If we didn't have climate change that would still be the case. But we do have climate change, and that is really why we have to adapt. With the changing climate those index sites themselves—the snow pillows and snow courses—are becoming less reliable. So let's say you are a water manager and you extrapolate from your watershed's suite of snow pillows and snow courses to determine how much snow water equivalent there is, or how much runoff there will be from April through July. That relationship is becoming less robust. It's not just that the relationship is changing due to climate change, it is also becoming less reliable and less accurate overall. That's why the state of California and the Department of Water Resources have invested in new methods to determine how winter snow is distributed across the landscape. There are advanced mathematical tools out there but they still rely on the snow pillows and snow courses. The way to really do this is through the Airborne Snow Observatory—and once you have ASO, you don't need to extrapolate or rely on regressions and their inability to get every year right. You just get the straight-up measurement of how much water equivalent is in the snowpack. Period.

PHOTO COURTESY OF TOM PAINTER

In his free time Dr. Painter ground-truths the water content of the Sierra Nevada snowpack on skis whenever he gets a chance.

> Our California civilization is built up around this water resource that is the snowpack. To be able to get rid of forecast uncertainty, so we can make the right decisions … I'm excited that we are doing that for Mono Lake.

People have asked us over and over "what percentage of normal are you seeing" and we've only been flying for five years so there's no long-term average for us to reference. But we say back: would you like to just know how much water there is?

I remember the first data you sent us for Rush Creek. Along with the map of distributed snow water equivalent, there was just a text file with a number. We are so unaccustomed to a direct answer about the snowpack—it's always extrapolated percentages of average, or scenario this and scenario that. ASO just gave us the direct answer to how much water was sitting in the upper watershed snowpack.

And people often don't know what to do with that. They say it is the exact data they want but they don't know what to do with it, they've been relying on percentages for so long. But once they adapt their water planning system, as the Tuolumne watershed folks have done, it makes a huge difference in accuracy.

So what is the accuracy of ASO? How does actual measured runoff in streams and rivers compare to the numbers ASO is producing?

Here's the point of reference: At the American River, Dr. Jeff Dozier from the Bren School at UC Santa Barbara has studied the probability of forecast error over a 20-year period for April–July runoff. What that analysis shows is that in 50% of the years the forecast error was 20% or greater. In one of five years the error was greater than 40%. There are lots of reasons for that that hydrologists talk about, but the analysis we've done in the Tuolumne shows that large size forecast error using the current tools and methods is most likely due to the uncertainty of the spatial distribution of the snowpack. You've got these index sites—the snow pillows and snow courses—and they are telling you, kind of, how much snow you have, but they can mislead you. It's not that forecasters

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Policy notes

by Lisa Cutting & Geoffrey McQuilkin

Sierra Nevada bighorn sheep gain more protection

This past spring, the Mono County Board of Supervisors voted not to renew a domestic sheep grazing lease in the Mono Basin in order to protect the herd of Sierra Nevada bighorn sheep in Lundy Canyon.

As reported in the 2017 Winter & Spring *Mono Lake Newsletter*, the lease for the Mono County-owned Conway and Mattly ranch properties was set to expire this November. The issue with the lease was the proximity of the grazing area to the bighorn herd range—domestic sheep can carry a pneumonia that is fatal, and easily transmitted, to bighorn. Agencies responsible for the protection and recovery of the bighorn population used the opportunity to speak up for the endangered species—urging the Board not to renew the lease in order to eliminate the possibility of transmission to the Lundy Canyon bighorn herd. After presentations from Sierra Nevada bighorn sheep experts and public comment overwhelmingly in support of bighorn sheep safety, the Board decided that the risk was too great and the lease would not be renewed.

Wildlife agencies responsible for Sierra Nevada bighorn sheep recovery have been hesitant to augment the Lundy-area herd as they have done with other herds due to the high risk of domestic-bighorn contact. Now that sheep grazing will no longer take place in the north Mono Basin, the agencies will take more active measures to help this herd recover and thrive.

PHOTO COURTESY OF CHRIS CLEVELAND

Wildlife agencies will now be able to take active measures to help the bighorn sheep.

Rockfall Project slope revegetation underway

Despite the lack of visible equipment or personnel in the Lee Vining Rockfall Safety Project area, the project is still active in a less-obvious way. With construction work completed on the two remaining slopes last fall (see Fall 2016 *Mono Lake Newsletter*), all six slopes are now in the five-year Plant Establishment Project phase.

The Rockfall Project was implemented in 2015 to reduce rockfall along a narrow stretch of Highway 395 just north of Lee Vining. A combination of anchored mesh and revegetation of the slopes with native grasses, shrubs, and trees will provide both immediate and long-term stability to the slopes.

Vegetation abundance and species diversity in the area are monitored twice a year by a contracted restoration ecologist who identifies areas that need remedial actions, such as reseeding and reapplying additional pine needle mulch. After a wet winter, the slopes are showing a lot of new green native plants and appear to be off to a strong start.

The Mono Lake Committee advocated for this innovative post-construction approach, which helps to ensure that clearly-identified vegetation goals are met through ongoing evaluation and corrective action when needed. The combination of monitoring for success criteria, additional slope treatments, and abundant winter precipitation have all contributed to the positive progress thus far.

PHOTO COURTESY OF CHRIS CLEVELAND

Mono County Supervisors voted not to renew domestic sheep grazing leases in the Mono Basin, which will protect the bighorn sheep from disease transmission.

Marina Fire barricade and fence perform as planned

During the epic winter with almost constant snow and rainfall, at least one large boulder tumbled down from the burned Marina Fire slope, just

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north of Lee Vining along Mono Lake. Luckily, safety measures implemented by Caltrans functioned exactly as planned—heavy-duty fencing atop a concrete barricade caught the boulder, keeping it off the highway and keeping motorists safe.

After the Marina Fire was put out last summer, Caltrans installed the barricade and high fence to prevent debris and rocks from falling onto the highway below the slopes destabilized by the burn. It is important to note that the barricade and fence in this area are not part of the Lee Vining Rockfall Safety Project, which the Committee has worked on extensively.

The Committee supports the temporary use of the barricade and the fence for safety. As vegetation returns and the slopes prove to be secure, the Committee will work with the agencies to ensure that any unnecessary infrastructure is removed.

Tioga Inn project

The Tioga Inn project, an expansion of the existing facilities at the Mobil gas station, continues to proceed. As a result of a well-attended environmental scoping meeting and public comments received late last year, Mono County is currently conducting studies and updates necessary to release a Subsequent Environmental Impact Report (SEIR). Most of the project was approved in 1993, but the SEIR is necessary because of changes to the plans requested by the owners.

The 1993 plan allows for a two-story, 120-room hotel and a 100-seat restaurant. The owner is now proposing a three-story, 120-room hotel, two restaurants, and other visitor amenities such as a gym and gift shop. The SEIR will evaluate both the requested changes and combined impacts of the entire project.

The big winter has delayed some of the studies, and in turn the release of the draft SEIR. For information about the process contact Gerry LeFrancois (*glefrancois@mono.ca.gov*) at Mono County Community Development.

Inyo Forest Plan revision

Last summer an astounding 30,000 letters were submitted on the draft Inyo National Forest Management Plan. Once review and analysis is complete, the Final Environmental Impact Statement will go to the regional offices and then on to Washington DC for final review and approval. Once approvals are obtained, the final documents are expected to be released to the public later this year.

The Committee has been tracking the schedule since submitting comments last August and engaging to ensure that Mono Basin issues are addressed. After the final plan is distributed, there will be one final opportunity for objections if previous comments are not addressed. The Inyo will have 90 days to respond to these objections by either accommodating the request, compromising, or sharing additional information that supports its decision. For more information about the process going forward, visit *bit.ly/inyoplan*.

Owens Lake dust regulations proceed

Eastern Sierra air quality issues were caught up in Washington politics in January when the incoming Trump administration froze actions pending implementation by the Environmental Protection Agency. Among those was the final plan for regulation of dust storms originating at Owens Lake, which represented a long-fought solution to the impacts of the Los Angeles Aqueduct on Mono's sister lake to the south. The two-month freeze raised the potential for disruption of the carefully crafted plan, but in the end the plan was allowed to proceed as written and it is now in full force as the solution to this contentious, long-running regional health issue. ❖

Lisa Cutting is the Committee's Eastern Sierra Policy Director. She just realized that her winter boots and snow shovel are still by the front door.

ELIN LJUNG

Safety measures implemented by Caltrans along Highway 395 below the Marina Fire burn functioned as planned when the fence stopped a large boulder from entering the roadway.

Mono Lake's west shoreline still damaged

Agencies coordinating joint response

by Lisa Cutting

Watchful visitors will notice something different about a section of Mono Lake's west shore below Highway 395. Last fall, three acres of sensitive State Park land were damaged by clearing and grading work contracted by the Tioga Lodge, and the damage remains visible as agencies work on a joint restoration plan. The four agencies with jurisdiction in the matter—California State Parks, Department of Fish & Wildlife (DFW), the Lahontan Regional Water Quality Control Board, and Mono County—have been coordinating efforts as they pursue remedies with the property owner.

ELIN LJUNG

Damage to State Park land and a diverted Post Office Creek are still visible along Mono Lake's west shore—remedies are pending.

Last October, the Tioga Lodge removed hazardous trees burned by the Marina Fire from its property but the clearing work encroached into the Mono Lake Tufa State Natural Reserve, far beyond clearly-visible survey markers. Willow thickets and lake-fringing vegetation were excavated and Post Office Creek was diverted out of its natural channel, eroding State land as it flowed to Mono Lake.

Representatives from all the relevant agencies have visited the site to assess the damage. State Park environmental scientists are developing a detailed restoration plan for the wetland habitat that was destroyed on State property. DFW and Lahontan have directed the owner to return Post Office Creek to its original channel and stabilize the damaged soil. Mono County's authority relates to the illegal grading done on private property because a permit was not obtained in advance of the work.

The violations are serious, and multiple agencies must coordinate their actions. The Mono Lake Committee will continue to ensure that progress is made to repair the damaged land and will help with the restoration work when needed. ❖

Tioga Pass: Closed in ... winter?

by Arya Degenhardt

Nestled in the mountains some 12 miles away and 3,000 feet above Lee Vining, Tioga Pass sits at 9,945 feet above sea level. It is the highest point on Highway 120 and the California State Highway system, and the road is not maintained at all over the winter. For those traveling to and from Yosemite National Park it is confusing to hear that a road labeled "closed in winter" is still closed in June. The clearing of the road is a massive undertaking each spring.

There are 26 avalanche zones with snowdrifts upwards of 50 feet, which often conceal rocks and trees that can stop a plow in its tracks and send it all the way back to the shop. A team of avalanche technicians assesses the road before the crew can plow, and safety spotters watch the snow since the crew running the machinery has to focus on the snow in front of them and can't hear or see an avalanche coming.

The latest Tioga Pass opening date was July 8, 1933, and the earliest was April 29, 1988. We are grateful to everyone who works on clearing the road, making sure it is safe to travel this unique and spectacular highway that leads to Mono Lake.

BARTSHE MILLER

Clearing Tioga Pass is a massive undertaking each spring.

Watershed moments

news from the
Mono Basin Outdoor Education Center

by Santiago M. Escruceria, Arya Degenhardt

The 2017 OEC group line-up

We are proud to announce a packed schedule with 25 groups visiting the Mono Basin Outdoor Education Center between May and November.

- **Academy of Environmental & Social Policy Magnet High School**, City of Los Angeles Council District 1
- **Asian American Drug Abuse Program/Olympia Academy**, Council District 4
- **Asian American Drug Abuse Program/Youth Family Program**, Council District 8
- **California State University Northridge Chicano Studies Faculty**, San Fernando Valley
- **Casa Esperanza**, Council District 6
- **Communities for a Better Environment**, Huntington Park (2 groups)
- **Crown Preparatory Academy**, Council District 10
- **East Yard Communities for Environmental Justice**, City of Commerce
- **Generation Green**, Council District 14 (2 groups)
- **Homeboy Industries**, Council District 1
- **LA WYLD/Carver Middle School**, Council District 9
- **Monterey Bay Charter School**, Pacific Grove
- **Outward Bound Adventures/Anti Recidivism Coalition**, Council District 14
- **Outward Bound Adventures/John Muir High School**, Council District 14
- **Outward Bound Adventures/US Department of Education Federal TRIO Program**
- **Pacoima Beautiful**, Council District 6
- **Port of Los Angeles High School**, Council District 15
- **Renaissance International School**, Oakland (3 groups)
- **Roosevelt High School**, Council District 14
- **South El Monte High School**, South El Monte
- **West Career & Technical Academy**, Las Vegas, NV

Trail Chic, August 26

This year the Mono Lake Committee will once again host the Trail Chic fashion show, a fundraiser for the Mono Basin Outdoor Education Center. Hikers, climbers, birders, biologists, anglers, cyclists, and outdoor enthusiasts of all gear-sets will walk the astroturf runway in their creative get-ups for the cause. Entrance is free, and the event is made possible by Barefoot Wine & Bubbly, so you know it's going to be a good time—we hope you'll join us. More at *monolake.org/trailchic*.

MONO BASIN Outdoor Education Center

Our mission is to build understanding and appreciation for the Mono Basin/Los Angeles watershed through education programs and muscle-powered recreational activity; to demonstrate that balanced solutions are possible for meeting the water needs of people and the environment; and to kindle stewardship through service projects that restore and improve the quality of the Mono Basin watershed.

monolake.org/education

PHOTOS BY SANTIAGO M. ESCRUCERIA, ELIN LJUNG

Lakewatch

Mono Lake is rising fast!

by Greg Reis

Mono Lake is rapidly regaining elevation lost during the five-year, record-setting drought. On May 1 Mono Lake was already at 6378.5 feet above sea level—up 1.4 feet from its December 2016 low point. Forecasts project it to reach 6380.6 feet above sea level by August, and rise about another foot by next April.

The 2017 runoff year's forecast 3.1-foot rise is similar to the 3.2-foot rise observed in 1995, when the lake was over two feet lower. This year's rise won't be larger than that of 1995 because the surface area at the current elevation is larger. The higher 5-foot rise in 1983—which had very similar runoff to what is expected this year—was also fueled by this reason, as well as the prior 1982 wet year that generated additional inflow to the lake.

This rapid rise should help better-protect the nesting California Gulls in the later portion of the nesting season, and by next April will cover 3 square miles of exposed lakebed, which will help to control dust storms. ❖

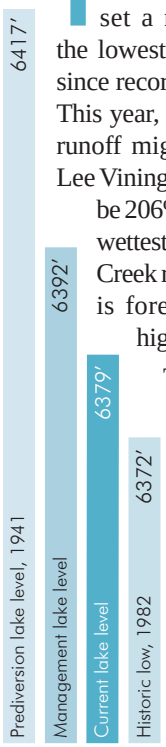
BARTSHÉ MILLER

Maximum export amounts are determined by Mono Lake's level as measured on April 1, which is why Mono Lake Committee and DWP staff read the gauge together on that day each year.

Streamwatch

Record 206% of average runoff expected this year

by Greg Reis



Two years ago, the Mono Basin set a new hydrologic record: the lowest annual runoff measured since record keeping began in 1935. This year, the record for the highest runoff might be broken. Rush and Lee Vining creek runoff is forecast to be 206% of average—close to the wettest year on record, 1983. Mill Creek runoff, at 220% of average, is forecast to be significantly higher than 1983.

The Los Angeles Department of Water & Power (DWP) preliminary April Mono Basin runoff forecast was 200% of average, and the final May forecast is 206% for April–March (the 2017 runoff year). The runoff year forecasts are important because they are used to determine the base and peak streamflows for the year. In many years, the April and May forecasts are close enough that DWP does not revisit the runoff calculation. However, in years like this, when the winter months effectively run into spring, an update with the May numbers provides a more accurate runoff forecast.

2017 is officially an Extreme-wet year—the first since 1995. This designation requires higher base flows and peak flows to be released to the streams below DWP's diversions. All three hydropower plants—on Mill, Lee Vining, and Rush creeks—will be at full capacity through August and at least five of the eight large dams in the Mono Basin will spill—potentially for a good portion of the summer.

Near-natural peak flows are often captured by reservoirs, depriving the streams of valuable water, energy, and sediment movement. In a year this wet, it is possible that the dams won't be able to hold back these flows, which would result in many restoration benefits for the stream ecosystems (see page 22).

For Rush Creek, the question isn't if Grant Lake Reservoir will spill, but when. In an Extreme-wet year, under DWP's future water rights license, Rush will be required to get a peak flow of 750 cubic feet per second. Grant dam infrastructure limitations make it impossible to reliably release flows this high, but this year water running down the passive spillway will enhance the flows the stream receives. Once DWP installs outlet gates in the spillway to make it an "active" spillway, it will then have the capacity to release the required flows. Even with the current spillway, since Extreme-wet years don't happen very often, this is a rare opportunity for Rush Creek to get much-needed restoration benefits. ❖

Mono Basin Journal

A roundup of quiet happenings at Mono Lake

by Geoffrey McQuilkin

MONO LAKE COMMITTEE WILDLIFE CAMERA

In my experience a green six-foot-tall metal T-post takes a lot of pounding to get into the ground. Not so much out on the silty edge of Mono Lake's landbridge, where salty waves lap just fifty feet away. I stood there wondering how far I myself might sink, and found that when I hit the T-post a few times it went four feet deep and made an excellent perch for a wildlife camera.

The purpose, of course, is to monitor the temporary fence protecting the gull colony, but the bonus result is a stream of amazing images. Sunrises that set the blanket of snow covering the distant Sierra Nevada ablaze with purple light. Windstorms that drop visibility to mere inches. Sunsets that light long streaming Sierra wave clouds above Negit Island with red and orange.

The images also show that the edge of Mono Lake is always in motion. Currents constantly build and erode long, low sand berms. When the wind blows from the west the lake sloshes up onto the landbridge, creating little bays that reflect the mountains, then recedes when the storm passes.

And as the lake rises, it creeps ever closer to the sturdy T-post and camera, making these photos, hopefully, the last views ever recorded of the sunbaked landbridge as inch by square inch it gets submerged beneath Mono Lake. ❖

Geoff McQuilkin is the Committee's Executive Director. In all his forays out to the landbridge to install cameras and collect memory cards, the Mono Muck has yet to overtop his knee-high rubber boots—success!

Benchmarks

April 1, 2017 marked the first day that wildlife cameras along the temporary electric fence protecting Mono Lake's gull colony were fully operational. Mono Lake stood at 6378.3 feet above sea level, after rising 1.2 feet since the first of the year.

MONO LAKE COMMITTEE WILDLIFE CAMERA PHOTOS

May 1, 2017 and 6378.5 feet above sea level: In one month Mono Lake rose 2.3 inches, which is clearly visible on the nearly flat landbridge. The ends of the fence will soon be adjusted to respond to the rising lake.

Unearthing the secrets of the sagebrush sea

Discover more with a guide at your side

by Nora Livingston

You never know what you are going to find on a walk in the ancient hills near Mono Lake. The sagebrush holds countless untold stories of generations of Sage Thrasher fledglings learning to forage and eventually sing, of kangaroo rats caching bitterbrush seeds in secret burrows, of rabbit drives and railroad ties, of moving West. It is easy to overlook the treasures of nature and history when you are overwhelmed by the sea of sagebrush, unsure of where to start. That's where a guide can enhance your experience in the Mono Basin. I've wandered along paths with clients while we marveled at delicate magenta monkeyflowers erupting after an early spring rain and were awed by massive Jeffrey pines that have survived for many decades in the harsh pumice sand near the Mono Craters. Together we've discovered long-tailed weasels bounding skittishly through the historic railroad ties at Mono Mills, Pinyon Jays flocking to the forests to fill their crops with pine seeds, butterflies dancing on rabbitbrush blooms, and jackrabbits foraging at the lakeshore at dusk. I can't say exactly what we'll see, but I can guarantee that the surprises in these ancient hills will take your breath away. ❖

Custom guided trip ideas

Better birding

Working on your life list? Hoping to take great bird photos? We'll take you to the best habitats and help you make the most of your birding time.

Fall color secrets

Don't know where to go to find the best fall colors? We do! A guided trip is great for photography or to simply enjoy this incredible seasonal treat at its peak.

MATT RICE

SANTIAGO ESCRUCERIA

Mono Lake: The whole picture

Spend a day learning all about the natural history of the lake while exploring the basin with an expert.

Ice & fire

Explore geology hotspots and transport yourself millions of years into the past.

Photography

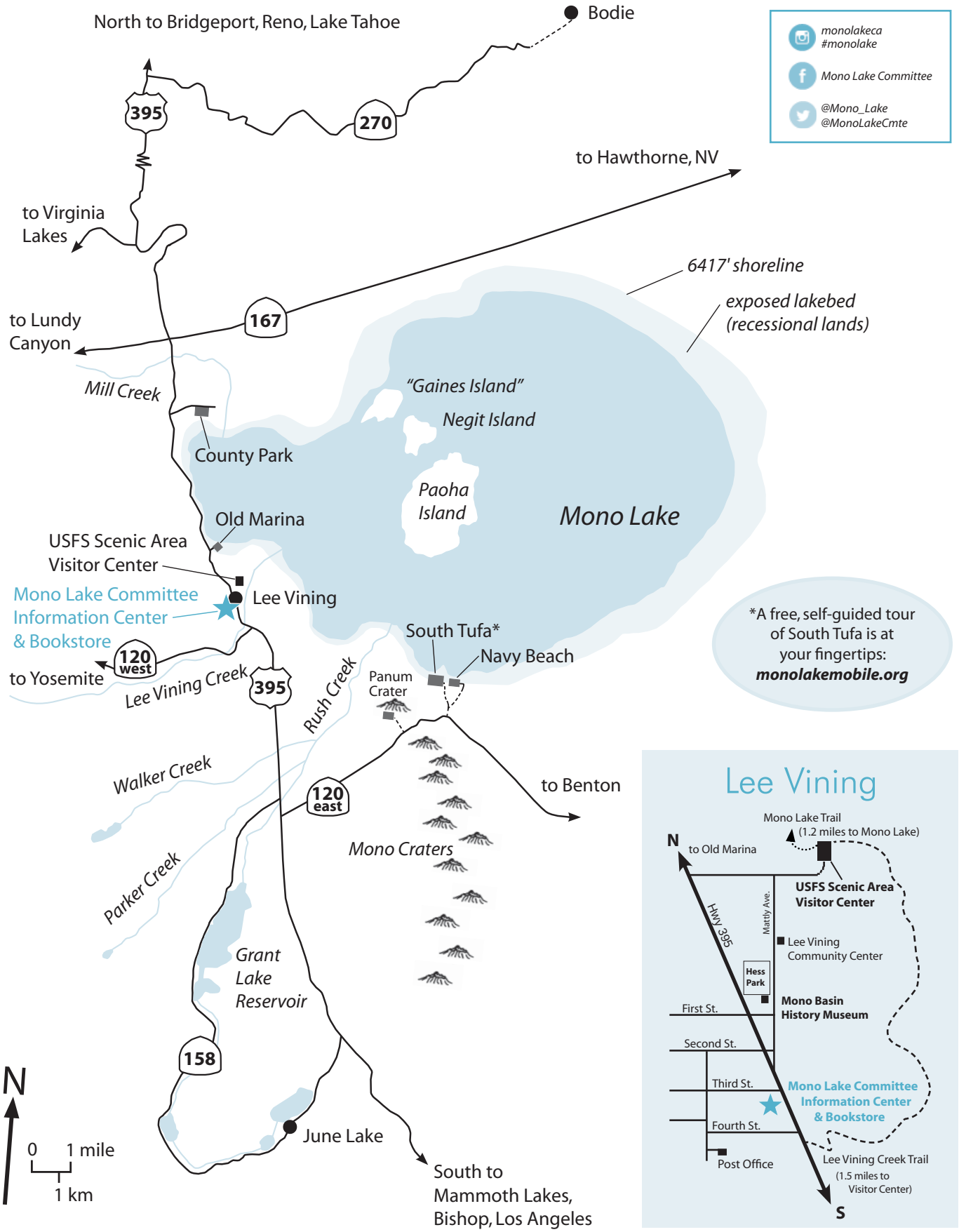
Want to get that early morning sunrise shot? Let us lead you in the dark.

"I brought along my granddaughters who are aged six and eight, and I had asked Nora to arrange some activities they would enjoy. We canoed, swam in Mono Lake, rinsed off in Rush Creek, and explored Rattlesnake Gulch. All along Nora kept checking with them and pointing out various insects, birds, and bugs. The kids were mesmerized and the day with Nora was a special highlight of our week at Mono Lake." —Steven Pace

Call (760) 647-6595 or email *guides@monolake.org* for a custom trip.

Design your trip with Nora! Email *guides@monolake.org*.

Summer at Mono Lake



Lee Vining

When you visit Mono Lake

Nestled at the edge of the arid Great Basin and the snowy Sierra Nevada, Mono Lake is an ancient saline lake that covers over 70 square miles and supports a unique and highly productive ecosystem. The lake has no fish; instead it is home to trillions of brine shrimp and alkali flies. Freshwater streams feed Mono Lake, supporting miles of lush riparian forests of cottonwood and willow. Along the lakeshore, scenic limestone formations—tufa towers—rise from the water's surface. Millions of migratory birds visit the lake each year.

In 1941, the Los Angeles Department of Water & Power (DWP) began excessive water diversions from Mono Basin streams. Mono Lake dropped 45 vertical feet, lost half its volume, and doubled in salinity.

The Mono Lake Committee was founded in 1978 in response to the threat of inevitable collapse of the Mono Basin ecosystem. The Committee bought the old dance hall in Lee Vining to use as headquarters and went to work spreading the word about Mono Lake. In 1979 the Committee took the City of Los Angeles to court, arguing that DWP had violated the public trust doctrine, which states: "The public trust … is an affirmation of the duty of the state to protect the people's common heritage of streams, lakes, marshlands and tidelands…." —Supreme Court of California, 1983

In 1994, after over a decade of litigation, the California State Water Resources Control Board ordered DWP to let Mono Lake rise to a healthy level of 6392 feet above sea level—twenty feet above its historic low. DWP has reduced its Mono Basin water exports by over 80 percent, and Mono Lake is on the rise. This is truly an environmental victory.

Mono Lake's recovery depends on water conservation in Los Angeles, and the Committee has created solutions to the demand for water by implementing conservation and recycling programs in LA that have saved more than enough water to share with Mono Lake. Today LA is one of the most water-conscious cities in the United States, and the Committee works statewide to promote wise water use for people and the environment.

LYNETTE VILLAGOMEZ

Mono Lake Committee Information Center & Bookstore

- *Open daily from 8:00AM–9:00PM during the summer*
- *monolake.org and (760) 647-6595*

Stop by to see detailed displays about Mono Lake's political history and the current work of the Mono Lake Committee, "The Mono Lake Story" film, an art gallery, a comprehensive selection of books on natural and local history, T-shirts, maps, and locally made artisan gifts. This is also the Lee Vining Chamber of Commerce and our friendly staff are happy to help with local information for your visit.

AMERICAN RIVER CONSERVANCY

Canoe on Mono Lake

- *June 24, 2017 through September 3, 2017*
- *Saturdays and Sundays at 8:00, 9:30, and 11:00AM*
- *Tours last one hour*
- *$25 per person*
- *Reservations required: monolake.org/canoe or (760) 647-6595*
- *Sorry, no kids under the age of 4 and no pets*

Guided canoe tours provide a unique look at the ecology and geology of Mono Lake. Discover bubbling springs, alkali flies, brine shrimp, underwater tufa towers, and migrating birds from the vantage point of a canoe. No canoe experience is necessary and all equipment is provided.

ARYA DEGENHARDT

Free naturalist tours at South Tufa

- *Daily at 10:00AM, 1:00PM, and 6:00PM starting June 24, 2017*
- *Tours are free, but there is a $3 per person entrance fee to the South Tufa Area*
- *Meet at the kiosk at the South Tufa parking lot*

Find out why Mono Lake is salty, taste alkali fly pupae, make tufa, and catch a glimpse of thousands of phalaropes or Eared Grebes on this fascinating and free hour-long walk.

The Mono Lake story is not over

The Committee works in public policy, ecological restoration, public education, water conservation, scientific research, and hands-on stewardship. We continue to strive for thoughtful solutions—an approach that has been consistently successful for Mono Lake.

We protect Mono Lake. Challenges facing Mono Lake include demands for water, poorly-planned development, increasing recreational use, underfunded management agencies, and climate change, among others. The Committee works to balance competing needs in a way that protects Mono Lake.

We restore Mono Lake. Restoration work at Mono Lake seeks to achieve healthy, self-supporting lake and stream systems that will thrive into the future. Rejuvenating the Mono Basin ecosystem's dynamic natural processes is the best way to heal the damage caused by 50 years of excessive water diversions.

We educate people about Mono Lake. The Committee offers hands-on programs to share the sense of wonder that Mono Lake evokes. South Tufa tours, canoe tours, activities for school groups, Field Seminars, and the annual Mono Basin Bird Chautauqua all provide ways to learn more about Mono Lake. In addition, the Mono Basin Outdoor Education Center brings students from Los Angeles to learn about the source of their water, educating the next generation of California's policymakers.

We support sound science. Scientific research is the basis of our policy work, a guide for restoration, and an inspiration for understanding Mono Lake. The Committee supports and works closely with researchers, hosts a comprehensive research library, and runs the Mono Basin Field Station to enhance the scientific knowledge of Mono Lake, its tributary streams, and the surrounding lands.

Get involved at Mono Lake

Mono Lake is a great success story, and you can be a part of it! Add your voice to the 16,000 members who are committed to the protection and restoration of Mono Lake. Your support as a Committee member will be put to hard work for Mono Lake.

Join us on a walking tour, canoe tour, Field Seminar, or design your own custom guided trip. Check out Mono Lake online at *monolake.org*. Stay connected to Mono Lake and help ensure its protection for generations to come. ❖

Keep up with Mono Lake

monolake.org
monolakemobile.org

monolakeca
#monolake

@Mono_Lake
@MonoLakeCmte

Mono Lake Committee

(760) 647-6595

info@monolake.org

ELIN LJUNG

Free bird walks at County Park

- *Fridays and Sundays at 8:00AM starting May 21, 2017*
- *Meet at Mono Lake County Park, tours last 1½–2 hours*

Magic is literally flying and flitting through the air in the Mono Basin. Join a resident expert to see everything from shorebirds to songbirds on a free walk for all levels of birders. Bring binoculars and a bird book if you have them (not required).

2017 Field Seminars

PHOTO COURTESY OF RICHARD ERB

Twilight Birding & Owling

June 22 (half day) • Nora Livingston
$60 per person / $50 for members

Miwok-Paiute Basketry

June 23–25 • Julia Parker, Lucy Parker, Ursula Jones
$265 per person / $250 for members
$80 materials fee
seminar takes place at Mono Lake County Park; no camping included

Los Angeles Aqueduct Tour

June 23–25 • Greg Reis
$165 per person / $150 for members

Natural History Ramble

June 28 (half day) • Nora Livingston
$75 per person / $65 for members

Birding Between the Breweries

June 29 (half day) • Nora Livingston
$135 per person / $125 for members

Wildflower Waltz

June 30 (half day) • Nora Livingston
$75 per person / $65 for members

Mono Basin Natural History: Aquatic & Terrestrial Habitats

July 7–9 • David Wimpfheimer
$190 per person / $175 for members

Full Moon Adventure

July 9 (half day) • Nora Livingston & staff
$165 per person / $150 for members

Sierra Nevada Wildflowers

July 14 • Nora Livingston
$95 per person / $85 for members

Visit *monolake.org/seminars* for Field Seminar itineraries, cancellation and refund policies, seminar leader information, and answers to frequently asked questions.

Capturing the Mono Basin in Pastel

July 14–16 • Ane Carla Rovetta
$175 per person / $160 for members

Butterflies of the Mono Basin & Sierra Nevada

July 15–16 • Kristie Nelson
$155 per person / $140 for members

Natural History Ramble

July 19 (half day) • Nora Livingston
$75 per person / $65 for members

Wildflower Waltz

July 21 (half day) • Nora Livingston
$75 per person / $65 for members

Mono Basin & Bodie Photography

July 21–23 • David Gubernick
$300 per person / $275 for members

Mono Basin Mammals

July 21–23 • John Harris
$165 per person / $150 for members

SANDRA NOLL

Birding field trips have been a popular part of the Mono Lake Committee's education program since its founding in 1978.

ELIN LJUNG

Join one of the three wildflower seminars to discover the plethora of blooms that grace the Eastern Sierra each summer.

Volcanism at Mono Lake

July 28 • Nora Livingston
$95 per person / $85 for members

En Plein Air at Mono Lake: Beginning Oil Painting

July 28–30 • Penny Otwell
$175 per person / $160 for members

High Country Plants & Habitats: How are they coping with climate change?

July 28–30 • Ann Howald
$165 per person /
$150 for members

Interested in a private tour at Mono Lake? Email *guides@monolake.org* for a custom trip.

Full Moon Adventure

August 7 (half day)
Nora Livingston & staff
$165 per person /
$150 for members

Natural History Ramble

August 10 (half day) • Nora Livingston
$75 per person / $65 for members

monolake.org/seminars or (760) 647-6595 to register

ANDREW YOUSSEF

Learn about the fascinating geologic history of the Mono Basin with Yosemite National Park geologist Greg Stock.

Birding the Migration: Mono Basin & Bridgeport Valley

August 10–11 • Dave Shuford
$155 per person / $140 for members

Birding the Migration: Mono Basin & Long Valley

August 12–13 • Dave Shuford
$155 per person / $140 for members

Mining the Past through Binoculars

August 16 (half day) • Nora Livingston
$75 per person / $65 for members

Birding the White Mountains

August 19 • Nora Livingston
$95 per person / $85 for members

A Long Journey: Shorebird & Waterfowl Migration

August 20 • Nora Livingston
$95 per person / $85 for members

Birding Between the Breweries

August 24 (half day) • Nora Livingston
$135 per person / $125 for members

Miwok-Paiute Basketry

August 25–27 • Julia Parker, Lucy Parker, Ursula Jones
$265 per person / $250 for members
$80 materials fee
primitive group campsite included (no pets)

Geology of the Mono Basin

August 25–27 • Greg Stock
$165 per person / $150 for members

Full Moon Adventure

September 6 (half day) • Nora Livingston & staff
$165 per person / $150 for members

Fire Ecology of the Eastern Sierra

September 9–10 • Malcolm North
$155 per person / $140 for members

Mono Basin Tree Identification

September 15 • Nora Livingston
$95 per person / $85 for members

Visions of the Past: Sierra Gold, Aurora Silver

September 16–17 • Terri Geissinger
$155 per person / $140 for members

NORA LIVINGSTON

Autumn in the Mono Basin is a stunning season, perfect for ambling through aspen groves with a camera in hand.

monolake.org/seminars or (760) 647-6595 to register

PHOTO COURTESY OF KRISTIE NELSON

A west coast lady, Vanessa annabella*, is one of the many butterfly species found in the Mono Basin.*

Geology of the Mono Basin

September 22–24 • Greg Stock
$165 per person / $150 for members

Creating the Illuminated Field Journal

September 29–October 1 • Hannah Hinchman
$175 per person / $160 for members

Fall Color Foray

October 4 (half day) • Nora Livingston
$75 per person / $65 for members

Full Moon Adventure

October 5 (half day) • Nora Livingston & staff
$165 per person / $150 for members

Mining the Past through Binoculars

October 7 (half day) • Nora Livingston
$75 per person / $65 for members

Fall Color Foray

October 12 (half day)
Nora Livingston
$75 per person /
$65 for members

Don't see the trip you're looking for? Email *guides@monolake.org* for a custom trip.

Mono Basin Fall Photography

October 13–15 • Robb Hirsch
$275 per person / $250 for members

Fall Color Foray

October 16 (half day) • Nora Livingston
$75 per person / $65 for members

Field Seminar Information

To register for a Field Seminar, please visit *monolake.org/seminars* or call (760) 647-6595.

To see Field Seminar itineraries, cancellation and refund policies, seminar leader information, and answers to frequently asked questions, go to *monolake.org/seminars*.

Field Seminars are open to all, but Mono Lake Committee members get to register early and receive a discount. All instructors are experts who have received high ratings from past seminar participants. We emphasize a spirit of learning and camaraderie in a magnificent outdoor setting for a reasonable cost. Proceeds from Field Seminars benefit research and education in the Mono Basin.

All Field Seminars and custom trips operate under Inyo National Forest and California State Parks permits.

Record winter snowmelt from page 3

ultimately, helps DWP achieve higher lake levels that enable larger exports in the future? While DWP's inclination is to follow past practice and proceed with water diversions, DWP leaders also realize that in this exceptional year Los Angeles is already slated to receive substantially more water than Angelinos use in a year. With the aqueduct already running full, Mono Basin exports can't physically take place until late fall at the earliest; stay tuned for updates on this question.

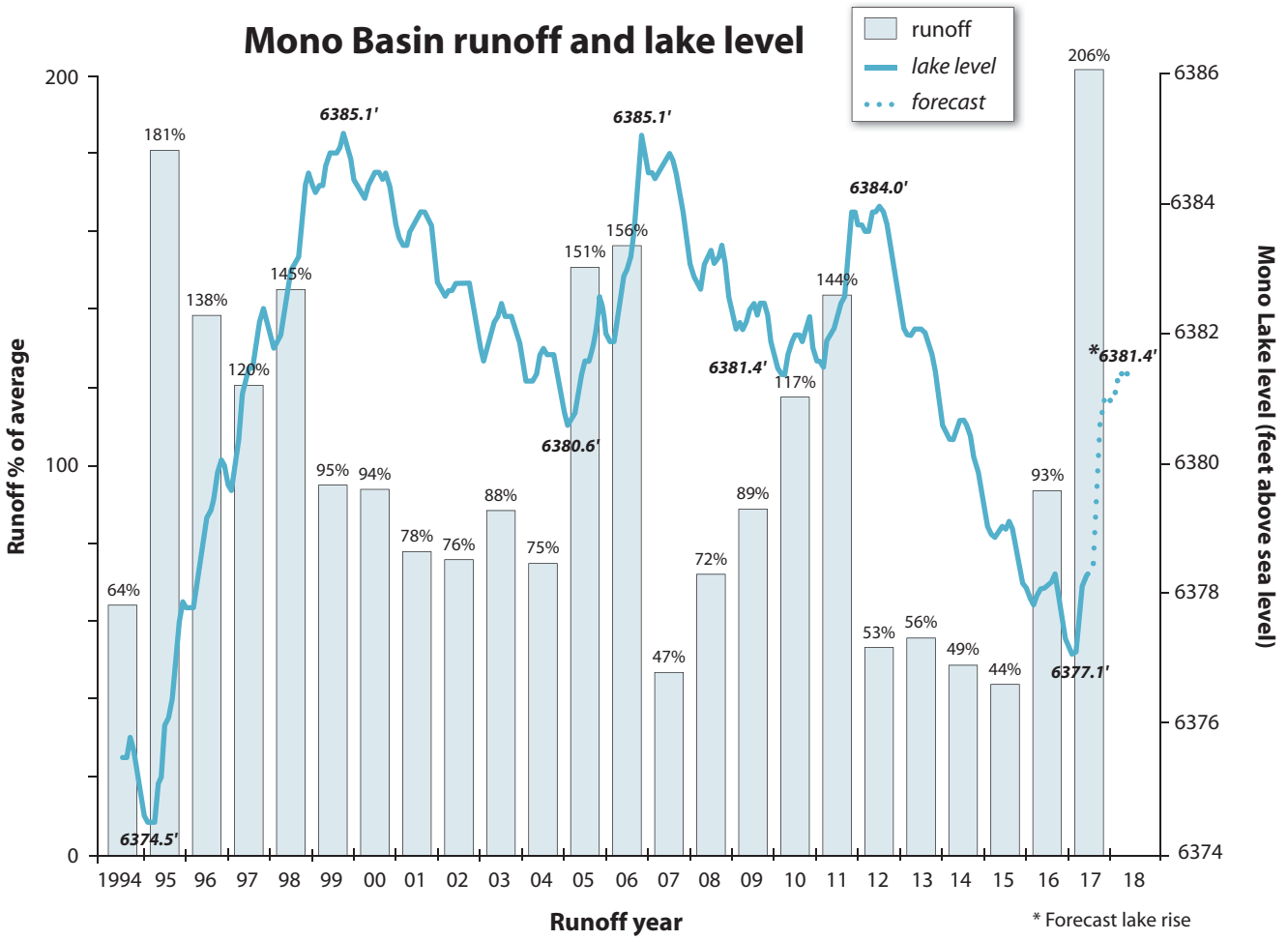
Rush and Lee Vining creeks running high

All of Mono Lake's tributary streams will carry very high flows, hitting marks seen only once every 20 years. The State Water Board-appointed stream scientists who oversee restoration of the damage caused by past excessive water diversions in the aqueduct are excited. This is going to be a "wow year" according to stream scientist Dr. Bill Trush, who is expecting major structural stream processes to be activated by the force of the high flows. Pool scouring and channel shaping processes build habitat for fish and wildlife while overbank flooding, groundwater recharge, and seed dispersal benefit the recovery of the streamside forest.

Reservoirs on Lee Vining, Rush, and Mill creeks are expected to fill rapidly and spill water for many weeks, which helps achieve the high downstream flows needed for restoration. Although Rush Creek will be impressive, it will not achieve the high flow levels established in the 2013 Mono Basin Stream Restoration Agreement based on more than a decade of study. That's because the new Grant Lake Reservoir outlet is not yet constructed. Once completed, the outlet will allow for large controlled releases in wet years to mimic natural conditions. Construction will begin after a final State Water Board order adopting the Agreement terms, which is expected this year.

A big year for monitoring

Big flows and rapid lake rise are rare events. The Committee has increased our field monitoring to include more frequent documentation of streams, springs, and habitats at an expanded list of sites, such as ephemeral streams that do not flow in dry years. You can share in the excitement of this epic season by watching for updates on the Mono-logue at *monolake.org/today*, and the next issue of this *Newsletter* will surely have some exciting runoff stories. ❖



Mono Lake rises and falls according to wet and dry years; its progress since the 1994 State Water Board decision has not been a straight-line trajectory. However, long-term, Mono Lake is on the rise to the mandated management level of 6392 feet above sea level.

California Gulls from page 4

of the lake and ability to be flexible with changing weather conditions. Materials were moved to the site by boat, which required watching carefully for breaks in the winter weather for safe conditions. Installation required dispersing and assembling rolls of fence material, hundreds of fence posts, solar charger units, and more along the mile-long fence line. It also required some innovative methods, such as long wooden planks laid across shoreline spots where a person walking would, literally, sink to their waist in mud.

The fence was installed and electrified by the April 1 target date and has since worked well through a variety of harsh conditions including snowstorms, heavy rain, and severe windstorms. The fence includes the main electrified mesh netting as well as an electrified anti-digging wire along the length of the main fence. The fence is cleverly made up of five sections that overlap—an electrified long middle section, two shorter electrified sections at the ends near the water's edge, and two passive sections at the ends that extend out into the water where electrification is not possible. Mono Lake is rising, so routine inspection of the fence and adjustment of the ends is ongoing; however, the design ensures that if lake water were to temporarily short out one of the electrified end sections, the majority of the fence would remain charged.

Monitoring for effectiveness

With the fence in place, the big question of course is: is it stopping coyotes? Wildlife cameras and field observations indicate it is.

During installation numerous fresh coyote tracks were documented on both sides of the fence route, and on the edges of Negit Island. Follow-up field observations have found that since the fence went into operation there have been no new tracks on the "wrong" side of the fence. Two sets of coyote tracks on the "right" side appear to show a direct approach to, and abrupt retreat from, the fence.

GEOFF MCQUILKIN

Mono Lake's summer and fall rise makes it likely that the fence will not be needed in 2018; however, we'll wait until next winter before making any final decisions.

The Committee installed 11 motion-activated wildlife cameras with infrared nighttime flash capability along the fence line to capture coyote activity. The fence is long enough that the cameras cannot cover its full length, so cameras are clustered at the fence ends, where tracks suggest coyotes actively walk the shoreline, with a few scattered along the dry interior section of the fence. Coyote photos have been rare so far, but on an April evening camera #5 documented a coyote walking the fence line (see page 2), looking, one might guess, for a way to get to the other side.

The Committee and volunteers will continue to maintain the cameras throughout the summer and will be closely monitoring the fence, including looking for any areas where improvements need to be made.

As a reminder, a one-mile radius around Mono Lake's islands is closed to people from April 1 to August 1 each year to protect the nesting birds. The area where the fence is located is included in this closure and the fence maintenance team has special permission to work the fence line. If you're visiting Mono Lake this year, please do not include a trip to the landbridge in your itinerary—we are posting frequent updates and photos about the fence throughout the nesting season on our website, so please visit *monolake.org/today* instead.

Big winter makes a difference ... for next year

When Mono Lake rises, it will cover the landbridge and restore the natural watery protection that the gulls have relied on for safety for centuries. Indeed this is one of the key objectives of the mandated lake level set by the State Water Board to protect Mono Lake.

More than three feet of that lake rise is happening this year, thanks to the very wet winter that created a snowpack exceeding 200% of average in the Mono Basin. As the winter progressed, Committee staff modeled and re-modeled the lake level rise to see if the fence would truly be needed. Gulls start nesting in April, and the key time period for nesting safety is April through July. However, winter snows don't typically melt enough to significantly raise Mono Lake's level until around June. That's too late for the gulls, and so we proceeded with the fence project. Mono Lake's summer and fall rise, however, makes it likely that the fence will not be needed in 2018, although we'll wait until next winter before making any final decisions. ❖

Big winter from page 5

with a climate that delivers frozen water to the Sierra Nevada and then slowly melts some or most of that frozen reservoir through summer. Under our current sustained rate of greenhouse gas emissions, the Sierra Nevada snowpack surface area will contract by 48% by the end of the century. During drought years, snowpack area will be reduced by 85%. Sierra Nevada temperatures will increase 7–10°F. At elevations below 8,000 feet, snow will cease to accumulate.

ANDREW YOUSSEF

Tracking weather and climate data is one piece of the Committee's Mono Basin-focused approach to adapting to climate change.

Dramatic shifts in snowpack along with record high temperatures are changing the runoff regime, straining the state's diverse ecosystems and water infrastructure. In the Mono Basin, the last five years of drought and this unusually wet and warm winter portend serious challenges to the restoration of the Mono Basin watershed. The network of Los Angeles Department of Water & Power and Southern California Edison infrastructure that intercepts, stores, diverts, creates hydropower, and delivers water within a specific time frame and range of volumes, must balance a range of public trust values. Over the last 40 years, the Mono Lake Committee has played a prominent role in making this balance happen for Mono Lake and its tributary streams. Increasing extreme swings in precipitation and increasing temperatures are upsetting that balance. The impacts of climate change were not an obvious threat when the Committee's work began, but that has clearly changed.

Tracking weather and climate data is a small step on a difficult journey to creating solutions. Meanwhile, a simpler, annual journey is underway as the equivalent of two winters' worth of snow begins its downhill migration as runoff. Mono Lake is waiting. ❖

Counting snowflakes from page 7

are making mathematical errors, it's that they have no data on the high-elevation distribution of snow. It's like walking into a restaurant with 200 people and asking four of them what the best food is. You'll get an idea, but not a definitive answer.

The analysis on the Tuolumne shows that the distribution of snow changes all the time. You can't correct your forecast tools to account for that. You just have to measure what is really there in the snowpack and that's why ASO is so valuable—we measure it all.

For the analyses we've done so far of the accuracy of the runoff numbers ASO is generating, the R^2 values we get are about 0.98 with all the years on the plot. Which is to say the ASO measurements of snow water equivalent are extremely close to actual runoff. It's a huge leap forward in accuracy.

What makes Mono Lake and the Mono Basin interesting for ASO?

At Mono Lake the playing field is leveled, the rules are known. You aren't arguing over uncertainty. At least in the case of the snowpack, in terms of quantifying the relationship between the watershed and Mono Lake, those relationships are established. That makes the ASO data more meaningful because the Committee and the Los Angeles Department of Water & Power can work directly with more specific data and accurately project and plan what will happen downstream and at Mono Lake. Not to mention that it solves problems like the ongoing inaccuracy of the key Gem Pass snow pillow, and the reduction in the number of snow course measurements being made in the Mono Basin watershed in the last two decades.

Our California civilization is built up around this water resource that is the snowpack. And the ecosystems and environments that support us are critical for the long haul since we are so reliant on that resource. To be able to get rid of the uncertainty, so we can make the right decisions, to me is the kind of contribution I want to make. And I'm excited that we are doing it for Mono Lake and for all the Sierra Nevada. ❖

PHOTO COURTESY OF ERSKINE HEADLEY

Thanks to ASO data, the Mono Lake Committee has been able to precisely track amounts of water in this winter's incredible snowpack.

Andrea Lawrence Award presented to Genny Smith

by Lily Pastel

Community members, friends, and family of Andrea Mead Lawrence gathered at Mammoth Mountain Ski Area's Parallax Restaurant on May 5 to present Genny Smith, a longtime local naturalist, conservationist, and environmental champion, with this year's Andrea Lawrence Award.

As a guidebook writer, editor, and publisher, Genny has inspired generations of people to explore and tread lightly in the Sierra Nevada. Her early leadership on the Mono Lake Committee Board of Directors helped grow the fledgling membership program that has now sustained nearly 40 years of grassroots protection of Mono Lake. Genny was also instrumental in the effort to stop the construction of the Trans-Sierra Highway through Devils Postpile National Monument. Without her dedication to protecting wilderness, there would likely be a highway from Mammoth Lakes to Fresno, drastically altering the landscape and communities of the Eastern Sierra.

ANTONIA CHIHUAHUA

Geoff McQuilkin and Quentin Lawrence with Genny Smith, recipient of the 2017 Andrea Lawrence Award.

Genny embodies the true spirit of the Andrea Lawrence Award, which celebrates passionate engagement in community and the land, and the Committee was honored to celebrate both Genny's and Andrea's legacies at this year's event. This fundraiser would not be possible without the generous support of the Lawrence family and Mammoth Mountain Ski Area. Thank you to our guests, speakers, and to award recipients like Genny Smith for their important work. Proceeds from the event go to the Andrea Lawrence Fund, which encourages collaboration and inspires youth to become environmental leaders. ❖

Wild & Scenic films at the southern end of the aqueduct

by Gabrielle Renteria

The Mono Lake Committee hosted its sixth annual Wild & Scenic Film Festival in El Segundo and Sierra Madre this past March. Each year Committee staff migrate south to Los Angeles, bringing films showcasing outdoor adventure and environmental activism.

This year's festival included ten short films featuring inspiring stories on human triumph and environmental victories, including our own #LongLivetheGulls campaign video. The festival is an opportunity to connect with members and friends at the southern end of the Los Angeles Aqueduct as we celebrate a love of the outdoors, passion for the environment, and, of course, Mono Lake. The festival is also a fundraiser for the Committee's Outdoor Education Center programs.

Thank you to co-host Carolyn Dasher, Herley Jim Bowling, and Port of Los Angeles High School volunteers Amaris Sanden, Jon Ginez, Jorge Salgado, and Jose Rubio. Thank you as well to local sponsors the Los Angeles Department of Water & Power and Juniper Ridge, and to national sponsors Barefoot Wine & Bubbly, Clif Bar, Earth Justice, Keen, Klean Kanteen, Orion Magazine, Sierra Nevada Brewing Company, Patagonia, and the South Yuba River Citizens League, the festival organizer.

ANDREW YOUSSEF

Robbie and Gabby in El Segundo at the film festival.

Staff migrations

by Jessica Horn

Among the spring migrants this year were two people who have become staples of the Mono Lake Committee community. **Terry McLaughlin** and **Vern Gersh** have officially retired from their respective positions with the Committee and have migrated to Durango, Colorado.

We have always joked that **Terry** has filled nearly every position at the Committee: Outdoor Education Instructor, Information Center & Bookstore Manager, Office Manager, and Membership Assistant. Terry's ideal non-profit skills—flexibility, passion, work ethic, and an ability to see the bigger picture while working out the details too—and her genuine care for everyone she meets made it such a pleasure to work with her.

We knew **Vern** was a keeper when, as Facilities Superintendent, he showed up at a staff meeting to give us an interactive lecture on how to properly operate a vacuum—and we all loved it. Vern's ability to predict what was going to break, fail, or otherwise cause a problem made him an invaluable asset. However, it was Vern's thoughtful words, coffee deliveries, slightly off-color jokes, hearty laugh, and spur-of-the-moment neighborhood birding expeditions that endeared him to the staff. Life and work won't be the same without him here, but we are happy that he will never have to run a snowblower ever again.

Bill Lundeen, the Committee's new Facilities Superintendent, has lived, worked, and climbed in the Eastern Sierra for much of his life, and has most recently been the entire maintenance department at the Tioga Pass Resort. With his extensive skill set we're glad to have him on board.

Information Center & Bookstore Assistant **Alex Beeken** first visited Mono Lake when attending Ooolation, a choral summer camp in the Eastern Sierra. He has worked as a library assistant, software engineer, and a high school choir teacher, and we're excited to have Alex here greeting visitors and sharing the Mono Lake story this summer.

ANDREW YOUSSEF

We wish Vern and Terry well on their migration to Durango—they will be missed here at Mono Lake.

Outdoor Education Instructor **Antonia Chihuahua** has returned for a second year of working with students from the southern end of the aqueduct. Last winter she volunteered with non-profit organizations, worked as a photographer, and kept connected with Mono Lake doing outreach with Homeboy Industries and at the Los Angeles Environmental Education Fair.

Rose Nelson, Outdoor Education Instructor, was previously an interpreter for California State Parks in the Santa Cruz Mountains, where she developed science curricula for visiting school groups and ran outreach and education programs. With a degree in Environmental Studies and experience traveling through the Eastern Sierra, she is excited to jump into a busy season at the Outdoor Education Center.

Canoe Coordinator **Julissa Rosales** brings her conservation knowledge and outdoor leadership skills to the canoe fleet this summer. In college she led canoe, hiking, and backpacking trips. At Audubon's Starr Ranch Sanctuary she did restoration, seed and cutting collection, GIS mapping, vegetation monitoring, plant identification, and leadership development.

Jennifer Rieke, this summer's Birding Intern, comes to the Eastern Sierra with experience as a Naturalist Ranger Intern in Tuolumne Meadows. She has also worked as an educator at the J.N. Ding Darling National Wildlife Refuge in Sanibel, Florida and at Hawk Ridge Bird Observatory in Duluth, Minnesota. She first laid eyes on Mono Lake when on UC Santa Cruz's Natural History Field Quarter.

Molly Casey, Mono Lake Intern, graduated in May from Colorado State University with a degree in Human Dimensions of Natural Resources. While in Fort Collins, Molly served as the Recycling Ambassador for the city, and was an intern for Trees, Water & People where she created a sustainable energy curriculum. She did restoration monitoring on Prince of Wales Island and spent time kayaking around Southern Alaska, and also studied abroad in New Zealand.

Mono Lake Intern **Charlotte Johnston-Carter** is working on her Biology and Environmental Studies major at the University of Victoria in British Columbia, Canada. She volunteers at the Royal British Columbia Museum and has been a science educator and camp counselor as well. As a California native she is interested in engaging people with the topic of water use and its impacts on the state's landscape.

Michael Morris, Mono Lake Intern, first heard about Mono Lake through a guest lecture by a former Mono Lake

Continued on page 27


NORA LIVINGSTON

From the mailbag

News from members and friends

by Ellen King

After a very wet, very snowy winter, we're all enjoying the arrival of warm sunny days and the welcome sound of running water as the huge Sierra Nevada snowpack begins to melt.

Thank you to all of you who sent in contributions in honor or in memory of your friends and loved ones. These gifts help us carry on the work that will keep Mono Lake a special place for many generations, season after season.

In honor

Margaret Lohfeld of Los Angeles sent a contribution in honor of her brother **Martin Engel**. **Diane & Victory Metz** of Fairfield made a donation in honor of **Bo Looney's** birthday.

In memory

Elizabeth Clinch of Palo Alto made a donation in memory of **Nicholas Clinch**. **Edward & Carmela Cooke** of Madison, NJ and **Phil & Kathy Del Giudice** of Morristown, NJ sent contributions in memory of **Phil Weisgerber**. **Marcia Correia** of Elk Grove made a donation in memory of **Richard & Gertrude Thompson**. **Carol Mathews** of Walnut Creek gave a gift in "loving memory" of **Robert Mathews**. The **Zebulun Foundation** of Los Angeles sent a contribution in "loving memory" of **Rose & David Dubin** and **Sara & Jacob Frankiel z"l**.

Film Festival helpers needed

Since 2012 the Mono Lake Committee has hosted the Wild & Scenic Film Festival in Los Angeles (see page 25). We're hoping to reach even more people in 2018 by bringing the films to new venues and audiences. Do you know of a neat venue we could use for showing films? Do you know of any clubs, organizations, student groups, film enthusiasts, or gatherings of people who might be interested in having us bring a series of outdoor adventure and environmental films for an afternoon or evening showing? If so, we'd love to hear from you! It's Tinseltown—we know there are great spots out there, and would love your help finding them. Please contact Communications Director Arya Degenhardt (*arya@monolake.org*) at (760) 647-6595. ❖


ELIN LJUNG

*Thank you to members **Bill & Jennifer Laughton** of Salinas, whose gift of delicious pears brightened up a long winter.*

Staff migrations from page 26

Intern at the University of Vermont, where he graduated this past spring with a degree in Environmental Science and a concentration in Global Climate Change. He has spent the past two years at the Vermont Public Interest Research Group doing fundraising and public outreach for clean energy and climate policy.

Mono Lake Intern **Aviva North** just finished her sophomore year at Mount Holyoke College where she is studying Geography. Originally from Davis, her family recently moved to Mammoth Lakes and as an avid hiker, she has done the John Muir Trail and summited Mt. Whitney several times. She is very familiar with the Eastern Sierra, and with her experience as a tour guide at Mount Holyoke, she is well-prepared to talk to visitors about Mono Lake.

Mono Lake Intern **Ava Stavros** has retail experience from Ramone's Bakery and Revolution Bicycles in Arcata. She has staffed an information desk at the Redwood State and National Parks as a volunteer, in addition to volunteering with Arcata Friends of the Dunes maintaining beach trails, planting trees, and removing invasive plants. Ava was born and raised in Mammoth Lakes, and graduated from Humboldt State University with a degree in English, with a focus on environmental literature and nature writing. ❖

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SANDRA NOLL

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August 26, 2017
at the Lee Vining
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a fundraiser for the
Committee's Outdoor
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