



The Pinniped Press

A Newsletter by and for Volunteers of the Noyo Center for Marine Science

Articles in this newsletter do not necessarily represent the views or opinions of the Noyo Center for Marine Science.

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Volunteer Opportunities

We have many opportunities to volunteer now and throughout the summer.

KelpFest! 2024: From May 18-June 16, Noyo Center's Field Station will be home to *Kelp Wanted: A Seaweed Science Story* by photographers [Abbey Dias](#) and [Pat Webster](#). We need volunteers to help during the special hours that we are open to the public, Friday-Sunday, 11-4. We will provide information on the artists, kelp talking points, and training to assist visitors interested in purchasing the photographs on exhibit. We have openings for 1 volunteer for each of the 1:30 – 4 pm shifts: May 26, 31; June 2, 7, 8, 9, 15 and 16. And 1 volunteer for the 11 am to 1:30 pm shifts on June 14, 15 and 16. There are lots of great workshops and activities over the course of the festival. Visit the [KelpFest! Website](#) for a full listing of events.

Celebrate the Coast, Mendocino College Field Station: We need up to 4 volunteers to help at an info table on Saturday, May 18th from 10 am – 3:30 pm or some portion of the day. This will be the second year we have participated, and it is a fun event.

Spring Field Day, Mendocino Coast Botanical Gardens, May 18th, 10 am to 1 pm. We need two volunteers to help at an informational table in the Perennial Garden. More information about the event can be found [HERE](#).

We continue to need a few more beach surveyors for the Beach Survey Program.

If you are interested in any of the above, please contact: wendi@noyocenter.org



Kelp: History and Importance

Dobie Dolphin

Kelp has been important to Native Americans for thousands of years. It is believed that the first human inhabitants of the Pacific Northwest likely followed “the kelp highway” that extends along the Pacific Rim from Asia to South America, suggesting that ancient Americans may have arrived and dispersed far earlier by sea than by land. Kelp forests provided habitat for fish, abalone, crabs, seaweed, and other food sources. After herring spawned, their eggs were peeled off kelp blades for immediate eating, or dried and stored for later consumption.

From prehistoric artifacts to present day practices, there is evidence of the many ways that kelp had been and continues to be used in the daily lives of native people. Kelp holdfasts were used for anchoring boats and bull kelp stipes (stems) were turned into fishing lines, ropes, and baskets. A cut kelp bulb was made into a funnel and seal and whale oil were poured into stipes and coiled up for long term storage. The stipes also served as garden hoses. Kelp was used in steam baths for medicinal and spiritual purposes and the fronds were used for cooking and steaming foods. Music was played on kelp horns and children played with kelp bulbs, using them as squirt guns, targets for spear throwing and poppers when stomped on or thrown in the fire.

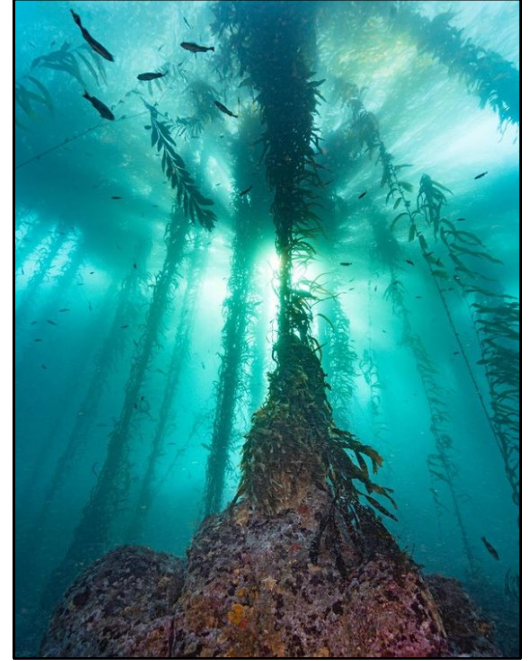


Photo: Pat Webster

Kelp was first harvested commercially along the California coast during the early 1900s and began on a large-scale during World War I, when it was used as a source of potash and acetone to make gun powder and explosives. During that time, removal was unregulated and highly destructive to the surrounding habitat. A sample of two wet tons of kelp taken from in front of the Del Monte Bathhouse in Monterey led to the first ever objection to kelp harvesting, with the claimant stating that it would ruin sardine fishing in Monterey Bay. When the war ended, kelp harvesting virtually stopped, until the late 1920s, when kelp was again harvested, at first to provide ingredients for livestock and poultry food.

Algin, found in the cell walls of kelp, is a gelling agent used in a wide range of food, pharmaceutical, industrial and cosmetic applications as well as water and fireproofing fabrics. In addition to algin, kelp is a component in some fertilizers. Giant kelp is harvested in California to supply food to several aquaculture companies for rearing abalones. It is also used for the herring-roe-on-kelp fishery in San Francisco Bay.

Since 1917, kelp harvesting has been managed by the Department of Fish and Wildlife (formerly Department of Fish and Game). From studies dating back to 1915, investigating the potential effects of harvesting giant kelp, including on frond growth and regeneration, holdfast development, individual plant survivorship, and survivorship of populations of plants, CF&G concluded in 1995 that no significant effects were apparent from routine mechanical and hand-harvesting practices as long as individual plants were harvested no more than 3 times per year. Research in Southern and Central California suggested that cutting the fronds of the same plant four or more times within 12 months resulted in decreased yield and reduced plant survival. The maximum depth kelp can be cut to assure continual growth is four feet below the surface.

Commercial kelp harvesters in California must buy a Commercial Kelp Harvesting License every year. The license specifies whether the kelp is used for human consumption or other purposes. Each category has separate rules and restrictions. Kelp is harvested throughout the California coast with giant kelp commercially harvested in Southern and Central California. Bull kelp is currently commercially harvested from Monterey, for cultivated abalone feed, to Del Norte, for human consumption. However, as of January 1, 2023, commercial bull kelp harvest is temporarily closed in Sonoma and Mendocino counties. The temporary closure will expire on January 1, 2026. This is due to the disappearance of kelp caused by climate change and sea urchin predation. The recreational harvest of kelp is 10 pounds wet, and a license is not required.



Kelp: History and Importance - continued

Native Americans use kelp for traditional cultural and ceremonial purposes throughout the state, and the Department does not keep records of Tribal or recreational harvest locations. Many kelp restoration projects are in progress, involving purple urchin removal, growing and reseeding kelp and raising sunflower sea stars, the natural predator of sea urchins, which started dying of a wasting disease in 2013.

The Bay Foundation, its partners and a team of fishermen, academic researchers, and many agencies support the Kelp Restoration Project off the Palos Verdes Peninsula in Southern California. Since it started in 2013, the Project has restored approximately 60 acres of kelp forests, reducing purple urchin density from an average of 30 m², to about 2 m². There has also been a significant increase in fish, biomass and invertebrate diversity and density.



Bull Kelp (*Nereocystis luetkeana*), by Chris Teague/iNaturalist

In 2021, California Sea Grant, in collaboration with the California Ocean Protection Council (OPC) and the California Department of Fish and Wildlife (CDFW), launched a state-wide Kelp Recovery Research Program which funded six “solutions-oriented” science projects that addressed key issues, such as how to combat the overgrowth of purple sea urchins, how to grow kelp to restore lost underwater forests, and how to make kelp more resilient to climate changes.

The next Sea Urchin Removal Event at Caspar Cove will take place on May 25, from 7 am to 7 pm. As part of the [North Coast KelpFest!](#), dive and marine science experts will share their knowledge of removing urchins as a part of this experimental restoration project. Dive enthusiasts and ocean lovers of all experience levels are welcome to participate.

Next month I'll have more information about local restoration projects.

Sources

Giant Kelp, December 2001 California's Living Marine Resources: A Status Report. California Department of Fish and Game, December, 2001. [Website](#)

Narr, N. The Cultural Importance of Kelp for Pacific Northwest Tribes. NOAA National Marine Fisheries Service. [Website](#)

Kelp Forest Restoration Project. The Bay Foundation. [Website](#)

Eberle, U. Cutting Edge Science for Kelp Restoration. Sea Grant California. August 11, 2023. [Website](#)

What are Limpets?

Tony Boyd

As a docent at the Crow's Nest on the coast trail, I've been asked many times about what little conical shaped things are stuck to the inside of our saltwater aquarium. It's usually younger kids who ask, I think because they are shorter, and their sharp eyes are closer to where the aquarium action is. My answer is, “it's a limpet” (blank stare), and I usually go on to explain that it's a type of sea snail with a shell, and is kind of like an abalone, only way smaller. We have several in our aquarium along with other creatures that you will find in the rocky intertidal zone along our coast.

Limpets are a gastropod (“stomach-foot”), and you'll find them clamped down on rocks throughout the intertidal zone. We have at least 32 species along our western Pacific coast, and worldwide there are over 400 different species. They are herbivores with a strong muscular foot that can firmly clamp down on rocks if threatened, or when trying to withstand the force of the pounding surf. Depending on the type, some species are found mainly in the lower intertidal ranges, and some types will be found in the upper tidal zones where they can be out of the water for extended periods, along with barnacles and periwinkles, which are small sea snails.



Lottia gigantea



What are Limpets? – continued

Most limpet species are an inch or smaller, and move around mainly at night, or when covered by water. They eat algae by using their tongue-like radula which is composed of minute teeth of iron oxide particles to scrape algae off of the rocks. Their teeth are constantly replenished and are thought to be the strongest natural material known, reputedly stronger than titanium! After grazing on algae many limpet species tend to return to their particular spots on the rocks by possibly following their mucus trails back. Common limpets reproduce through broadcast spawning, where females and males release eggs and sperm into the water at the same time. Some limpets have been known to have lived for over 20 years.

The largest limpet on our coast, and probably the most studied limpet, is *Lottia gigantea* which can be found on the west coast from northern Washington to southern Baja California. Called the owl limpet, *Lottia* can grow to 3 1/2 inches and are long lived. It has an elongated low cone shape and is a mottled brown color. Older specimens' shells can be eroded, and/or have smaller limpets or barnacles attached to them. Their name comes from the dark muscle scar created on the inside of the shell which resembles an owl. They are known to be territorial and can be seen pushing off other limpets or barnacles that enter their area. They can return to the same spot on a rock after feeding, and over time can create depression in the rock.



Several kinds of limpets on rocks



Lottia gigantea

Owl limpets as well as many other gastropod species including mussels, abalone, and other limpets, have been a human food source for thousands of years. In the Channel Islands off the California coast, and in certain spots along the California coast, ancient Native American middens containing *Lottia gigantea* shells have been found dating back up to 12,000 years ago. Interestingly, it has been noted that the size of the owl limpet shells and abalone shells, which are often found together in the middens, decreased in size over time as the native population numbers increased. In fact, today there are many parts of the coast that show significantly lower numbers, and smaller sizes of the owl limpet.

Beach Trash or Treasure

Wendi Felson

What have you found lately on your beach walk? We'd love to see a picture and hear the story. Trash or Treasure is a new feature in the Pinniped Press highlighting some of the awesome, interesting, beautiful or just plain amazing things we find or encounter as we walk our beaches and bluffs.

This month we want to feature Kate Bean's incredible find. She was surveying a beach for another Beach Survey Program volunteer and came upon this huge piece of we aren't sure what! But not only did Kate take a picture but she managed to haul this thing all the way up the beach and onto the back of her pickup. Kate takes her trash clean up duties seriously!



What is this mysterious beach find!?

Please share stories with [Wendi](#) about interesting animal interactions you see, plants you discover, people to meet. It might be the next feature in *Trash or Treasure!*



Book Review: *The Book of Eels* by Patrik Svensson

Linda Francis

I've never really thought much about eels, so I was surprised when this book showed up on hold for me at the library. Obviously, I had placed a hold on it sometime in the past but for the life of me I have no idea when or why. I didn't even start reading it right away but once I did, I was hooked on these amazing, mysterious creatures studied by Pliny the Elder in AD79, Aristotle, Freud, Rachel Carson, and many more.

Patrik Svensson, who lives in Malmo Sweden, grew up with eels, spending many a late afternoon and evening riverside with his father fishing for them. His fascination for these fish and those who've studied them shines through the book as does his loving relationship with his father. The reader joins him appreciating eels as tasty treats, celebrating eel festivals, learning the variety of ways they are caught, and finally, the many trials and tribulations of those who try to understand them. And then there's the eel's story itself: elusive, unique, and to this day keeping much of their existence a secret.

Eels get their start in the Sargasso Sea, a two million square mile sea formed by four ocean currents off the coast of North America. Apparently, eels have never been seen there, neither breeding, giving birth, nor dying. Eels, dead or alive, have never been seen in the Sargasso Sea at all. The only eel thing found in the Sargasso Sea are the eels' leptocephalus larvae -- a willow leaf like body, flat and transparent, just a few millimeters long.

The leptocephalus larvae drift on currents either to the east coast of North America, or the ones we follow with Svensson, drift across the Atlantic to the coast of Europe, a trip that can take up to three years. Once the larvae reach Europe, it undergoes its first metamorphosis, transforming into a glass eel.

The glass eel looks, according to Rachel Carson, like a "thin glass rod, shorter than a finger" and is considered quite a delicacy. Once they transform, they head up a brook or river and undergo their next metamorphosis, becoming strong and sturdy freshwater yellow eels. These then swim across lakes, up streams, wild rivers, or to warm ponds, often traveling thousands of miles until one day they just stop. It is here the yellow eels begin a solitary existence that can last for the next twenty or thirty- or fifty-years where they hibernate, hunt, and hang out, until one day they decide it's time to reproduce. So begins the final metamorphosis as a silver eel, sleekly black with silver sides and now complete with reproductive organs. In this last iteration, the eels head back to the Sargasso Sea. Why they go and how they get back to the sea is another one of their secrets, another thing not yet explained. A silver eel goes to the Sargasso Sea, its eggs somehow fertilized, and it dies, leaving no trace behind, other than leptocephalus larvae.

If you want to read a fascinating book about these amazing creatures of sea and fresh water, a creature puzzling people for thousands of years and continuing to do so, check out the *Book of Eels*. Eels intrigue me and remind me of how little we truly know about the ocean and its inhabitants.

The Book of Eels, Our Enduring Fascination with the Most Mysterious Creature in the Natural World, by Patrik Svensson, 2019 HarperCollins Books

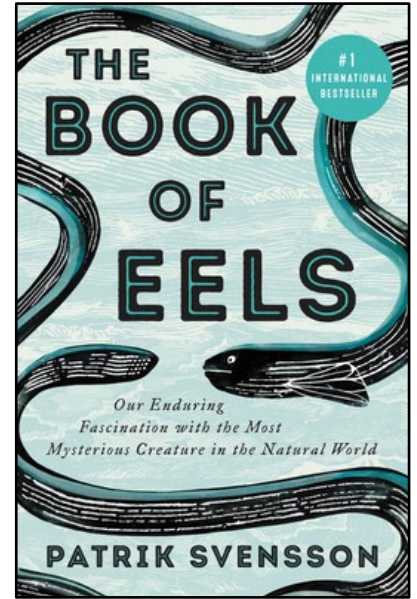


Photo: The Ocean Foundation



Volunteer Highlight: Richard Jacobs

Linda Francis

Richard was born in Dallas, moving with family to Southern CA as a youngster, and then on to the Detroit suburbs of SE Michigan. Here Richard went to elementary and high school and then to college at the University of Michigan in Ann Arbor where he got a BA and MA in Biology. Shortly after graduation, the family moved back to S. CA and Richard followed.

Richard landed a job as a lab technician in the basic research labs at Caltech. His job, with others, was designing and building equipment in support of research projects in the labs. The work well suited his skill set: his understanding of biology, his background in microscopy and how to operate high powered microscopes, preparing specimens, and understanding electronics. He also met his wife Linda Lawley, a grant administrator for the university. Turned out to be a great place to land in more ways than one!

While he started this career at Caltech, following a great boss, he went to UCSF, the University of Texas, Dallas, and ended up at the Salk Institute in San Diego.

Examples of research his work supported include a project studying how sound waves are converted into nerve impulses that stimulate hearing in the brain. Another project dealt with basic brain research asking how memories are formed. Here the task was to create assorted devices to stimulate and record nerve cells and document the physical and chemical changes that occur when a memory is formed.

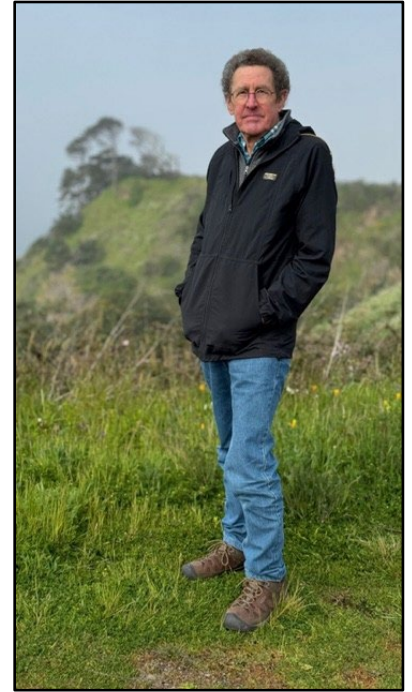
Richard loved his work, describing it as a “fun job” plus getting to hang out with lots of smart people. After he retired in 2014, he and Linda decided it was time to move out of a big city and go where they’d have a slower lifestyle and more land as Linda is an avid gardener. Over the years they had vacationed in Mendocino County, so they headed north, where after six months of renting, they found their home acre up Simpson Lane.

It was about this time Noyo Center had two sea lion skeletons needing articulation. Richard happily got involved. His background in biology plus woodworking skills served him well on this project. The tools used for the articulation – the drills, fasteners, screws, etc. are like tools he uses in woodworking, though articulations are much more complicated. His work on the sea lions included articulation of the wrist made up of many little bones, all of which needed to have the correct orientation. It was accomplished with much trial and error and then wired together.

Richard then assisted in the articulation of the Orca. The Orca was just a big pile of bones that needed to be sorted to even begin the articulation. He helped articulate the whale’s backbone which included running two inch and half pipes, one pipe coming from the front to connect with the one coming from the back. He described it as a great project he loved doing and felt he was “fairly useful”. He also helped with the construction of the Ocean Immersion Dome and hopes to participate in the future articulation of the Beaked Whale. In the meantime, Richard does the beach survey at Ocean Drive. His findings include golf balls, fishing floats, sea lion bones and a \$5 dollar bill.

When not busy with Noyo Center projects, Richard enjoys puttering around the house and working with wood. He creates all the bird house blanks for the Botanical Gardens annual birdhouse auction and makes landscape planters and more for his wife’s gardens. He’d love to take the Krenov classes at the college but six days a week, eight hours a day, for nine months is more than he’d want to take on.

Richard appreciates Noyo Center and the great displays of the ocean’s animals, how Noyo Center is educating the public and introducing kids to the wonders of the sea. He feels it can contribute to children choosing a career in science when introduced to such wonders when young. He also enjoys meeting so many different people from so many different backgrounds. And how lucky the skeletons of the future are to have him around.



Richard Jacobs



Sue Coulter Going-Away Party and Matt Coleman Award

Donna Worster

Tuesday, April 2, turned into Sue's Day when we were able to gather with the fog and tight quarters to let her know how we will remember her work, making the Noyo Center a special spot for kids of all types. Leah and Michael arrived early with extra chairs and food to add to chili and soup. The invitation said, "bring what you want to eat" and promptly at four the cars started to turn in at the flag. Before the party ten people called to say no and to give their greetings to Sue and ten said "Yes, they had to be here." I planned for twenty-five and guess what? 25 showed up. My open living space measures 20 x 23 including kitchen, eating, and living room, however the outside space is three acres. Damn fog! With wind and fog outside, we all got cozy inside and listened as Sheila, Linda Ruffing, and Wendi gave Sue a history of how she contributed to the Noyo Center during the eleven years of our progress. No polite clapping—lots of hugs and yeas.

I counted 25 in no order because the house was full. I'm speaking for Sue: THANK YOU FOR BEING HERE! Linda and Richard, Lynne and Jim, Tony and Cathy, Mary and Royce, Wendi and Larry, Carin and Mark, Theresa and no Dave (He should have come because they are co-working the Crow's Nest), Elizabeth Gomes (on her way home after her day at the Savings Bank), Sara Sundberg (with a quick hug and vanishing), Charlene, Toni, Richard Millis, Will and Randi, Sharen (happy to be on the mend after her surgery). The door was open to the barn and those that went down to visit Betty Blue Whale came back with the energy to continue our goal to make her a home on the bluff in the OSC. The walls are shouting for another party such as this one to send the message out—help build an ocean science center for the Noyo Center for Marine Science.

Note: there are 24 names there. If I missed yours, please let me know so I can make it right. My special thanks to those involved with the other cake and 92 candles. I love surprises and still sing off key.



Michael Hicks (left) & others celebrating Sue



Tony Boyd, Carin Berolzheimer, Lynne S. Richard Millis



Donna Worster, Leah Shirley, Tony Boyd



Everyone appreciating Sue Coulter
at the Environmental Partners Awards

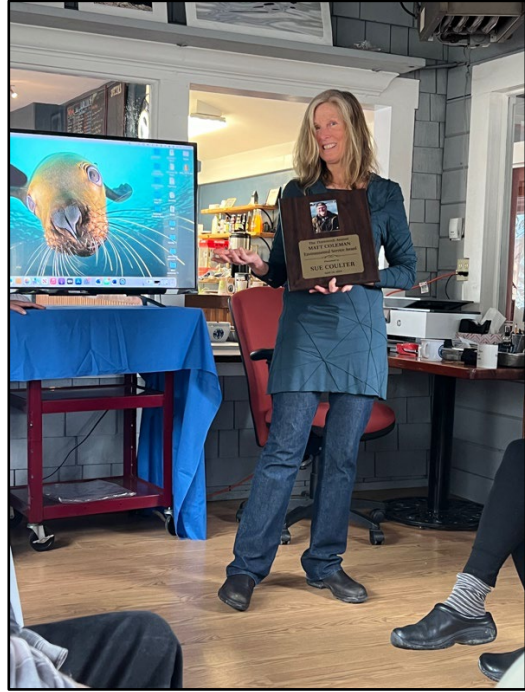


Sue Coulter Going-Away Party and Matt Coleman Award - continued

On Sunday, April 14, the Mendocino Environmental Partners hosted a potluck at the Noyo Center Marine Field Station for the annual celebration and to honor this year's recipient of the Matt Coleman Environmental Service Award, Sue Coulter. In addition to being the Noyo Center's Education Program Coordinator, Sue has taught and inspired the region about environmental education for over 25 years. Sue has a deep love of nature and insatiable curiosity that is present in her conversations and connections with everyone she meets. One of Sue's biggest influences was her former partner, Matt Coleman, the remarkable being for whom this award is in honor of. Congratulations, Sue!



Sue Coulter & Sheila Semans at the Environmental Awards



Sue Coulter with her Matt Coleman Award



Calendar

- Saturday, May 4th, 10 am: New Volunteer Orientation at the Field Station.
- Monday, May 6th, 6 pm: Pinniped Press monthly meeting on [ZOOM](#).
- Tuesday, May 7th, 6 pm: Music in the Redwoods concert planning meeting on [ZOOM](#).
- Wednesday, May 8th, 10 am: Docent monthly meeting, Crow's Nest.
- Friday, May 10th, 9 am: Board of Director's meeting, Field Station or [ZOOM](#).
- May 18th – June 16th, North Coast Kelp Festival. [WEBSITE](#)
- Sunday, June 14th: 10th Anniversary of the Noyo Center for Marine Science! Look for many ways to celebrate.

The Pinniped Press team: Tony Boyd, Dobie Dolphin, Wendi Felson, Linda Francis, Donna Worster, and Toni Rizzo, with Trey Petrey. Pinniped Press logo design by Sharon Bowers.

If you have photo or writing skills or have a particular idea for an article, want to join a great group, or send a letter to the editor, write to Toni at: editor@noyocenter.org

Who to call? When you find:

- A live marine mammal, call The Marine Mammal Center at (415) 289-7325.
- A dead marine mammal, call Sarah Grimes, our Stranding Coordinator, at: (707) 813-7925.
- An injured bird call The Bird Rescue Center at: (707) 523-2473
- Most other wildlife, call Wild Life Rescue at: (707) 526-9453