

NEWSLETTER



San Jose Flipper Dippers

MAY
2021

GENERAL MEETINGS HELD
3RD WEDNESDAY
OF EACH MONTH
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What Ecstasy Does to Octopuses

The Atlantic - Ed Yong

Despite their wacky brains, these intelligent animals seem to respond to the drug in a very similar way to humans.



When Gül Dölen first gave ecstasy to octopuses, she didn't know what to expect. Dölen is a neuroscientist at the Johns Hopkins School of Medicine who studies how the cells and chemicals in animal brains influence animals' social lives. Ecstasy, also known as MDMA, interests her because it's known to make people feel more sociable, more interested in others, and less defensive. The same effects also occur in rats and mice—the animals that Dölen usually studies.

But octopuses are very different creatures. They're clearly intelligent and their behavior is undoubtedly sophisticated, but their brains have a completely different architecture than those of mammals—for one thing, they're shaped like donuts. "It's organized much more like a snail's brain than ours," Dölen says. With such a dissimilar anatomy, she wondered whether these animals would respond to drugs in unpredictable ways. And to find out, she needed a way of assessing how sociable an octopus is.

She and her colleague Eric Edsinger put five Californian two-spot octopuses individually into the middle of three connected chambers and gave them free rein to explore. One of the adjacent chambers housed a second octopus, confined inside an overturned plastic basket. The other contained an unfamiliar object, such as a plastic flower or a Chewbacca figurine. Dölen and Edsinger measured how long the main animal spent in the company of its peer, and how long with the random toy.

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Winner! Winner! Chicken Dinner! . . . or egg salad

An even dozen Flipper Dippers gathered on April 10th at Del Monte Beach for the 12th Annual Under Water Easter Egg Hunt. The one-less than a dirty dozen in the photo included, in front from left: **Tom Gardner, Jackie Gardner, Frances Lee, Grace Chi** and **Barbara Davis**. Back row were **Howard Chien, Carl Tuttle, Howard Timoney, Jim Rezowalli, John Snyder** and **Manuel Mangrobang**. The missing 12th person was **Greg Davis**, who took the photo. See pages 4 and 5 for a report on this year's hunt and a little history on 12 Years of Winners. ★

April Dive Report x2

Barbara Davis

Conditions looked good in April, so Dipper Barbara Davis finally got to dive North Monastery again! Accompanied by Dipper Howard Timoney, they dove North Monastery on April 3rd and April 17th.

On Saturday, April 3rd, there was a very low tide, so the entry involved clambering over rocky tide pools that we would usually swim over. We elected to enter at the extreme right side of the beach to check out the kelp fields on that side for a change. We descended and headed toward the kelp. Finding some, we swam on looking for the second kelp bed, which looked thicker (at least on the surface). Viz was 20 – 30 feet, and we kept swimming towards a dark patch ahead of us before finally realizing it wasn't the kelp. Instead, it was the murky deep! We reached a max depth of 92 feet before finally turning back and heading for shallower waters.

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PRESIDENT'S CORNER



The magical rabbit had laid eggs for the return of the Dippers' Annual Underwater Easter Egg Hunt; with it, many Dippers have come out of hiding. The ever-elusive **Greg Davis** decided to join us to film the festivities, with **Jim Rezowalli** setting his multi-colored eggs for us to find. Congratulations to **Carl Tuttle** taking first place, **Grace Chi** taking second, and **Barbara Davis** rounding out third. Fun was had by all at London Bridge for lunch afterward.

For those that want to start meeting in person again, the month of May will be the first time we get to meet up again. With general vaccination just starting some are still apprehensive about meeting in person and remote meetings are still possible. Wi-Fi installation at Knights of Columbus is still uncertain at this time but we hope to have virtual connections up and running.

Pt. Lobos is such a popular dive spot that we have a couple of new prospective members dropping by to dive with us on May 8th.

Lastly, get vaccinated. Vaccination helps us all and prevents the spread of the virus. You can sign-up at <https://myturn.ca.gov/> to make an appointment. You can also do walk-ins, but it is not recommended since supplies are limited, not all locations allow it, and it is not guaranteed that you will get a turn.

Didn't Shoot the Tanks! – **Manuel**

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(But please note that our dive plan involved a max depth of 80 – 100 feet, so we were still following our dive plan!). Water temp was 48 degrees and our dive time was 42 minutes.

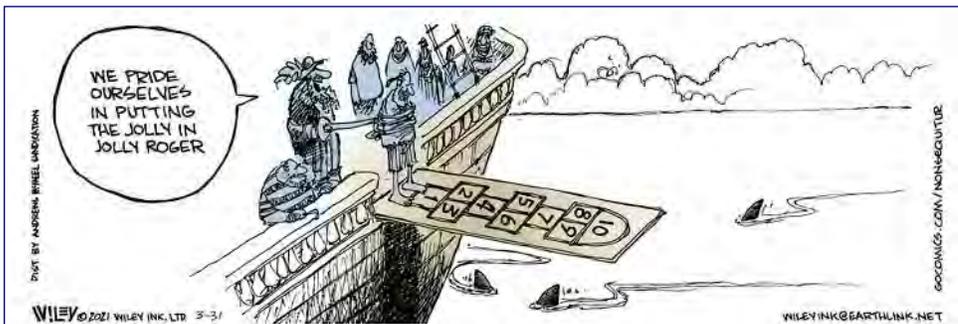
For our second dive, we entered a little farther down the beach, to the left of the big kelp field. Such a beautiful dive! We saw multiple types of nudibranchs, anemones, and orange sea cucumbers and we were happy to not see many little purple sea urchins! Dive time was 44 minutes with a max depth of 57 feet. After the dive, Howard found out that his drysuit was finally back from being repaired!



Heading out again on Saturday, April 17th, we again entered near the kelp field for 2 nice dives. First dive was 39 minutes with a max depth of 80 feet. The second dive was for 52

minutes to a max depth of 76 feet. For both dives, we walked in and put our fins on, but crawled out. Viz was 20 – 30 feet, and we could see the surface from about 40 feet. So much life! Critters observed included a small angel shark in the sand, a big lingcod, lots of rockfish, and many different colors of the "orange" sea cucumbers.

Both days we followed our dives with a delicious lunch at Crossroads BBQ! 🌟



San Jose Flipper Dippers

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Continued from Front Page

This is exactly the kind of setup that neuroscientists use to test social behavior in mice, but Dölen had no idea whether it would work with octopuses. “It might be that they are so smart that the kind of task we’d use for a mouse would be boring to them,” she says. “Maybe they’d take one lap around the chambers and stop.” Fortunately, that wasn’t the case. The free-moving individuals thoroughly explored the chambers, and from their movements, Dölen realized that individuals of any sex gravitate toward females, but avoid males.

Next, she dosed the animals with ecstasy. Again, there’s no precedent for this, but researchers often anesthetize octopuses by dunking them in ethanol—a humane procedure with no lasting side effects. So Dölen and Edsinger submerged their octopuses in an MDMA solution, allowing them to absorb the drug through their gills. At first they used too high a dose, and the animals “freaked out and did all these color changes,” Dölen says. But once the team found a



more suitable dose, the animals behaved more calmly—and more sociably.

With ecstasy in their system, the five octopuses spent far more time in the company of the same trapped male they once shunned. Even without a stopwatch, the change was obvious. Before the drug, they explored the chamber with the other octopus very tentatively. “They mashed themselves against one wall, very slowly extended one arm, touched the other animal, and went back to the other side,” Dölen says. “But when they had MDMA, they had this very relaxed posture.

RAFFLE NEWS

Leigh Hartley Tuttle

We’re back in action for our first in-person General Meeting! But due to the fact there might be a very small group, we will hold off this month for the raffle. So keep those treasures safely stored for upcoming raffles 🌟

MEMBERSHIP

Ken Agur

Welcome **Cedric Wright** who joined us for our April general meeting via Skype. We look forward to you joining us on some upcoming dives!

Happy birthday! If we had a regular General Meeting, a FREE raffle ticket would be given to **Ken Agur, Larry Ankuda, Jerry Richards** and **Barbara Zwiig** who have made the slow and hazardous journey traveling around the Sun in 365 days! 🌟

They floated around, they wrapped their arms around the chamber, and they interacted with the other octopus in a much more fluid and generous way. They even exposed their [underside], where their mouth is, which is not something octopuses usually do.”

But most octopuses, with some exceptions, are solitary hermits, and Jennifer Mather from the University of Lethbridge isn’t convinced that ecstasy is making them sociable. Instead, the drug might just mess with their ability to detect the chemical cues of potential mates. “There’s no proof that it is anything more than attraction,” she says.

Harriet de Wit from the University of Chicago, who has studied ecstasy’s effects on animals, has other concerns. “It’s an innovative and exciting study,” she says, but it’s unfortunate that the duo always tested the octopuses first after a dunk in normal salt water and then after an ecstasy bath. In pharmacology studies, scientists normally mix up the order in which animals receive the drug and the saline control. Without that counterbalancing, it’s hard to say why the octopuses were behaving differently the

second time around: Was it because of the ecstasy, or simply because they had become familiar with the arena, the plastic toy, or the other octopus?

Dölen admits that the study is just a pilot, and one with a very small sample size. “We would obviously want other people to try and repeat it in a much larger group of animals,” she says. “But we wanted to publish it, because there really aren’t established protocols for delivering drugs to octopuses or doing social tests with them.” She hopes that her findings will encourage more neuroscientists to study these beguiling animals.

She’s not the first to make such a call, either. In 1964, the English zoologist J. Z. Young wrote a book called *A Model of the Brain*, in which he encouraged scientists to study the brains of a wide variety of species, octopuses included. “We could say the octopus brain is totally different to a human one, but we need this synapse or this neurotransmitter,” Dölen says. “We could write down a list of these minimal building blocks of complex behavior.” And that’s what she and Edsinger have started doing.

They knew that ecstasy works by causing neurons to

release serotonin, a signaling chemical that affects our mood. The drug does that by sticking to a protein called the serotonin transporter, or SERT, which neurons normally use to suck up the chemical. Ecstasy’s presence reverses that flow, creating a massive, mood-altering dump of serotonin.

Octopuses have their own version of SERT, and Dölen and Edsinger showed that it’s just a 50 percent match to ours. Despite these differences, the specific bit of the protein that sticks to ecstasy is almost identical in both species, which is why the drug affects both. “We weren’t expecting it to have quite so much overlap,” Dölen says.

“Octopuses really are the best example we have on Earth of a second intelligence,” says Robyn Crook, a neuroscientist from San Francisco State University. We last shared a common ancestor with them around 800 million years ago, and their brains have evolved independently from ours. And yet Dölen’s study showed that our brains have a few extreme similarities, from the molecular level to the behavioral one. It strengthens the idea, Crook says, that “there are only so many ways to make an intelligent brain.” 🌟



For those interested, we’ll have in-person General Meetings starting this month and online virtual via Skype. We’ll want to continue social distance safety so plan on wearing your mask. We’ll have additional spacing between chairs. If you come please bring a refreshment to share: safely! We hope to be able to have a live Skype connection as well. 🌟

2021 U/W Easter Egg Hunt

Jim Rezowalli

Well this year's Easter Egg Hunt was met with mixed success. Once again the Easter Bunny used colored and brown eggs (though no parsley or sand was glued to them) which, mixed with the poor visibility, made finding them a bit difficult. However, based on the numbers written on the eggs **Carl Tuttle**, **Grace Chi** and **Barbara Davis** were able to find enough to place First, Second and Third in the trophy competition. Next year the Bunny promises to put out all white eggs and lots of them. Look for the video on the Club's Facebook page.



And they're off!



Grace Chi and Howard Timoney discuss search techniques.

12-Year History of U/W Easter Egg Hunts

This year marked the Flipper Dippers' 12th Annual Under Water Easter Egg Hunt and there were comments made about some Dipper winning all the time. Well if you look at the chart below you'll see who the winners were over the past twelve years of competition. And don't forget that in 2020 we had a "Virtual Hunt" due to the COVID restrictions. OK, so there is one Dipper who finished in the top three places more times than the others, but who's counting? * 🌟

Year	1st Place	2nd Place	3rd Place
2010	Tom Gardner	Carl Tuttle	Jani Hail
2011	Barbara Davis	Carl Tuttle	Tim Jagers
2012	Carl Tuttle	Jim Hail	Larry Ankuda
2013	Barbara Davis	Larry Ankuda	Carl Tuttle
2014	Jim Rezowalli	Larry Ankuda	Carl Tuttle
2015	John Snyder	Brian Zaugg	Barbara Davis
2016	Carl Tuttle	Tom Gardner	Anton Dold
2017	A TIE! Carl Tuttle Manuel Mangrobang	None	None
2018	Barbara Davis	Tom Gardner	Donovan Hill
2019	Barbara Davis	Donovan Hill	Carl Tuttle
2020 Virtual	Abby Wilson	Jackie Gardner	John Snyder
2021	Carl Tuttle	Grace Chi	Barbara Davis



Carl Tuttle, Howard Chien and Frances Lee getting ready to hunt.

* In case you were counting here are the top 3-place winning totals
Carl Tuttle 1st Place: 4x, 2nd Place: 2x, 3rd Place: 3x. Total = 9
Barbara Davis 1st Place: 4x, 2nd Place: 0x, 3rd Place: 2x. Total = 6
Tom Gardner 1st Place: 1x, 2nd Place: 2x, 3rd Place: 0x. Total = 3
Larry Ankuda 1st Place: 0x, 2nd Place: 2x, 3rd Place: 1x. Total = 3



Above, Manuel Mangrobang gets dressed after the Big Hunt.



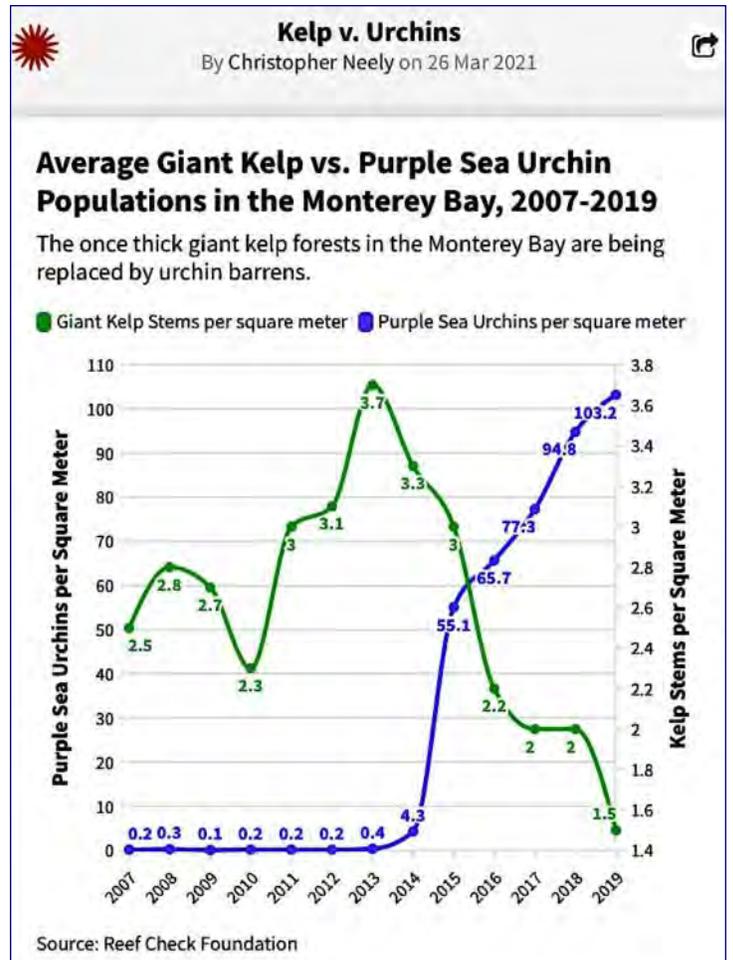
Right, John Snyder working his way out of the water after hunting for eggs.

Recreational Red Abalone Fishery to Remain Closed Until 2026

While the spring season typically signals the start of the recreational red abalone season, CDFW reminds anglers that the northern California recreational red abalone fishery will remain closed until April 1, 2026. Red abalone stocks continue to be impacted by large scale die offs in this area due to the collapse of the bull kelp forest, which is their primary food. At its December 2020 meeting, the Fish and Game Commission extended the fishery closure for an additional five years to 2026. The Commission closed the fishery in 2017 because of the mortality of red abalone populations due to environmental stressors.

The current poor environmental conditions and depressed abalone stock were caused by a series of large-scale ecological impacts. These included a massive marine heat wave and El Niño in 2014-2016, the local extinction of sunflower sea stars due to disease and subsequent population expansion of purple sea urchins. The result was a major shift from a robust healthy bull kelp forest ecosystem to one dominated by sea urchins with little kelp or other algae. Such conditions lead to starvation and mass mortalities of abalone, which need kelp to survive.

Using satellite imagery, scientists at U.C. Santa Cruz have found that the kelp forest off the Sonoma and Mendocino coast has declined by 95 percent since 2013. The cause is an explosion of the sea urchin population that feeds on it. Only eight years ago, it formed a leafy ocean canopy along the coast replete with fish, but scientists now worry that many fish and other species that depend on the food and shelter there might not bounce back. The unprecedented destruction was related to unusual ocean warming and an explosion of purple sea urchins that feed on it. 🌊



April's Fourth Sunday Cycle

Jim Rezowalli

We lucked out with the weather on the Sunday, April 25th bike ride. The small group included me, **Gabi Estill Rezowalli**, **Howard Chien**, **Frances Lee**, and **Carl Tuttle**. It stopped drizzling when we started riding. We rode north from the Swift Street area along the Santa Cruz Rail Trail to Wilder Ranch State Park where we stopped briefly so I could show Frances my new beach condo (inside joke). We then rode along the bluffs to Three Mile Beach for a rest and mostly chat stop. After returning to the cars at Swift Street we had a beer and lunch at the West End Tap and Kitchen. (Ed Note: The group celebrated Jim's birthday with Howard's delicious homemade cheese cake!) 🍷



Jim trying to figure out his camera settings.



Above, Carl, Gabi, Frances and Howard inspect some new digs (?).



DIVE & ACTIVITY CALENDAR

ABBY GOLDEN WILSON

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MAY 2021

SATURDAY, MAY 1
NO SCHEDULED DIVE

WEDNESDAY, MAY 5th
BUSINESS MEETING 7:30 PM

The meeting will be held virtually via Skype. All members are invited to attend. Please email **Carl Tuttle** or **Abby Golden Wilson** if you need the link to join. Bring your own food, drinks, and internet connection and let's discuss ideas for how we can stay connected while apart!

SATURDAY, MAY 8
SECOND SATURDAY SCUBA (S3)

PT. LOBOS Coordinator: **Jim Rezowalli**, jimandthebeach@gmail.com, 408-293-7390. We have 7 Teams signed up. Meet at the entrance at 8AM. Be sure to bring your reservation confirmation **and YOUR "C" Card!** Let Jim know if you are not going to make it as we have some folks who want to dive.

SATURDAY, MAY 15
NO SCHEDULED DIVE

GENERAL MEETING **WEDNESDAY, MAY 19**

7:30 PM

TBD: Dippers are now able to meet in person starting this month.

7:30 PM at the Knights of Columbus Santa Maria Hall
2211 Shamrock Dr., Campbell.

Celebrate 57 Years of the San Jose Flipper Dippers at our General Meeting.

Entertainment:

- ★ **Happy Birthday Dippers!**
- ★ **Socially Safe Social Hour**

For those who choose not to attend in person you can still join via Skype or conference call.

Please contact us on our website, or email the club VP, Abby Golden Wilson (abbygolden15@gmail.com), if you would like to attend.



SUNDAY MAY 23
FOURTH SUNDAY CYCLE
Coordinator: **Jim Rezowalli**, Phone

408-293-7390, email: jimandthebeach@gmail.com. Join us for our monthly Fourth Sunday Cycle at 10:30AM. **Next up: Sand City to Lover's Point.** Exact location TBD. Details will be sent out via email so be sure to sign up! Remember to bring your bike and helmet, some water and a snack.

SATURDAY, MAY 24-29
MEMORIAL DAY WEEK AT PFEIFFER BIG SUR SP

Coordinator: **Carl Tuttle** (408-829-3660, tutcomms@sbcglobal.net). Dippers have 3 sites for the week and are open to sharing camping space. Scuba diving, spearfishing, bike riding and campfires. Contact Carl regarding sharing space or if you just want to join in on a dive.

UPCOMING IN JUNE

02 Business Meeting
12 Second Saturday SCUBA - Boat Dive
16 General Meeting
27 Fourth Sunday Cycle (FSC)



False Alarm over Aluminum Tanks

Though Luxfer will no longer produce aluminum tanks, it doesn't mean Americans will be without aluminum tanks, as was erroneously reported. Diversco notes that those ubiquitous Sherwood, Genesis, and Akona tanks are manufactured by Catalina Cylinders and will continue to be available. Meanwhile, dive centers in Europe were quick to correct reports their steel tanks were heavier. In the water, because they have thinner walls than an equivalent aluminum tank, they're displacing less water and are less buoyant, and therefore, feel heavier. But, out of the water, they weigh less. ★

Slug's Head Returns to Haunt You

It's bad news when discovering half a garden slug in your salad, but it may be better news if you discover half a sea slug underwater. You see, for at least two species, their severed heads can move, eat, and possibly even eliminate waste while they wait a few weeks for their bodies and their hearts to regenerate. Their other half, a headless body with a beating



heart, will live for a few months before it begins to decompose without regenerating a head, say scientists at Nara Women's University in Japan. They were raising one species of sacoglossan sea slugs (*Elysia cf. marginata*) to study the slug when they found a living severed head in their laboratory. Their observations led to this discovery. *New Scientist* ★

Octopuses Feel Both Physical and Emotional Pain

A new study by neurobiologist Robyn Crook (San Francisco State University) suggests octopuses are likely to feel and respond in similar ways to mammals. Octopuses are the most neurologically complex invertebrates. Using detailed measurements of spontaneous pain-associated behaviors and neural activity, Crook found evidence that the octopuses can feel negative emotions at times. So, kind divers, don't go about upsetting them. *Sciencealert.com* ★



NOTE: All certified divers are encouraged to attend San Jose Flipper Dippers' dives.

Non-Club members will be required to show proof of certification to the dive coordinator prior to entering the water with our group. Please sign up for dives at the General Meeting or call the coordinator. This is needed in case of cancellation or changes.



San Jose Flipper Dippers

c/o 1108 Sunset Landing
Rio Vista, CA 94571-5148



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FIRST CLASS MAIL

2021 COMING EVENTS

May 5	Business Meeting - Virtual
May 8	Second Saturday SCUBA Pt. Lobos
May 19	🐡 General Meeting
May 23	Fourth Sunday Cycle (FSC)
May 24-29	Memorial Day Weekend
June 2	Business Meeting - Virtual
June 12	Second Saturday SCUBA - Boat Dive
June 16	🐡 General Meeting - Food Drive
June 27	Fourth Sunday Cycle (FSC)
July 03	No License Fishing Day
July 07	Business Meeting - Virtual
July 10	Second Saturday SCUBA
July 11	Panther Beach Clean Up
July 21	🐡 General Meeting
July 24	Halibut Dive
July 25	Fourth Sunday Cycle (FSC)

Memorial Day Weekend Camp & Dive May 24-29

Join the Flipper Dippers' for camping at Pfeiffer Big Sur State Park for Scuba diving, spearfishing, bike riding, food, drinks and campfires. See this month's Activity Calendar for information. 🌟



Watch This Space - Much More To Come!
See the Club's Website for the full Calendar



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