



Word on the Waves

a publication of the Fisheries Observation Science Program and the Northwest Fisheries Science Center

Observer Spotlight:

Lindsay Sturtevant

Observing since 2013

Currently stationed in Eureka

Lindsay Sturtevant is crazy about fish. In fact, she can't pick a favorite. She finds them all utterly fascinating.

Heralding from Tracey, California, Lindsay graduated from California State University Long Beach with a BS in Marine Biology. She quickly got a job as a field researcher in the

Virgin Islands where she studied sediment and water. She recalls: "As amazing as that experience was, I realized that I was not interested in marine sediment and water quality. I wanted to work with fish — or a least things that were alive." Her enthusiasm for observing, her work ethic and her outstanding data collection makes Lindsay this quarter's Featured Observer.

Lindsay is a catch share observer. Just like she can't pick a favorite fish, she can't pick a favorite thing about observing. Is it talking to the fishermen? Watching a codend dump? Identifying a mystery fish with her dichotomous key? Seeing how different vessels fish? Maybe it's access to all those amazing fish? One thing she is certain of is that she loves

to be at sea. In fact the only thing she doesn't like about observing "is when it is slow season and I only get one or two trips a month. After too long, land gets boring."

When on land, Lindsay stays moving. She enjoys running, hiking, mountain biking, scuba diving, snowboarding and geocaching. Her Bucket List includes visiting Australia and New Zealand, celebrating New Year's in New York City and running the Boston Marathon with her dad.

When asked about future work opportunities, she says, "I know I want to do something in the fish field that will make a significant contribution to science and the health and sustainability of the oceans." You seem to be well on your way, Lindsay. Thanks for all your hard work.



From the Program

Hello Observers!

I'd like to take a moment to remember our fellow observer Chris Langel and the crew of the F/V Lady Cecila who were lost two years ago off our coast. This tragedy was a stark reminder of the dangers of working at sea and the need for all of us to remain dedicated to safety training and safe practices at sea. You are the most valuable and most important asset to our program. Please remember that you are responsible for your own safety. Make sure that you are following the program's safety policies and procedures. Staff is a resource for you so feel free to contact them with any questions, whether about safety polices or gear. We are here to support you however we can.

On a lighter note, the newsletter has a new name: *Word on the Waves*. Thanks to Mark Ward for the suggestion. We're also

sharing Andrew Corr's presentation from last year's International Fisheries Observer and Monitoring Conference (IFOMC) where he won an award for his poster. Nice job, Andrew! If you have work you'd like to share with others, please let Rebecca Hoch (Rebecca.Hoch@noaa.gov) know.

I hope you find this issue of *Word on the Waves* interesting, informative and entertaining. Please send any newsletter ideas or feedback to Rebecca about how we can improve this publication. We want to keep improving.

As always, thank you for all of your hard work and be safe out there.

Sincerely,

Jon T. McVeigh
Program Manager

Green Sturgeon and California Halibut: Using and Improving Observer Data to Better Manage Resources

Andrew Corr, Lead Observer in Santa Cruz

We are happy to showcase a poster by long-time observer Andrew Corr. Andrew presented his work at last year's International Fisheries Observers and Monitors meeting. (The poster's format has been altered to fit this newsletter.) If you have any questions for Andrew, please contact your debriefer or Rebecca Hoch and we will put you in touch with him. Congratulations to Andrew on a job well done.

The Fish

Green sturgeon (*Acipenser medirostris*) is a member of the Acipenseridae family. *A. medirostris* is a large, slow growing, late-maturing, long lived species with a complex life history that has existed for close to 200 million years. They spawn in large river systems, rearing in the rivers and estuaries for 1-4 years before heading out into marine waters, where their movements vary greatly. They are known to range from California to Alaska, using coastal estuaries from northern California to Washington, and returning to freshwater to spawn every 2-5 years after reaching maturity at an age of about 15 years. Individuals can live for up to 70 years (Moyle, 2002).

The species is comprised of two distinct population segments (DPS). The southern DPS spawns only in the Sacramento River in central California (Adams et al., 2002) and was listed as



threatened under the US Endangered Species Act in 2006. The northern DPS spawns in the Klamath and Rogue Rivers of northern California and Oregon. It has not been targeted historically but was landed in significant numbers, mostly as bycatch in other fisheries. Possession is now banned throughout its range.

California halibut (*Paralichthys californicus*) is a member of the Paralichthyidae family. It is a large, fast growing flatfish, also with a complex life history, moving from open ocean to estuaries and bays both to spawn and to feed. It has been an important part of both commercial and recreational fisheries since the 1800's.

The Fishery

The California halibut trawl fishery is a relatively small but valuable fishery on the central coast of California. It is managed by the state of California and there are 49 permitted vessels, with likely about half of that number actively participating in the fishery. Every permit is selected for observer coverage for 2 months out of each year. The fishing takes place in two main regions, one between San Francisco and Santa Cruz, and the other between Morro Bay and Los Angeles, generally on soft bottom at shallow depths between 8-50m.

Unlike all other groundfish of the west coast, it is managed by the state of California and not the federal government. There are no quotas for the

commercial fleet, and until 2006, it was an open access fishery. In 2011, about 440,000 lbs (200,000 kg) were landed by the entire commercial fleet in California. Current prices are between \$3-5/pound for dead fish with up to \$10/pound for live, so it is a valuable fishery in landings alone.

A. medirostris are regularly caught as bycatch in the California halibut trawl fishery, especially near the mouth of the San Francisco Bay, which is the entry and exit point of the threatened southern DPS's only spawning grounds in the Sacramento River. This fishery is one of the only known direct takes of the species.

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Have you heard about this???

There is a mystery disease decimating particular species of sea stars. Scientists are dubbing it "wasting sea star syndrome." They are seeing it up and down the Pacific coast. Here's a quick [report](#) on what they know so far.

From the Kitchen

John LaFargue, CA Coordinator

Well, Spring finally got here...not that winter ever really came to California. I am writing this as Newport has a "snow day" and Eureka has a slight drizzle and not so chilly temperature. With Spring comes day time minus tides and a shot at some great clams. There are many different delicious clams along our coast: Pismo, horseneck, butter, cockles, softshell and my two favorite, little necks and razor clams. Observers and staff have had great clamming along the entire coast, so chances are there are some clams near you. Make sure you check with your local health department about where and when it is safe to eat clams. Unfortunately some of our waters are not as clean as they once were.



Most folks I know fry or make chowder out of their clams. Don't get me wrong, fried clams are delicious and a hot bowl of chowder on a stormy day warms the cockles of my heart...bad pun I know. But how many fried clams can you eat? I started trying new recipes a few years back to add a little variety into my clam meals. Some of my favorites are ceviche, crudos and straight with soy and wasabi. I blanch

my horsenecks and razors to get them out of the shell or to remove the outer skin of the horsenecks so I'm not using them raw like in a true crudo, ceviche or sashimi. I find I like the texture better than straight raw.

I generally don't follow recipes for either ceviche or crudos, but this recipe is a starting point.

Keep in Touch

Want a national view of observer data at work? Check out the recently released **US National Bycatch Report**. This is a national compilation of bycatch estimates and where a lot of our data gets used. Another publication of interest is this **Cowcod report** found on the Northwest Fisheries Science Center's [website](#). And finally, here's an **ecosystem assessment for California** published by NOAA's Integrated Ecosystem Assessment program. As always, keep our **Fisheries Observation Science** (FOS) web address on hand. It's where current briefing schedules, updated manuals and other observer-related information is posted.

Clams: Ceviche or Crudos

1lb cleaned and blanched clam meat
(blanch then for 20-30 sec.)

4 blood oranges

1 lime

leaves from 2 sprigs mint

2 green onions

2T good quality olive oil

salt & pepper to taste

Coarsely chop clam meat. Peel blood oranges with a knife and remove sections of meat from between membranes. Squeeze remaining juice from orange membranes over clams and add segments. Squeeze lime juice over clams. Chop green onions and mint add to clams. Cilantro also works here. Add a few tablespoons of good olive oil then salt and pepper to taste. Give everything a good stir and let sit in fridge for an hour or so to let the flavor mingle... or not.

The options are limitless. Ceviches can go from a lime forward type Mexican style to a sweet tropical Peruvian style. Same with crudos. I generally add a little tart citrus even if I'm using a grapefruit or orange to balance the sweetness. Experiment and get back to me with any winning combinations

Thank you Mark Ward!

Mark answered our call for newsletter name suggestions with the following:

"Whenever my fellow observers talk about observer world happenings, we start the story off by saying the "word on the waves" is... I think Word on the Waves could be a good newsletter name."

We agree and are adopting it as the official name. Thanks Mark!

Do you have suggestions or ideas for the newsletter? Let us know! Send them to Rebecca Hoch at rebecca.hoch@noaa.gov.

The Data

For *A. medirostris*-

- Currently, observers collect fork and head length, weight, photographs, presence/absence of scute markings, external, and pit tags, fish condition, and tissue samples from all sturgeon, as well as collecting sex and fin ray samples from dead fish, which is rare, as most fish are caught and released live. This information is used to estimate the number of sturgeon caught in the fishery each year, the number of adults v. subadults, and estimated mortality.
- In the future, it may be possible to improve and increase this data as well by ensuring that all observers collect all information for every fish and by implementing a tagging program. Observers would need to be trained and provided with supplies, while making tagging the top priority when sturgeon are present, but would then be able to provide a very cost-effective means of increasing the number of tagged fish.

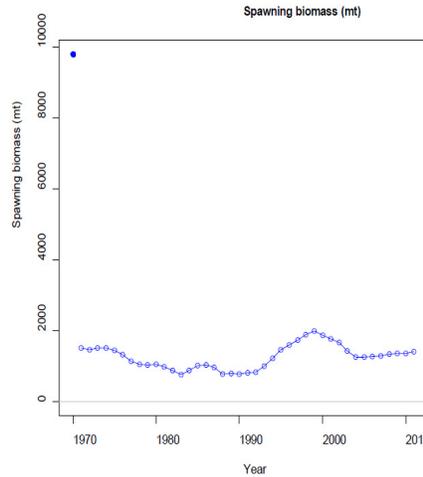


Figure S6. Estimated spawning biomass for southern California.

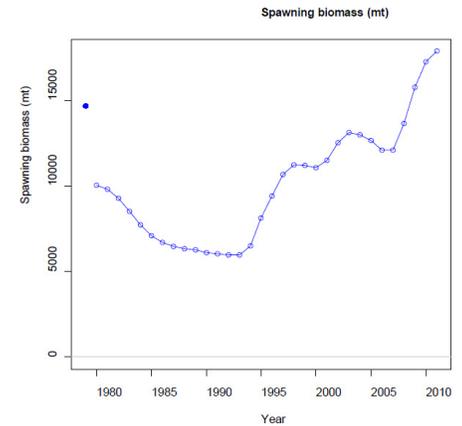


Figure S10. Estimated spawning biomass in Central Region.

Source: CDFW California Halibut Stock Assessment, 2011.

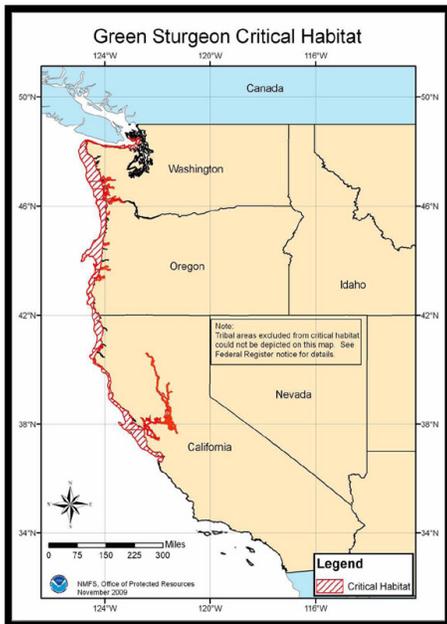
For *P. californicus*-

- Observers collect weight on all discarded halibut and lengths from up to five fish per haul. This information is used by both state and federal agencies to estimate discard rates and to aid in modeling for stock assessments.
- In the future, because there are not usually a large number of fish per haul, it may be possible to get lengths from all fish without negatively impacting other sampling duties. Also, with dead individuals, it may be possible to determine sex and collect otoliths for aging. The 2011 CDFW stock assessment mentions a need to “increase

gender-specific age sampling of fisheries catch and discards”. Once again, observers could provide a cost-effective way to provide a greater quantity of high quality data to managers.

Over time, current methods will increase the volume, and thus power, of the data. Additional methods could further contribute to managers’ understanding of the abundance, distribution, and life history of these fish, leading to better ecosystem-based management.

In summary, observers have a rare opportunity to provide valuable information to inform effective management of the California halibut fishery and



Source: Bellman, et al, 2010.

Table 4. Total estimated bycatch of green sturgeon in the limited entry and open access sectors of the California halibut fishery from 2002-2008.

	Estimated bycatch (numbers)		
	Limited Entry	Open Access	Total
2002* winter	19	--	19
2002* summer	0	--	0
2003 winter	9	0	9
2003 summer	336	15	351
2004 winter	0	65	65
2004 summer	194	0	194
2005 winter	220	70	290
2005 summer	284	200	484
2006* winter	767	--	767
2006* summer	0	--	0
2007 winter	54	0	54
2007 summer	48	0	48
2008 winter	162	0	162
2008 summer	25	0	25
Total*	2,118	350	2,468

* The open access California halibut bottom trawl sectors was not observed in 2002 or 2006.

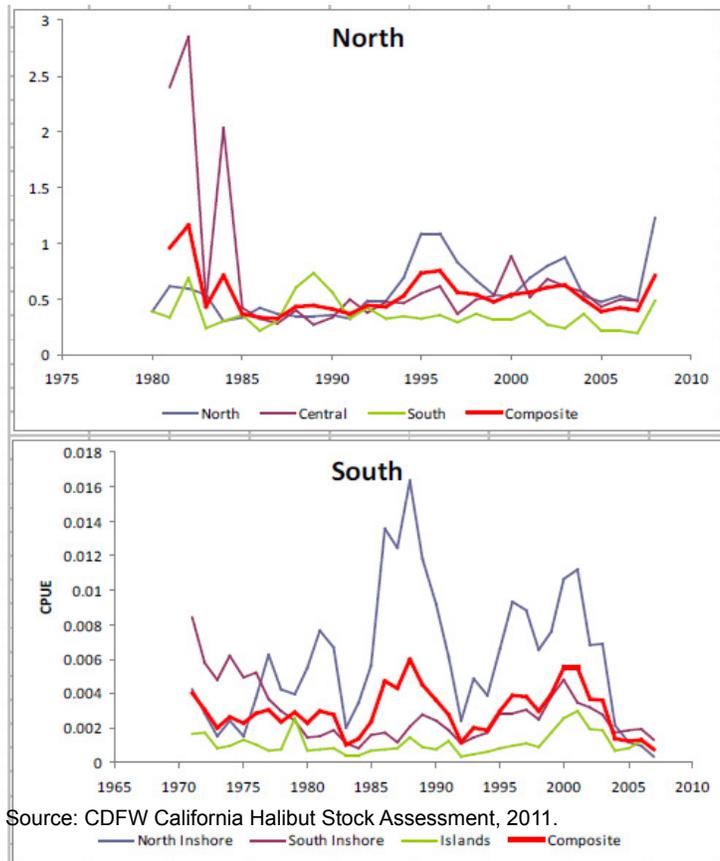


Figure 1. Regionally stratified halibut CPUE abundance indexes.

address bycatch of green sturgeon. Without incurring considerable additional costs, the management of several resources could be improved by skilled observers performing their duties.

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Acknowledgements

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