

HUMBOLDT AREA SALTWATER ANGLERS

A VOICE FOR SALTWATER SPORTFISHERS

2016 FALL NEWSLETTER



Green Sturgeon Observations in Humboldt Bay

Harbor District Enhances Recreation in Shelter Cove

HASA Strategic Planning Survey Results

The mission of Humboldt Area Saltwater Anglers is to represent North Coast fishermen's historic and ongoing right to sport fish along the Northern California coast; advocate reasonable and rational sport fishing seasons and regulations; educate our members and the general public about the economic and cultural contributions of sport fishing to our local economies; and promote sustainable stewardship of the resource.

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Comments are always welcome. Send to hasa6191@gmail.com

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This is issue #31

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Presidents Message

by Scott McBain



Well, it's the beginning of the holiday season again, this year went by pretty fast! Certainly not enough time on the water for me, hopefully you had better luck. It is a good time to reflect on how fortunate we are to live on the north coast, and appreciate all of the fishing opportunities that we have. HASA will continue working to provide these fishing opportunities for ourselves and future generations.

At long last, the HASA survey of members' priorities has been summarized by Board Member Dirk Pederson on page 10, and provided some very useful information to guide HASA over the coming years. One of the things that was a bit surprising to me was the importance of Pacific halibut amongst all of the species we have available here. I (along with Tom Marking and Tim Klassen) have been very active in Pacific halibut management meetings, and I sometimes wondered if I was putting too much time and emotional effort into trying to get more Pacific halibut allocation to California that wasn't a priority for our members. However, the survey results showed that Pacific halibut was nearly as important as salmon! This was corroborated by the large turnout of HASA members to the California Fish and Game Commission meeting last month in Eureka, where we gave the Commission an update on the current state of PFMC management. So I guess we should continue working hard on the Pacific halibut allocation issue. We were also pleased to see strong support for HASA to support kids fishing derbies, which will encourage the next generation of saltwater anglers. Lastly, there were several comments that encouraged HASA to support improvements to boating infrastructure, and we have already responded by purchasing dock improvement materials for the City of Eureka, and getting more involved in dredging needs near the Eureka boat launch. If there are other needs that you see, please let us know!

As Casey mentions on page 24, Jed Douglas will unfortunately be leaving the HASA board at the end of the year, and we wanted to thank him and all prior board members for their service to our cause. Prior to joining HASA, I have never served on a Board of Directors, and like many others, was hesitant about serving. However, I have found the experience to be extremely rewarding, and have learned a tremendous amount about fishing and fisheries. If you are interested in becoming a board member, please contact a board member if you have any questions and/or would like to be nominated, then come to the HASA General Membership meeting (in late January or early February).

Lastly, Casey and contributors have put together some very interesting articles in the following pages, which you should enjoy. If you would like to contribute an article to future newsletters, or have suggestions on a topic you think would be interesting to HASA members, please share with Casey. Here's to a full crab season, be safe, and hope to see you out on the water!

A handwritten signature in black ink, appearing to read "Scott McBain".

FISHANOMICS - THE CORNUCOPIA EFFECT

Tom Marking, GAP Representative



Thanksgiving is the time of year when families gather around a turkey (or baked salmon) and reflect on the past year. It's fitting that we in the fishing community do the same. Sitting on the Groundfish Advisory Panel (GAP) with the PFMC as the Sports Representative, it's been a year of gains and losses. The imagery comes to mind of the typical cornucopia basket looking like a fluted horn filled with the bountiful harvest. I guess the optimist in me looks at the wide end filled with fruits, crabs, clams, fish, (you get the idea); the cautious side of me eyes warily the pointed end and makes a mental note not to bend over in the vicinity of that pointy end. With that visualization in mind let us proceed.

This was a good year for us. We had an abundance of rockfish, lingcod, forage fish, halibut and salmon; but conversely we had to watch the crab and razor clams happily feast on the bounty of the sea, unmolested by shovels and traps. That is about to change. While we had a longer halibut season than last year, primarily due to heavy seas and high winds, it did allow for a season extending to September 23, whereas last year it closed on August 12. The salmon season was better than I had predicted, especially the early part, but things are not so rosy on the horizon.

Fishing has a direct correlation to economics, as we who fill up at the gas pumps fully realize. The insurance fees, mortgage costs, maintenance fees, gear replacement, on-going efforts to chase the latest gadget or gizmo, all adds up to the benefit of our local economies in the following fashion. Statistics are like opinions: everybody has one! And let's establish up front that all models are wrong, but may be useful! With that said here are some figures that I've combed out of the salmon season reports, the groundfish models, NOAA data, and fishery reports given to the PFMC. Some are prospective, some a few years old as the groundfish models, and others at various stages in between. But, if you look at the data in the round, and think big picture, it is interesting.

Salmon recreational efforts produce income of \$57,692,000 on the west coast with 279,000 trips. From Humbug to Horse Mountain the impact is \$3,166,000 for 23,700 trips. (Note that for the west coast the average trip is \$206/trip while locally its \$134/trip? I don't know why that is.) West Coast groundfish and halibut recreational efforts yields 1,045,200 trips with an estimate of \$215 M income generated. Locally, from Crescent City-Eureka we have 38,100 trips estimated at \$7.85 M. Commercial groundfish has a wide variety of contributors: mother ships, catcher vessels, trawlers, trollers, hook and line, pots, long line, traps, bottom trawl, and mid-water, taken in total as gross revenue yields about \$350 M in income. Any way you look at it, fishery efforts yield a lot of impact to the local, state and national economies. So, the next time you pull the trigger on the gas pump, consider it a helping hand to the national effort to spread the wealth...you are doing your part as Uncle Sam would state.

After five years of effort at the PFMC we finally got some relief from the depth restrictions on the groundfish front. Next year we get to go to 30 fathoms from 20 fathoms for our current season length and then go to all depth for the November/December months. We will see a reduction in the black rockfish from five down to three, but we can keep one canary in the 10 fish bag limit. Lings will be reduced from three to two, and the salmon season may become very bleak over the next two years. Petrale and Starry Flounder will be all depth all year (like Sand dabs). Halibut was a disappointment for me on the



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GAP. Two years ago we got an increase from 1% to 4% of the non-tribal allocation, but any further efforts have been stymied at the Council. The California survey in 2013 and 2014 increased the 2A (Pacific states) allocation by 16% and we are allowed only 2.6% overall, so we could consider that we are being shorted in allocation. The Council doesn't see it that way, since the Washington folks complain they have closures after only 2-5 days and we have 50-100 days of halibut fishing each year. And, in spite of our best efforts to work to gain more poundage, CDFW seems to support the Washington position. But, I'll keep at it at the GAP level, and HASA will continue to support efforts to improve our allocation, but without the CDFW support it's going to be really tough going. But, if you consider yourself one of the salmon people, we are always swimming upstream!

And speaking of salmon we could be in for a tough period. The Coho season up to the Canadian border was disastrous this year, and the past years of drought have caused the death of almost all natural smolts in the Sacramento and Klamath Rivers. The hatchery smolts released in San Pablo Bay will provide some effort, but the natural spawners are really in trouble. The Mate and I took a trip up to the northern tip of Vancouver, BC this year and the King (Springers to them) fishing was very poor. They just didn't show up in any numbers, but the Coho were abundant and almost considered pests to them. Lots of fun to catch on light gear, but all the bag limits had been reduced.

Regarding groundfish stocks, they are healthy and improving. Our last overfished species up north is the Yelloweye, with the Cowcod a problem in the south. The bocaccio and canary are rebuilt, so things are improving. Overall, the efforts by the eight Councils in the USA are steadily rebuilding fishery stocks to be sustaining and healthy. This is not without a lot of pain and economic loss, some with devastating results to individuals and Coastal Communities. But, it was a good year for us and we will have gains and losses next year, but that is the nature of fisheries...a constant ebb and flow of growth and retraction impacted by constantly changing ocean conditions and recruitment surges. HASA is well represented on the PFMC and will continue efforts on your behalf. Enjoy your Thanksgiving dinner and get ready for the crab season!

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Reading Nautical Charts II

By Larry De Ridder

In our February 2016 issue we began a discussion on how to get the most out of your charts and chart-plotters. If you missed that article it can be accessed [here](#).

To continue the discussion, it's important to realize that some of the chart data you are looking at is quite old. Recently added or updated data was likely gathered with a multi-beam full-coverage sonar unit. However, just a few years ago the state of the art was a single beam echo sounder, and prior to 1940 readings were taken with a chunk of lead tied to the end of a line, and lowered to the bottom periodically. In fact, given how rarely NOAA actually updates charts in most areas, more than 50 percent of the information found on NOAA charts is based on surveys done before 1940 using a sextant to locate a position and a lead line to measure depth. Some of that data is pre-

1900! Older measurements, depending on the depths, may have been taken anywhere from 50 to 400 yards apart, with the assumption there was not much change between the two marks. Thus there are many bottom irregularities, such as smaller reefs or submerged hills, which are still being located and marked on chart updates. Other items, such as wrecks or other manmade objects may have appeared since the last chart update, or be the result of natural changes.

Given the space constraints on even the largest chart plotter displays, it really is a good idea to spend time studying the actual paper NOAA chart for the area you will be navigating. It's the only way to really appreciate the "big picture" without losing the details as you "zoom out" on a plotter. Each NOAA chart, except international charts, has a five digit identification number. For example the chart for Point Arena to Trinidad Head is number 18620. The number can be found in the lower left corner of the chart. Immediately above that is the Edition of that particular chart, and the month and year it was produced. Charts produced since 2003 include a specific date showing the most recent update from the Local Notice to Mariners that was incorporated into the data. The Feds regularly produce and distribute updates, so that paper chart owners can manually mark their charts with the newest data. When you update your chart plotter chip you are getting new data incorporating these Notices, which may be important for safety or perhaps simply show the most recently charted wreck you may want to fish.

As mentioned in the prior article, depths can be displayed in several ways. Individual numbers represent individual soundings, regardless of whether it was a sophisticated sonar array or a 1920's lead line reading. Large block letters at the top of the chart will define the measurement scale in use, such as "SOUNDINGS IN FATHOMS". This would indicate that a number such as 3.5 would indicate a depth of 3.5 fathoms, or 21 feet. Depth contours which are solid indicate that every point on the line is at the same depth, while a broken or indefinite bottom contour line would indicate the data is incomplete. For example, the side limits of dredged channels are marked with broken lines, because these tend to change frequently and are not considered reliable due to the fact they can change rapidly. For smaller channels, the charted depth only applies to the central 80% of the channel width, and is not considered reliable for the 10% along each edge. For larger channels charts will show a separate table of depths for cross-section portions of a channel, labeled as "left outside quarter", "left inside quarter", "right inside quarter" and "right outside quarter". This data is serious reading for bar pilots! If a chart area is too small to indicate all the depths present, the shallower numbers are given preference, as a safety measure.

Charts start with what is called a "horizontal datum", which forms the basis for computations of horizontal positions. In your chart plotter's menu options you likely can find a list of options avail-



able to you for use as a basis for position calculations. It's important to have the right starting point. NOAA always uses the North American Datum of 1983 (NAD 83), which is the equivalent of the World Geodetic System of 1984 (WGS 84). If you specify the wrong coordinate starting point for your GPS, such as NAD 27, you might find yourself hundreds of yards off from where you think you are. If you take your boat and GPS international, you need to know what the basis is for the local charts at your destination, and may need to alter your chart plotter settings.

Another feature shown on paper Mercator charts is the compass rose and magnetic variation. It's pictured as a circle graduated in degrees, clockwise from 0 degrees at the top all the way around till 360 degrees equals the starting point. There may be more than one diagram on a chart, and if there are multiples they may vary slightly. These are used by navigators to assist with laying out a course. They will show both a True North starting point and a Magnetic North starting point. Because magnetic north does not equal true north, and moves a bit every year, magnetic north on a General Chart may not be the same everywhere. Use the compass rose nearest your location. If you are on the water and using your chart to plot a course, you need to know which of these compass rose marks you will be using!

When laying out a course, it's important to take into account both Magnetic Variation and Magnetic Deviation. Magnetic Variation is the angular difference between the two sets of marks. Magnetic Variation is given as degrees and minutes, either West or East of the designated heading. A west variation is subtracted from the magnetic to obtain a true course, while an easterly variation would be added. To throw one last complication into the mix, each boat has a unique magnetic field, which causes a compass deviation. This is a measure of how much your own boat's magnetic compass is affected by the boat itself, and its contents. Serious long-distance navigators will "swing the boat" in increments and calculate how their own vessel's compass is affected by the boat's hull and contents on each course, to make the final adjustment between true and magnetic headings. This process will be repeated each time there is a boat modification, particularly if it involves something with a magnetic field, such as installing new speakers or a new compass. You can see why Navigator is an important position on any large vessel!



For a Good Bite!

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New This Fall: Beach Hazards Statement

By Kathleen Lewis
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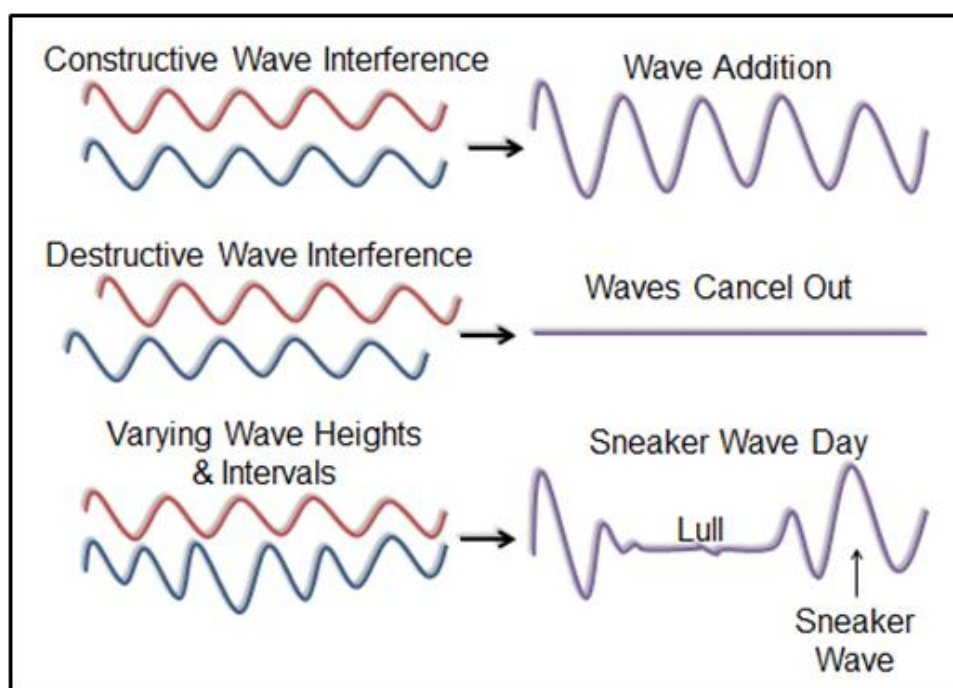
The National Weather Service (NWS) in Eureka, Ca has introduced a new product this fall that could be of interest to you. This product is called the Beach Hazards Statement (BHS). The purpose for the BHS is to alert beachgoers of unique coastal hazards that may not meet NWS Watch, Warning, or Advisory criteria or be sufficiently addressed in other NWS provided products. These unique hazards include unusual wave conditions, dangerous currents in the surf zone, and hazardous weather phenomena near the beach (e.g. lightning).



Although these hazards are not uncommon along the northwest California coast, the BHS will primarily be issued for sneaker wave threats.

Sneaker waves are larger than normal waves that can catch beachgoers off guard and potentially wash them into the frigid and turbulent ocean waters. Sneaker waves are dangerous because they are deceiving. During high risk sneaker wave days the ocean will appear calm and inviting due to *destructive interference* where wave systems cancel each other out. Sneaker waves form when similar wave systems combine through *constructive interference* resulting in a larger than normal wave. The long lulls of smaller wave activity can last as long as 30 minutes before a large set of waves arrive (see Figure 1). This explains why surfers watch the ocean for long periods of time, so they can see where the best waves are breaking when the larger sets come in.

Although they can be good for surfing, sneaker waves pose a serious threat to mariners in or near the surf zone. Anglers fishing off the jetty for lingcod or on the beach for surfperch are especially at risk due to their close proximity to the water. Crossing the bar also becomes hazardous for boats as sneaker waves can cause waves to break in the channel, especially during strong ebb currents. Sneaker waves



become less of a threat in deeper waters; however, shoaling is possible beyond the normal surf zone over sand bars and rock reefs.

If there is a sneaker wave threat, the BHS will be colored turquoise on the hazards map on the Eureka Weather [home-page](#). We will also send out sneaker wave information on Facebook and Twitter but the BHS will be the best place to look for details. Stay safe on the coast this fall by staying informed. Always check the forecast and observations before venturing out whether it's to the beach, in the surf, or out in the ocean.

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HASA Strategic Planning Survey Results Summary

By Dirk Pederson



In May and June of this year, HASA solicited input from members and non-members on what topics are important to our constituents to inform where HASA should be focusing its efforts, now and in the future. HASA President, Scott McBain, developed a survey (in Survey Monkey) to obtain this important feedback. The survey was organized to get general feedback first, then to focus on each of the priority subject categories separately, and finally to solicit other ideas or additional feedback on each subject, and any additional subjects. The priority subject categories used for the survey included:

- Representation at fishery management meetings
- Public outreach
- Science partnerships w/HSU
- Technical analyses to inform fishery management
- More involvement in inland fishery management
- Artificial reef development
- Support next generation of saltwater anglers
- Other



We received a total of 92 survey responses. Thanks to everyone who participated in the survey! As expected, most respondents to the survey were from Humboldt County and fish out of Eureka. However, other counties represented in the survey included Del Norte, Mendocino, Marin, Siskiyou, and Lake.

The ports used by respondents included Shelter Cove (3%), Eureka (71%), Trinidad (16%), Crescent City (4.5%), and beach launch (4.5%). Over 2/3 of survey respondents identified as HASA members. The survey results are summarized below.

The overall ranking of priorities indicated that representation at fishery management meetings was clearly the most important category to most survey responders, with about 80% of responders indicating this representation was “most important” (rank of 1). With one exception, overall rankings for the other subject categories had the highest number of responses for “very important” (rank of 2) (Figure 1), meaning that these categories were the second most important topic to survey responders. The one exception was for inland fisheries management which had the highest number of responses for “moderately important” (rank of 3).

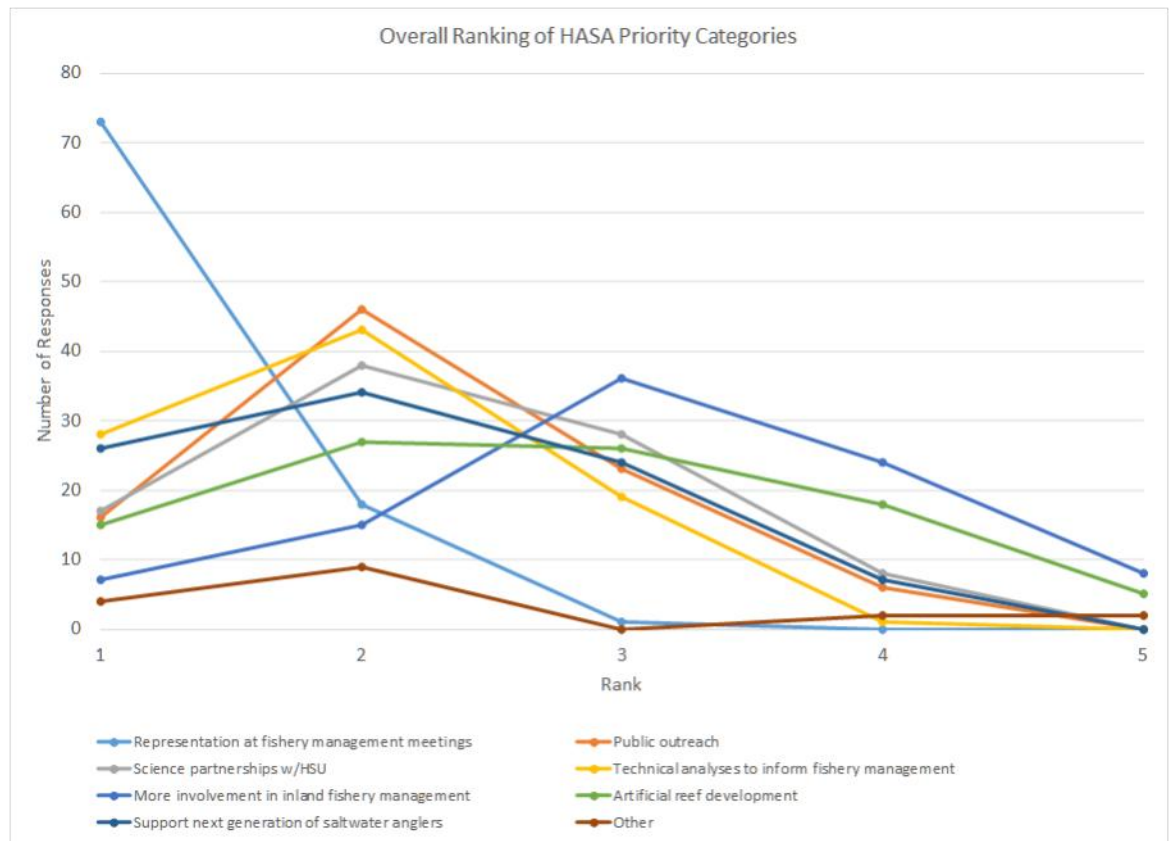


Figure 1. Overall relative ranking of importance of HASA priority subject categories based on the number of survey responses.

To differentiate the relative importance of priority subject categories other than the one or two with the highest number of responses for “most important”, we used a metric of the combined number of responses for the rank of 1 and 2 (i.e., most important and very important). This metric seemed more appropriate in some cases than relying only on responses for the rank of 1, particularly where many of the subject categories have the highest number responses for the rank of 2. For example, in this case (Figure 1), representation at fishery management meetings was clearly the most important with the highest number of responses, and would be given the highest priority. However, the remaining topics would be prioritized using the combined rank metric.

Based on this approach, the relative importance of priority subject categories were, in order of priority:

1. Representation at fishery management meetings (highest by far)
2. Technical analyses to inform fisheries management
3. Public outreach
4. Support next generation of saltwater anglers
5. Science partnerships w/HSU
6. Artificial reef development
7. More involvement in inland fisheries management
8. Other

There were a substantial number of suggestions regarding additional topics of interest. Many are addressed under the relevant specific topics, and a few select topics with multiple comments of support by survey responders included:

- support city government about dredging of the Eureka boat ramp;
- educate community about fishing ethics and resource stewardship;
- support protection of Humboldt Bay habitat since it provides an important nursery for local fish and crab populations;
- more political and/or regulatory involvement in Sacramento;
- advocate for common sense regulations based on sound science.

A summary of the responses to questions about the individual subject categories follows. The metric described above was used for describing relative rankings.

For fishery management meeting topics, salmon management was clearly the most important to survey responders, followed by Pacific halibut (Figure 2). Complete category ranking is as follows:

1. Salmon
2. Pacific halibut
3. Rockfish
4. Crab
5. Tuna
6. Other

Some of the other species suggested for consideration as priority for HASA representation included: steelhead, patrale sole and other flatfish, and herring, each with multiple responses for support.

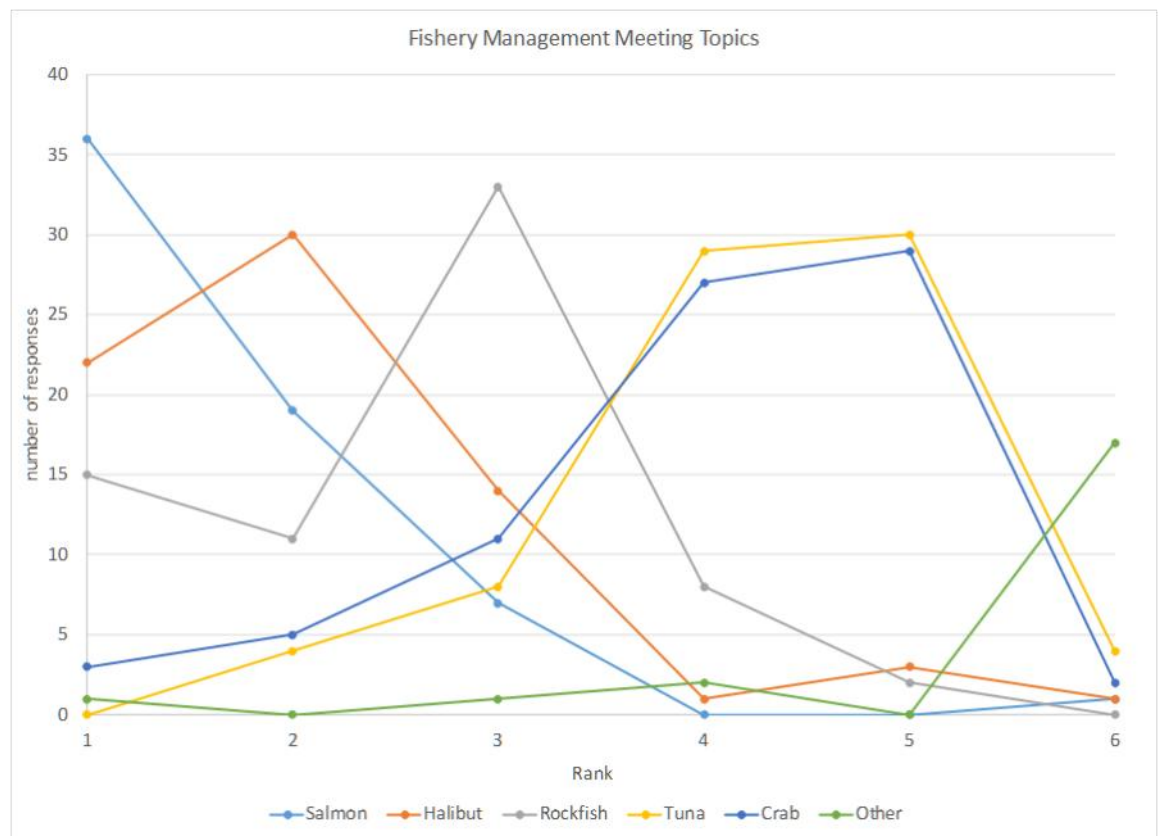
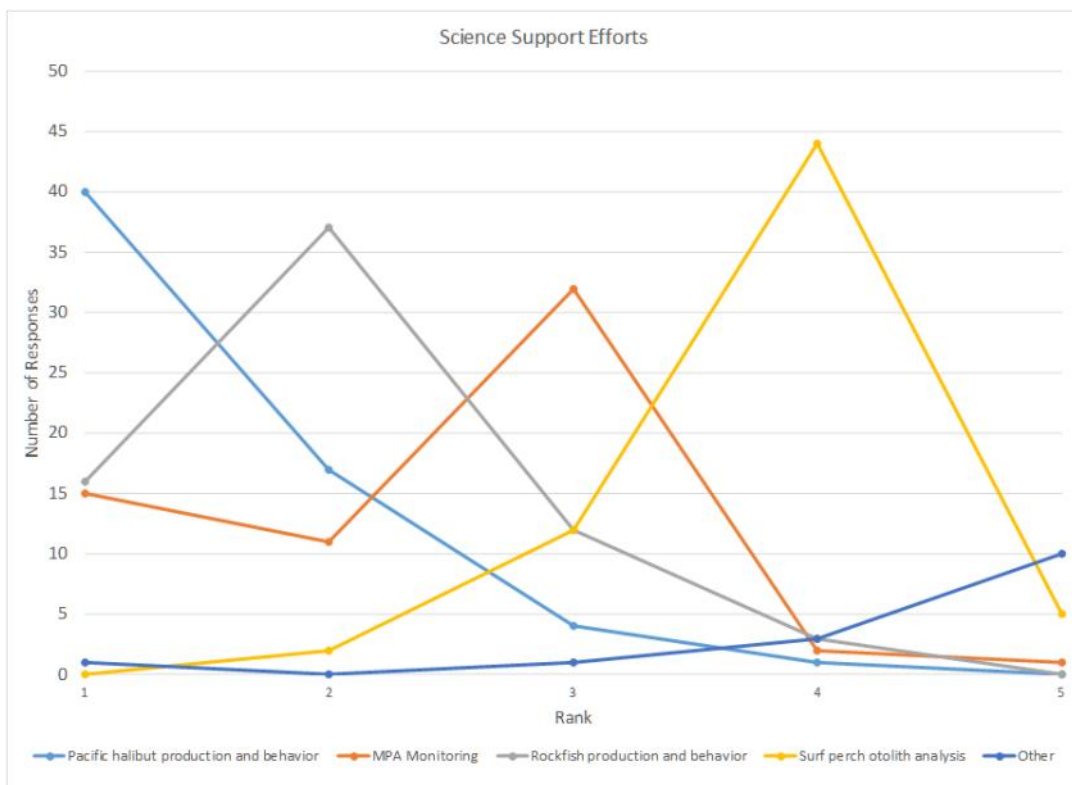
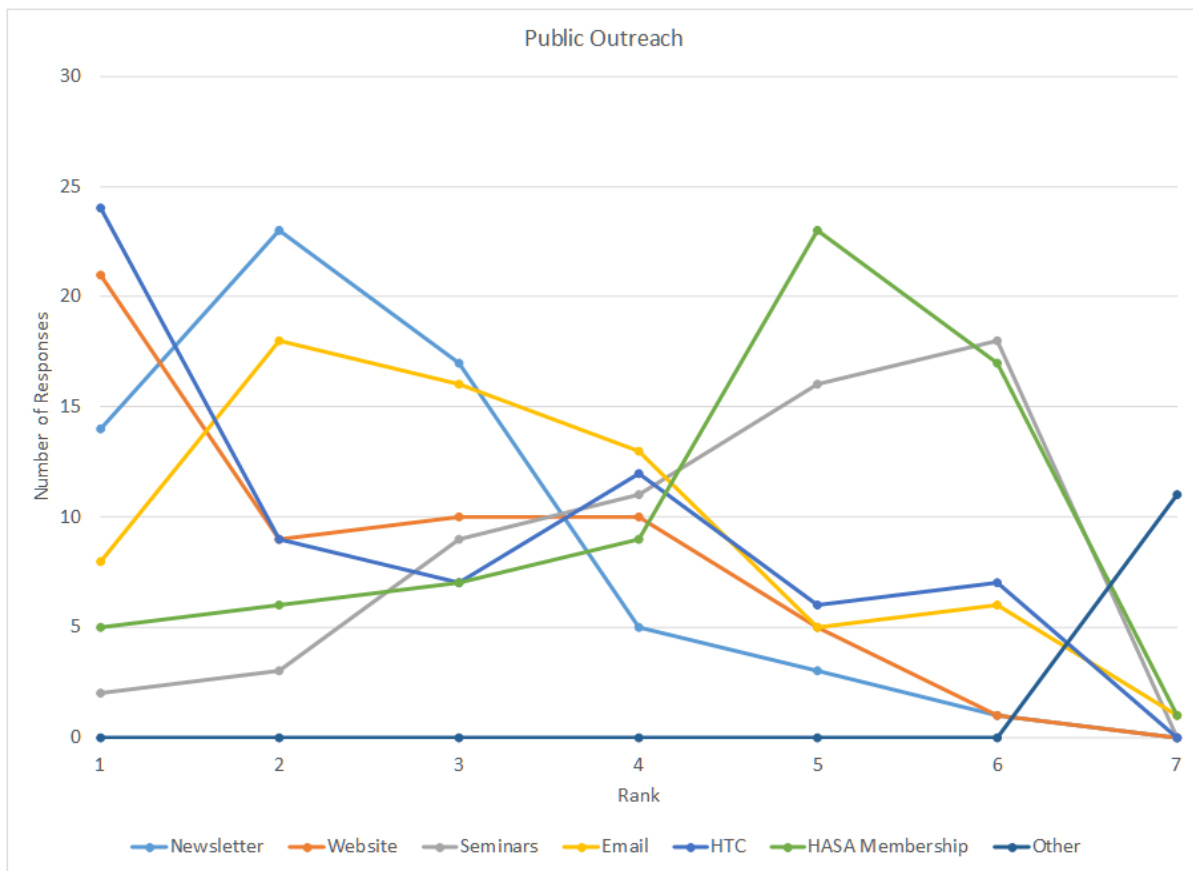


Figure 2. Relative importance of fishery management meeting topics based on the number of survey responses

For public outreach efforts, the HTC site and HASA website were most important to survey responders, followed by the HASA newsletter and email communication (Figure 3). The complete category ranking is as follows:

1. the Humboldt Tuna Club (HTC) site
2. HASA website
3. HASA newsletter
4. Email
5. HASA member-ship
6. Seminars
7. Other

Figure 3. Relative importance of effective modes for public outreach based on the number of survey responses



For HASA support of science partnerships to fund fishery science, Pacific halibut production and behavior was ranked most important to responders (Figure 4). The complete category ranking is as follows:

1. Pacific halibut production and behavior
2. Rockfish production and behavior
3. MPA monitoring
4. Surf perch otolith analysis
5. Other

A few of the notable responses to “other” included: salmon abundance and harvest predictions, albacore migration, and petrale sole.

Figure 4. Relative importance of fishery science support efforts based on the number of survey responses

For technical analyses, the evaluation of Pacific halibut surveys was most important to responders (Figure 5). The complete category ranking is as follows:

1. Evaluation of Pacific halibut surveys to contribution of exploitable biomass
2. Technical review of CRFS sampling protocols and harvest estimates
3. Other

A few of the notable responses to “other” included: canary rockfish, holding CDFW accountable, and performing independent harvest estimates.

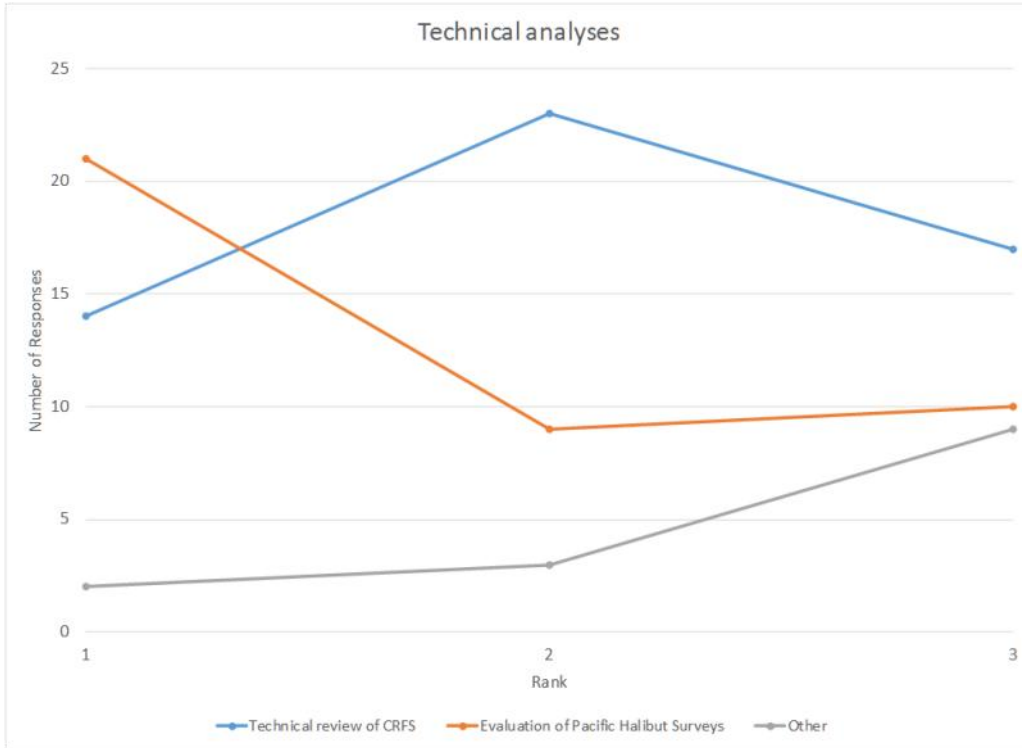


Figure 5. Relative importance of possible technical analyses based on the number of survey responses

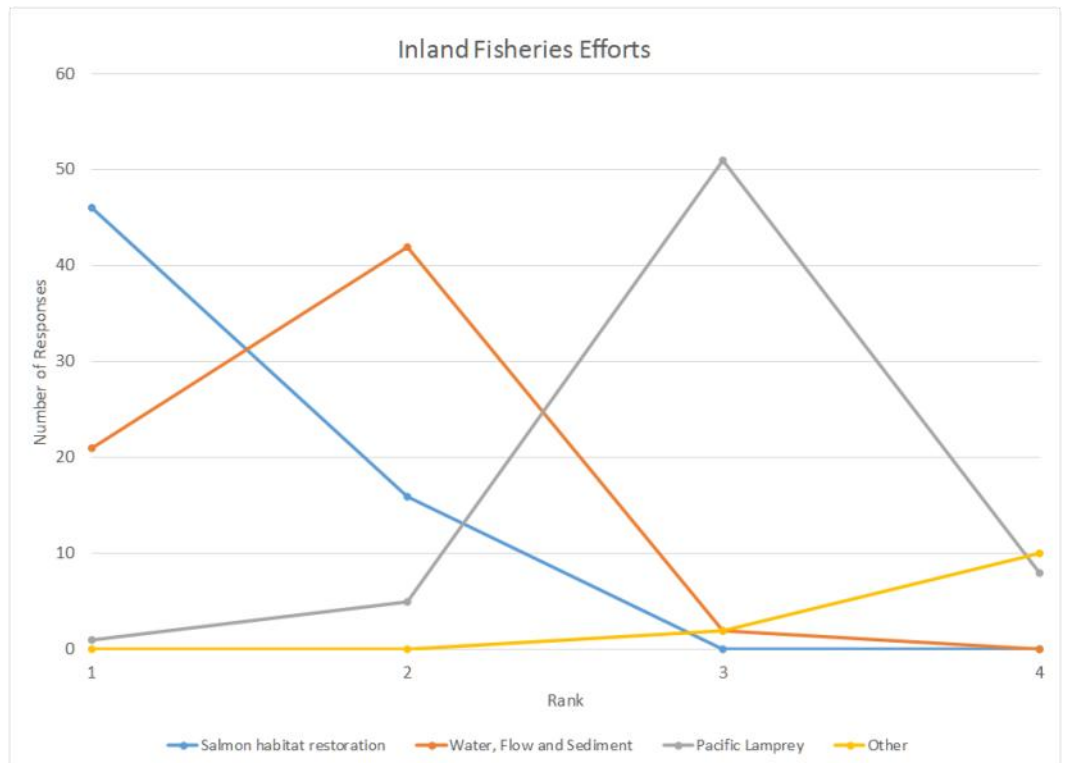


Figure 6. Relative importance of inland fisheries efforts technical analyses based on the number of survey responses

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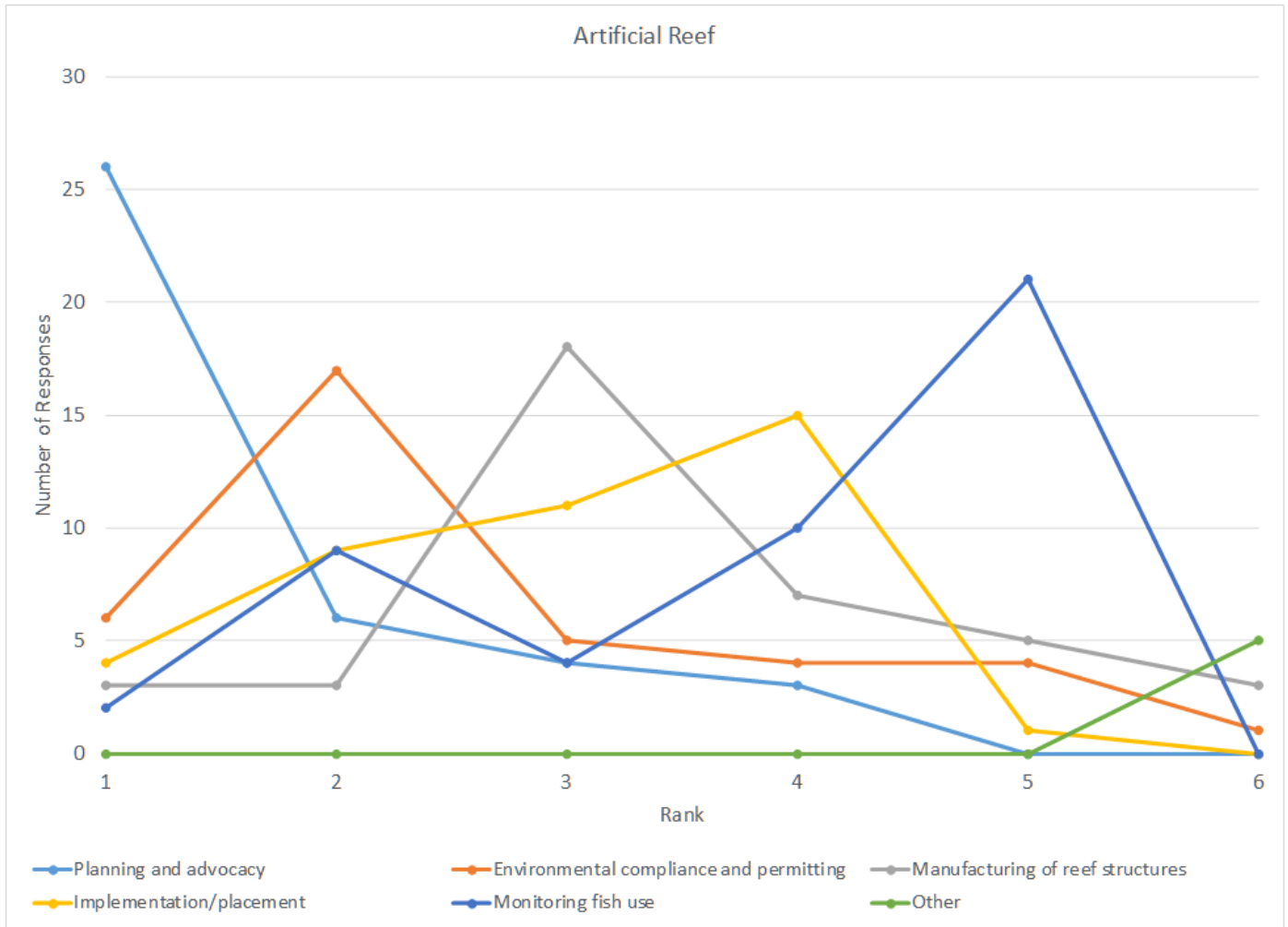
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For inland fisheries efforts salmon habitat restoration was ranked most important to responders (Figure 6). The complete category ranking is as follows:

1. Salmon habitat restoration
2. Water, flow and sediment
3. Pacific lamprey
4. Other

A few of the notable responses to “other” included: in-river harvest allocation; HASA should focus on other issues; steelhead habitat restoration.



For the artificial reef, planning and advocacy was clearly ranked highest. The complete category ranking is as follows:

1. Planning and Advocacy
2. Environmental compliance and permitting
3. implementation/placement
4. Monitoring fish use
5. Manufacturing of reef structures
6. Other

Comments included:

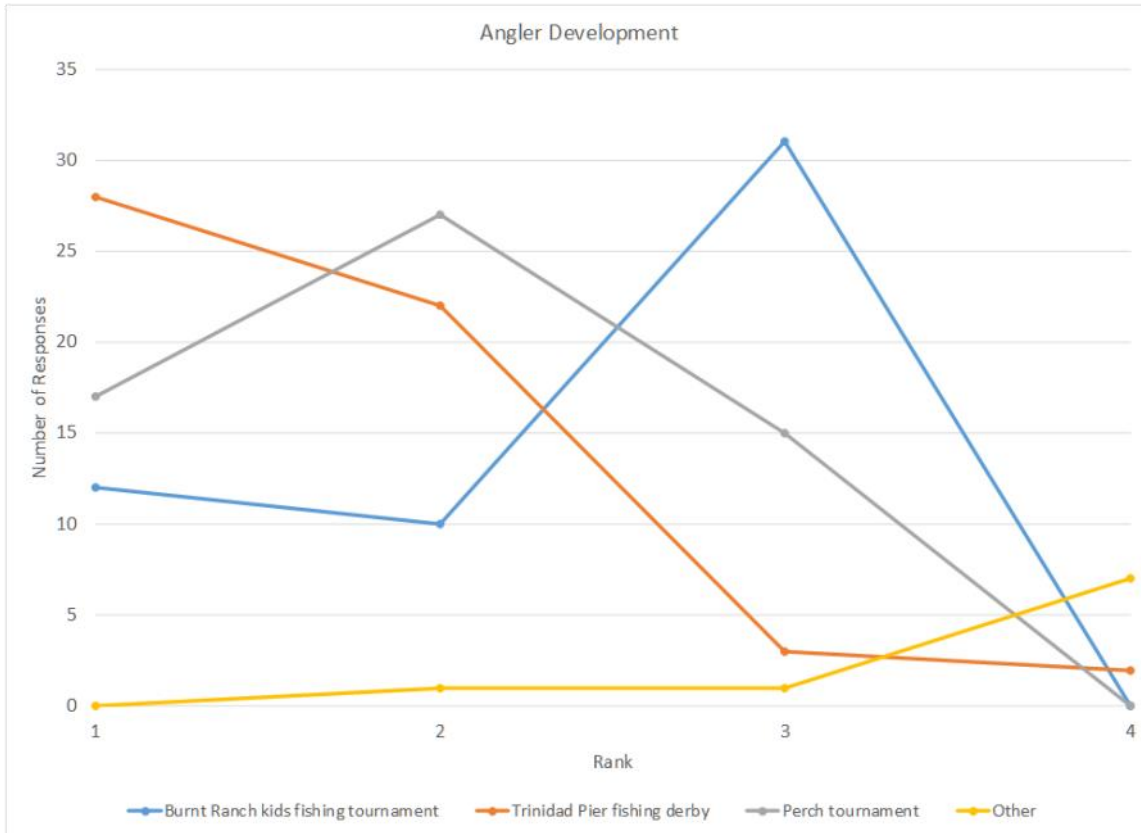
HASA should focus on other efforts since the artificial reef is a long-shot and there are other pressing issues; HASA will need to partner with others since it will require substantial financial investment and HASA’s resources are limited.

For angler development, the categories were ranked as follows:

1. Trinidad Pier fishing derby
2. Perch tournament
3. Burnt Ranch kids fishing tournament
4. Other

Comments included:

HASA should support fishing seminars; kids program at the fundraiser dinner; education stewardship; Freshwater lagoon event; bay-focused fishing event.



A few of the key findings included:

1. Clear confirmation that representation at fishery management meetings to support sound management and regulations is extremely important to survey respondents and HASA membership.
2. The high relative importance of Pacific halibut compared with other species (salmon is still #1, but Pacific halibut is a not-too-distant second).
3. The high relative importance of supporting technical analyses to inform fisheries management, including collaborating with HSU and other agencies.
4. The high relative importance of public outreach
5. The high relative importance of supporting future generations of saltwater anglers

HASA has already used the results of the survey to inform our annual budget allocations and focus on priorities that are important to our membership. These include providing scholarships to deserving students to support research to inform fishery management; providing increased funding to support youth and community fishing events.

You can see the entire survey at <http://humboldtasa.com/2016/06/14/hasa-strategic-planning-survey-results/>

Again, we want to thank everyone who participated in the survey!

We hope to do other surveys of our membership in the future to guide HASA.

Green Sturgeon Feeding Observations in Humboldt Bay, California

Matt Goldsworthy¹, Bill Pinnix², Miles Barker¹, Liz Perkins¹, Aaron David², Jeffrey Jahn¹

Introduction

Understanding the distribution, habitat use, and feeding habits of Green Sturgeon (*Acipenser medirostris*) is important to inform analyses of the potential effects to individual fish as well as to the rearing and migration functions of their critical habitat. Increasing our understanding of Green Sturgeon behaviors will also help identify conservation measures for projects in Humboldt Bay to reduce potential effects. During past studies of tagged juvenile Coho Salmon in 2006/2007, Bill Pinnix observed numerous (~30 tagged individuals per year) Green Sturgeon in the northern portion of the Arcata Channel (North Bay) and elsewhere throughout the bay. In order to learn more about the potential significance of Green Sturgeon use of North Bay, United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) staff visited the area in North Bay where most of the detections of Green Sturgeon occurred during the 2006/2007 studies.

Methods

We departed on the USFWS's *R/V Alcid* from Woodley Island at 0740 on August 19, 2016, during a low tide and headed towards the northern reaches of the Arcata Channel, located in the North Bay area of Humboldt Bay. USFWS employed a directional acoustic receiver (VEMCO VR28) in order to detect any acoustically tagged individuals and identify the general location or direction of the detected individuals in relation to the R/V. The R/V was positioned in the target area and then drifted down the channel with the outgoing tide for two separate drifts, each about one hour in duration. The general location, number, and context of Green Sturgeon breaching behaviors were recorded as were data available from individuals detected with the acoustic receivers.

Results

Drift 1: Immediately upon arrival to the target area in the northern reaches of the Arcata Channel, we began observing Green Sturgeon jump into the air in a vertical position with their bodies completely out of the water. Between 0800 and 0845, we recorded over 10 individual jumps or breaches of Green Sturgeon while the boat drifted in a southwest (downstream) direction down the Arcata Channel with the tide. While we drifted down the Arcata Channel, the USFWS (VEMCO VR28) receivers also detected >3 acoustically tagged Green Sturgeon.

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Although multiple individual tags were heard on the receiver, only 2 tags were decoded (Table 2); the VEMCO VR28 receiver is an older model that is unable to decode acoustic tags released in recent years. Around 0845, the activity slowed as we had drifted down the channel a considerable distance. All ten of the breaching observations occurred in between GS1 and GS4 (see Figure 1). Northern Anchovies (*Engraulis mordax*) were observed fleeing along the surface and jumping throughout the entire drift.

Drift 2: We started our second drift at 0905, and at 0909 the USFWS receivers began detecting acoustically tagged fish (Table 2). At 0915, Green Sturgeon breaching activity resumed and between 0915 and 1017, we observed 23 instances of Green Sturgeon jumping or breaching out of the water. Northern Anchovies were observed in high numbers fleeing along the surface of the water throughout the drift.

Discussion

When combined, our observations between 0800 and 1017h total 33 instances of Green Sturgeon jumping or breaching above the surface of the water (one breach or jump occurring approximately every 4-minutes during our visit, see Table 1), with several detections of Green Sturgeon recorded on the USFWS directional radio receiver (Table 2).

TABLE 1: Number of breaches of Green Sturgeon observed during Drift 1 (between 0800 and 0845h) and Drift 2 (between 0905 and 1017h) in North Bay, August 19, 2016.

General Area	# Breaches Drift 1	# Breaches Drift 2
GS1	10	2
GS2		11
GS3		2
GS4		6
GS5		0
TOTAL	10	23

TABLE 2: Detections of acoustically tagged Green Sturgeon made by USFWS directional acoustic receiver (VEMCO VR28)

Tag Code	Tagging Origin	Comment
A69-1303-20488	Sacramento River	Adjacent to oyster bed. R/V at GS2. Fish tagged in 2011
A69-1105-55	Sacramento River	In small channel. R/V at GS2. Fish tagged in 2011

Editors note: Green Sturgeon are protected and fish must not be removed from the water and immediately released. White sturgeon may be caught but are extremely rare in Humboldt Bay. White sturgeon occur in San Francisco Bay waters and there are some in the Klamath River. The limit for White Sturgeon is one per day, three per year, and must be between 40 and 60 inches.

Likely Observations of Green Sturgeon Pelagic Feeding

At 0955, a Green Sturgeon was observed next to the boat in a position that suggests it was feeding. The caudal fin and posterior portion of the body were completely out of the water, indicating the fish was at a diagonal angle. The caudal fin was moving wildly above the surface of the water while the fish remained at a diagonal angle. This type of behavior and body position (diagonal angle of body) is known to be exhibited by Green Sturgeon while feeding (Moser 2016). Based on the very high abundance of Northern Anchovies in the area, it appears this individual may have been attempting to feed on Northern Anchovies approximately 1-2 meters below the water's surface. Northern Anchovies were abundant in the area and were displaying avoidance behaviors such as jumping and fleeing along the surface of the water. In most cases, Northern Anchovies were observed jumping or fleeing immediately before Green Sturgeon breaching behaviors occurred. Although not confirmed, it appears that Green Sturgeon were feeding on Northern Anchovies based on these observations. Beamesderfer and Farr (1997) reported that pursuit and capture of active prey contradicts the image of sturgeon as merely sluggish bottom scavengers.

Previous studies have confirmed that Northern Anchovy are a component of the Green Sturgeon diet (Moyle *et al.* 1995), although most research (Patten and Norelius 2016, Moser *et al. in press*, Dumbauld *et al.* 2008) suggests that Green Sturgeon prefer other prey resources over Northern Anchovy. Northern Anchovies are not a benthic species, and given the ventral position of the sturgeon's mouth, it would seem that Northern Anchovies would not be an efficient prey item to pursue and consume for a large individual such as a Green Sturgeon.

However, Muir *et al.* (1986) found that Northern Anchovy was the principal fish species consumed overall, and was the primary prey item for White Sturgeon >800 mm in the Columbia River estuary. Northern Anchovies accounted for the majority of the prey consumed by weight for all sizes of sturgeon and composed almost 75% of the diet (by weight) for the largest individuals sampled during the study (Muir *et al.* 1986).

The opportunistic feeding behavior of sturgeon that can be inferred from food habits studies suggests that these fish will prey on any suitable types of food items that are available in a particular area (Miller 2004). They are also likely to be able to utilize seasonally available food sources such as fish eggs or small fishes. Their powerful suction feeding mechanism gives them the ability to suck these food items rapidly into the mouth and allows them to feed opportunistically on any palatable prey that may be encountered (Miller 2004).

Given the high abundance of Northern Anchovies observed during our visit in Humboldt Bay; observations of avoidance behavior displayed by anchovies immediately prior to Green Sturgeon breaching behavior; Green Sturgeon feeding behavior observed near the surface of the water where anchovies were present; and the findings from Muir *et al.* (1986) documenting the importance of anchovy to the largest size classes of white sturgeon, it appears that Green Sturgeon were actively feeding on Northern Anchovies during our site visit on August 19, 2016.

Use of Higher Elevation (Intertidal) Areas and Aquaculture Infrastructure

At 1010 and 1016, acoustically tagged Green Sturgeon individuals were detected by the USFWS VEMCO VR28 directional receiver inside the small channel adjacent to an existing aquaculture bed (detections made from the R/V while at the GS2 location on the map- see Table 2). While it is unclear if these individuals were feeding within the aquaculture bed or immediately adjacent to the bed, it is clear that these individuals were using the smaller channel for migration or feeding purposes. Based on the data received and the direction of the detections, it is possible that one of these individuals was within the aquaculture bed (Sand Island North bed). Sturgeon have limited access to higher elevation areas, as these areas can be dry during low tides and accessible only during higher tides. Because access to these higher elevations of the intertidal zone is temporally limited, sturgeon access must be opportunistic and quick.

At 1017, the individual that was observed in the smaller channel at 1016 had swam past the boat and turned in a northerly direction and swam up into the smaller western channel (GS5). In a short amount of time (1-minute), an acoustically tagged individual moved from a smaller channel adjacent to an existing aquaculture bed and into the main Arcata Channel and then swam up the Arcata Channel and into a smaller channel (GS5 area on Figure 1). It appears that Green Sturgeon are frequenting higher elevation areas of the intertidal zone as evidenced by these observations. Furthermore, it is clear the movements can occur quickly, as one individual passed through three different channels in less than one minute of time.

Based on observations of Northern Anchovies fleeing onto higher elevations (and into eelgrass habitat) as the tide was rising, it appears Green Sturgeon might be pursuing anchovies into areas of higher elevation from the deeper channels as the tidal elevations provide enough depth for their access. If Green Sturgeon are predominantly feeding on anchovies in Humboldt Bay during portions of the summer, it is likely that sturgeon would follow anchovies as they seek cover from predation in eelgrass habitats or within the structure provided by shellfish aquaculture beds.

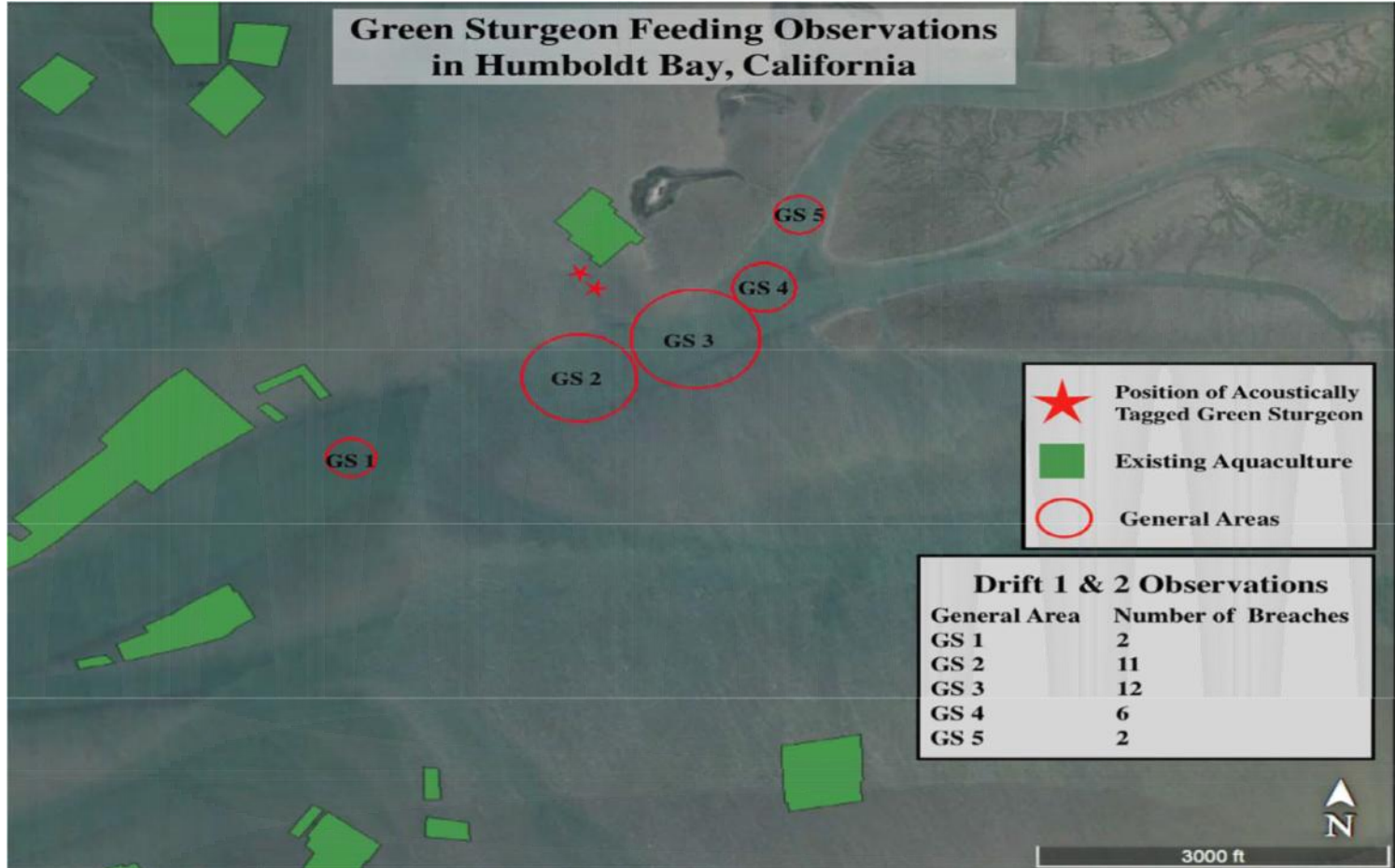


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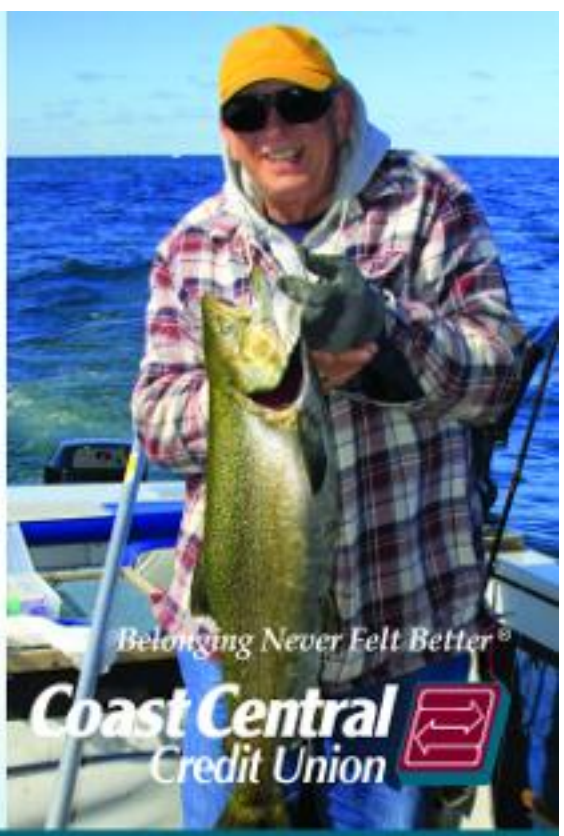
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Report on the State of Eel River – Organizing for Sustainability in Willits

By Patrick Higgins

The Eel River Recovery Project (ERRP) is hosting a meeting at the Willits Environmental Center on Tuesday evening, November 15 from 6-8 PM to report on the state of the Eel River based on five years of data collection and to have a community discussion on building a sustainable culture compatible with maintaining aquatic ecosystem function. ERRP Managing Director Pat Higgins will present and then lead discussions.

ERRP has been working with citizens to support volunteer monitoring and data collection throughout the Eel River watershed since 2012 to help assess the health of the river and its tributaries. Collecting data with watershed residents helps each better understand the condition of their creek or river reach, but it also gives them data they and their neighbors can trust about flow and water quality trends. ERRP does not get involved in advocacy and avoids assigning blame, if scientific results suggest ecological deterioration. Instead ERRP has been working to get more information to rural residential land owners, including cannabis farmers, about how to conserve water and to prevent water pollution by creating a farm plan and implementing sustainable agricultural practices.

The State of the Eel River talk will include a discussion of fall Chinook salmon population trends, pikeminnow abundance and distribution, water temperature patterns based on hundreds of probes deployed, and the extent of toxic cyanobacteria proliferation in the Eel River. Although cyanobacteria, also known as blue-green algae, have always been present in the Eel River, it wasn't until around the year 2000 that it began to develop toxic blooms that have proved fatal to dogs. The University of California Berkeley has assisted ERRP since 2013 in studying cyanotoxins and study results suggest that problems are most acute in middle reaches of the South Fork Eel River.

After collecting data for several years, ERRP concluded that work was needed within the community to conserve water and prevent water pollution. The State Water Resources Control Board (SWRCB) funded an Eel River citizen monitoring and educational outreach project beginning in May of 2015 that not only provided support for citizen monitoring, but also for substantial outreach to the cannabis culture to promote agricultural best practices. Pat Higgins will report on the success of this project where 70 cannabis farms were visited and experts rendered technical advice on improving practices to help increase stream flows and to prevent pollution, including erosion. Data from each farm is confidential but the summary data show that there is additional need to help cannabis farmers increase water conservation efforts. Also, roads to rural farms were consistently shown to be sources of erosion and potential triggers for mass wasting, if not improved.

ERRP is working with the North Coast Regional Water Quality Control Board to secure a Phase II SWRCB grant that would allow more work with cannabis farmers in the Eel River. Project components envisioned include providing technical assistance to another 100 cannabis farmers, holding several model farm tours to demonstrate best practices, working with watershed groups to do basin-wide water conservation and erosion control plans, and creating best practices “drop-in” centers at three locations. The Willits Environmental Center would be one of the drop-in centers along with locations in Laytonville and Garberville. Farmers could obtain maps at these centers of their parcels that show landslide risk, sensitive riparian zones and other essential information for sustainable farm planning. Those in attendance will be asked about the desirability of such services being rendered and whether the WEC is an appropriate location. Upper Outlet Creek tributaries flow through Willits still have runs of Chinook salmon, coho salmon and steelhead and healthy upper reaches above town. Ways to lessen urban stream impacts and the benefits of supplying best practices information to urban gardeners will also be discussed during the evening.

ERRP's fall Chinook monitoring of the 2016-2017 run is currently on-going, and a report on early run signs will be covered during the evening presentation. Tracking the run in Mendocino County is funded by a grant from the Salmon Restoration Association in Fort Bragg. Anyone seeing spawning or migrating Chinook salmon is encouraged to bring information to the meeting or to call 223-7200.

The meeting will begin at 6 PM at the WEC at 630 South Main Street in Willits. There is no charge for admission and some food and refreshments will be served. ERRP has recently been recognized as its own 501c3 non-profit corporation and is requesting that people join as members. See www.eelriverrecovery.org to sign up or send \$25 for an individual or \$35 for a family to ERRP, P.O. Box 214, Loleta, CA 95551.



ERRP Fall Chinook salmon coordinator Eric Stockwell photo documents Chinook salmon in the lower Eel River in early October.

Humboldt Bay Harbor District Steps Up to Help Out

By Pat Higgins

The Humboldt Bay Harbor, Recreation and Conservation District was formed by California legislative action and also by an initiative of Humboldt County voters in 1972. The District runs the Port of Humboldt Bay and has jurisdiction over tidelands, but it was also vested with other areas of jurisdiction, including coastal estuaries and the access to the ocean at Shelter Cove. We have been partners at Shelter Cove helping maintain access in a significant way. An example is former Second Division Commissioner Roy Curless spear-heading the drive to rebuild the breakwater in Shelter Cove, which cost \$1.5 million granted by the Division and Boating and Waterways, and took over a decade to complete. The local governmental entity is the Shelter Cove Improvement District, but it lacks the capacity and jurisdiction to obtain and administer large grants and to cope with some side effects of commercial and sport fishing.



Shelter Cove fish cleaning station on July 27, 2016.

The original nexus for Harbor District involvement at Shelter Cove was to help the community cope with the fish waste that came along with the bounty from the amazingly productive near-shore waters. Fish guts and skeletons littered the beach or were dumped in nearby trash or along the road side. To abate this public nuisance, the Harbor District acquired grant funding for a fish cleaning station that has served the community very well, but has not been without problems. Pelicans were attracted to the outfall in 2013 when there was an over-abundance of young birds and the point of discharge was modified to abate the problem. The State Water Resources Control Board, however, recently designated Shelter Cove as an Area of Special Biological Significant and has requested removal of the fish cleaning station. The Harbor District began mulling creative solutions and scoping the community for ideas.

In addition, the area immediately next to the fish cleaning station and launch has been in disrepair. A former tenants property improvements were lost in a fire in 2015, leaving a burned out ruin as a back drop for access to one of the most spectacular places to launch a boat and fish on the West Coast. Also, the tractor launch service was not consistent in its operation and anglers sometimes waited for hours to get their boats on the water. Luckily, the Harbor District came up with a solution for the fish cleaning station, improving the launch service, and a significant level of increased services in the area at the top of the boat landing ramp.



Harbor District crew doing a smooth pick up and there was no wait for incoming service. 7/27/16.

The Harbor District had three meetings at Shelter Cove to hear about community needs and what residents there would like to see. As a result the Harbor District brokered a lease directly with land owners David Smullens, who owns the area around the launch, to operate the boat launching concession. Our lease will also allow us to get resources to improve the infrastructure to support the commercial and sport fishing fleets. The Harbor District purchased two tractors capable of with-standing the salt water to make sure that there were no slow-downs for launching due to equipment failure. Harbor District staffers who had formerly been based at Woodley Island helped set up our new launch service and we hired local folks of caliber to provide consistent service to the community. All reports back are that people are delighted with the shorter waits and reliable availability of the team to pick them up after fishing without too long a wait.

The Harbor District is getting a grant to get freezer capacity to take fish waste from the fish cleaning table and preserve it for crab bait. Fish offal will be collected by an organic fertilizer producer. In addition, we are seeking another grant to build a suite of buildings to house the launch tractors, to buy and sell fish and to purvey supplies to sport and commercial fishermen and the public. The plans for building improvements are exciting and the project could happen by 2018.



Conceptual drawing of new Shelter Cove building that the Harbor District is pursuing a grant for. By Harbor District Engineer Mike Foget.

The Harbor District was spending about \$20,000 per year to maintain the fish cleaning station. Since our staff assumed fish cleaning station duties, and our boat launching services and other fees helped us get almost into the black, we were able to be more fiscally responsible and increase public service. As a Harbor District Commissioner, I am extremely happy for us to be able to assist the Shelter Cove community and to be able to make the access to the ocean easier and affordable, while also improving the visual appeal of the land surrounding the ramp. We think we helped improve the experience of both local anglers and those visiting. In the long term, we hope to work in partnership with the community to help improve economic vitality.

Humboldt Currents

By Casey Allen



The cover photo on this issue is actually from 2010 when **Bert Colbert** obtained his Hydra Sports, later to be named Bankers Hours. The eucalyptus trees north of the Coast Guard station are always a great backdrop for photographs

Congratulations to **Jimmy Yarnall** who was appointed to the PFMC Salmon Advisory Subpanel. That leaves Bob Smith as HASA's lead salmon representative and an opening for another rep. It is good to know we have great people working to maintain a sustainable recreational salmon fishery.

Unfortunately we have to announce the resignation of HASA Director **Jed Douglas**. Jed has accepted a position in Marin County and will be living in the San Francisco Bay Area. He plans to return to Humboldt County in about 10 years and wants to return to service with HASA. We thank Jed for his valuable contribution and will welcome him back in 10 years.

The Trinidad Pier Youth Fishing Tournament was a huge success with 96 kids participating. Here is the news release provided by Ken Jones.

It was windy the night before but Sunday, September 25, 2016 turned out to be a beautiful day at Trinidad, the small town located on California's scenic redwood-forested, northwest coast just 24 miles north of Eureka. It was a perfect day to go fishing!

Luckily, a kids fishing derby just happened to be scheduled at the Trinidad Pier. The event was the 3rd Annual Trinidad Pier Youth Fishing Derby sponsored by United Pier and Shore Anglers of California (UPSAC), the Cher-Ae Heights Indian Community of the Trinidad Rancheria, the International Game Fish Association (IGFA), Humboldt Area Saltwater Anglers, Pacific Outfitters, and the California Department of Fish and Wildlife.

Free loaner rods and reels, free terminal tackle, free bait, free hot dog lunches, raffle prizes, and a winner in each age group helped generate excitement. In response, 96 youngsters turned out to enjoy the short-sleeve weather and fishing which, although a little slow, did produce a variety of fish—cabezon, buffalo sculpin, kelp greenling, and shiner perch.

As at the previous tournaments, a large group of parents and friends, estimated at 200+ people (not counting dogs) also attended making this a true family event, one full of smiles and good-will.

Each age group had a winner with each winner receiving a trophy, a beautiful certificate from the International Game Fish Association (IGFA), and an autographed copy of Pier Fishing in California by Ken Jones

Age group winners: 3-5-year-old winner—Malaki Costa (Trinidad); 6-year-old winner—Sonny Hopper (McKinleyville); 7-year-old winner—Dylan Collart (McKinleyville); 8-year-old winner—Jasiah Wheeler (Trinidad); 9-year-old winner—Jocelyn Sundberg (McKinleyville); 10-year-old winner—Emma Sobehrad



HASA Director Michael Davies-Hughes and son Brennig at the Trinidad Pier Youth Fishing Tournament. "It was a fantastic event indeed. The image of seeing all those kids holding fishing rods and having a good time with their families will stay with me for a long time."



(McKinleyville); 11-year-old winner—Gabriella Davidson (Trinidad); 12-year-old winner—Andrew Leverett (Eureka); 13-year-old winner—Devon Rodriguez (Trinidad); 14-year-old winner—Alaura Romo (Eureka); 15-year-old winner—Cameron Romo (Eureka). Four of the winners were repeat winners—Malachi Costa who won in 2014, Sonny Hopper, Jocelyn Sundberg and Alaura Romo who won or tied their age group divisions in 2015.

Donating money, food and gifts for the meals, insurance and prizes was a variety of different groups and businesses—Cher-Ae Heights Indian Community of the Trinidad Rancheria, Humboldt Area Saltwater Anglers (HASA), Pacific Outfitters, United Pier and Shore Anglers of California (UPSAC), Ken Jones—Pier Fishing in California (pierfishing.com), and Ed Roberts. A custom built rod made by Dan Troxel of BassMan Dan's Custom Fishing Rods was raffled off with proceeds going to help pay next year's costs.

Organizers were Ed Roberts of the California Fish and Wildlife Department, Ken Jones of United Pier and Shore Anglers of California (UPSAC) and pierfishing.com, and Grant Roden of the Cher-Ae Heights Indian Community of the Trinidad Rancheria.

Helping out at the event were a number of different people, especially a group from the California Department of Fish and Wildlife—Mary Patyten, Carrie Wilson, Dan Troxel, Dustin Hixon, Matt Wells, Dave Walker, Rob Mengel and Ed Roberts.

HASA President **Scott McBain** gave a presentation on the Pacific halibut allocation to the Fish and Game Commission at a public meeting in Eureka on October 19th. He did a great job explaining the history and how California got shorted when the total available biomass was raised by 170,000 pounds based on IPHC surveys conducted off the California coast. The California catch share was only raised 3,000 pounds with the rest of area 2A getting their percentage totaling 167,000 pounds. The sleight was lost on the Commissioners because CDFW Director **Chuck Bonham** pointed out what he thought was a huge success when we went from 1% to 4% before the IPHC surveys. He credited the work of CDFW personnel and the work of HASA to get that original increase but did not think there was a chance of getting more. He indicated that CDFW would not even try without more science and economic studies.

Tom Marking spoke on the subject last and explained further the lost opportunity, where we could have received the increase we want and all of 2A would still have received increases. That is water under the bridge. Now any increase we receive will have to come from some other group's allotment. Future decisions will likely be purely political.

HASA and other NGO's have joined the Golden Gate Salmon Association (GGSA) in opposing Senate Bill 2533 introduced by Senator Feinstein and HR 2898 (Valadao). The drought bill is designed to maximize water usage and deliveries during drought conditions but at a huge cost to Central Valley salmon. You can read the GGSA's opposition letter [here](#).

HASA is continuing to follow many marine management programs. The Marine Protection Area baseline studies have been released for the North Central Coast and the North Coast will be released next summer. The reports can be seen at <http://oceanspaces.org/>.

Another project is the "Harmful Algal Blooms and California Fisheries" which will study the effects of algal blooms (HABs) like the one that produced domoic acid in Dungeness crab. The project is managed by the California Ocean Science Trust and the Ocean Protection Council, with the goal of understanding the effects of HABs, their predictability, and develops measures to minimize the impacts. With ocean conditions changing with the climate we could see an increase in these events.

The Marine Life Management Act is being amended and from what I have learned it is a high level busi-



ness tool. The CDFW and their contractor, Strategic Earth Consulting, are trying to get the most out of their resources by managing the marine issues by priority, solving the issue, and putting it to bed for many years. Then move to the next priority. This will save money and use fewer people. The amendment process will be like any other modern fishery project with multi-agency, NGO, and public input. The following sums it up:

“The Master Plan amendment will not change fishing regulations directly. Rather, it will establish priorities, policies, and approaches that will guide management in the future, making management more consistent and predictable. These policies are anticipated to include identifying fisheries that will most benefit from fishery management plans, identifying tools for assessing fish stocks and managing harvest, understanding when and how to consider socioeconomic impacts, how to integrate the marine protected area (MPA) network into fisheries management, and how best to engage stakeholders and build partnerships with fisheries managers.”

Check out their blog [here](#). HASA will continue to keep you informed through this newsletter, our [web-site](#), Facebook, and the Humboldt Tuna Club discussion board.

I was fortunate to be invited to fish for science aboard Reel Steel with Captain **Tim Klassen** in pursuit of lingcod. We fished with graduate student **Laurel Lam** of Cal State Universities Moss Landing Marine Laboratories. Her goal was to collect 100 lingcod in two days of fishing out of Eureka. She was working her way up the Pacific coast, fishing with charter boats from most major fishing ports, to gather data on lingcod, like age to weight ratio, in an effort to determine the health of the species. I fished the first day with four other anglers and was excited to learn we would be fishing Reading Rock, a place I've never been. It was a two and a half



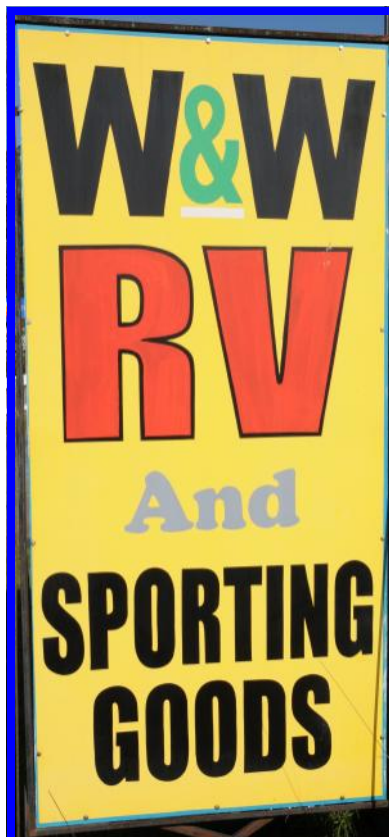
hour run from Humboldt Bay on a fairly good ocean. We arrived around 10am and the fishing started slow. But Captain Klassen moved us around and soon honed in on the fish. By 2pm we had 65 lingcod on the boat that ranged in size from 16 inches to close to 20 pounds. We did not catch any really big fish. There were a fair number of rockfish caught but the lings dominated by far. The best lure was a swimbait, with flutter jigs doing well. The scampi tails did not work very well at all. The next day Klassen took his group to the Cape where the bite was slower. They caught the 35 lings to reach the goal of 100 but had to work to get it done. We will share Laurel Lam's findings when they become available.



Attention HASA supporters: Get your HASA hats, shirts, and beer glasses. Hats come in black and there are two “flex fit” styles. Shirts come in black and navy blue, option of long or short sleeved, and sizes are Large, XL, and XXL. Short sleeve shirts are \$15. Long sleeved shirts and hats are \$20. We also have a few original HASA shirts/hats from last year available if interested for \$15 each. Visit our website store at <http://humboldtasa.com/shop/> and don't forget to sign up for HASA membership.



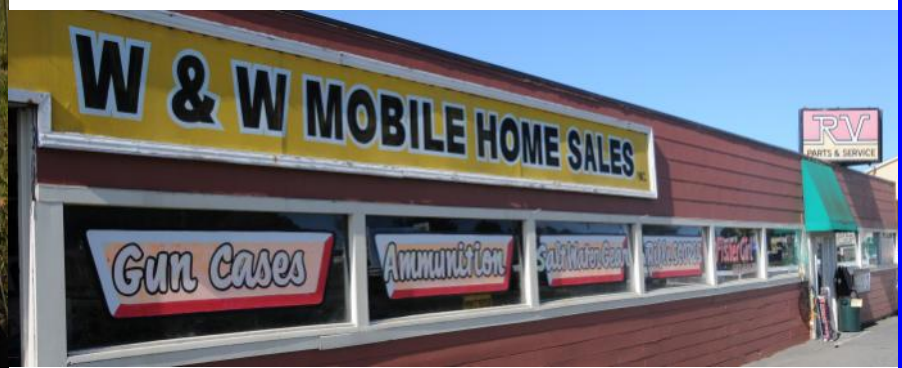
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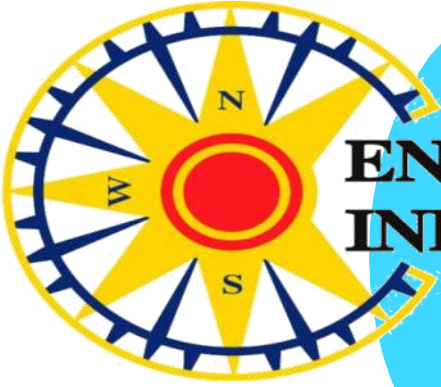


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