

HUMBOLDT AREA SALTWATER ANGLERS

A VOICE FOR SALTWATER SPORTFISHERS

2020 WINTER NEWSLETER

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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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All photos and articles in this issue are donated by HASA members and interested parties.

Submission of article topics and photos should be sent to summerchum@yahoo.com.

Comments are always welcome and should be sent to summerchum@yahoo.com.

HASA would like to expressly thank our friends for their time and contributions to our newsletter .

All HASA issues can be viewed at <https://humboldtasa.com/mdocuments-library/> and <http://humboldttuna.com/smf/index.php>

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This is issue #38.



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President's Message



Happy New Year, 2020! We have another great newsletter for you, with some very interesting articles. I wish I could only give you good news, but the preliminary salmon escapement on the Klamath River system is a small fraction of the pre-season forecast and will be at a decadal low. While the Sacramento River system is doing a bit better, the Klamath Management Zone (KMZ) will almost certainly limit us in salmon fishing this coming season. The rockfish and halibut and hopefully albacore will have to carry us through another tough year.

This newsletter also brings some important transitions. First, as I mentioned in the last newsletter, our new part-time Executive Director (Jenn Schwartzberg) is getting up to speed and helping make HASA more efficient and effective. You should continue to see improvements in our membership process, board meeting management, coordinating our fisheries representatives, improving our website and social media presence, budgeting and finances, and strategic planning.

Second, after 4 years as serving as the HASA President, I will be stepping down and transitioning to the capable hands of Larry DeRidder. As most of you know, Larry was one of the founding fathers of HASA, has been the Secretary from the beginning, and will do a fine job as President. Lastly, Ross Taylor will take on the role of Secretary, and will also do a fine job. Please express your appreciation and encouragement to both, we're very excited and fortunate to have their leadership for HASA. With all my new free time I am hoping to continue serving HASA by getting more engaged in improving the derelict crab gear removal program off our coast and developing a HASA presence for inland fishery management issues.

We're still revamping our merchandise process to facilitate easy ordering of t-shirts, hoodies, and hats, as well as membership and Annual HASA Banquet Tickets. Speaking of the Annual HASA Banquet, make sure to mark your calendar for the annual banquet on April 25 at the Arcata Community Center, starting at 6:00 pm. We've e-mailed out electronic ticket purchasing information to you via our distribution list (adult tickets only), and added a purchasing link at the top of our webpage next to the Membership link (www.humboldtasa.com). You can also get tickets at Bucksport, Englund Marine, and Pacific Outfitters in Eureka. Should be a great event as always, hope to see you there!

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

Note from Newsletter Manager: I need your help. To make this a better publication serving our membership I'm asking for HASA members to contribute articles and pictures that you think will be of interest to your fellow fisher. If you know somebody that would like to contribute an article please get them in contact with me. We have also started a new feature "Fishing Tips". I invite you to contribute any fishing tips you would like to share or even a unique story of something that happened to you out on the water. We have also included a fish recipe in this issue. If you have a favorite recipe for your catch and want to share it, send it along.

We are also looking for additional advertisers for the HASA newsletters. Our newsletter is sent out to hundreds of anglers each quarter, so it is a good place to advertise your business. Email me (summerchum@yahoo.com) if you or a colleague is interested in advertising in our newsletter; we can provide rates for different sizes of ads from business cards to full page.

Please submit any articles to me at summerchum@yahoo.com, The deadline for submission of materials for the Spring newsletter will be somewhere around mid-April. Please contact me if you have any question.

Thanks
joe



HUMBOLDT AREA SALTWATER ANGLERS

HASA

Presents:
2020 Fundraiser
B.B.Q. Dinner and Auction
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Recreational Crabbing Proposed Changes

By Jim Yarnall

As you are probably aware, whale and sea turtle entanglement in fishing gear has come to the forefront in the last several years. Whales and sea turtles on the west coast have been entangled in various types of fishing gear, ranging from drift nets, longline gear (blackcod/sable fish), lobster traps and crab gear. Since 2014, there have been 48 confirmed CA Dungeness crab gear entanglements, including three from recreational crab gear. There have been 102 entanglements from unknown gear types in CA. It should be the goal of every fishery to be as clean as possible by minimizing the unintended bycatch, but also recognizing that every fishery has some bycatch.

The Dungeness crab fishery came to the spotlight several years ago when a perfect storm of events led to elevated entanglements. There were high levels of domoic acid that delayed the crab season opener until the spring, the forage fish which the whale feed upon were concentrated in shallow waters between San Francisco and Monterey, and the whales were migrating at that time. These events caused the crab gear, the forage fish, and the whales to be concentrated in a small area. Normally the crab season would have been winding down with less gear in the water and the forage fish further offshore. As a result of these elevated entanglements, there was litigation filed against the State of California, since it is a State controlled fishery, to reduce or eliminate entanglements. This led to the formation of a working group to address entanglements, comprised of commercial and recreational fishermen, environmental representatives and wildlife officials. The litigation was settled with an agreement that placed limitations on the CA commercial Dungeness crab fishery. To date, the recreational crab fishery has not been affected.

Changes will be coming to the recreational crab fishery possibly for the 2020-2021 season, but certainly for the 2021-2022 season. Please realize these regulation changes are still being developed and will likely be modified. Below is a list of bullet points which highlight the proposed areas of change.

Validation Stamp – an endorsement that will allow the State to gather information on the number of recreational crabbers, their effort, distribution and catch. This will likely be a “nominal” fee in addition to your fishing license.

Service Interval – a requirement that recreational crabbers must check their gear on a regular basis. This requirement will have a weather exception built in. The time interval has not been specified, yet but it will likely be a week or longer.

Trap Limit – currently, there is no maximum number of traps an angler may use. This would place a limit, yet to be determined, on recreational anglers. The number being discussed has been between five and ten traps.

Enhanced Buoy Marking – the goal is to reduce entanglements, but if an entanglement does occur, the State needs to identify which fishery the gear belongs to. The current proposal is to require recreational crab traps to be marked with a small float attached to the buoys of all sport traps. This will be a unique configuration which only recreational crab gear would have.

Director Authority – this would allow the Director of CA Fish and Wildlife to modify or delay the seasons without going through the current procedure of the CA Fish and Game Commission, which is not a rapid and efficient method for taking actions in response to elevated whale entanglements.

HASA, in conjunction with Coastside Fishing Club and Coastal Conservation Association, has been meeting with CA Fish and Wildlife staff to accomplish the goal of reducing entanglements from the recreational fishery while minimizing the impact to recreational fishing. HASA has also highlighted the need to address the removal of derelict gear to reduced entanglements and bycatch. There should be a State approved process for this later this year.

For additional information on entanglements and best practices there is additional information at:

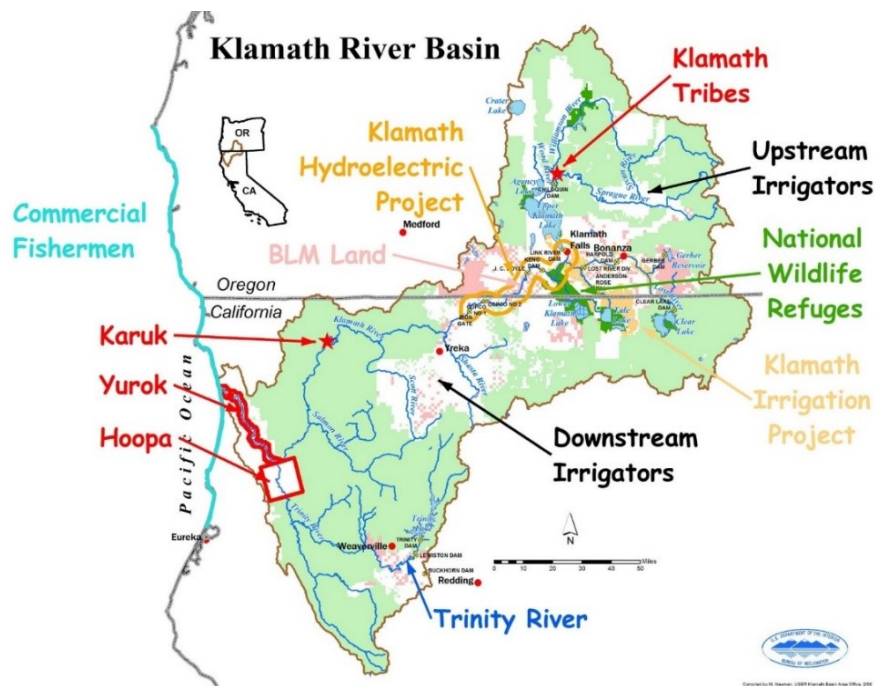
<http://www.opc.ca.gov/whale-entanglement-working-group>

<https://wildlife.ca.gov/Conservation/Marine/Whale-Safe-Fisheries>

Getting to Yes: Dam Removal on the Klamath River

By Mike Belchik, Yurok Tribe Fisheries Program

Straddling the border of Oregon and California, the Klamath River is one of the most diverse, interesting, and productive rivers in the world. The Klamath River begins in the high desert country of Oregon which is paradoxically filled with lakes, wetlands, and large springs where entire rivers spring from the ground. As the river plunges into the basalt canyons of the upper Klamath reaches, it picks up speed and winds its way through the Klamath Mountains between the Siskiyou, the Marble Mountains, the Salmon Mountains, and the Trinity Alps. By the time it reaches the coast, the river is traversing a temperate rainforest on the Yurok Indian Reservation.



The Klamath River Basin

The Klamath River is an “upside down” river. The Klamath Irrigation Project, which encompasses over 250,000 acres of cropland supplied with Klamath River water, is near the headwaters. The river then becomes wilder as it moves downstream. Before the river reaches the Klamath mountains, however, it is dammed not once, but six separate times. The first dam, Link River, is located at the outlet to Upper Klamath Lake, a natural lake, but whose outlet is controlled by a dam. Upper Klamath Lake is home to two endangered suckers, known as Kopto and Tschwaam by the Klamath Tribes. The next dam (Keno) replaced a natural rock reef that was blasted out of the way. The next four dams (JC Boyle, Copco 1, Copco 2, and Iron Gate) are owned by PacifiCorp and generate a modest amount of electricity. The Klamath Irrigation Project withdraws large amounts of water from the river which decreases its flow and introduces a lot of nutrients to the river via agricultural return flow. PacifiCorp’s hydroelectric dams block fish passage, increase fall water temperatures, breed toxic algae, and often facilitate fatal fish diseases that spiral out of control and reduce salmon production of the Klamath River below Iron Gate Dam..



The foot of Iron Gate Dam, located 190 miles upriver from the mouth of the Klamath. To the left is the emergency drain tunnel (never used). Left center is a fish ladder that leads to a collection facility for the hatchery. To the right is an electric generation turbine that is fed by the penstock pipe in the far right background.

The Klamath River has an incredible diversity of native and anadromous fish and is a central axis of identity and culture for native American tribes. These Tribes have always lived and fished on the Klamath River, and every run of fish was, and continues to be, important to them. The Klamath features three runs of Chinook salmon (fall, late-fall, and spring-run), Coho salmon, three runs of Steelhead (fall, winter, and summer), two runs of Lamprey Eels (winter and spring), coastal Cutthroat trout, Green sturgeon, Eulachon (candlefish), and many other lesser-known native fishes. All are important to the functioning of the ecosystem of the Klamath River, but management tends to focus on Coho salmon which are listed under the Endangered Species Act (ESA) and fall Chinook salmon which are a major focus of harvest management. Recent genetic work has identified the specific gene responsible for spring-run timing for Chinook salmon and summer Steelhead, and a petition to list these runs, which are quickly dwindling in the wild, as Threatened under the ESA has been submitted by various entities and tribes. The dams block hundreds of miles of former spring-run Chinook salmon habitat, and their historic presence in the upper Klamath river has been verified by DNA analysis of bone fragments that are hundreds or thousands of years old.

When PacifiCorp's dams came up for relicensing in 2000, the Yurok and Karuk Tribes began to talk about the need to study dam removal as a possible outcome of the relicensing. After conducting studies about the cost of fish passage, the cost of dam removal, the effects of the dams that could not be mitigated (i.e. temperature, downstream fish passage), and the quantity and quality of habitat that exists above the dams, the Tribes and others became unified in their public position that the dams needed to come out. The Tribes conducted technical studies, filed appropriate documents with the Federal Energy Regulatory Commission (FERC) who oversees dams in the US, planned and executed direct action campaigns and media work in Scotland, Omaha, Portland and Sacramento, and eventually entered negotiations with PacifiCorp. Driving these negotiations were mandatory fish passage requirements imposed by the National Marine Fisheries Service, which would be far more expensive than removing the dams. This was a game-changer for the dam removal discussion.



*A Karuk Tribe water quality technician collects a toxic algae sample from Copco Reservoir in 2006. Concentrations of this algae (*Microcystus*) cause the reservoirs to be posted for no human contact nearly every year. When the algae blooms die off, the toxin enters the water and is found all the way to the mouth of the Klamath River in amounts high enough that the water can be unsafe for human contact.*

After the fish passage requirements survived PacifiCorp's court challenge, negotiations began in earnest. PacifiCorp was now willing to talk about removing the dams because it eliminated the risk of them having to pay for expensive upgrades for fish passage without being able to recover the cost from their electric customers. In 2010, the Klamath Hydroelectric Settlement Agreement (KHSA) was signed in tandem with the Klamath Basin Restoration Agreement (KBRA) which called for increased river flows, fish restoration and massive water quality improvement investments by the Federal Government. The KHSA called for dam removal in 2020, and for PacifiCorp to pay the first \$200 million and for the state of California to pony up \$250 million more if needed to complete the job. The United States government agreed to be the dam removal entity in charge of contracting and shoulder the liability if something were to go wrong. The United States would conduct needed dam removal analyses and the Secretary of Interior would decide whether dam removal would accomplish fish restoration and determine whether dam removal was in the public interest.

The Federal Government did a mountain of studies on the effects of dam removal. Numerous mud cores were drilled in the lake sediments and they were tested for toxic chemicals and heavy metals. These tests came out negative. Because the Klamath River starts as a full-sized river with virtually no sediment load, the total amount of sediment stored behind the dams is relatively small for that size of a river, and most of it is very fine clay or smaller particles that are expected to remain in suspension all the way to the ocean. Fish production was modeled, and every aspect of removal was heavily scrutinized.

The KHSA and KBRA needed Congressional authorization for funding, and to authorize removal of privately-owned dams as a legitimate governmental activity. However, it soon became clear that to some in Congress dam removal represented a poison pill and was something they could not stomach; no matter the benefits, despite the desire of PacifiCorp to be rid of these liability-ridden assets and the results of the federal studies.

However, in 2016 a glimmer of hope appeared. The states of California and Oregon met with PacifiCorp and renegotiated the KHSA in a way that did not need Congressional approval or any federal funding or direct involvement. Instead of having the Federal Government as the dam removal entity, the amended KHSA called for the formation of a non-profit who would take possession of the dams for the sole purpose of removing them. Shortly after, the Klamath River Renewal Corporation (KRRC) was formed and together with PacifiCorp, they filed an application to FERC to transfer PacifiCorp's hydroelectric license to KRRC for the ultimate purpose of surrendering the license and removing the hydroelectric project.

The preliminary plans are to drain all four reservoirs (JC Boyle, Copco 1, Copco 2, and Iron Gate) in the winter when the river already has naturally high suspended sediment loads. Although some fisheries impacts are expected, experience on other rivers (Elwha, Rogue, Sandy, White Salmon) that have had dams removed indicates a quick recovery can be expected. Once the reservoirs are drained and any flood risk has passed, the dams will be quickly removed. All dam materials and debris will be removed from the riverbed and the river will be left in a free-flowing state. Each dam is different, so the exact details of demolition vary depending on the dam. It will be the largest public works project in Siskiyou County since the construction of Interstate 5 and will provide thousands of jobs. Some work (gathering of native seed stock for replanting of reservoir areas) has already begun and more preparation work will begin shortly.

Due to permitting delays, the schedule for dam removal has been pushed back to 2022. PacifiCorp has collected the entire \$200 million from its customers, and that money is available for dam removal activities right now. The KRRC has begun its actions for dam removal, which involve extensive planning, liability risk coverage, etc. In 2019, the KRRC announced that it picked the primary contractors to conduct the work: Kiewit Infrastructure West, Inc. from Omaha Nebraska will be the primary construction contractor and Restoration Environmental Solutions (RES) Inc. from Houston Texas will be a sub-contractor to Kiewet responsible for planning and conducting restoration activities.

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However, significant obstacles remain. Permitting delays have eaten into the money resources needed for removal. Cost estimates have risen to near the \$450 million of available funds. FERC still must approve the deconstruction plan and has yet to begin any environmental analysis. Further delays could necessitate the need to find more money to complete the project. Some local entities in Siskiyou County remain opposed to dam removal, even as PacifiCorp seeks to remove these risky, liability-ridden dams. Early this year, after KRRC submits the maximum cost estimates to FERC, FERC will consider whether to approve the transfer and surrender of the dams and whether KRRC's deconstruction plan is sufficient. We hold our breath as we wait.

At its heart, dam removal is a fish restoration project. It will be the largest fish restoration project in the world. It will restore access to cold water springs and hundreds of miles of habitat. The road from literally being laughed out of meetings for daring to say the dams should be removed in their entirety to where we are now standing on the brink of removal was a long one. Many people and organizations contributed time, energy, funding, and creative ideas to make dam removal a real possibility on the Klamath River. Our aim here is to revive a lost run of fish; the upper Klamath spring-run Chinook salmon, as well as revitalize other runs of native fishes. The failure of the fall-run Chinook salmon runs in the recent years serves as a stark reminder that we're running out of time. Undam the Klamath. Now.

Macadamia Nut Encrusted Salmon with Creamy Garlic Butter

From Jenn Schwartzberg

Ingredients:

- 4 salmon fillets (skin optional)
- 1 egg (beaten)
- 1 cup crushed macadamia nuts
- Coconut oil (to fry in)

Sauce

- 2 tablespoon melted Butter
- Dash of granulated garlic
- 1 tablespoon Mayonnaise

Instructions

- Heat coconut oil in pan on high heat
- Dip fillets in egg then cover with nuts
- Fry in oil till golden, let settle on paper towel
- Whisk together sauce ingredients and spoon over fillets



Accompany with your favorite veggies and rice.

Fishing Advice: Two Fishing Tips

By Tim Klassen

Fishing technology has advanced so far in the last 20 years that it is a wonder that the fish even have a chance. We use satellite technology to tell us the temperature and color (and height) of the water's surface. We use satellite global positioning to find the exact right spot where we want to be. Besides looking directly beneath the boat our sonars now look to the sides and will even give us live action views of what is below the surface.



Reels get smaller and rods get lighter. The assortment of lures seems never ending.

So why don't we fill the boat with fish on every trip? Some people always seem to catch fish even when others are struggling. What is their big secret? Better electronics? Better tackle? The latest hot lure? Well, it's a little bit of all of those but there are two things that will help you catch more fish. One you can do right now and the other must be earned. Let's start with the second one first and that is "experience". Yep, just spending time out on the water. The more time you spend actually fishing, the more you are going to learn. Pay attention to what is happening around you. Are there any birds around? What kind? What are they doing? What does the water look like? Is it clear? Stained? Muddy? Does the water's surface have different textures? Are there current edges? Lines of debris? Have you tried fishing different depths? Trolling speeds? Lures? What worked and what didn't. Keeping a log can help you remember from one trip to the next. It's hard to beat experience but there is something that you can do right now to help you catch more fish. Use other people's experience. There are lots of places to get information from other fisher folks. The local tackle shops are a great resource. They know what is going on right now. They see what lure is flying off the shelf (it's the hot one). They know who is catching what, where, when and how. Internet sources like Humboldt Tuna Club, Coastside Fishing Club and others usually have up to date info plus you can look back and see what happened last week. Stop by the Charter boats when they come in and talk to the captains and deckhands. Just try not to interrupt their work.



The VHF radio can have good information; but remember if you're just talking you're not learning anything by gaining experience.

So that's it, two hot fishing tips. Remember that we are all in different places on our fishing journey. If you're a beginner ask questions and if you're an old salt then please share some of your experience.

Tim Klassen is the owner and operator of Reel Steel. Check out their web site at: reelsteelsportfishing.com. He can be contacted at Reelsteel@humboldt1.com or 707-499-4925.

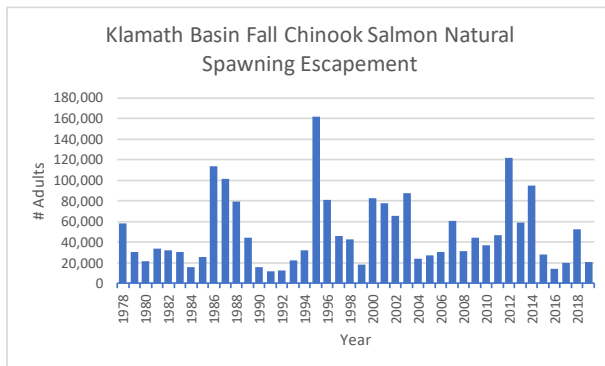
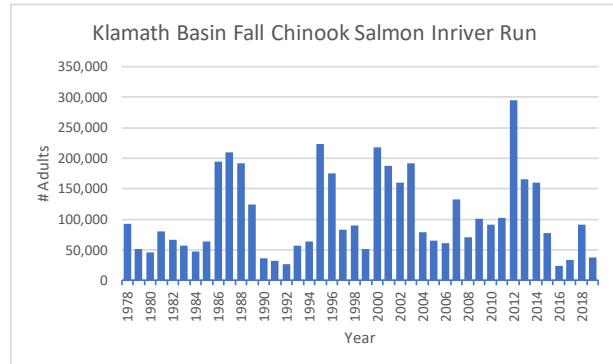
Klamath Fall Chinook Salmon Returns – 2019

By Joe Polos, incoming HASA Salmon Representative

The 2019 fall Chinook salmon run to the Klamath Basin was disappointing with only 37,270 adults returning, 38% of the projected run of 97,912 adults. Natural spawning escapement was only 20,245 adults (50% of the projection of 40,700) and hatchery returns to the Klamath River and Trinity River hatcheries totaled 5,178 adults (36% of the projection). Inriver harvest totaled 5,974 by Tribal fisheries (18% of their quota) and 5,365 by the recreational fishery (70% of their quota).

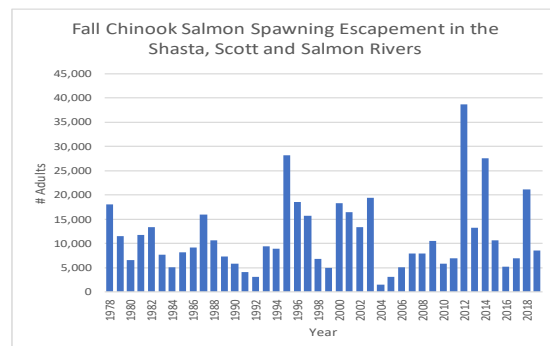


To put 2019 salmon returns in perspective, they are compared below to the previous 42 years of data. The 2019 inriver run was the 6th lowest observed since comprehensive harvest and escapement monitoring was initiated in 1978. Other discouraging observations of how poor the 2019 spawning escapement was: all natural spawners (8th lowest), Klamath River natural spawners (9th lowest), Trinity River natural spawners (7th lowest) and hatchery returns (4th lowest). Additionally, the natural spawning escapement in the Klamath Basin as not met the minimum floor of 40,700 adults in four of the last five years.



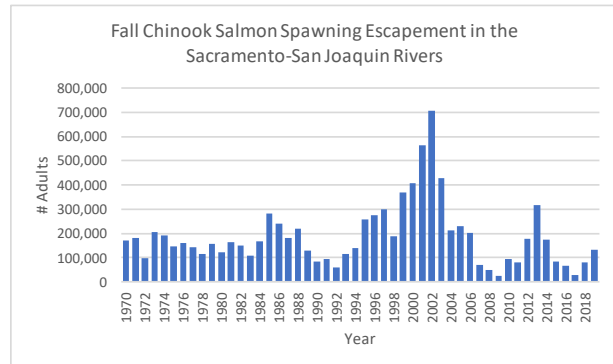
Klamath fall-run Chinook are considered in an overfished condition because of the low natural spawning escapement in recent years. The series of poor natural spawning escapements years and poor inriver conditions creating disease problems for outmigrating juveniles (see article on status of Klamath Dams removal) suppress both natural and hatchery production (since hatchery fish exposed to fish diseases in the river), which will negatively affect ocean fisheries for many years.

The only bright spot (or less discouraging) was the spawning escapement into the Shasta, Scott, and Salmon rivers (which ranked 20th). The Chinook salmon in these three rivers on the Klamath River are especially important because they have minimal interference from hatchery strays.



The jack return to the Klamath River in 2019 (9,991) was the 17th lowest (not terrible), but not so big to lead to a large projection of 3-year-olds in the ocean. Jacks are used to project the number of 3-year-old Chinook salmon in the ocean, so this number of jacks will result in a 3-year-old ocean estimate a little smaller than in 2019. The projected number of 4-year-old Klamath River Chinook salmon in the ocean will depend on the age breakout of the adults when that analysis is complete; but with the low adult return in 2019 this will likely be pretty small. So, unfortunately it looks like the ocean population of Klamath fall-run Chinook salmon will be small and result in significant fishery constraints, especially in the Klamath Management Zone (KMZ).

Sacramento Basin fall-run Chinook salmon are also a very important stock that significantly contribute to the harvest off our coast and influence harvest regulations. Sacramento Basin fall-run Chinook salmon natural spawning escapement was 131,942 adults, which ranked at 19th lowest in the 50 years of return data. While last year's return to the Sacramento Basin was decent, the low returns in 2016 and 2017 will likely influence harvest levels in 2020 along the coast. On the bright side, a total of 39,184 jacks (ranked 19th lowest) returned to the Sacramento Basin in 2019.



What is coming up? The California Department of Fish and Wildlife will host a meeting on February 27, 2019, in Santa Rosa, CA where they will present information on last year's harvest and river returns, and the outlook for 2020 ocean salmon fisheries. The Pacific Fishery Management Council (PFMC) will be meeting in Rohnert Park, CA from March 3-9 to develop alternatives for 2019 ocean fisheries and in Vancouver, WA from April 4-10 to select an alternative for this year's season. Currently, ocean stock assessments are being finalized and this information will be used to conduct ocean fishery impact modeling for the various alternatives developed during the March meeting. During many years, ocean recreational and commercial fisheries are limited due to the estimated population size of Klamath River fall-run Chinook. These restrictions are most extreme in the (KMZ, Humbug Mountain, OR to Horse Mountain, CA) but also impact areas up north to Coos Bay, OR and down south to Fort Bragg, CA. Due to the poor return of Klamath River fall-run Chinook salmon, it is likely that there will be severe restrictions imposed on local fisheries this coming summer. Other issues that can restrict the season and quotas include: (1) protecting the spawning populations of Sacramento fall-run Chinook salmon (this was the case in 2019), (2) limiting impacts on Coastal California Chinook salmon populations which are listed as threated under the Endangered Species Act, and (3) decreasing impacts on Klamath Basin spring Chinook salmon which usually limits an early season (~May) season opener, primarily in the KMZ.

We should know the draft season alternatives after the March 2-9 PFMC meeting and will provide an update as soon as those are developed. For more information concerning the development of the 2020 ocean fisheries, see the Pacific Fishery Management Council's web site: <https://www.pcouncil.org/council-meetings/upcoming-meeting/>.

Winter Groundfish Review

February 2020

By Tom Marking, GAP representative

PACIFIC HALIBUT:

The Annual International Pacific Halibut Commission (Commission) meeting was held in Anchorage, AK in early February. There were only three of us non-government types attending from 2A (Pacific States) Area; Mary, myself and a young Charter Captain from Westport, WA. I'm sure the expense of going to Alaska damped the enthusiasm of most folks. Even the Canadian contingent was much smaller than normal due to the flight expense. While the outside temperature was in the mid-teens, the temperature inside the Captain Cook Hotel was almost as chilly. The icy stares between the Alaskans and the Canadians kept us all isolated as has become the pattern. The distribution of halibut between the eight Areas continues to be an insurmountable stumbling block for the harvesters, the processors and the Commission members. There is an open hostility and resentment between the two Consenting Parties. The root of the issue is the Canadians are incensed that the Northwest Pacific Council continues to allow millions of pounds of small juvenile halibut to be killed by the factory ships and trawlers in the Gulf of Alaska (GOA) and the Bering Sea. Those small halibut do not grow and migrate down into the 2B (Canadian) Area or into the 2A Area. We all suffer the loss of this biomass. This is a longstanding issue and is more prominent with the declining Pacific Halibut stock. This was the crux of the stalemate two years ago, but an agreement was finally reached between Canada and the US for an interim distribution scheme: 2A now has a set 1.65 M lbs (Tribal Negotiations) and Canada has a blended 18.2% distribution allowance. That means Alaska is taking the largest share of the cut-back which they are incensed over, and it makes for very tense negotiations. This agreement will last until 2022.

The Commission passed the baton to resolve this mess to the Management Strategy Advisory Board subcommittee, of which I have been a member for the past eight years. We are supposed to resolve this impasse and bring back a report in 2021 on long-term management process that will alleviate this argument and provide long term harvest control rules that will keep the stock sustainable for many decades to come. That is a tall order...but we will do our best.

This past year the Scientists did a careful study of the ratio of females to males that are being harvested. The results shocked them with 80 to 82% of all harvest consisting of females. Needless to say, that is pulling down the population biomass since you are over-harvesting your brood stock. This immediately dropped the Spawning Biomass from 43% down to 32%, which is just above the level where mandatory harvest reductions are required. This was like throwing gas on the fire, so folks are not happy in Halibutville. Since there is no conservation concern... yet..., 2A will continue to get the negotiated 1.65 Million pounds, until 2022 where it's back on the table for discussion.

Locally, we had a tough year to harvest our halibut; only picking up about 19,000 lbs. (46% of our quota). This was partly due to rough weather, very dirty water, trawler activity and higher interest in salmon and albacore. We may have to seek out areas with less



bottom trawl activity, as this may be disrupting halibut behavior. With the Canary rockfish population being rebuilt, the trawl fleet has regained access into the Rockfish Conservation Area and mid-water trawling effort has picked up again. This trawl fishery had been shut out of these shallower areas for the past 20 years. We may have to modify our fishing behavior as a response to more trawl activity.



Finally, the Commission selected a three day non-tribal commercial directed fishery this year starting the fourth Monday in June. This is an attempt to end the derby fishery; we'll see how this works out.

ROCKFISH:

It does not appear that the California Department of Fish and Wildlife (Department) has plans to make any changes to the bag limit, sub-bag limits, depths or season structure from 2019. I had hoped we might be able to increase the bag limit for Black rockfish and Canary rockfish, but the Department is more concerned about stability in the bag limit. Even though we are leaving hundreds of metric tons of fish in the water that we are not being allowed to harvest. We are only attaining about 50% or less of Black rockfish and Canary rockfish harvest based on the Rec-Fin harvest statistics for 2019. However, this fact does not sway the Department officials and we will once again be restrained from pursuing allowable harvest levels. I encouraged the Department into one more fish of each species last year with an In-Season Action at the March and April PFMC meetings, which was opposed by the Department. We are into the next biennial cycle (2021/2022), so maybe we can take another shot at it for next year. From a numbers analysis, there was never a need to reduce our Black rockfish sub-bag below six or seven fish. It was an over-reaction that we are still being penalized for. In defense of the Department, they are short staffed, overworked and we just don't have enough political pull to get much traction on this issue. Maybe the next cycle will see some improvement, but I wouldn't place too large a bet on that happening.



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Another species of concern now is the Vermillion rockfish. It is co-mingled into a complex but there is definitely overfishing of this species. We are landing almost 100 metric tons over the Overfishing Limit, so expect action to reduce the harvest through a sub-bag restriction (probably a one fish sub-bag limit). The GAP has known about this for about three years but staff biologists have been putting this off for more pressing items. But now it has become front and center. This is a very popular species for the non-trawl commercial fleet as well as the recreation sector.



Lingcod should remain at two in the bag limit and it was interesting to find out that 48% of the lingcod in the State are assessed to be above the 40 d 10 min line; so we have a very large abundance of lings up here in our area. And ours tend to be much larger in average size than the southern area.

In early March we start the next round of PFMC meetings again this year. Salmon is always the hot topic for the March and April meetings, with groundfish, coastal pelagics, migratory fish, environmental concerns and forage fish scattered throughout the rest of the year. It won't be long now before the bottom fish season opens. Time to dust of the gear, get that maintenance done on the boat to be ready for the summer of 2020.

Good Fishing everybody.

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Cast Net Throwing

By Yoshi Uemura (Opportunity)

For those of you that want to catch a lot of bait really quick, I think using a cast net is the answer. There are many different methods used to throw a cast net and there are a lot of videos online that show you how. That's one of the ways I learned. I also read the instructions and looked at the pictures that came with my nets, but the videos are way easier to follow in my opinion. Be warned, there are a lot of different videos.

I watched a bunch of You Tube Videos online and I selected a good easy one that I then watched over and over again. Then I practiced that method to confirm that it was easy. It took a while to get the technique good enough so the net opens up upon throwing. I have to admit that I have to practice it every year before I go out so I can remember how to do it right. I selected a method that doesn't involve putting the lead line in my mouth or involve draping the net over my shoulder. I figured lead in my mouth or even just the line in my mouth was not a good idea. Getting wet by draping the net over my shoulder was also not appealing. I have tried those methods and was quick to reject them. I also used the shrimpers method because it was very simple, but I prefer the methods described in the two videos listed below.

How To Throw A Cast Net Step by Step - Captain Mike / ReelReports

How to throw a cast net - BEST WAY - Any size, No Teeth, Stay Clean! (By Cptn Cody)

Let's go over the main parts of the cast net:

Net - The net goes from the horn at the center to the lead line at the circumference. The size of the net is the open radius of the net.

Hand line - Attaches you to the net swivel. I use an elastic loop at my hand end of the line.

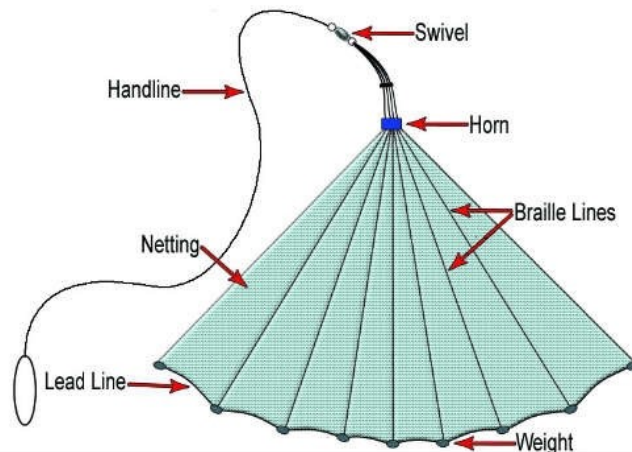
Swivel - Helps keep the net and hand line from tangling.

Horn - Center of the net that guides the brail lines and helps straighten the brail lines.

Brail lines - The lines that connect the swivel to the lead line around the circumference of the net.

Lead line - The lead weights on a cord around the circumference of the net.

Nets usually described as lbs. of weight per foot of radius.



So watch the videos on You Tube and select the method you think you want to try. You may find a method you like better than the ones I like to use. I will say that the videos with the scantily clad net throwers can be enjoyable and even informative to watch, you may not want that added distraction to effectively learn how to throw a cast net.

Whatever method you use, I think there are some things to remember:

- Clear, straighten and untangle the bail lines before you load the net to throw.
- Clear the net of debris.
- Coil the hand line evenly for smooth feed out when thrown and out of the net.
- Do not overpower the throw. It should be a smooth motion and follow through release.
- Practice a lot. Preferably over water or a grass lawn.
- The lead and the mono net will get beat up if you do it on pavement or cement.
- Know where you are throwing and what is under the water. Rocks will ruin a net.
- The hand line should not be tied hard to your hand. It should be looped loosely so it can slide off your hand if the net gets caught. You can even loop it on a cleat. I add a float to it so I can get my line back if it slips off.
- Pull the hand line up when you feel the net hit the bottom or you get near the end of the hand line. Slow steady pulls.
- The more lead weight there is around the net the faster it sinks.
- The finer the mesh the slower the net sinks.
- Find the best weight and mesh that works for your needs.
- I would stay with a 5 to 8 foot radius net so you cover more water per throw but still fairly easy to throw. I'd stay away from larger nets until you are better at throwing.
- The net gets heavy after a lot of throws. Swinging around 10 lb or more weight is work.
- I have two nets:
 - 6' with 3/8" mesh with 1 lb of weight per ft of radius. For Herring / Day fish.
 - 6' with 1/4" mesh with 1.35 lb of weight per ft of radius. For Night fish / Anchovies
 - If the mesh is too big for the bait, it will gill the bait as they get stuck in the mesh.
- **Practice, Practice, Practice.**

As a disclaimer, I will add that I get by with my level of net throwing proficiency and I get better the more I throw. The ideal situation in my opinion is to throw the cast net well and you will need to throw it less. Happy bait hunting to all.



Coming Soon to an Ocean Near You?

By Larry DeRidder

When I was a kid, my father worked at Lockheed. One of the perks for me was periodic fascinating peeks at science and engineering. One of those peeks occurred when he brought home a few manganese nodules, recovered from the deep ocean floor by the Glomar Explorer. (If you've never heard of the Glomar Explorer, it has a fascinating place in international politics and intrigue, and manganese nodule extraction was part of a deep cover story.) These small, rounded pebbles grow at such extreme depths that when brought to the surface many of them crack, revealing growth rings similar to those found in a tree stump. The nodules themselves are rich in copper, manganese, nickel and cobalt; some of the same minerals we've been mining on land for centuries. There is a high demand for some of these minerals as ingredients for the latest batteries in everything from I-phones to electric automobiles.



In addition to the minerals listed above, silver, platinum, gold, iron and even gemstones have been recovered. Locations have been mapped by oceanographers while mining companies have searched for a cost effective way to dig them up and transport them to a refinery. Forty-five years after Glomar was poking around below the surface, many of the world's largest mineral extraction corporations have initiated underwater mining programs. For example, on the west coast of Africa, the De Beers Group is using a fleet of specialized ships to drag machinery along the sea bottom in search of diamonds. In 2018 those vessels extracted 1.4 million carats of diamond from the waters off Namibia. Nautilus Minerals is working a site off Papua New Guinea where there is a field of underwater hot springs lined with precious metals. South Korea and Japan have each initiated projects off their respective coasts.

The really big issue is what will happen in open ocean waters outside the territorial claims of individual nations? There currently are no formal international regulations governing who, where and how much mining is acceptable. Technically, the United Nations has addressed this by creating the International Seabed Authority (ISA). As a practical matter however, the ISA is a very small sideline of UN activity housed in a couple of buildings in Jamaica. The ISA receives virtually no UN oversight, is classified as "autonomous" and has its own secretary general. This secretary general convenes a one-week meeting once a year. Attendees help select who gets to mine in which parts of the ocean. While they are drafting guidelines concerning waste disposal, ecological damage mitigation, and other aspects to these projects, about 30 mineral extraction companies already hold licenses to drag the bottom of large sections of the Pacific, Atlantic and Indian oceans. Most of the already-issued permits are for an area known as the Clarion-Clipperton Zone, which covers about 1.7 million square miles between Hawaii and Mexico. Once formal guidelines are agreed upon, these permit holders expect to dredge thousands of square miles of ocean bottom per year.



The extraction devices, as they exist now, basically drive slowly along the sea bed and dig up the top five inches of material. That material is sent via a suction tube to a ship at the surface where the nodules will be retained and the rest flushed back into the ocean. That discharge slurry will contain contaminants such as mercury which had been safely buried, but which now will be released back into the upper waters of the ocean. A study by the Royal Swedish Academy of Sciences predicted that each ship could release two million cubic feet of slurry per day. Other studies have shown much higher discharge estimates. Just how far the slurry spreads will depend on whether it is pumped back to near the seabed or poured out at the surface and on the whims of local ocean currents. The 2019 draft of the Mining Code doesn't specify a discharge depth. The ISA projects that slurry will travel no more than 62 miles from its discharge point, but other experts believe it will travel much further. Some underwater sites will be stripped of their upper layer, and down-current areas could become buried.

Mining protagonists insist that deep sea mining is possible in a way that won't ruin the environment. In fact they state that deep-sea mining has become mandatory. They point out that a single electric vehicle requires 187 pounds of copper, 123 pounds of nickel, and 15 pounds each of cobalt and manganese. There is currently a major push to get millions of electric cars on the road to reduce carbon emissions from vehicle exhaust. So, where are we to get the metals? Terrestrial mines create their own ecological issues and don't have the capacity to produce enough metal to satisfy the demands for the electric vehicles governments are mandating.

Bear in mind that this type of mining activity is not something we will see in our local waters. We're not talking about extraction from the continental shelf. When we are fishing albacore 60 miles offshore we're frequently in 8,000 - 10,000 feet of water. The international waters in question are often referred to as the "hadal zone" (named after Hades, the ancient Greek god of the underworld). It refers to any water more than 6,000 meters deep – about 20,000 feet below the surface. The technology and engineering skills to place anything that deep and expect it to function well are akin to landing on the moon and returning. The extreme pressure changes are difficult to imagine. Remember that every 33 feet of depth adds another atmosphere of pressure. Thus 99 feet down is four times normal atmospheric pressure; 300 feet down is about ten atmospheres of pressure, and so on. A mining vehicle at 36,000 feet is under two million pounds of pressure per square foot.

If everything continues as planned, there will be a vote sometime this summer in Jamaica which could forever alter the deep sea environment. How much effect that will have on the near-shore environment off California is impossible to predict at this stage. But some of the species we catch spend time out there – think albacore and salmon hundreds of miles from land, passing through waste sludge from a sea bed several miles below. Will long-established fish and mammal migration routes be affected? Will the food quality of fish from the region be degraded?

We all want engines for our boats, but resist oil drill platforms in our home waters. We all use electricity but (locally) have now rejected both an experimental offshore wave energy project and a commercial on-shore wind energy project. The next local proposal is an offshore wind-energy project and already the Not In My Back Yard cries have begun. We're pushing for more electrical vehicles and greater dependence on local renewable energy sources, but seem to have an instinctive aversion to projects to advance those goals. We live in interesting times!

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Mercury and the Marine Food Web

By Larry DeRidder

We all know that the ocean is a complex web of living organisms and their environment. New, and often surprising, interactions are found all the time. A recent study showed how over-harvesting one species or a slight increase in water temperature can lead to completely unexpected side effects. In this case the fish species involved were cod, Atlantic bluefin tuna, and herring.

In the last few decades we've become more aware of the dangers of ingesting mercury and increased our efforts to keep it out of the environment. Mercury emissions from human activities are particularly associated with burning coal. Probably the single largest natural source is volcanic emissions. Thanks to numerous efforts to reduce man-made emissions, levels of atmospheric mercury have dropped substantially from the 1970's. Though human-source emissions are continuing to decline, as recently as 2010 our activities are estimated to have produced 5,000 pounds of inorganic mercury emissions annually. When inorganic mercury rains back to earth microbes convert it into organic methyl-mercury, which readily clings to organic matter. When consumed it gets stored in fatty tissue and begins to work its way up the food chain. The higher you are in the food chain, and the longer you live, the more likely you are to accumulate an unhealthy level. Excess mercury in one's body has been associated with kidney failure, declining cognitive abilities, and even death.

What east coast scientists noted was that while mercury emissions were dropping, that trend was not necessarily duplicated in fish. Some fishes, such as spiny dogfish, showed the expected reduction in methyl-mercury. Others, such as the cod and tuna showed increases. Studies from scientists, including some from Scripps Institute of Oceanography in San Diego, analyzed the overall picture.

They noted that both spiny dogfish and cod prefer to eat herring. But of course humans eat herring, as well. In the 1970's herring were over-fished in the Gulf of Maine where these studies took place. As a result, local dogfish turned to eating more squid, which also contained mercury in amounts similar to adult herring. Cod, however, shifted to eating smaller and younger herring, which had less mercury. Thus the over-fished herring population resulted in healthier cod, from a mercury content point of view. Eventually government regulations kicked in, restricting the herring harvest. When the herring population recovered in the 80s, the cod resumed eating more adult herring, and their mercury content rose even as it was dropping in other species.

Water temperatures also appeared to affect mercury accumulation. Water temperatures in the Gulf of Maine have increased since 2000. As a result, migratory tuna must eat more to maintain their activity. Simply eating more fish seems to translate directly into increased mercury content in the bluefin tuna. There is a lesson there for us, as well.



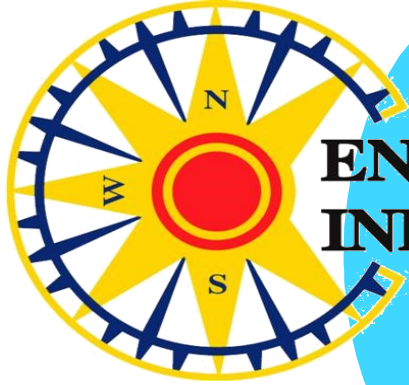
Various government and non-government organizations produce lists or charts of fish consumption recommendations. Two prominent lists include epa.gov/fish-tech (produced by the Environmental Protection Agency), and seafood.edf.org/guide (produced by the Environmental Defense Fund). The various lists don't exactly line up, but tend to agree that species including shrimp, tilapia, salmon, trout, sole, flounder, and ocean perch are low in mercury. Mid-level species tend to include Pacific halibut, sea trout, mahi-mahi, American lobster, and lingcod. Species high in mercury include shark, swordfish, marlin and bluefin tuna. In general high-content fish tend to be larger and longer-lived, reside at the top of the food chain, and consume a diet high in smaller fish.

Historically, scientists tended to focus on individual parts of whatever ecosystem is being studied. Now, water temperature changes, over fishing, the presence of other species and contamination levels are more frequently recognized as interacting with one another. Thus they must be studied as a system with built-in feedback loops, and unexpected side effects. One of those side effects is the amount of mercury which works its way into humans. A year ago the EPA proposed weakening mercury regulations as being no longer "appropriate or necessary". Needless to say, while some business interests are in favor of such an action, most scientists are opposed. As much as we would prefer to spend our time fishing, it is equally important that we stay tuned to the political scene that can affect our sport and our health.



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