

CALIFORNIA FISHERMEN'S RESILIENCY ASSOCIATION

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Value of Fishing Grounds California North Coast

Fishermen operating worldwide over the past one hundred years have been continually challenged by the steady loss of fishing grounds caused by non-fishing ocean development and challenges from regulatory restrictions. The list of these developments is massive — cable lanes, dumping grounds, oil and gas mining, military closures, fishery regulations, dredging, ocean sewer outfalls, marine protected areas, shipping lanes, etc. Wind power projects are beginning to consume extensive tracts of coastal fishing grounds in Europe and now in the U.S. With the approaching loss of thousands of miles of the U.S. West Coast fishing grounds to offshore wind development, State of California's permitting agency staff have begun asking "what is the value of California's fishing grounds?". The response to this question is difficult and complex.

For a non-fisherman stuck at sea on a gray, cold, rough ocean covered in white caps, a square mile of fishing grounds is a liability and something to endure. For a freighter or tanker enroute to some distant destination, the same ocean mile is just another one to tick off during the duration of the trip. However, windy ocean areas also have the most dynamic biological activities. Thermal and nutrient boundaries caused by upwelling can transform ocean areas from sterile blue deserts into areas of massive plankton blooms, complete with forage fish, whales, dolphins, birds, and commercial fish species in harvestable amounts. These are the areas, while constantly in flux, that fishermen work in.

For commercial fishermen, any given square mile of ocean fishing grounds can be individually, seasonally and over generations, highly valuable. Some of the fishing grounds with the highest value to fishermen are also the windiest. Wind power developers also think that these same windy areas have high value for their financial investments in offshore wind power projects. Wind power developers recently bid 4.5 billion dollars for the privilege of siting their turbine arrays on East Coast fishing grounds.

So, how much are those fishing grounds worth to fishermen, coastal fishing communities and our country's food security? Before we look at individual North Coast fisheries, it might be best to get a feel for the overall cumulative value of those fisheries as a baseline for this discussion and to better understand the long term value and importance to California's fishing economy. The best and most current reporting on North Coast fisheries can be found in the California Coastal Commission staff report TH8a (January 24, 2022). In this report, Coastal Commission researchers report that the recent average value of California north coast fish landings (ex-vessel value) is \$40,000,000 dollars. These landings constitute 26% of the state's entire seafood harvest. Also keep in mind that this forty million dollar figure is what was paid to fishermen and does not include economic multipliers for processing, distribution and end use sales, as well as all the ancillary businesses required to keep fishermen fishing. Here are some case by case insights into the value of one square mile of fishing grounds adjacent to the Humboldt wind energy area (WEA) in Northern California. Keep in mind that OSW developers presently believe that a floating wind turbine anchored on the seafloor of the Humboldt community fishing grounds will require a one square mile area footprint per turbine

Salmon Trolling

Ask any fisherman how much dollar value of fish could be harvested from a square mile of fishing grounds; you will get some surprising numbers. A California salmon troller working a two mile long "tack", trolling 4 lines, 40 feet apart in an area containing harvestable numbers of salmon can easily catch 40 to 80 fish per day. A really great day's fishing can yield a catch in excess of 150 fish. The average fishing day's catch equates to 480 to 900 pounds at \$10.00 per pound or about a \$7000 paycheck for the day. Each "tack" amounts to .66 square miles of area and it is reasonable to assume that if the fisherman tacks across this area ten times, he has fished about six square miles of area. The square mile average for that one boat on a single fishing day is \$1167.

Albacore Trolling

Let's look at the average catch of a vessel fishing albacore tuna with "hook and line" gear. An albacore fisherman using eight trolled lines, working in mid-July on one square mile of area holding schools of "biting albacore" could reasonably catch 150 to 200 fish per day (A high catch rate with troll gear can exceed 1000 fish per day). If the fish each weigh on average 12 lbs, then 200 fish x 12 lbs = 2400 lbs. Ex-vessel albacore prices average around \$3400 per ton. The value of the day's catch within that square mile is equal to \$4080.

Albacore, Pole Caught

In the Fall months, albacore schooling and feeding behavior changes, and these behavioral changes result in high catch rates for boats using "live bait" and poles. The same square mile of ocean holding dense albacore schools could look like this: Four "stops" in the square mile area in one day. Each "stop" yields 200 fish at 14 pounds (note - wide open "pole and line" fishing

can easily produce two or three times this catch rate). So, 4 stops x 200 fish = 800 fish at 14 lbs. is then equal to 11,200 lbs (5.6 short tons) at \$3400 per ton = \$19,040 per that one mile area.

Live Bait

Fall albacore fishermen require “live bait”, and typically use anchovies. Humboldt Bay is the only protected and permitted location in Northern California/Southern Oregon where it is possible to catch this bait; estuaries in Oregon are closed to this activity. The “bait hauler” in Humboldt Bay consists of two fishermen and a 32 foot boat designed to set and haul a 1120 foot long lampara bait net. Most of the fishing in Humboldt Bay takes place between the Coast Guard Station and the Samoa Bridge on the west side of the bay. Typically, the “bait hauler” will catch between 300 and 500 “scoops” of live anchovies per albacore boat. Using a low average of 300 scoops, bait fishing in Humboldt Bay looks like this:

300 scoops at 8 lbs per scoop = 2400 lbs of live anchovies. The price per scoop is currently \$6.00. 300 scoops x \$6 = \$1800 for the cost of the live bait for that one albacore bait boat. That's \$1800 for the two fishermen on the vessel making bait for the albacore boat, but here's the kicker — good live bait “pole and line” fishing generally yields one ton of albacore per 12 scoops of anchovies. It is reasonable to expect to catch 25 tons of albacore with the load of live bait caught in Humboldt Bay.

The combination of fishing looks like this:

Value of “live bait” for one vessel — \$1800

Value of Albacore landed by the vessel using “live bait” — \$85,000.

Humboldt Bay is also the proposed location for the siting of the assembly and storage of wind turbines destined for Northern California waters. The loss of the fishing areas inside of Humboldt Bay caused by displacement by OSW development can have a major negative impact on fall albacore fishing coastwide.

Dungeness Crab

A Eureka Dungeness Crab fisherman setting 200 crab pots on one square mile of crab grounds could easily expect to catch 15 crabs per pot on his first pull of the gear on opening day of crab season. Here is what that first day's fishing looks like:

15 crabs per pot @ 1.75 pound average = 26.25 pounds per pot

200 pots x 26.25 lbs. = 5250 lb. catch

@ \$4.00 per lb ex-vessel value = \$21,000

If that same fisherman worked the same square mile of crab grounds for sixty fishing days over a 180 day period and caught an average of two crabs per pot, on a 200 pot string at \$4.00 per lb, then the yield for the six month season is \$168,000. And, adding in the opening day, the resulting value of this one mile area to that fisherman is \$189,000.

Groundfish Longline

Before looking at trawl groundfish area values, another important gear type also harvesting a portion of the Groundfish resource is “hook and line” bottom contact longlining. A veteran longline fisherman operating a 60 foot steel longline vessel offered his fishing data for the summer of 2022. Let’s look at the results.

This fisherman and his crew fished twenty seven days as offshore weather permitted. Most of their fishing was in similar depths and areas as the anticipated OSW development in Humboldt and Del Norte counties.

This fishing vessel made two “sets” of longline gear per day. Each set was 2.1 miles in length. We will generally assume that this baited gear attracted sablefish from as far away as 300 feet on each side of the set. In reality, current velocity and direction may radically affect fish attraction to this gear, in that current running across the gear rather than parallel to the gear may cause no attraction of fish on the upcurrent side of the set gear.

Each set at 2.1 miles in length by 600 feet wide equates to 6,652,800 square feet of “fishing ground interaction credit”. Each set is equal to four tenths of one square mile of grounds. At two sets per day the total affected fishing grounds equals eight tenths of one square mile.

1 set = 2.1 miles in length x 600’ wide of affected (utilized) fishing grounds = .4 square miles
2 sets/per day = .8 square miles

This vessel’s gross ex-vessel income for sablefish for 27 days fishing was \$298,000.

The daily average:

\$298,000 divided by 27 days = \$11,037/day

\$11,037 also equates to .8 miles of affected fishing grounds, so what does 1 square mile of sablefish ground look like?

If .8 square miles is equal to \$11,037 then 1 square mile is equal to \$13,796

So, using this vessel’s season average of 54 sets, each at 4 tenths of a square mile, the average value of sablefish harvested from each square mile in the summer of 2022 was \$13,796.

What if this one vessel fished this area only once per season for twenty years and we did not account for inflation, etc. and only considered the 2022 value for this square mile? 20 years x \$13,796/sq.mile = \$275,920 per square mile, and this is only one boat of many that harvest sablefish.

Bottom Trawl Fisheries

Okay, let's look at the local trawl fishery off Eureka. These fishermen are responsible for the bulk of Groundfish landings which keep our fish processors in business. Here is catch data from a 54' trawl vessel, one of Northern California smaller vessels. In February 2022, this vessel made one - three hour tow just north of the Humboldt Wind energy Area (WEA). On the best day of the year operating in perfect conditions, the door spread of this trawl is less than 300'. The three hour tow covered six lineal miles of fishing grounds, which equates to one third square mile of grounds fished. The results: \$9000 ex-vessel value of the tow's catch per one third of a square mile.

In March, the same fisherman made seven tows over a 48 hour fishing trip. Each tow was 5 miles long and again less than 300' wide, this means that the seven tows over 48 hours covered two square miles of grounds. The trip ex-vessel value was just under \$50,000 for the Groundfish caught.

To get an average of these two trips looks like this:

- Trip #1 - one third square mile at \$9000 = \$27,000 per square mile.
- Trip #2 - two square miles at \$50,000 = \$25,000 per square mile
- $\$27,000 + \$25,000/2 = \$26,000$ per square mile.

Let's just say that these fishermen only fished that location six times in any given year, $6 \times \$26,000 = \$156,000$ of value for that one square mile for just one fishery. The lost value of that same square mile of trawl grounds to offshore wind power over a twenty year period when adjusted for Federal Cost of Living (COLA) adjustment figures of 1.25% looks like this:

\$3,519,814 of lost fishing opportunity for just this one fishery, for just one square mile of grounds, over a twenty year period.

Interestingly, the installers and operators of submarine and subsea electrical transmission cables ask that "bottom contact" fishing gears (trawls, traps pots and long lines), not be set or operated within one half nautical mile on either side of a cable route. Based on the value of "bottom trawl" grounds alone, a cable crossing through twenty linear nautical miles would impact almost \$520,000 dollars worth of trawl fishing grounds annually! If one adds in another five miles of cable lane through the Dungeness crab grounds whose yearly value is about \$940,000, fishing communities are facing nearly one and one half million dollars in lost seafood harvest for a 25 mile cable path.

Looking ahead, the proposed Humboldt WEA is about 200 square miles . Twenty years of trawl fishing loss in the Humboldt WEA amounts to 70 million dollars and change —and that's just trawl fisheries inside the WEA. All fishermen and fisheries will have to give turbine arrays and export cable lanes a wide berth in order to avoid damage to vessels and gear, making the actual fishing area sacrificed to OSW even larger.

Who Have We Left Out?

In the bottom contact trawl gear category we have not covered the Pink Shrimp trawl fishery which operates throughout the spring and summer. Other bottom contact fishing gear are the “trap fisheries”, which include Hagfish, Coon Stripe shrimp, Spot Prawns and Sablefish. In the “hook and line” fisheries, we did not provide economic data for vessels targeting rockfish, Pacific Halibut, and other “bottom fish”. We also left out sport fishing, the commercial charter fleet and the California Squid fleet, which in 2014 caught nearly 5 million pounds of market squid at .50 per pound in the area now occupied by fiber optic cables.

The Impacts

It's evident that the loss of “fishing grounds” impacts fishing communities and fishing businesses — eg., fishermen, crews, and their families. But how can we better gauge and understand those financial impacts?

To date, the best quantifying description of negative financial impacts to fishing businesses of all sizes comes from the U.S. Small Business Administration's Office of Advocacy (advocacy.sba.gov) in their August 22, 2022 response to the BOEM “Guidelines for Mitigating Impacts to Commercial and Recreational Fisheries on the Outer Continental Shelf” (June 23, 2022). Authored by Major L. Clark, Deputy Chief Counsel and Prianka P. Sharma, Assistant Chief Counsel, this advocacy comment should be required reading for all State and Federal Agency staff working to better understand OSW impacts to small fishing businesses. What jumps out is the considerable disparity and additional financial hardship dumped on smaller fishing businesses. To paraphrase from the SBA Advocacy Office comments (Table 1, U.S. Fishing Industry):

A fishing business with a yearly gross of 1 to 2 million dollars taking a \$10,000 income loss from fishing ground displacement will have a 0.6% negative revenue loss that year. If we look at the same \$10,000 revenue loss impact to a fishing family grossing between \$100K and \$499K, that \$10,000 loss is 3.9% of their yearly gross. But watch this! — if the fishing family's gross income is averaging \$50,000 then that \$10,000 loss represents 18.8% of their entire yearly income.

Clearly, the greatest negative impacts from fishing grounds loss and displacement by OSW development fall squarely on the shoulders of small fishing family businesses, those least likely to adapt, relocate or prevail over the long term.

The Results

What does this mean? Someone unfamiliar with commercial fishing might look at these “per square mile” values and better understand that a fisherman can make a good living, feed his family, and support the families of his crew. This fisherman's catch supports fish plant workers,

wholesale fish distribution networks, restaurants and markets, and all of the ancillary businesses that fishermen rely on to keep them fishing. To an international wind power or cable developer these ocean fishing ground values look like peanuts. Fishing communities rely on access to the limited areas of community fishing grounds to pay bills, provide sustainable seafood to the country at large and to bank on the long term security of traditional fisheries to provide for an “at sea” and shoreside workforce vital to coastal communities.

But here’s what is important, fishermen are not asking for more, they are only asking not to lose access to what is left of Californian’s fishing grounds.

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