

# California halibut

*Paralichthys californicus*

## BIOLOGY FACT SHEET

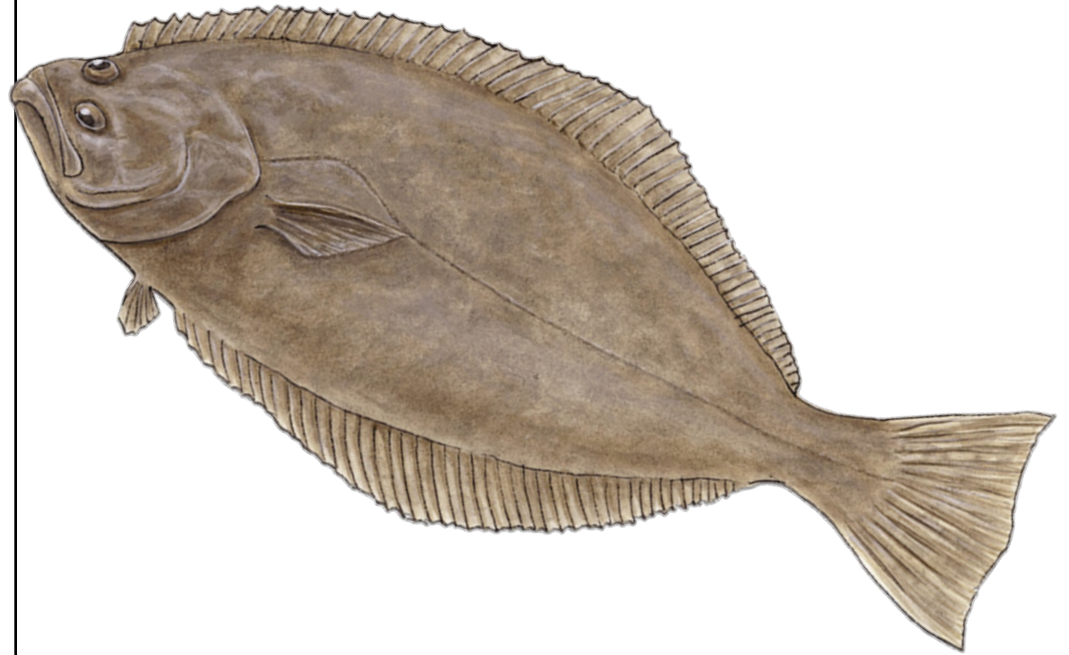


Photo: fishology.blogspot.com

## San Diego seafood profiles

### Taxonomic description

- Belongs to the family Paralichthyidae with other flounders & sanddabs [2,3]
- Small head with large mouth full of teeth
- Both eyes are on one side of the body so that the fish can lay flat on the seafloor with eyes facing up.
- Eyed side of the body is usually grayish or greenish-brown, and mottled with lighter and darker spots to camouflage with the cobbles, sand or mud of the substrate. The blind, "underside" side is white to cream [3,4].
- Can reach lengths of 150 cm (60 ") [2]

### Distribution

- From Magdalena Bay, Baja California, Mexico to Washington state, with a separate population in the upper Gulf of California [3]
- Most occur south of San Francisco [4]

### Life history

- Major spawning areas are unknown [4].

- Spawning season extends from February to July with most spawning in May [4].
- Adults come up from relatively deep offshore water to spawn inshore at depths of 5-18 m (16-60 feet) [4]
- Eggs are deposited on the substrate surface and fertilization is external [4]
- Larvae and post-larvae are pelagic for several months before the post-larvae settle on the bottom, likely in bays and estuaries [4].
- Juvenile halibut emigrate to deeper water after 1 year and/or at 20 cm in length [1,4] .
- Maturity is reached after 2- 3 years for males and 3 - 5 years for females; both may live 30 years [3,4]

### Habitat

- Both adults and juveniles are demersal (live on the sea floor), mostly on sandy sediments.
- Uses bays and estuaries as nurseries, possibly to decrease the risk of mortality of newly hatched fish. [2,4]
- The larvae and juveniles are planktivorous, and adults are piscivorous [4]

- Lives from the surf zone to 100 m (330 ft) but most abundant around 30 m (100 ft) [1,4]
- Lies flat and very still, buried or partially buried in sediment on the sea floor where it ambushes its prey, free swimming fish (e.g., Pacific sardine and northern anchovy) [2]

### References

- [1] Seafood Watch. 2013. California Halibut. Monterey Bay Aquarium, [www.montereybayaquarium.org/cr/cr\\_seafoodwatch](http://www.montereybayaquarium.org/cr/cr_seafoodwatch)
- [2] Tanaka, T. 2011. California Halibut, *Paralichthys californicus*. 2011 Status of the Fisheries. California Dept. Fish & Wildlife. [www.dfg.ca.gov/marine/status/](http://www.dfg.ca.gov/marine/status/)
- [3] Miller, D.L., R.N. Lea. 1972. Guide to the coastal marine fishes of California. Calif. Dept. Fish & Game, Fish Bull. 157. 299p
- [4] Kucas, S., T. Hassler. 1986. Species Profiles: Life Histories and Environmental Requirements of Coastal Fishes and Invertebrates (Pacific Southwest)- California halibut. U.S. Fish and Wildlife Service, Biological Report 82 (11.44). U.S. Army Corps of Engineers, TR EL-82-4. 8pp. [www.nwrc.usgs.gov/wdb/pub/species\\_profiles/82\\_11-044.pdf](http://www.nwrc.usgs.gov/wdb/pub/species_profiles/82_11-044.pdf)
- [5] Monterey Bay Aquarium. 2013. On exhibit. [www.montereybayaquarium.org/animals/](http://www.montereybayaquarium.org/animals/)

### Did you know?

Young halibut hatch with eyes on each side of the head. One eye migrates to the other side as the fish matures and settles near the sea floor [3].



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## FISHERY FACT SHEET

*Paralichthys californicus*



Photo: <http://www.arimaowners.com/index.php?topic=3222.25>

## San Diego seafood profiles

### Seasonal availability

- Open year-round except trawl fishery, which is open June 16-March 14 [ii]

### Managing authority

- California Department of Fish and Game oversees commercial permits & determines/enforces regulations [ii]

### Gear type

- 50% of landings from bottom trawl, 25% hook-and-line, & 25% set gillnet [i]

### Status of the fishery

- When caught with hook-and-line or bottom trawl, rated as "Good Alternative" by Monterey Bay Aquarium's Seafood Watch program [iii]

- Stock assessments indicate a trend in depletion from 1971-2011, however further data are required [iv].

### Potential ecosystem impacts

- Degradation of estuaries & bays that halibut depend on for nursery grounds paired with their limited range make them vulnerable to overfishing [iii]
- One quarter of the total catch is caught with gillnets, which can entangle marine mammals & seabirds, so restrictions have been placed on where gillnets can be set [ii]
- Hook-and-line fishing is considered sustainable since gear is rarely in contact with the seafloor
- Stocks are maintained through a minimum size requirement of 55 cm (22") length, which allows a chance

for the fish to spawn before being eligible for take [ii]

### References

- [i] Ish, T., F. Stroman. 2011. Sustainable Fishery Advocates Seafood Report: California Halibut. Rep. Monterey Bay Aquarium. [www.montereybayaquarium.org/cr/cr\\_seafoodwatch/content/media/MBA\\_SeafoodWatch\\_CaliforniaHalibutReport.pdf](http://www.montereybayaquarium.org/cr/cr_seafoodwatch/content/media/MBA_SeafoodWatch_CaliforniaHalibutReport.pdf)
- [ii] Fish and Game Commission. California Dept of Fish & Game. 2012. California Commercial Fishing Digest 2012-2013. [nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=47779](http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=47779).
- [iii] "California Halibut." Seafood Watch. Monterey Bay Aquarium. [www.montereybayaquarium.org/cr/SeafoodWatch/](http://www.montereybayaquarium.org/cr/SeafoodWatch/)
- [iv] United States. Natural Resource Management. Department of Fish and Game. Southern California Halibut Stock Assessment. California Department of Fish and Game, 2011.
- [v] Local Catch Monterey Bay. 2013. California Halibut. [www.localcatchmontereybay.com/?page\\_id=903](http://www.localcatchmontereybay.com/?page_id=903)

### Did you know?

Fishermen are extremely cautious in handling this predaceous halibut because they know that its extremely sharp teeth can deliver a nasty bite [v].



# California halibut

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## NUTRITION FACT SHEET



California halibut tacos from food52.com

## San Diego seafood profiles

### Edible portions

- Usually available as fillets

### Culinary uses

- Good advice: cook this fish while fresh!
- Because of the leanness of the fish, freezing can cause the loss of moisture, and it is easy to overcook & dry out. Cook to an internal temperature of 52-54°C (125-130°F) to ensure the fish stays moist and tender [4].
- Common preparations include baked, broiled, batter-fried, grilled, poached, sautéed, steamed, sushi
- Takes on the flavor of any seasoning or sauces you cook it in, making it a great fish to sauté rather than grill
- Cooking tip: Once sautéed and before it fully cooks, place the pan in the oven to allow the fish to capture the richness of all the flavors [5]

### Nutritional information

Cooked, dry heat (5.6 oz) [1]

Nutrition Facts	
Serving Size 159 g	
Amount Per Serving	
Calories 223	Calories from Fat 42
% Daily Value*	
Total Fat 5g	7%
Saturated Fat 1g	3%
Trans Fat	
Cholesterol 65mg	22%
Sodium 110mg	5%
Total Carbohydrate 0g	0%
Dietary Fiber 0g	0%
Sugars 0g	
Protein 42g	
Vitamin A 6%	Vitamin C 0%
Calcium 10%	Iron 9%

\*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.

NutritionData.com

### Description of meat

- Lean fish with a mild, sweet flavor
- Meat includes large, white flakes with a firm and tender texture because of its rich oil content

### Toxicity report

- Potentially elevated levels of mercury; safe consumption recommendations are 3 servings per month for adults, 2 for kids 6-12 yrs, & 1 for kids 0-5 yrs old [2,3]

### Seasonal availability

- Available fresh year-round

### References

- [1] SELF Nutrition Data. 2013. "Fish, halibut, Atlantic and Pacific, cooked, dry heat." USDA SR-21, n.d. Web. 10 Aug 2013. <<http://nutritiondata.self.com/facts/finfish-and-shellfish-products/4063/2>>.
- [2] Environmental Defense Fund Seafood Selector. 2013. "Halibut" <http://seafood.edf.org/halibut>.
- [3] Seafood Watch. 2013. California Halibut. Monterey Bay Aquarium.
- [4] Buchanan, D. 2010. Halibut Culinary Information." Chef's Resources: Culinary Knowledge for Professional Chefs, Foodies, and Culinarians. [www.chefs-resources.com/Halibut](http://www.chefs-resources.com/Halibut).
- [5] Cooking Channel, Inc., 10 Aug 2013. California Halibut [www.cookingchanneltv.com/videos/california-halibut.html](http://www.cookingchanneltv.com/videos/california-halibut.html).
- [6] Shaw, H. 2013. Cooking with halibut, the king of flatfish. About.com. [http://fishcooking.about.com/od/meetyourfish/p/halibut\\_profile.htm](http://fishcooking.about.com/od/meetyourfish/p/halibut_profile.htm)

### Did you know?

Much halibut sold in markets is the much larger Pacific halibut from Alaska. California halibut will be smaller (landed fish are often 4-12 lbs) and sold as fillets [6].





# California halibut

## CULINARY INFO SHEET

*Paralichthys californicus*

### STEP 1: CLEAN

#### Tools:

- Sharp Fillet Knife
- Cutting Board

#### Method:

1. **DIVIDE** Lay the fish top side up and cut following the structure of the gill and then all the way down the fish to the tail.
2. **FILLET 1** On the side of the eyes, cut from the head to the tail, staying just above the rib bones. This may require many separate strokes.
3. **SEPARATE** Fold flesh back and cut along the edge.
4. **FILLET 2** On the other half, make the same cut from tail towards the head, however stop once the gut sack is reached.
5. **SEPARATE** Cut along edge to remove fillet and discard the gut sack.
6. **FILLET 3 and 4** Flip the fish over so the bottom is facing up. Using the same technique as top side, remove two fillets.
7. **REMOVE** If desired, cut out the cheeks from both sides.
8. **SKIN** For each of the four fillets, begin to cut 1/2 in. from the tail and slide knife along the tissue to separate fillet from skin.
9. **TRIM** Remove any remaining skin, bones or gut sack remnants.

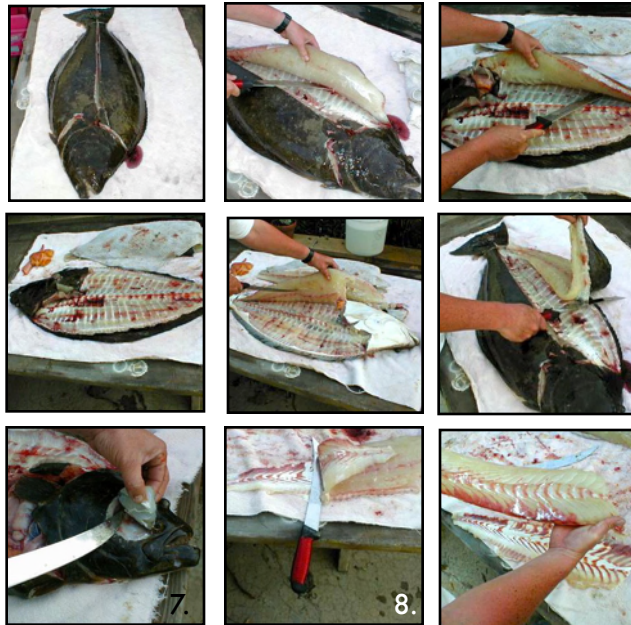


Photo Credit: tillamookbayboathouse.com [1]

### San Diego seafood profiles

### STEP 2: PREPARE

**TIP:** Halibut is done cooking when the tip of a knife easily flakes the thickest part of the fillet.

#### Entree | Herb Crusted Halibut

Adapted from Emeril Lagasse; foodnetwork.com [2]

#### Ingredients (serves 4):

- 4 tsp. lemon zest
- 4 tsp. fresh dill
- 4 tsp. fresh chives
- 4 tsp. fresh parsley leaves, chopped
- 4 tsp. fresh chervil leaves, chopped
- 2 tsp. black pepper
- 4 halibut fillets
- 1 1/2 tsp. salt
- 4 tsp. Dijon mustard
- 1 tbsp. vegetable oil



Photo Credit: Planet Green; recipes.howstuffworks.com [3]

#### Method:

1. In a bowl, combine lemon zest, dill, chives, parsley, chervil, and black pepper.
2. Sprinkle fillets with salt and then coat one side of each fillet with 1 tsp of Dijon mustard.
3. Next, press the mustard-coated side into the lemon-herb mixture.
4. Add the vegetable oil to a skillet over medium-heat.
5. Place fillets, coated side down, into the hot oil.
6. Cook for 3 to 3 1/2 minutes, or until crust turns golden.
7. Flip and cook for another 3 minutes, until fish flakes easily when scraped with a knife.

#### Entree | San Diego Grilled Fish Tacos

Adapted from finecooking.com [4]

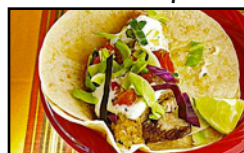


Photo Credit: Brian Hagiwara; finecooking.com [4]

#### Ingredients (serves 3-4):

- LIME-CILANTRO SOUR CREAM SAUCE**
- 1/3 c. sour cream
  - 1/2 c. mayonnaise
  - 3 tbsp. fresh cilantro, minced
  - 1 lime, zested + 1 tbsp lime juice
- TACOS**
- 1 tsp. ground ancho chile powder
  - 1/4 tsp. ground cumin
  - 1-2 cloves garlic, minced
  - 1/4 tsp. salt
  - 1/8 tsp. black pepper
  - 1 tbsp. olive oil
  - 1 1/2 lb. halibut
  - 12 6-in. corn tortillas
  - 1 1/4 c. green cabbage, shredded
  - 1 1/4 c. red cabbage, shredded
  - Pico de Gallo
  - 2 limes, quartered

#### Method:

##### SAUCE

1. In a bowl, combine all ingredients and whisk until smooth. Refrigerate up to 4 hrs before serving.

##### TACOS

1. In a small bowl, mix ancho powder, cumin, garlic, salt, and pepper. Add the oil and whisk until a loose paste.
2. Rub the fish with the spice paste and let marinate in the refrigerator for up to 4 hrs.
3. Oil grill and preheat to medium-high. Grill fish 3-4 mins. per side. Chop into small pieces.
4. Wrap stack of tortillas in aluminum foil and grill 5 mins., or until heated through.
5. Mix green and red cabbage.
6. To assemble tacos, take 2 tortillas, top with fish, a dollop of sauce, a spoonful of Pico de Gallo, and some cabbage.
7. Serve with a squeeze of lime.

#### SERVING SUGGESTIONS:

Halibut is versatile and is best served baked, broiled, grilled, poached/pan seared or fried.

#### OTHER RECIPE IDEAS:

Fish sticks; halibut cakes; fish n' chips; halibut over greens; parchment baked; chowder.



UC San Diego

#### References

- [1] Tillamook Bay Boathouse LLC. How to Fillet Halibut. [www.tillamookbayboathouse.com/halibut.htm](http://www.tillamookbayboathouse.com/halibut.htm)
- [2] Lagasse, E. 2007. Halibut Recipe. Food Network. [www.foodnetwork.com/recipes/emeric-lagasse/lemon-and-herb-crusted-halibut-recipe/index.html](http://www.foodnetwork.com/recipes/emeric-lagasse/lemon-and-herb-crusted-halibut-recipe/index.html)
- [3] Team Planet Green. Emeril's Herb Crusted Halibut. How Stuff Works. [www.recipes.howstuffworks.com/emeric-lagasse-herb-crusted-halibut-recipe.htm](http://www.recipes.howstuffworks.com/emeric-lagasse-herb-crusted-halibut-recipe.htm)
- [4] Thompson, Fred. 2009. Grilled Fish Tacos. Fine Cooking. [www.finecooking.com/recipes/grilled-fish-tacos.aspx](http://www.finecooking.com/recipes/grilled-fish-tacos.aspx)