

LOWER COLUMBIA RIVER

FISH & SEAFOOD GUIDE

Presented by the Wahkiakum County Marine Resources Committee (WC MRC)

With Funding Provided by the Washington State Department of Fish & Wildlife (WDFW) -- June 26, 2014 -- Cathlamet, Washington



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Welcome to the LOWER COLUMBIA RIVER FISH & SEAFOOD GUIDE

A Journey From the Columbia River to your table

This guide offers information on the benefits of catching your own or buying local fresh fish and seafood. We hope that everyone who reads this guide will benefit from the information.

What's the big deal about U.S. seafood?

Seafood is good for your health. The United States has the third-largest per capita consumption of seafood in the world. Americans eat 15 pounds of seafood per person per year, which is good news because seafood is a healthy source of protein, vitamins and minerals. That's why the USDA recommends eating seafood at least twice a week.

Seafood consumption is good for the economy. Commercial, sport and subsistence fisheries – those where the fish caught are consumed

directly by the families of the fishermen – contribute significantly to the local and national economy.

In 2011, seafood harvested by U.S. fishermen at ports in the 50 states was valued at \$5.3 billion. The U.S. is the largest importer of seafood in the world, valued at over \$16.6 billion, and the fifth largest exporter, valued at over \$5.4 billion. That's a lot of fish and a lot of job opportunities. Do you know anyone who has a job because of seafood? (Source: www.PacificNorthwestSeafood101.com)

Nutrition Benefits of Fish

Fish is a low fat high quality protein. Fish is filled with omega-3 fatty acids and vitamins such as D and B2 (riboflavin). Fish is rich in calcium and phosphorus and a great source of minerals, such as iron,

zinc, iodine, magnesium and potassium. The American Heart Association recommends eating fish at least two times per week as part of a healthy diet. Fish is packed with protein, vitamins and nutrients that can lower blood pressure and help reduce the risk of heart attack or stroke. Eating fish is an important source of omega-3 fatty acids. These essential nutrients keep our heart and brain healthy. Two omega-3 fatty acids found in fish are EPA (eicosa-

pentaenoic acid) and DHA (docosahexaenoic acid). Our bodies don't produce omega-3 fatty acids so we must get them through the food we eat. Omega-3 fatty acids are found in every kind of fish but are especially high in fatty fish. Some good choices are salmon, trout, sardines, herring, canned mackerel, canned light tuna, and oysters. (For more information on healthy fish choices, visit www.doh.wa.gov/fish)

Choose Wisely:

Make sure fish and seafood are safe to eat

Fresh Fish and Seafood

Only buy fish that is refrigerated or displayed on a thick bed of fresh ice that is not melting (preferably in a case or under some type of cover). If buying from a local licensed commercial fisherman, ask when the fish was caught or how long it has been frozen and the use the following guidelines:

- A whole fish should smell fresh and mild, not fishy, sour, or ammonia-like.
- A fish's eyes should be clear and bulge a little.
- Whole fish and fillets should

have firm, shiny flesh and bright red gills free from milky slime.

- flesh should spring back when pressed.
- fillets should display no discoloration, darkening or drying around the edges.
- refrigerated seafood may have time/temperature indicators on their packaging, which show if the product has been stored at the proper temperature. Always check the indicators when they are present and only buy the seafood if the indicator shows that the product is safe to eat.

Nutritional Values for Pacific Northwest Fish/Seafood (Source: USDA National Nutrient Database for Standard Reference, Release #22)

Serving Size: 3.5 ounces/100g Cooked Portions

Species, Calories	Protein (g)	Fat (g)	Saturated Fat (g)	Sodium (mg)	Cholesterol (mg)	Omega-3s (mg) (EPA+DHA)	Vitamin D (iu)
Chinook Salmon (King) 230	26	13	3	60	85	1700	N/A
Coho Salmon (Silver) 140	23	4	1	60	55	1100	450
Sockeye Salmon (Red) 220	27	11	2	65	85	1200	930
Chum Salmon (Keta) 155	26	5	1	65	95	800	N/A
Dungeness Crab 110	22	1	<0.5	380	75	400	N/A

Store Properly

- Put fish/seafood on ice or in the refrigerator or freezer soon after buying or catching it. If seafood will be used within 2 days after caught or purchased, store it in the refrigerator. Otherwise, wrap it tightly in plastic, foil, or moisture-proof paper and store it in the freezer.

(Source: <http://www.fda.gov/food/foodborneillnesscontaminants/buystoreservesafefood/ucm077331.htm>)

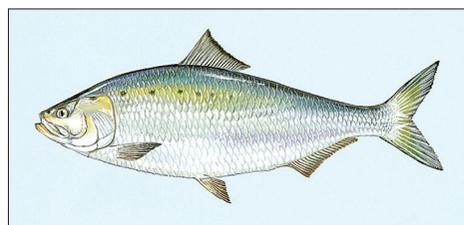
Where can you purchase fresh local Fish/Seafood?

- C&H Smoked Fish, Owner Mike Clark, Contact Information: mclark8991@rocketmail.com, Phone: 360-849-4447
- Ostling Seafoods, Owner Terry Ostling, Contact Information: terryostling@hotmail.com, Phone: 360-560-3912
- Fresh Seafood Corp., Owner Jason Lake, Contact Info.: salmonman6829@yahoo.com.

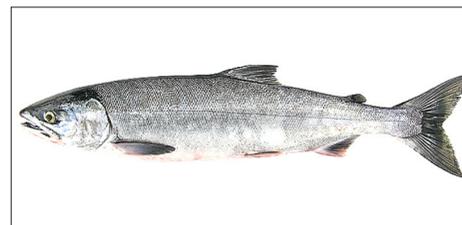
Columbia River Fish Available to Commercial and Sports Fishermen

Washington Department of Fish & Wildlife (WDFW) regulates the fishing seasons so the availability of fish in the Columbia River varies from year to year for both commercial and sports fishing. For information on fish seasons and places to fish in the lower Columbia River visit www.wdfw.wa.gov/fishing.

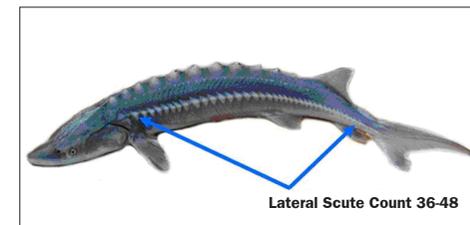
Steelhead and Rainbow Trout are the same species, but Rainbows are freshwater only, and Steelhead are anadromous, or go to sea. Unlike most salmon, Steelhead can survive spawning, and can spawn in multiple



American Shad

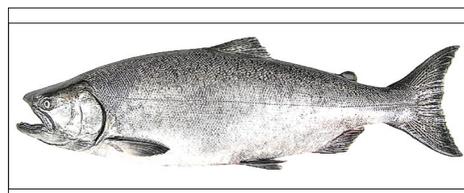


Chum/Dog Salmon

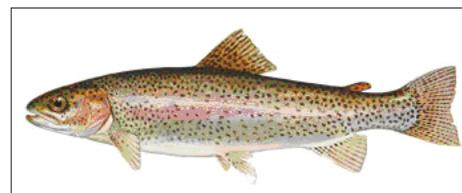


White Sturgeon

Fish/Seafood Type	Time of Year Available
Coho (Silvers), Summer	June – August
Coho (Silvers), Fall	September - November
Dungeness Crab (at the mouth of the Columbia River)	Year Round
Salmon – Spring Chinook (Kings)	March
Salmon – Summer Chinook	May - July
Salmon – Fall Chinook	August - September
Salmon – Chum	N/A
Smelt (Eulachon)	December - March
Shad	May - July
Steelhead	January - February
Sturgeon	August - November



Chinook Salmon



Steelhead



Smelt (Eulachon)

Fish pictures (Source: WDFW) White Sturgeon picture (Source: ODFW)

years.

Coho are a very popular sport fish in Washington and Oregon. This species uses coastal streams and tributaries, and is often present in small neighborhood streams. Coho can even be found in urban settings if their needs of cold, clean, year-round water are met.

Male Chum Salmon develop large “teeth” during spawning, which resemble canine teeth. This may explain the nickname ‘dog salmon’.

Chinook salmon are the largest of the Pacific salmon, with some individuals growing to more than 100 pounds. These huge fish are rare, as most mature chinook are

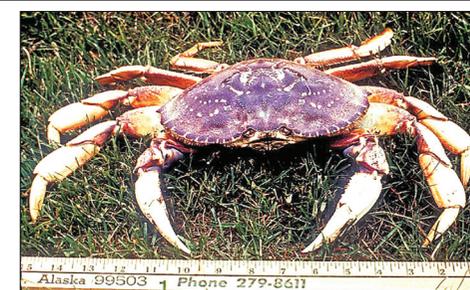
under 50 pounds. (Source: www.fs.usda.gov/detail/r6/plants-animals/fish/?cid=fsbdev2_027105)

Dungeness crab (Cancer magister)

Size Range--Average 6-7 inches, can grow to 10 inches.

Description--One of the most popular items on Washington seafood menus is the Dungeness crab.

This hard-shelled crustacean is fished from the Aleutian Islands to Mexico. The shell is purple-tinged, gray or brown on the back and the tips of the claws are typically white. The Dungeness crab can reach ten inches across the back though six to seven inches is more common. In



Puget Sound this crab is most abundant north of Seattle, in Hood Canal, and near the Pacific coast. The Dungeness crab is frequently associated with eelgrass beds and prefers sandy or muddy substrates.

For rules, seasons and more identification on Dungeness crab see: <http://wdfw.wa.gov/fishing/shellfish/crab/>.

Photo Courtesy US Fish & Wildlife Service http://wdfw.wa.gov/fishing/washington/graphics/species/dungeness_crab.jpg.

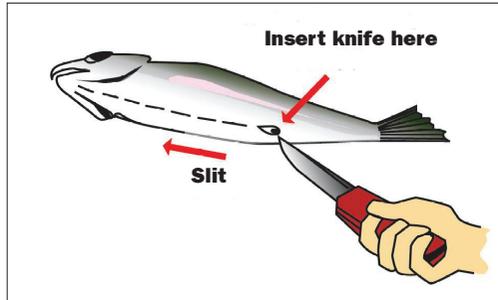
How to Clean and Keep Your Catch

Cleaning a Fish

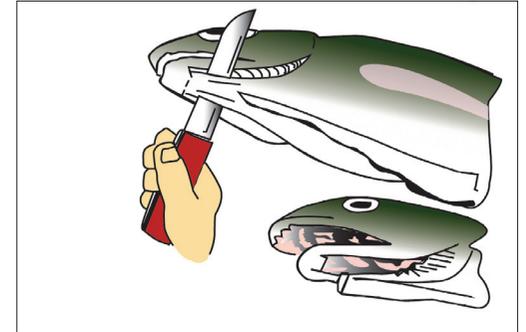
Many anglers like to simply clean the fish and cook it whole. This works best for fish that have no or very small scales such as trout. Your catch should be

cleaned and gutted as soon as possible. Fish are slippery and knives are sharp – be careful!

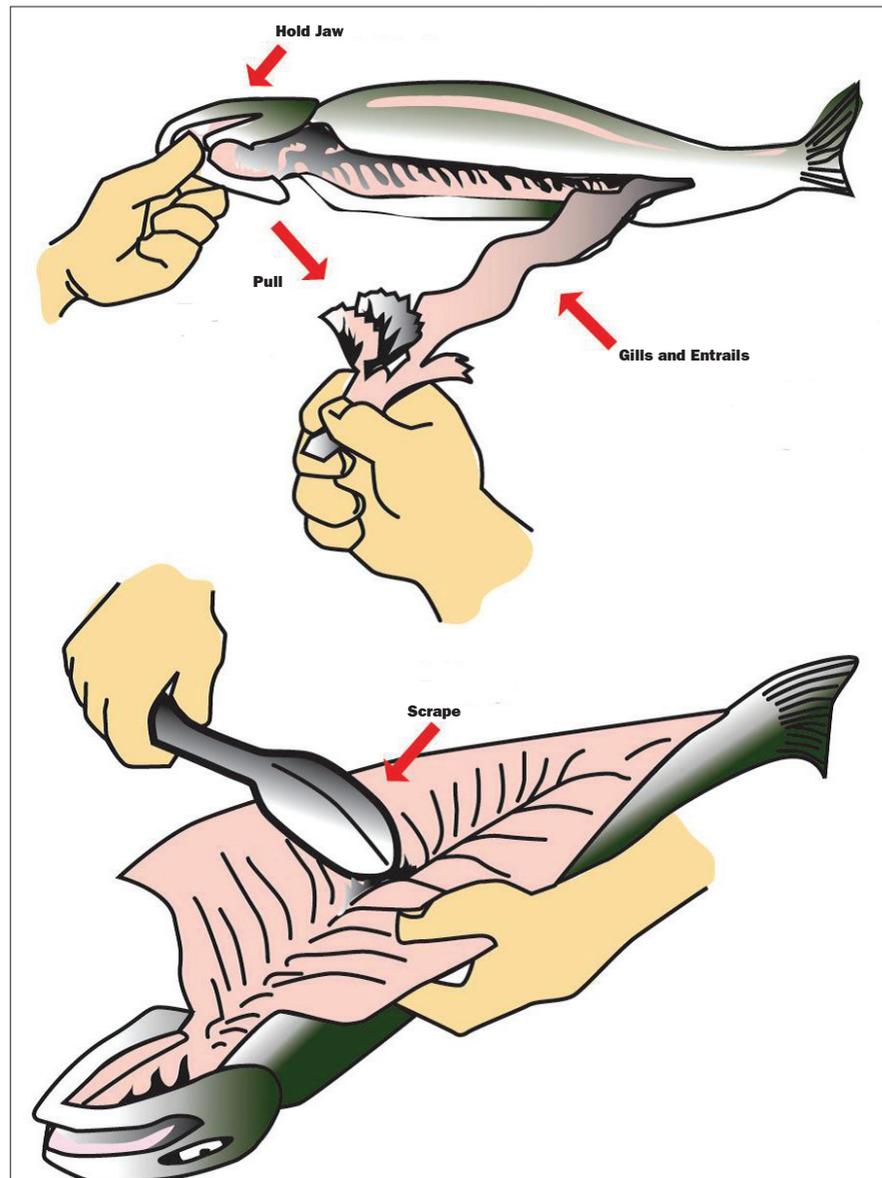
1. Rinse the slime off the fish; lay it on a cutting board; and insert the knife tip into the fish's anus. You can use a small towel to help get a secure grip on the fish as you're cleaning it. Cut upward along the belly to the head. Keep the knife blade shallow so you don't puncture the intestines.



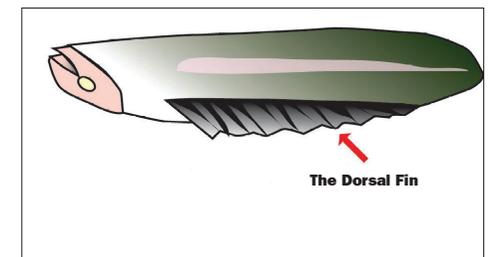
2. Make a cut at the throat to separate the gills from the head.



3. Spread the body open and remove the gills and entrails.



4. Fish have a kidney along the length of the backbone. Scrape it out with a spoon or your thumbnail.



5. Cut off the head, if desired, and remove the dorsal fin.

Rinse the fish in cold, clean water, and keep the fish cool until ready to prepare.

Freezing Your Catch

If you don't plan to eat your fish in a day or two, you'll want to freeze it. Most freezing methods work best if you quick freeze the fish first – place uncovered fish on a sheet of aluminum foil in the freezer to freeze it as quickly as possible.

The best method for keeping fish in the freezer is to vacuum seal it, which protects the fish from freezer burn. Quick freeze the fish, then seal it in a vacuum seal bag. Vacuum sealed frozen fish should be eaten within three or four months.

Another way to protect fish from

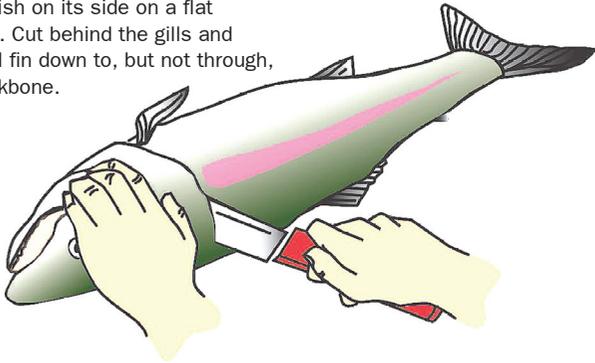
freezer burn is to freeze it in a block of water. Quick freeze individual portions, place each in a zip lock freezer bag, fill with water and freeze. Finally, if you're going

to be eating the fish within two weeks you can double wrap quick frozen fish tightly in plastic wrap (squeeze out as much air as possible) and then put in a freezer bag.

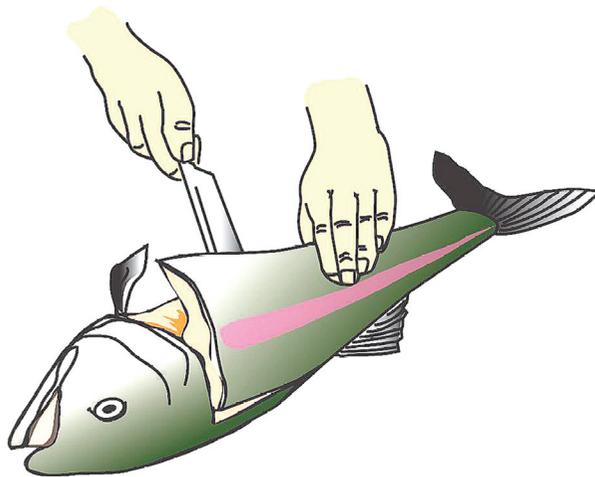
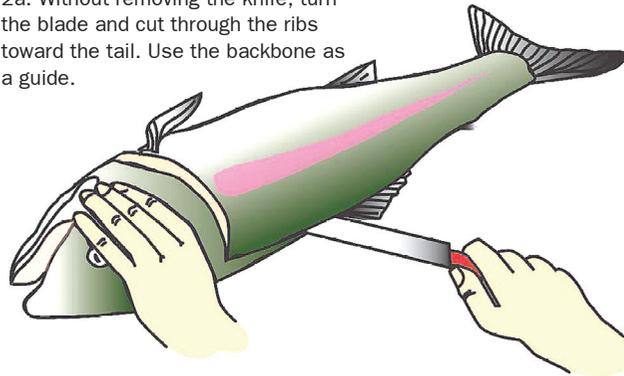
Filleting and Skinning a Fish

Large fish such as Salmon, Steelhead and big trout or fish with large plentiful scales, such as bass and panfish, are easier to cook if they have been filleted and skinned first.

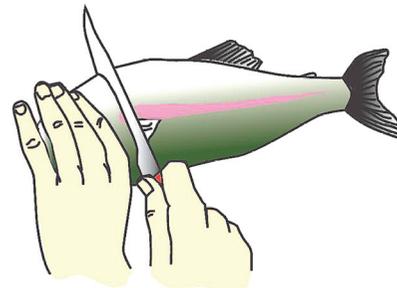
1. Lay fish on its side on a flat surface. Cut behind the gills and pectoral fin down to, but not through, the backbone.



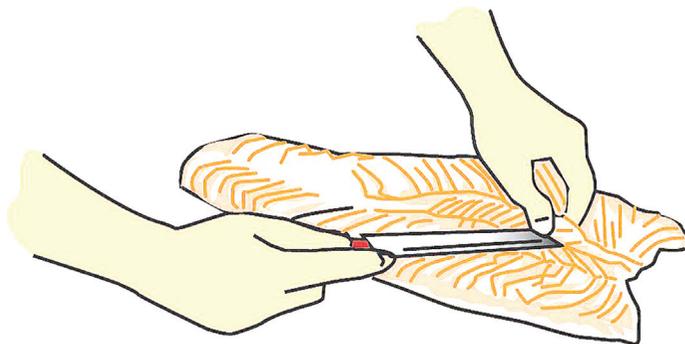
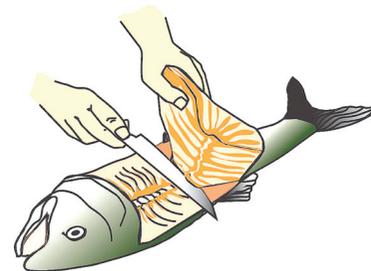
2a. Without removing the knife, turn the blade and cut through the ribs toward the tail. Use the backbone as a guide.



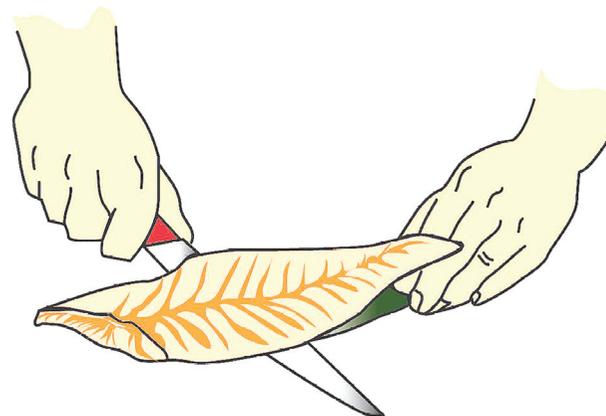
2b. Turn the fish around and finish cutting the fillet away from the backbone.



3. Turn the fish over and repeat on the other side.



4. Remove rib cage after the fillet is cut.



5. To skin the fish, place it skin side down on a flat surface, insert the knife blade about one half inch from the tail. Grip the tail firmly and run the knife blade at an angle between the skin and the meat.

Releasing a Fish

Always wet your hands and handle the fish gently as you remove the hook. Grasp the fish carefully to avoid any spines on the back. If the fish is hooked deeply, you may not be able to remove the hook. Cut the line and release the fish. The hook will rust, dissolve or work its way loose. (Use barbless hooks if you plan on releasing the fish you catch – they can be much easier to remove.) If a fish loses consciousness, try to revive it by gently moving it back and forth in the water so water moves through its gills. When the fish revives and begins to struggle, let it go. Fish do not always survive being caught.

For more information about catch and release go to this link: <http://www.dfw.state.or.us/resources/fishing/docs/CatchReleaseBrochure.pdf>

Outdoor Fish Cleaning Stations in Wahkiakum County

Public fish cleaning stations are available at the following locations:

- Skamokawa Vista Park, 13 Vista Park Road, Skamokawa
- Elochoman Slough Marina, 500 2nd Street, Cathlamet
- County Line Park on SR4 between Cathlamet and Longview
- Wahkiakum Port District #2's Svenson Boat ramp on Puget Island

Cooking Fish

(Source: www.doh.wa.gov)

Fish should be cooked to a minimum internal temperature of 145 degrees F (use a food thermometer to check) or until the meat is opaque and separates easily with a fork. Opaque means light can't pass through the fish meat and it no longer looks clear and shiny. The general cooking time for baking, poaching, broiling, or grilling fish is about 10 minutes for every inch of thickness. For frozen, unthawed fish, double the cooking time to 20 minutes for every inch. Microwaving fish can significantly reduce cooking time. Follow package or recipe instructions to get the best results when cooking fish.

To reduce exposure to contaminants, remove the fish skin and visible fat before cooking. Grill, broil, or bake the fish. Let the fat drip off during cooking. Avoid using the fat for gravy or sauces. See our fish fillet demonstration and get more tips on reducing exposure to contaminants in fish.

• Baking

Rinse fish and pat dry with a paper towel. Whole fish may be stuffed with rice and vegetables. Place whole, boned fish in a baking pan. Brush with butter and oil and season with salt and pepper, or cover with a piquant sauce. Bake in a preheated oven at 400°F (200°C) until a knife slice in the thickest part reveals the flesh to be opaque but still moist.

• Grilling

Place whole small fish or fillets on perforated aluminum foil over a greased grill, 4 to 6 inches (10 to 15cm) above prepared coals or fire.

Baste with butter, oil, or marinade, and close hood of grill. Cook until opaque and moist on the inside, 6 to 8 minutes for fish less than 1 inch (2.5cm) thick; 10 to 15 minutes for fish larger than 1-inch (2.5cm) thick.

• Broiling

Rinse whole fish, fillets, or boned and butterflied trout, and pat dry with a paper towel. Place fish on a rack above a baking dish. Preheat broiler and adjust oven rack so fish is 3 to 4 inches (7.6 to 10cm) from the element. Brush with butter or oil and season with salt and pepper. Broil, turning once, until fish is opaque but still moist in the center, 3 to 10 minutes, depending on size of the fish.

• Frying

Rinse fillets, and pat dry with a paper towel. Dredge in flour and seasonings if desired. Shake off any excess flour. Heat frying pan until hot, then add butter or oil. Put in fillets and cook, turning once, until fish is opaque but still moist in the center, 2 to 10 minutes, depending upon size of the fish.

• Poaching

Bring poaching liquid, consisting of water, broth, and herbs and spices, to a simmer. Slip fish in, then cover pan and keep liquid at a simmer for about 8 minutes per inch (about 2.5cm) of thickness.

• Steaming

Place fish on a greased perforated rack over 1 to 2 inches (about 2.5 to 5cm) of rapidly boiling water. Cover with a tight-fitting lid and keep water at a constant boil through cooking time, 8 to 10 minutes per inch (about 2.5cm) thickness of fish.

Healthy Fish Recipes

Baja-Style Salmon Tacos

Serves 4, 1 taco each.

Each serving: 325 calories, 11 grams total fat, 1 gram saturated fat, 54 milligrams cholesterol, 395 milligrams sodium, 4 grams total fiber, 24 grams protein, 29 grams carbohydrates, 614 milligrams potassium.

Ingredients

12 ounce salmon fillet, cut into 4 portions (3 ounces each).
4 (8-inch) whole-wheat tortillas.

For taco filling:

- 1 cup green cabbage (about 1/4 head), rinsed and shredded.
- 1 teaspoon lime juice.
- 1 teaspoon honey.
- 1/2 cup red onion, thinly sliced (or substitute white onion).
- 1 medium Jalapeno chili pepper, rinsed and split lengthwise –
- remove seeds and white membrane, and mince (about 2 tablespoons).
- for less spice, use green bell pepper.
- 1 teaspoon fresh cilantro, minced (or substitute 1/2
- teaspoon ground coriander).

For marinade:

- 1/2 tablespoon corn oil or other vegetable oil.
- 1 tablespoon lime juice.
- 2 teaspoon chili powder.
- 1/2 teaspoon ground cumin.
- 1/2 teaspoon ground coriander.
- 1/4 teaspoon salt.



Directions

1. Preheat grill or oven broiler (with the rack 3 inches from the heat source) on high temperature.
2. Combine all the taco filling ingredients and let stand for 10-15 minutes to blend the flavors.
3. Combine all the marinade ingredients into a bowl.
4. Place salmon fillets in a flat dish with sides. Pour marinade evenly over fillets.
5. Place salmon fillets on grill or broiler. Cook for 3-4 minutes on each side, until fish flakes easily with a fork in the thickest part (minimum internal temperature of 145 degrees F). Remove from the heat and set aside for 2-3 minutes. Cut into strips.
6. To make each taco, fill one tortilla with 3/4 cup filling and one salmon fillet.

Source: Keep the Beat Recipes: Deliciously Healthy Dinners - National Heart, Lung, and Blood Institute, NIH

Salmon Loaf

Serves 8, about 1/8 of recipe.

Each serving: 160 calories, 8 grams total fat, 2 grams saturated fat, 90 milligrams cholesterol, 350 milligrams sodium, 10 grams carbohydrates, 3 grams dietary fiber, 14 grams protein.

Ingredients

- 1 can (15.5 ounce) salmon.
- 2 cups breadcrumbs, soft.
- 1 large chopped onion.
- 1 tablespoon melted margarine.
- 1/4 cup diced celery.
- 1 cup milk, 1%.

- 1 tablespoon dried parsley.
- 2 large eggs.
-

Directions

1. Preheat oven to 325 degrees F.
2. Drain salmon and remove skin.
3. Add the other ingredients and mix. Add enough milk so the mixture is moist but not runny.
4. Place in lightly oiled 9x5 inch loaf pan.
5. Bake for 45 minutes.

Source: SNAP-Ed Connection, Food and Nutrition Service, USDA

Asian-Style Steamed Salmon

Serves 4, about 3 ounces each.

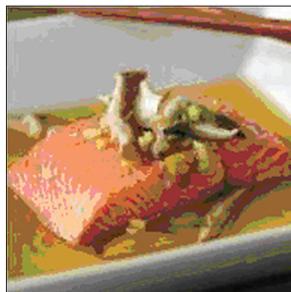
Each serving: 175 calories, 9 grams total fat, 2 grams saturated fat, 48 milligrams cholesterol, 208 milligrams sodium, 1 gram total fiber, 19 grams protein, 4 grams carbohydrates, 487 milligrams potassium.

Ingredients

- 1 cup low-sodium chicken broth.
- 1/2 cup shiitake mushroom caps, rinsed and sliced
- (or substitute dried shiitake mushrooms).
- 2 tablespoons fresh ginger, minced (or 2 teaspoon ground).
- 1/4 cup scallions (green onions), rinsed and chopped.
- 1 tablespoon lite soy sauce.
- 1 tablespoon sesame oil (optional).
- 12 ounce salmon fillet, cut into 4 portions (3 oz. each).

Directions

1. Combine chicken broth, mushroom caps, ginger, scallions, soy sauce,



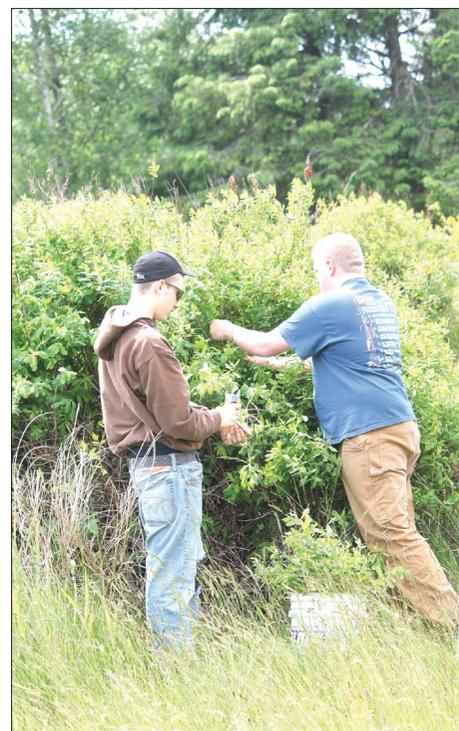
and sesame oil in a large, shallow sauté pan.

Bring to a boil over high heat, then lower heat and simmer for 2 to 3 minutes.

2. Add salmon fillets, and cover with a tight-fitting lid. Cook gently over low heat for 4 to 5 minutes or until the salmon flakes easily with a fork in the thickest part (to a minimum internal temperature of 145 degrees F).

3. Serve one piece of salmon with 1/4 cup of broth

Source: Keep the Beat Recipes: Deliciously Healthy Dinners – National Heart, Lung, and Blood Institute, NIH



Propagation of Native Plants By Naselle High School Students



Fish Processing Project

What is the Wahkiakum County Marine Resources Committee (WCMRC)?

In the 2007 and 2008 legislative sessions, the Washington State Legislature endorsed the Marine Resources Committee's approach to local marine resource management and stewardship in the five southern Puget Sound counties and five coastal counties one of which is Wahkiakum County. The Washington Department of Fish & Wildlife (WDFW) created the Coastal MRC program to provide support for the development, administration, and coordination of coastal MRCs and MRC sponsored projects that benefit coastal marine resources. The goal of the program is to understand, steward, and restore the marine and estuarine ecological processes of the Washington coast in support of

ecosystem health, sustainable marine resource-based livelihoods, cultural integrity, and coastal communities. MRCs are county-based volunteer groups composed of tribal co-managers, fishermen, citizens, scientists, recreational, economic and conservation interests and government agencies that :

- Encourage community-based marine stewardship
- Conduct citizen-driven marine science
- Sponsor and oversee projects to meet local priorities
- Make science-based recommendations on marine management strategies
- Offer education and learning opportunities to children and adults about marine resource science,

conservation, and management

- Provide an effective, inexpensive, and non-regulatory mechanism to discuss and develop solutions for coastal communities and local marine resource issues

The Wahkiakum County Commissioners recognize that the marine waters of the Columbia River Estuary and the outer coast of the Pacific Ocean represent an unparalleled resource of important environmental and economic value to the current and future generations of the region, state, and nation. In an effort to understand, steward and restore those valuable marine resources, Wahkiakum County Commissioners passed a Resolution establishing the Wahkiakum County Marine Resources Committee. The Commissioners hired a Coordinator and appointed thirteen volunteer MRC board members ensuring balanced

representation from the following:

- Local government
- Local residents
- Scientific experts
- Affected economic interests
- Affected recreational interests
- Environmental and conservation interests

At least six seats are occupied by residents of Wahkiakum County. The Town of Cathlamet, Wahkiakum Port Dist. #1, and Wahkiakum Port Dist. #2 each have one seat. The board members serve staggered two-year terms and develop a work plan with projects tailored to address local marine resource needs.

Projects are selected based on their impacts to:

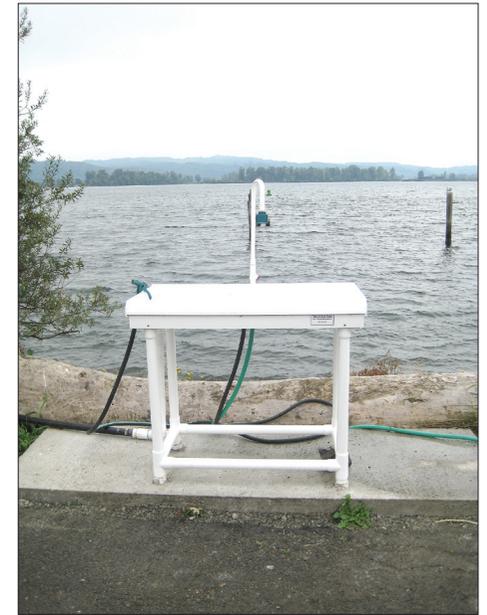
- Marine Habitats
- Marine Life
- Marine and Fresh Water Quality
- Sound Science
- Education and Outreach
- Coastal Communities



Invasive Weed Surveys



Kiosk Sign Project at the Elochoman Slough Marina



Elochoman Slough Marina Fish Cleaning Station Project



Wahkiakum High School Field Trip to Youngs Bay Fish Hatchery



Fish Hatchery Job--Shadowing with Naselle High Students



Vista Park Trail Enhancement



Columbia River Fisheries Exhibit



Seal and Sea Lion Observation Project



Fish Preservation Workshop



School Field Trip Project--Stream Surveys with Wahkiakum High School Science Students

For more Information:

Wahkiakum Marine Resources Committee

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Cathlamet, WA 98612

Phone: 360-795-3278

E-mail: carrie.backman@wsu.edu
E-mail: donna.westlind@wsu.edu

Websites: www.co.wahkiakum.wa.us (click on Marine Resource Committee)
or www.wdfw.wa.gov/about/volunteer/mrc/index.html

