

## GROWN IN WASHINGTON

### SALMON – 2014

Salmon is a popular food. Classified as an oily fish, salmon is considered to be healthy due to the fish's high protein, high omega-3 fatty acids, and high vitamin D content. Salmon is also a source of cholesterol, with a range of 23–214 mg/100 g depending on the species. According to reports in the journal *Science*, however, farmed salmon may contain high levels of dioxins. PCB levels may be up to eight times higher in farmed salmon than in wild salmon, but still far below levels considered dangerous. Nonetheless, according to a 2006 study published in the Journal of the American Medical Association, the benefits of eating even farmed salmon far outweigh any risks imposed by contaminants.

**TYPES OF SALMON:** In Washington State, we find primarily three types of salmon. Those types are:

**Steelhead:** In 1989 steelhead was classified as *Oncorhynchus mykiss*, a Pacific trout. Steelhead are an anadromous form of rainbow trout that migrates between lakes and rivers and the ocean, and are also known as steelhead salmon or ocean trout. Steelhead are raised in many countries throughout the world. Since the 1950s production has grown exponentially, particularly in Europe and recently in Chile. Worldwide, in 2007, 604,695 tons of farmed Steelhead were harvested with a value of \$2.59 billion. The largest producer is Chile. In Chile and Norway, the ocean cage production of steelhead has expanded to supply export markets. Inland production of rainbow trout to supply domestic markets has increased strongly in countries such as Italy, France, Germany, Denmark, and Spain. Other significant producing countries include the United States, Iran, Germany, and the UK.

Steelhead have tender flesh and a mild, somewhat nutty flavor. Steelhead meat is pink like that of other salmon, and is more flavorful than the light-colored meat of rainbow trout. Both are highly desired food. However, farmed trout and those taken from certain lakes have a pronounced earthy flavor which many people find unappealing; many shoppers therefore make it a point to ascertain the source of the fish before buying. Steelhead that are wild have a diet of scuds (freshwater shrimp), insects such as flies, and crayfish are the most appealing. Dark red/orange meat indicates that it is either an anadromous steelhead or a farmed rainbow trout given a supplemental diet with high iodine content. The resulting pink flesh is marketed under monikers like Ruby Red or Carolina Red. The steelhead is especially susceptible to red mouth disease. There has been considerable research conducted on red mouth disease, as its implications for steelhead farmers are significant. The disease does not affect humans.

**Coho Salmon:** The Coho salmon is the state animal of Chiba, Japan. Coho salmon mature after only one year in the sea, so two separate brood stocks (spawners) are needed, alternating each year. Brood fish are selected from the salmon in the sea sites and "transferred to freshwater tanks for maturation and spawning". Worldwide, in 2007, 115,376 tons of farmed Coho salmon were harvested with a value of \$456 million. Chile, with about 90% of world production, is the primary producer with Japan and Canada producing the rest.

**Chinook salmon:** In Alaska, Chinook salmon are the state fish, and are known as "king salmon" because of their large size and flavorful flesh. Those from the Copper River in Alaska are particularly known for their color, rich flavor, firm texture, and high Omega-3 oil content.

Worldwide, in 2007, 11,542 tons of farmed Chinook salmon were harvested with a value of \$83 million. New Zealand is the largest producer of farmed king salmon, accounting for over half of world production (7,400 tons in 2005). Most of the salmon are farmed in the sea a method sometimes called sea-cage ranching. Sea-cage ranching takes place in large floating net cages, about 25 meters across and 15 meters deep, moored to the sea floor in clean, fast-flowing coastal waters. Smolt (young fish) from freshwater hatcheries are transferred to cages containing several thousand salmon, and remain there for the rest of their life. They are fed fish meal pellets high in protein and oil.

**SALMON PRODUCTS:** A simple rule of thumb is that the vast majority of Atlantic salmon available on the world market are farmed (almost 99%), whereas the majority of Pacific salmon are wild caught (greater than 80%).

Canned salmon in the U.S. is usually wild Pacific catch, though some farmed salmon is available in canned form. Smoked salmon is another popular preparation method, and can either be hot or cold smoked. Lox can refer either to cold smoked salmon or to salmon cured in a brine solution (also called gravlax). Traditional canned salmon includes some skin (which is harmless) and bone (which adds calcium). Skinless and boneless canned salmon is also available.

Raw salmon flesh may contain *Anisakis* nematodes, marine parasites that cause Anisakiasis. Before the availability of refrigeration, Japanese did not consume raw salmon. Salmon and salmon roe have only recently come into use in making sashimi (raw fish) and sushi. Ordinary types of cooked salmon contain 500–1500 mg DHA and 300–1000 mg EPA per 100 grams.

### **BUYING AND STORING TIPS**

- You can get salmon in the market, in various forms like fresh, frozen, dried, canned, and smoked. Fresh salmon can be obtained as whole as well as in steak or fillet form.
- Always buy wild salmon fish, rather than the farmed ones. Studies have shown the farmed salmon contains high levels of carcinogenic chemicals, known as polychlorinated biphenyls. These chemicals lead to an increased risk of cancer in human beings.
- Another reason to avoid farmed fish is that they contain high quantities of polybrominated diphenyl ether (PBDE). They also contain dioxin, which is highly dangerous for the body.
- Buy salmon from a shop with good reputation, to ensure its freshness. Smell the salmon before buying, to make sure that it is fresh.
- Prefer buying displayed fish, rather than the prepackaged one. In case of the displayed one, you can smell it before buying.
- Fresh salmon should be kept buried in ice, whereas the stakes and fillets should be kept on top of ice.
- In case you want to have the whole fish and want to retain its skin, go for scaling of the salmon.
- If you are purchasing the smoked salmon, ensure that it does not contain dry or brown edges.
- Do not buy a smoked salmon that has shiny surface or has moisture leaking from it.
- Store salmon in the freezer, to keep it fresh for a long time. Wrap it in plastic and keep it in the coldest part of your freezer. It will stay for a time period of 2 to 15 days, depending on the day it was originally caught.

### **SMOKED SALMON DIP**

8 ounces cream cheese, softened  
1/2 cup sour cream  
1 tablespoon fresh lemon juice (or to taste)  
5 ounces smoked salmon, chopped fine  
1/2 tablespoons minced fresh chives  
1 tablespoon minced fresh dill  
white pepper

#### Directions:

In processor, blend cream cheese, sour cream and lemon juice until smooth. Add salmon, chives, dill and white pepper and blend until combined well. Serve with crudités and/or crackers.

#### Sources of Information:

WA State Dept of Fish & Wildlife  
Wikipedia  
Lifestyle.com  
www.food.com