

# SARDINES

- Class: Osteichthyes: Boney Fishes
- Order: Clupeiformes (Herring, Sardines, Pilchards)
- Suborder: Clupeoidei
- Family: Clupeidae



## Sardines

Crown Prince packs two different types of sardines for our Skinless/Boneless and Brisling Sardine products. All sardines are members of the herring family (Clupeidae) - a large group of fish that includes shad, anchovies, and herring. In all, there are over 170 species of herring in about 50 genera. All are small fishes, seldom exceeding 0.5 meters. Many people think of the Portuguese sardine as the true sardine, with other sardines being more or less adequate substitutes. The best-flavored sardines come from the cold water oceans. These fish are firmer fleshed and higher in natural oil content.

have stopped feeding and begun to live off their accumulated body fat. The fish naturally empty out their stomachs during this period, resulting in a better tasting fish.

Nets specifically designed for catching sardines are used. When the nets are full, they are reeled in and the fish are pumped into a hold where they are stored in refrigerated seawater. Refrigerated transport awaits the fishing boats at dockside. The sardines are pumped ashore into clean plastic bins filled with brine and slush ice then transported to our packer in Fraserburgh, Scotland. Everything possible is done to minimize the length of time taken from the fish being caught to its delivery to the packer.

Once at the packer the fish are frozen to -18°C and stored until required for production. When batches of

fish are scheduled for processing they are defrosted slowly then brine soaked in a solution of water, salt, and acetic acid. The fish are hand packed into cans then passed into a kiln where they are continually inverted to remove any excess liquid released during cooking. Our sardines are kiln-smoked over a mixture of oak, beech, and Douglas fir. The kiln extraction fans draw the smoke up through the oven giving the fish an authentic smoke flavor.

When the cans leave the kiln, the packing material (olive oil, purified water, or mustard) is added, the cans are hermetically sealed and the can code is embossed on the lid. The seamed cans are then retorted to render the cans' contents commercially sterile. The cans are then cooled before final inspection, labeling, casing and palletizing.

### U.S. PACIFIC SARDINE FISHING

Pacific sardines (the pilchard variety) were abundant along the California coast during the 1930s and during that time were the main source of canned sardines in the United States. They were so overfished that they became virtually extinct, especially as their demise coincided with a major "El Nino" occurrence. Within the last decade sardines have begun returning to the waters off the West Coast of the United States. They are a migratory fish that move from Peru up past Mexico and California then over to Japan and China before making the return loop. Most of these West Coast sardines are being exported overseas as canned product, fishmeal, or as fish food for farm raised fish.

### NUTRITIONAL BONUS

Most nutritionists consider sardines one of the healthiest foods available. Sardines are high in Omega-3 fatty acids, protein, calcium, CoQ10, and a multitude of vitamins, including B-12.

### TYPES OF SARDINES

The Crown Prince Natural Skinless/Boneless Sardine - *Clupea pilchardus* or *Sardina pilchardus* Walbaum (a.k.a. pilchard) is sexually mature at 3 years with a length of 19-20 cm. Pilchards are an open-ocean schooling fish that feed on planktonic crustaceans and fish eggs. Spawning in the open seas off southern England from April to November, the Bay of Biscay from December through February, off France, Spain, Portugal and Morocco from February to April, and throughout the whole year in the Mediterranean, they produce 50-60,000 eggs. The eggs hatch in 2-4 days into larvae that are 4 mm long.

After spawning pilchards move to their feeding grounds in the vicinity of the coast, going northwards in summer and southwards in winter, following the cold water streams. We harvest our pilchards off Portugal and Morocco from May to December when these sardines have their best quality. During the winter months, when the sardines are laying their eggs their bodies slim down and their fat content is reduced, leading to a less appetizing flavor.

The Crown Prince Natural Brisling Sardine - *Sprattus sprattus* (a.k.a. sprat) is sexually mature at 2 years when 12-13 cm long. Another open-ocean fish which is found in sea lochs and water near the coast; in summer at depths of 10-50 m, in winter down to 150 m. By day the shoal remains

close to the bottom, but at night the fish rise towards the surface and the shoal more or less breaks up. The species has several "races" and subspecies within its geographical range.

The sprat spawns from January to July, but mainly in May and June, mostly at depths of 20-120 m producing 6-10,000 eggs. Their principal spawning areas are the North Sea and Skagerrak. Eggs hatch in 7 days with the new larvae 4 mm long and similar to those of herring. A great number of the eggs will die if the weather is cold and windy during the spawning season. The eggs are driven far from the spawning areas by sea currents. They reach a length of about 10 cm when one year old. Sprat feed on animal plankton. They themselves form an important part of the diet of numerous predatory fishes.

The fishing season for Crown Prince Natural Brisling Sardines depends on the area in which the fish are caught. They move in a clockwise pattern around England and Scotland through their annual migration cycle. From November through December the sardines are off the West Coast of Scotland and from December through March they are off the East Coast of England. During the winter months the fish



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