

Kingdom of Morocco



Ministry of Agriculture
and Maritime Fisheries

The Moroccan Crustaceans

Consumer Brochure



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MOROCCAN SEAFOOD
Naturally

THE MOROCCAN CRUSTACEANS

A delectable flesh,
a soft and delicate taste



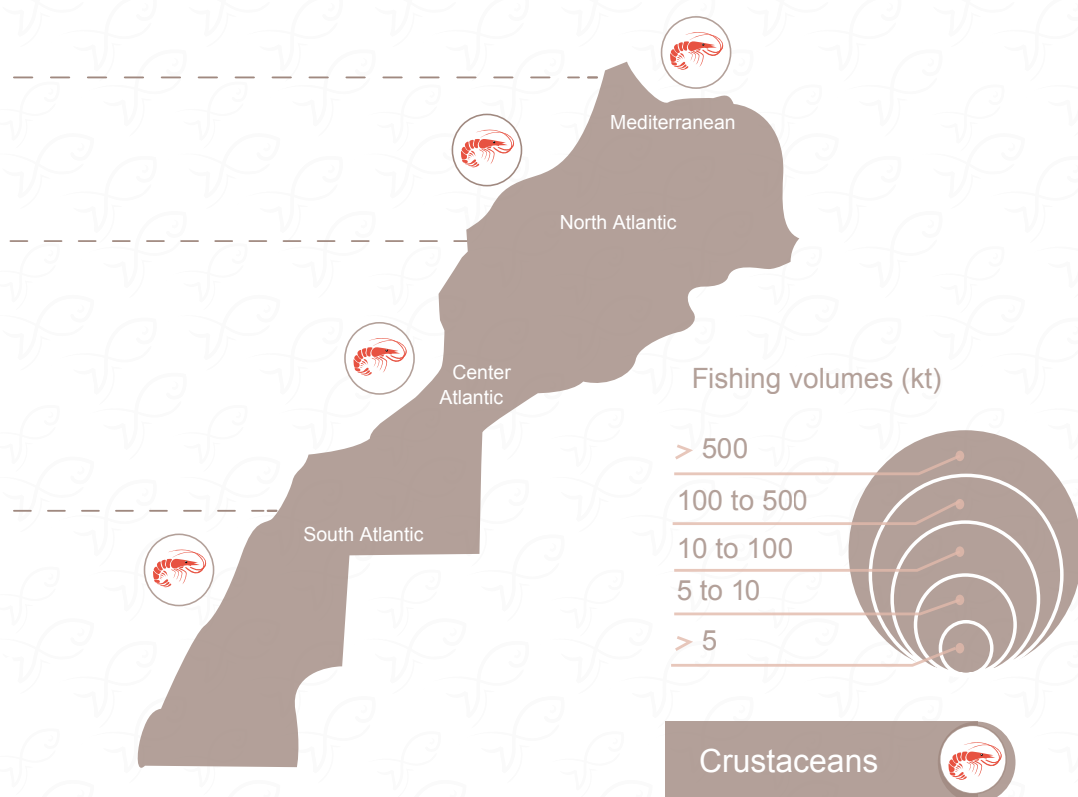




Discover the Moroccan *crustaceans!*

Because they are luxury food, evoking fine dining parties, crustaceans were always preferred by the most demanding gourmets.

Moroccan crustaceans also abide by this rule, they are at the same time natural, exotic and original, which endows them with a full flavour and a remarkable quality.



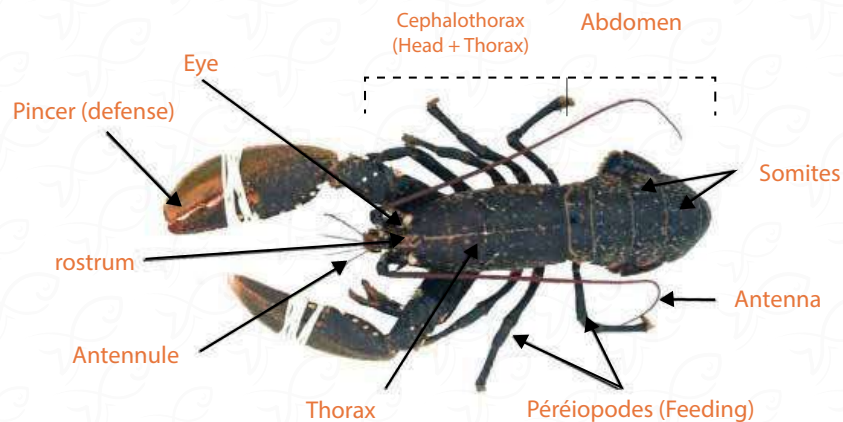
What is a crustacean ?

A crustacean, a famous animal not known to the common people, is an arthropod animal (meaning that its legs are articulated), mostly aquatic, which has two pairs of antennas, breathing through gills like fish.

This category of fish includes many species: shrimp, lobster or crab, all of them have all the parts of the body (legs, pincers, antennas, thorax and abdomen) protected by an articulated shell and move walking (crab) or swimming (shrimp).

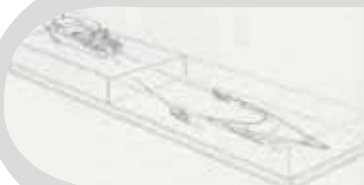
Unlike the shell of the snail, the crustaceans' shell cannot grow gradually. Consequently, the crustacean must abandon its shell several times during its growth: the moult.

During the dangerous period where the animal has cracked its old shell and was found naked, soft and defenseless, it inflates its body with water to achieve at once its new size and a few hours later, his shell hardens anew. Crustaceans are macrophage (feeds on plants or zoo plankton) or scavenger (feeds on corpses). The diversity of this marine crustacean in Moroccan waters offers a range of products such as shrimp, red lobster, royal spiny lobster, langoustine and pink lobster which are the landmark species in Morocco.



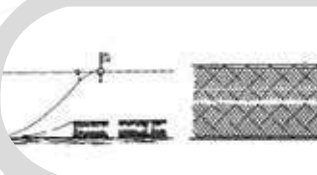


Adapted fishing *techniques*

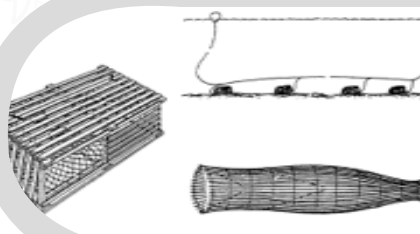


Bottom trawling : It is a cone-shaped net towed by a ship. It is connected to the boat by steel cables called warps. Other boards located in front of the trawl allow its horizontal opening. Cables called arms link the trawl panels.

The techniques
used to fish these
species are :



Trammel : this net is formed by an assembly of three superposed layers to each other. The two outer layers are large mesh. The central web is small mesh.



Locker : Also called traps, these are traps made of wood, plastic or metal, shaped as a cage or basket. The pot can be of several different forms, depending on the target species, and has one or more openings or ducts of entries. Bait provided or not it is usually laid alone on the seabed or connected to a buoy that indicates its position.



A Development plan for sustainable fisheries

- Shrimp fishery :

Crustaceans are an important sea resource in Morocco, so it's no surprise if their fishing is submitted to many measures aiming at their rational and sustainable exploitation. The Department of Marine Fisheries has implemented, since 1st January 2011, a development plan for the shrimp fishery, which has been revised for the 2015 campaign to ensure recovery of the stock of shrimps, and ensure rational and sustainable exploitation through the revision of the current scheme, and its adaptation to the specificities of the fishery, and the particularities of each fishery, segments involved in the fishery (offshore and inshore fleet).

This plan offers short-term emergency measures and other long-term measures. The main short-term measures concern the protection of spawning and shrimp fishing areas by a suspension of fishing activity and by quarantining the areas. Whereas the long-term measures will reinforce the aforementioned emergency measures, through the introduction of a quota system applicable to all vessels operating in the shrimp fishery.

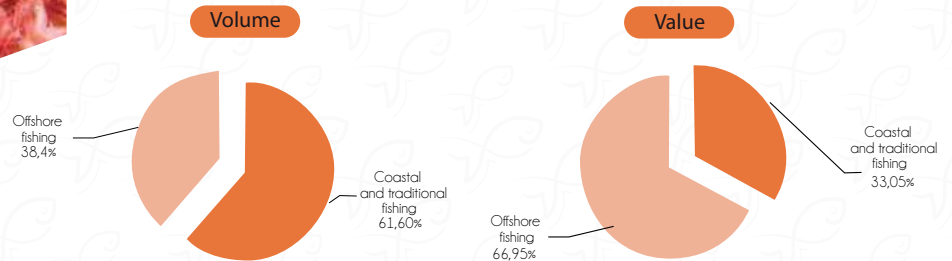
- Development Plan for big crustaceans :

This plan provides measures concerning species such as crayfish lobster and crab, and also the fishing techniques, the fishing areas as well as the periods of biological rest depending on the clutch zones and the species of big crustaceans.



A great *production*

The production of Moroccan crustaceans reaches 12 000 tons, worth 825 million dirhams, or 8% of the total value of national fish production, distributed as follows;



Moroccan crustaceans *valued*

Morocco cares a a lot for valuing its sea food. This care often differentiates it from competitors. And valuing the crustaceans is no exception. It consists mainly of freezing and packaging costs.

12 units are installed in Morocco, specialized in shelling of crustaceans, especially shrimp. All the units licensed by the Department of Maritime Fisheries are subject to monitoring and regular follow up.

They adopt the HACCP (Hazard Analysis and Critical Control Point).





Moroccan crustaceans, *a really healthy food*

We can't resist loving the Moroccan crustacean, especially when get to know its numerous nutritive qualities. Perfectly set in the context of a hyper-protein diet, the Moroccan crustacean itself is recognised as one of the best sources of protein. It contains all nine essential amino acids for our body that play a key role in the formation of digestive enzymes, hormones and tissues, such as skin and bones.













It contains low fat and contains a little omega 3, particularly, eicosapentaenoic acid and docosahexaenoic acid, which protect the cardiovascular system, act as anti-inflammatory, and are useful in the treatment of pathologies such as asthma, rheumatoid arthritis, psoriasis and inflammatory bowel disease. Docosahexaenoic acid is involved in the development and functioning of the brain, and maintenance of cognitive function and vision.

This is not all. The Moroccan crustacean is an excellent source of B vitamins, including B12, B3 and B6. It also provides vitamin A, and some vitamin C. Finally, it has significant concentrations of minerals and trace elements, including selenium, potassium, and phosphorus. In brief, it is a rich source of nutrients that help you to be healthy.



Moroccan seas, naturally abundant with crustaceans

The diversity of environments and topography unique underwater in the Moroccan coast, offer multiple possibilities of breeding grounds and shelter, which promote the development of character species. In this zone where biodiversity is very important, many remarkable species are present. We find especially those we call crustaceans.

 Deep-water rose shrimp : <i>Parapenaeus longirostris</i>	 Blue and red shrimp : <i>Aristeus antennatus</i>	 Scarlet shrimp : <i>Plesiopenaeus edwardsianus</i>	 Atlantic mud shrimp : <i>Solenocera membranacea</i>
 Golden shrimp : <i>Plesionika martia</i>	 Arrow shrimp : <i>Plesionika heterocarpus</i>	 Armed nylon shrimp : <i>Heterocarpus ensifer</i>	 Megalops shrimp : <i>Penaeopsis serrata</i>
 Common spiny lobster : <i>Palinurus elephas</i>	 Pink spiny lobster : <i>Palinurus mauritanicus</i>	 Royal spiny lobster : <i>Panulirus regius</i>	 Lesser slipper lobster : <i>Scyllarus arctus</i>
 Norway lobster : <i>Nephrops norvegicus</i>	 Giant red shrimp : <i>Aristaeomorpha foliacea</i>	 Common prawn : <i>Palaemon serratus</i>	 Narwal shrimp : <i>Parapandalus narval</i>
	 Caramote prawn : <i>Penaeus kerathurus</i>	 European lobster : <i>Homarus gammarus</i>	

Zoom on leading crustaceans

Because it is finely tasty, and stands for an exceptional taste, the Moroccan crustacean combines the taste of the sea, the equilibrium and exoticism.

Let's discover some leading crustaceans



Deep-water rose shrimp : *Parapenaeus longirostris*

The prawn is a decapod crustacean (has 5 pairs of arms). It has a pink-orange shell, the body is compressed laterally, males usually measure between 8 and 14cm long and females between 12 and 16cm long.

It lives in muddy or sandy mud areas from 20 to 700m deep.

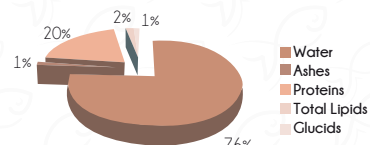
Minimal commercial size : 9cm long from the eye to the start of the tail.

The health aspect : the Moroccan shrimp is one of the few foods which naturally contains much protein and little fat. It is a source of vitamins, phosphorus and iodine, it contains excellent nutritional quality protein, as well as, but in small amounts, Omega 3 which is essential to the body.

The nutrition aspect :

For 100g of Rose shrimp

Energy intake : 106 Kcal



Pink spiny lobster : *Palinurus mauritanicus*

This is a big crustacean whose common size is between 20 and 40cm. It has an elongated body, it is segmented and brownish-red, with blotches and white spots on the back of the thorax and abdomen. It exists between Agadir and Cap Blanc.

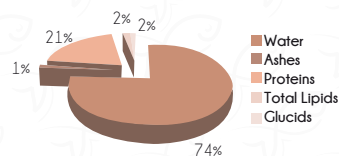
Minimal commercial size : 17cm long from the eye to the start of the tail.

The health aspect : Because it is low in calories, Moroccan crayfish is a nutritionally interesting food product that provides B vitamins, mineral salts and trace elements.

The nutrition aspect :

For 100g of Pink lobster

Energy intake : 112 Kcal





Norway lobster : *Nephrops norvegicus*

It has a tubular body and a shell equipped with a well-developed rostrum. The first three pairs of legs are terminated with clamps, the first pair is much larger than the others. It has a maximum size of 24cm and a common size of 10 to 19cm.

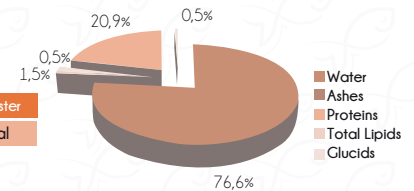
This species is benthic (moving on the seabed) of muddy or sandy mud, 20 to 800m depth, but is most abundant between 200 to 500m and lives in burrows.

The health aspect : Excellent source of protein, the Moroccan langoustine collects minerals (phosphorus, magnesium, calcium), trace elements and vitamins.

The nutrition aspect :

For 100g of Norway lobster

Energy intake : 91,1Kcal



European lobster : *Homarus gammarus*

Also called Tarouchet, Bougavanti or lobster, its body is long and robust, composed of a carapace, a powerful abdomen and a tail. Its colour is dark blue, its legs have white ends and its branches are orange. The first three legs terminate in grippers whose first pair is massive and asymmetrical and bigger than the others. The lobster has two large antennae and two antennules, its eyes are well developed and mobile and its abdominal segments are smooth. Its common size is 23 to 50cm and up to a maximum of 65cm. This benthic species prefers rocky seabed up to 150m deep and leads a sedentary life.

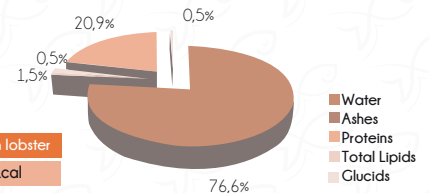
Minimal commercial size : 17cm long from the eye to the start of the tail.

The health aspect : the Moroccan lobster, which is lively and nutritional, is packed with beneficial nutrients for your health such as copper, selenium, zinc and vitamin B12.

The nutrition aspect :

For 100g of European lobster

Energy intake : 98 Kcal





The practical aspect of Moroccan crustaceans

species	Fresh means	Well cooked	Well preserved	Well chosen
Shrimp	<ul style="list-style-type: none"> - shiny body and releasing a subtle smell of sea - soft shell that should not be spotted - firm flesh <p>Head in place and not half detached of the body.</p>	<p>To properly defrost, place your shrimp on a plate in the refrigerator, never outdoors.</p> <ul style="list-style-type: none"> - If you serve shrimp as starter, think of the finger bowls. <p>Flavoured with lemon, these wipes will mask the strong odour, if not embarrassing, of crustaceans for the rest of the meal.</p> <ul style="list-style-type: none"> - Do not discard the shells. <p>Once detached, the shells, such as uneaten head, can be the basis for a shellfish sauce, broth to cook the shrimp or cook rice for example.</p>	<p>Generally, the shrimp can be kept in the refrigerator for two days, and a month or more (read to package directions) in the freezer.</p>	<p>Moroccan shrimp can be purchased raw or cooked, but also peeled, canned or frozen. Remember that when you buy a kilo of raw shrimp, half of its weight is peelings that will go in the trash.</p> <p>The best frozen shrimps are those:</p> <ul style="list-style-type: none"> - Whose flesh is thicker and resists the cold better. - Have no traces of frost, a sign of poor freezing and faulty packaging.
Pink spiny lobster	<ul style="list-style-type: none"> • Alive : It must be active and vigorously move the tail and have all its claws, only the absence of antennas can be tolerated because they are very fragile. <p>Under Ice: It must have a white flesh, firm and succulent. The eye must be very dark and its shell should be bright.</p>	<ul style="list-style-type: none"> • Alive, Pink spiny lobster should be cooked. Its preparation is not complicated, simply immerse it for 10 minutes in a broth. Do not cook it longer because its flesh becomes rubbery. It can also be cooked in the oven, barbecued, or in a soup, ... <p>Frozen, defrosting it should be slow to preserve the flavor of its flesh.</p>	<p>Generally, the alive Pink spiny lobster should be consumed quickly. They can be kept for very little time in the refrigerator, though it is possible to freeze the cooked ones with or without shell. Frozen, they can be kept in the refrigerator for two days, and for a month or more (read to package directions) in the freezer.</p>	<p>The best way to enjoy the Pink spiny lobster is to buy it alive. But it is also sold frozen, usually as of peeled tails and claws</p>



species	Fresh means	Well cooked	Well preserved	Well chosen
Norway lobster	<ul style="list-style-type: none"> • Alive : They must show no signs of tampering. On the stall are generally immobile. When we touch them, they must wriggle • Under Ice: They must of pink or vivid orange colour, and have: <ul style="list-style-type: none"> - Tails without brown or gray spots, - Brilliant eyes, - Legs that can be held, - A pleasant smell (no ammonia). 	<ul style="list-style-type: none"> • Preparation: Using scissors or a sharp knife make an incision in the shell along the outer curve of the head to the tail. Remove the vein. The shell of the Norway lobster can be removed before or after cooking. • Cooking: Langoustines have a very delicate flesh. It is very important not to overcook them. Use defrosted langoustines for better results. Since the Norway lobster has a pink shell even when raw, do not rely on its external colour to determine doneness. Rather rely on its flesh which is white and a little translucent 	<p>Alive, it can't be kept more than 24 hours in the fridge. Once bleached, the Norway lobster can be kept wrapped in a damp cloth, in the coldest part of the refrigerator.</p> <p>Frozen Norway lobster can be kept for about 1 month (read the package directions). In the refrigerator, it can be kept one to two days.</p>	<p>The Norway lobster can be bought alive, fresh or frozen (whole or as tails).</p>
European lobster	<p>The European lobster is sold fresh (live or cooked) or frozen. If you buy it alive, make sure it is sturdy. Of course, if your lobster does not move when you take it out of the pool, that means it is certainly not in good health, and should be avoided. If the tail folds quickly and the clips lift, you have a good lobster.</p> <p>As for the shell, we must ensure that it is thick and hard, because this is what will guarantee an abundance of flesh.</p> <p>If you buy a cooked crustacean, choose a European lobster with firm flesh, a shiny black eye, a sweet smell of the sea and the tail folded on itself (this indicates that the European lobster was alive when it was cooked) .</p>	<p>The lobster is eaten preferably hot or lukewarm, for the cold makes it lose its flavour. While being cooked, the shell should turn orange-red. It is the abdomen and the tail that contain the greater amount of meat, but also the clamps.</p> <p>Whatever the method of preparation chosen, you will always remove the gravel pocket located just behind the head and intestines, which have the appearance of a small black vein, located under the tail.</p> <p>NB : Cooking European lobster is very important, if it is overcooked, it loses its softness and becomes dry and stringy.</p>	<ul style="list-style-type: none"> - Cook the European lobster as soon as you buy it. If you wish to cook it a little later, refrigerate on a bed of ice and cover it with a wet cloth for a few hours. - The cooked European lobster can be kept for one to two days in the refrigerator. It can also be frozen, once cooled. To freeze the whole lobster, transfer it to a freezer bag, remove air, close the bag tightly and freeze. At the time of eating, dip the frozen European lobster in boiling water for two minutes instead of defrosting it slowly: it will be tastier. The frozen European lobster can be kept for a month. <p>NB : Never keep an alive European lobster in fresh water: he would die!</p>	<p>The European lobster is sold fresh (alive or cooked) or frozen</p>