FISH AND SHELLFISH

IDENTIFICATION

Fish and Shellfish Identification An Open Learning Module for the Seafish Open Tech Project

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The Authors

At the time this module was written -

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A Guide for Open Learners

This will help to explain what open learning is all about. It will help you to make the best use of your open learning module.

WHAT'S SO GOOD ABOUT OPEN LEARNING?

Open learning gives you freedom to choose.
You study:

- What you like
- Where you like
- When you like
- At a pace to suit you.

You can pick the subjects you want. You don't have to be in a certain classroom at a certain time. You won't be bored because the teaching is too slow, or lost because it's too fast.

You seldom need any qualifications before you are allowed to study.

All this freedom lets you fit your studying into your daily routine.

The best thing about it for most people is that they can study without taking valuable time off work.

Modules are written in a way that allows you to study without help. However, it is expected that you will need assistance from time to time, this can normally be provided.

THINGS YOU SHOULD KNOW ABOUT YOUR MODULES

What is a module?

A module is the name we have given to a study package. It will have a printed text. In a few of them there will be audio or video tapes as well.

Each module will be divided into segments. You could think of each segment as a lesson.

Before you begin

Each module will have a short introduction. You will be given a list of things you will need. For some modules, special equipment will be needed. We can supply most of this. This section will also tell you if you need any knowledge or experience before you begin. Check that you have everything you need.

Objectives

Modules are based on objectives which tell you what you will be able to do when you have finished. These are clearly stated. You should check that the module objectives match your own reasons for studying.

S.A.Q.'s

This is short for **self assessment questions**. These questions are carefully designed to help you. They let you know how you are getting on. They help you to find out any problems that you may be having with the material and help you to put them right.

Don't be tempted to skip these questions. Don't look at the answers before you try them! You will only be cheating yourself.

Where you are expected to write an answer, a space will be left in the text. Remember the module is your learning tool, not a textbook, so go ahead and write on it. **Don't** try to keep an answer in your head until you have checked it. **Always write down your answer first**. Writing the full answer down is very important, it makes you really think about what you are doing. The wide margins are also there for you to make notes in.

You will notice that the numbers given to the S.A.Q.'s are out of order. We did this on purpose. This is to stop you from accidentally seeing the answer to the second S.A.Q. when you are looking at the response to the first. The responses to the S.A.Q.'s are at the back printed on yellow paper. They are in the correct number order. I have called them responses because they are usually more than just answers. It is a good idea to read the whole response every time. It usually helps to know about common mistakes even though you got the right answer.

S.A.Q.'s are shown by a box with a question mark and the number of the question.

? **SAQ1**

Important information
Other boxes are used to show different types of information. This box with the **!** in the top left corner contains important information.

!

Warnings
This box with the warning sign gives information about possible dangers, health hazards, etc.

⚠

Definitions

A box with smaller print is used for definitions and extracts from documents.

smaller print

Other emphasis

Shading like this is used to pick out important sentences and paragraphs.

Bold type is used to make **important words** or **numbers** stand out.

Introduction

This module describes the main features of round and flat fish, molluscs and crustaceans. Images of fish are included with this CD version of the module showing pictures of different species.

The images are in two groups: Printed cards are availble for sale from Seafish).

- 36 species of fish
- 17 species of shellfish

There are two separate identification keys to accompany these images given in appendices 1 and 2 at the end of the module. Obviously it is not possible to show all the variations in colour which may be in a particular species. However, by working through both the fish identification key and the shellfish identification key, you should be able to recognise the actual species when you come across them during your work.

EQUIPMENT REQUIRED

The only special equipment required is the set of images which is supplied at the end of this CD file. Each image is numbered at the top of the page.

Segment One

Identification of Fish

Segment One
Identification of Fish

INTRODUCTION

If you work or intend to work in the fish industry, it is essential that you can identify the different species of fish that are landed for processing and eating. Different species of fish have their own features and need handling in different ways. To identify fish we shall make use of an **identification key** which is given in Appendix 1. To use this you need to know the names of the different parts of a fish and which features are important so that you can tell the difference between the species. You will find, in the accompanying pack with this module, pictures of different fish. The pictures are not to scale.

OBJECTIVE

When you have completed segment one you should be able to identify species of edible fish commonly seen in the UK seafish industry.

PARTS OF A FISH

Figures 1 and 2 show the outline features of a fish. The first figure shows the fins of the fish and the second shows other features.

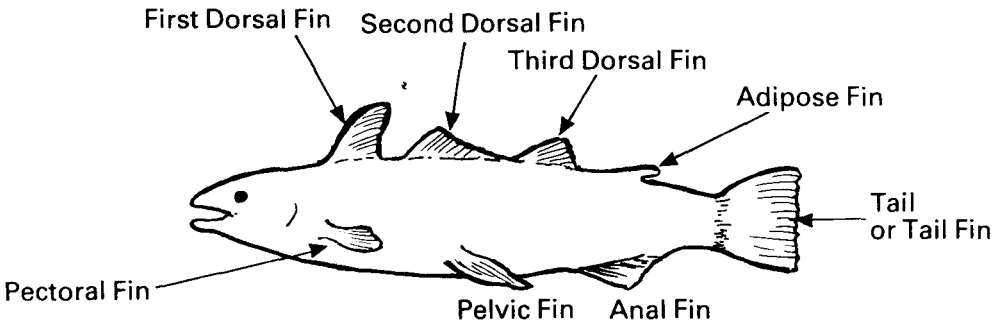


Figure 1: The Fins of a Fish.

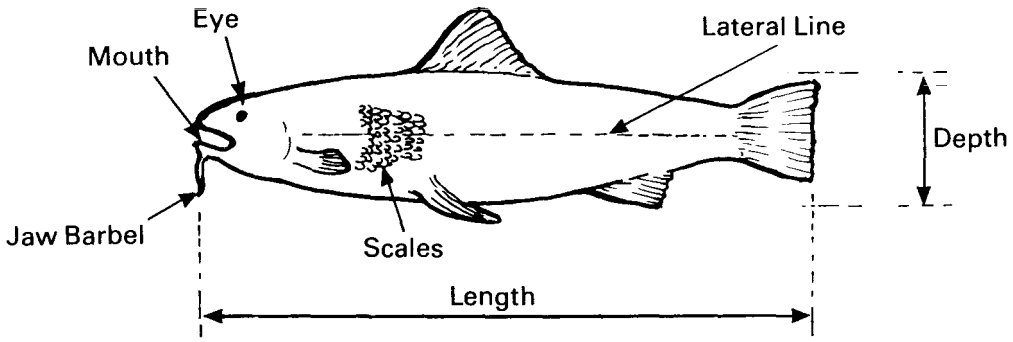


Figure 2: Some Parts of a Fish.

Only two fish in this segment have adipose fins. They are numbered 21 and 23. You may wish to print off these images and label the adipose fins on each.

Fins are very varied in shape and size. Some are long fins with long spines), some are short, some have a broad base and some have a narrow base. Figure 3 shows the two main dimensions of a fin i.e. the length and breadth.

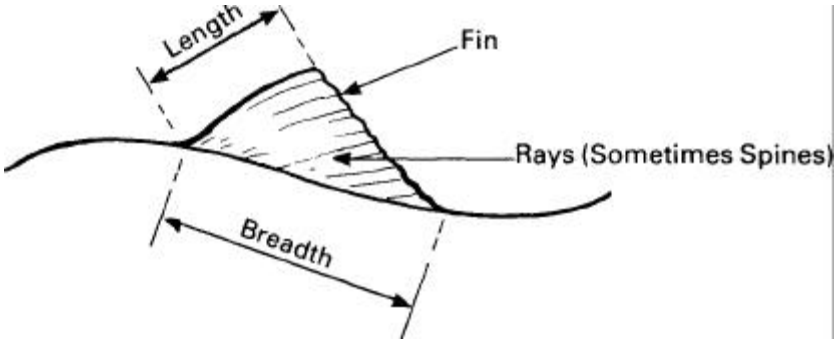


Figure 3: The Fin of a Fish.

The diagram of Figure 1 only shows one side of the fish. Hidden from view is one pectoral fin and one pelvic fin. If you were to look head on to a fish you would then see that these fins come in pairs as shown in Figure 4.

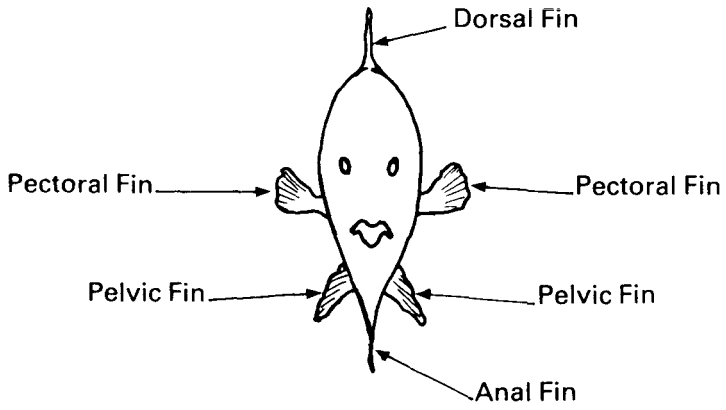


Figure 4: Head on View of a Fish showing Pairs of Pelvic and Pectoral Fins.

As you can see there is rather a lot to take in! Don't worry, you can always look back to the Figures and bit by bit you will remember the names of the parts.

Now for the first SAQ.

? SAQ1

Select the picture shown by the number in the first column of the table below and then complete the rest of the table. I have done two examples for you.

PICTURE NUMBER	NUMBER OF DORSAL FINS	NUMBER OF ANAL FINS	NUMBER OF PECTORAL FINS	NUMBER OF PELVIC FINS	NUMBER OF ADIPOSE FINS	PRESENCE OF A JAW BARBEL (YES or NO)	NAME OF FISH
1	2	1	2	2	0	YES	LING

Note, in this example how the pelvic fin can be well forward of that shown in Figure 1.

23	1	1	2	2	1	NO	SALMON

Now complete the following:

6							
8							
12							
19							
21							
28							
32							

I expect by now you know that there is a wide variety of fin shapes and sizes, and that different fish have different numbers of fins. In spite of this we still need to look at other features.

For example, look at whether or not the fish has a jaw barbel, as we did in table 1. I hope you knew or managed to work out that a barbel is the worm-like thing that hangs from the lower jaw of some fish.

We might also look at the length or the depth of the fish's body, or the shape and colour of its lateral line. Which is the line which runs down the side of the fish, from just behind the head to the tail.

? SAQ5

Answer the following questions in connection with the pictures numbered below.

Fish No. 25	How many jaw barbels are there?
Fish No. 28	What is the colour of the lateral line?
Fish No. 9	State the difference between the first and second dorsal fins.
Fish No. 8	How do the length and depth of the fish compare?
Fish No. 3	How do the length and depth of the fish compare?

.....
.....
.....
.....
.....

We have now discovered that there are many different things about a fish that we can use for identification.

? SAQ8

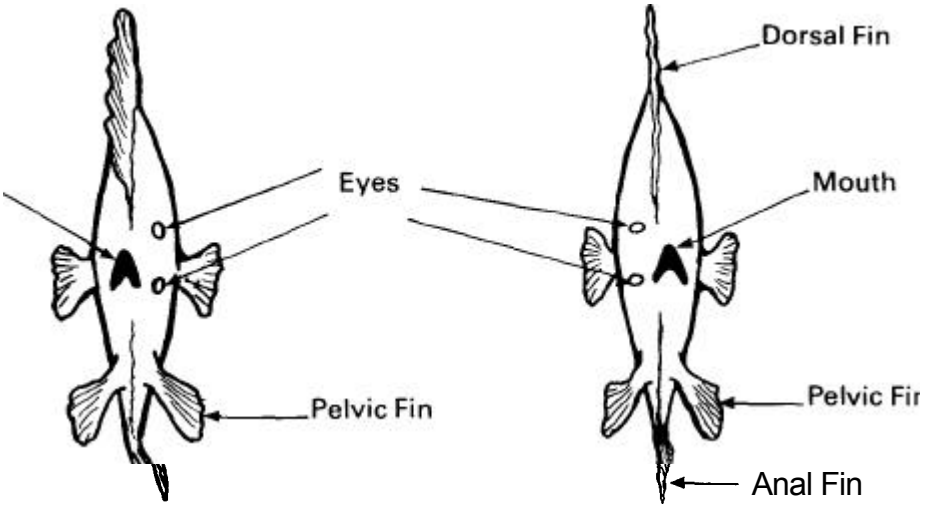
Write down six features that can be examined to help us identify a fish.

.....
.....
.....
.....
.....

Many of the features we have been discussing mainly relate to **round** fish. A side view of a **round** fish, i.e. showing the tail broadside on, also shows **only one eye**.

Fish like plaice, turbot etc. are known as **flat** fish. These are fish that swim on their sides and they live on or near the sea bed. As you can imagine if you were a flat fish resting on the sea bed it would not be very pleasant to have one eye resting on the sand! You would also have only one eye to see with. Very young flat fish have eyes on both sides of their head but as they grow, the eyes move to one side. In some types, the eyes move to the right and in others to the left, as shown in Figure 5.

You will notice in practice that this causes some flat fish to be gutted on the bottom or white side, for example the megrim, whilst most are gutted on the dark side, for example the plaice.



(a) Eyes moved to the Left side of the Fish

(b) Eyes moved to the Right side of the Fish

Figure 5:Front view of flatfish.

The flat fish rests on the bottom 'eye side up'. The top (or eye side) surface is usually in brown shades of colouring and the other side is white or cream.

Pictures of flat fish normally show the eye side. Look at picture 10. Both eyes can be seen and we can also see the flat of the tail. Remember a side view of a round fish only shows one eye.

? SAQ 4

Look at picutre 26. A catch question!
We are looking down on top of the fish (not its side). **The tail fin is edge on.**
Is this fish a flat fish or a round fish?

……

One key feature we have not discussed so far is **colour**. There is a great variety of colours and these, as we will see, are very useful in identification.

We are now going to divide our fish into two main groups, round fish and flat fish.

? SAQ 11

Divide your pile of pictures into the two groups of flat and round fish. Write down the picture numbers for each group.

Flat .....
……

Round .....
……

Use of the Sea Fish Identification Key

As I pointed out earlier you will use a **key** to identify your fish. You already have the names of some and have some idea of the parts of the fish we need to look at. You have just sorted out your pictures into flat and round fish. You already know something about the **skate**. Assuming we are going to examine round fish first, look at the first two questions in the key (Appendix 1).

? SAQ 2
Find picture 26. Examine the key questions 1 and 2. Does it fit? Is the fish shown in picture 26 a **skate?**

…….

Now look at the key question 3.1 mentioned earlier that colour was also important in helping us.

? SAQ 10
Go through the round fish pictures and find the fish that are **red** in colour. Using the key, identify the fish and write their names on a sheet alongside their number. Check your names with mine and correct any mistakes you may have made.

So much for seeing **red**! The procedure is now just the same for the remaining round fish.

I will go through another set of fish with the particular main feature of having three dorsal fins, i.e. fish of the Cod Family.

? SAQ 6
Go through the cards of round fish and take out those with three dorsal fins. Start at **question 10** each time. Use the key to name these fish. Write the names on the back of the cards. Some fish have more than one name. Write down all the names.

? SAQ 9
Take the rest of the round fish pictures and, using the key, by starting each time at **question 9**, find the names of all the fish. Write the name (or names) for each fish on the back of the card.

Now for the flat fish. If you examine question 1 of the key you see that you are sent to question 37. We will make that our starting point. We have ten flat fish to identify.

? SAQ 7

Look at each flat fish picture and, using the key, start at question 37. Name all of the fish. Write the name of each one on a sheet of paper These are not so easy to identify as the round fish. They will take a bit more practice.

So far so good! You now have the means of identifying quite a number of fish. There are some snags, fish can get damaged and loose a fin or two or even a head or a tail! The problems of identification are then more difficult! Take your identification key and try to identify some real fish instead of just pictures. Enjoy yourself.

Almost the end of this segment. One more SAQ and then something on demersal and pelagic fish.

? SAQ 3

Put all the pictures in number order. Without looking at the names on your sheet write down the name of each one on another piece of paper. You can use the key if you wish, or if you can remember some, so much the better. When you have finished, check your answers with the names on your sheet.

DEMERSAL AND PELAGIC FISH

These terms simply mean:

a. Demersal fish live on or near the seabed;

b. Pelagic fish swim nearer the surface of the sea, usually in shoals and have a lot of oil in their flesh.

To reduce wastage of fish it is essential to know which types of fish are demersal and which are pelagic. You will have to remember there are fewer types of pelagic fish than demersal landed in the U.K.

a. All flatfish are demersal (no problem here).

b. In the round fish group the pelagic types are

The mackerel	Picture no. 2
The sardine	Picture no. 16
The pilchard	Picture no. 17
The herring	Picture no. 29
The sprat	Picture no. 33

Not very many to remember but these are very important types of fish and some of them are landed in large quantities.

Find these five fish images and write on a sheet of paper that they are pelagic and their numbers. The remainder are demersal fish.

Every now and again take a look at the images, go through them and try to remember their names. You can use the key to find the names so as to get practice with its use. If you are a little short of time, check with the names written on the back!

If you go down to the market to look at the fish and try to identify them with the key you could well end up at 35. Some fish are landed that are not included in our list. Find someone who can tell you the name of the fish you are looking at.

You could have made a mistake. If it is one that is on our list, try to find out where you went wrong in the key. The fish could, of course, be damaged.

This is now the end of the segment and a good place to take a break!

Segment Two

Identification of Shellfish

Segment Two
Identification of Shellfish

INTRODUCTION

The term shellfish includes both **molluscs** and **crustaceans**. These animals don't have a backbone but have an external shell instead.

To make things more complicated some molluscs, such as squids and cuttlefish, have their shells **inside** their bodies.

In order to identify different species of shellfish we shall make use of an **identification key** which is given in Appendix 2.

To use this you will need to know some of the main features of molluscs and crustaceans.

Therefore it is important that you read this segment before attempting the identification exercise.

OBJECTIVE

When you have completed segment two you should be able to identify 17 species of shellfish commonly seen in the UK seafish industry.

PARTS OF A MOLLUSC

Molluscs have a **soft fleshy body** and either one shell or a pair of shells.

Those with **one shell** are known as **Gastropods**. The shell is coiled and carried on the animals back. Both the **whelk** and the **winkle** are gastropods. Here's a picture of a whelk to show the main features we'll be talking about later on.

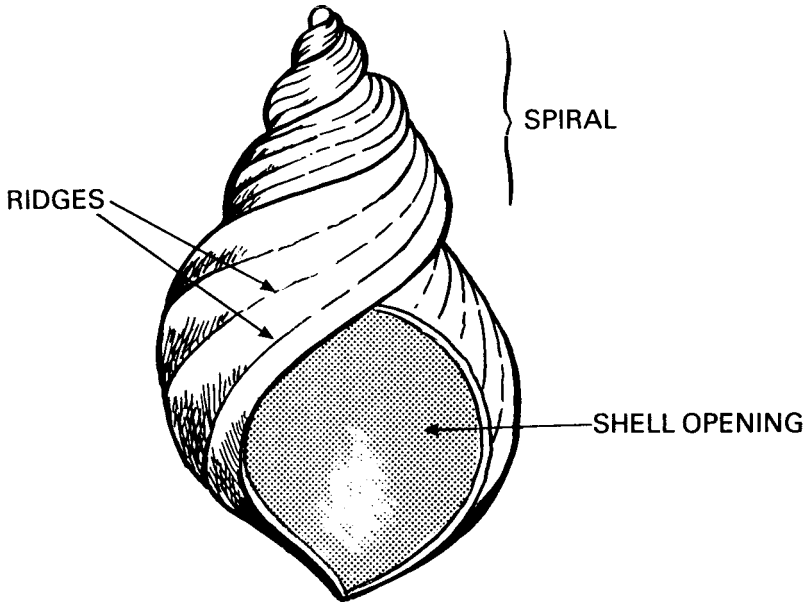


Figure 6: Main features of a whelk.

Molluscs having a **pair of shells** are known as **Bivalves**.

The shells are hinged together and closed by internal muscles.

The **cockle, oyster** and **scallop** are typical bivalves.

Look at the picture of a scallop opposite which points out the main features of a bivalve mollusc which are two shells and a hinge. Some other common features are also shown.

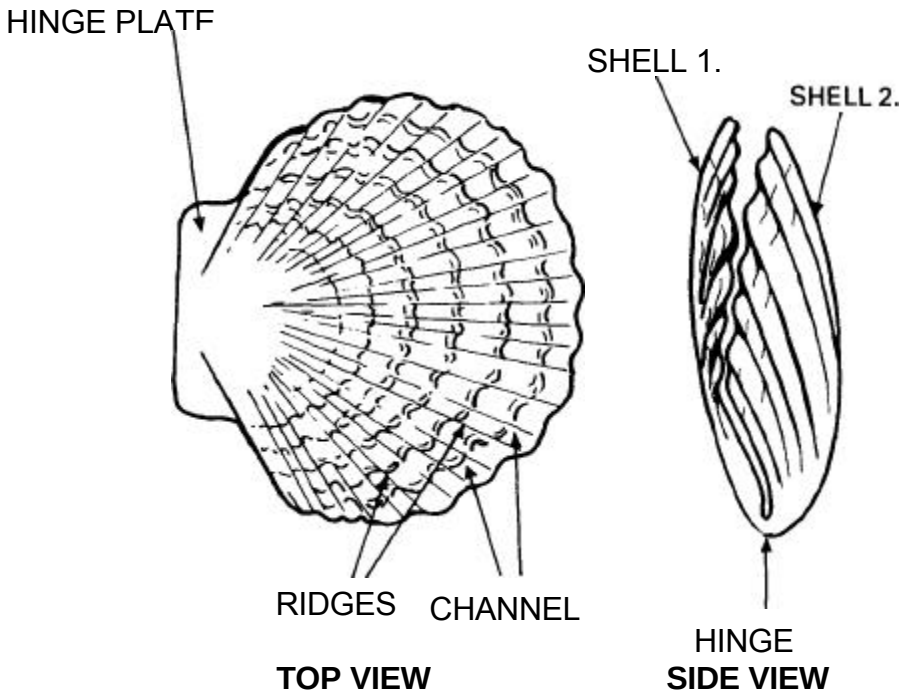


Figure 7: Main features of a scallop

PARTS OF A CRUSTACEAN

The body of a crustacean can be divided into 3 parts:

- Head
- Thorax
- Abdomen

The body is made up of segments and the legs are jointed.

All of the crustaceans used commercially can be grouped together and called **decapods** because they have **10 legs**. The first pair of legs are often much largerthan the rest. These are the **claws**.

All these crustaceans have the head and thorax covered by the **carapace.**

There is a large variation in body form so let's look at some examples.

Figure 8 shows the main features of a lobster.

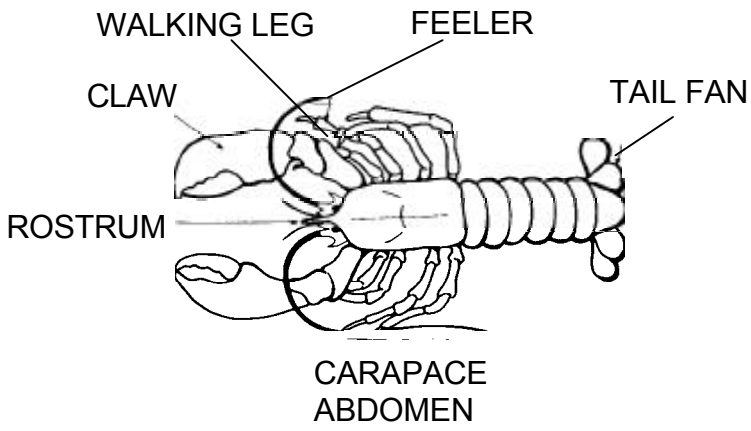


Figure 8: Main Features of a Lobster

As you can see a lobster has a large carapace and a long abdomen.

It has 4 pairs of walking legs and a pair of large claws. There are 2 pairs of feelers.

All lobsters have the same features unless they have been damaged.

When identifying these animals size is very important. Remember to look at the scales given on the images .

Now look at Figure 9 which shows the main features of a crab:

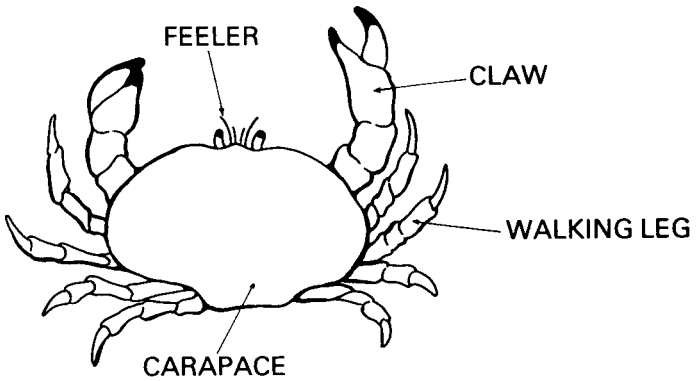


Figure 25: Main features of a Crab.

The long abdomen that you saw on the lobster is no longer present.

If you turned the crab upside down you would find the abdomen tucked underneath the body. This is shown below:

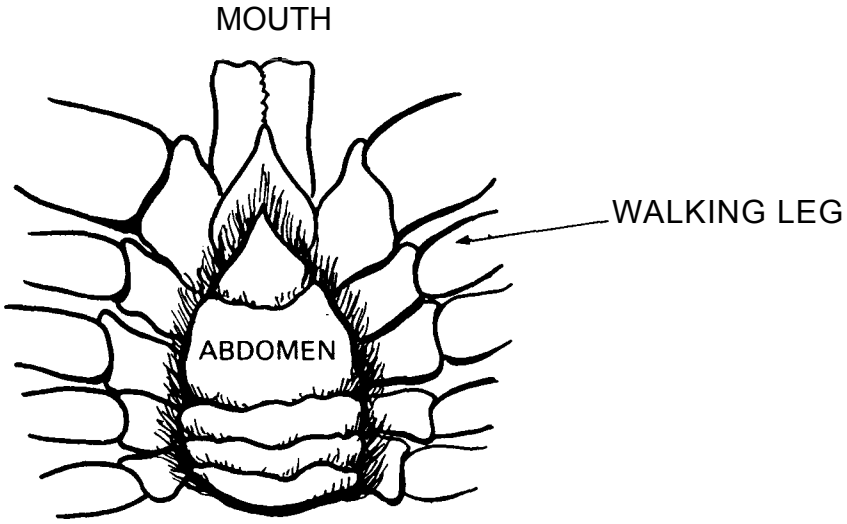


Figure 10: Abdomen of a Crab

The crab also has 4 pairs of walking legs and 2 claws. It has 2 pairs of feelers but these might be diffiuclt to see as they are very short.

It is also useful to look at **the last joint on the back legs**.

In swimming crabs these joints are **flat** and **rounded** (see Figure 11 a).

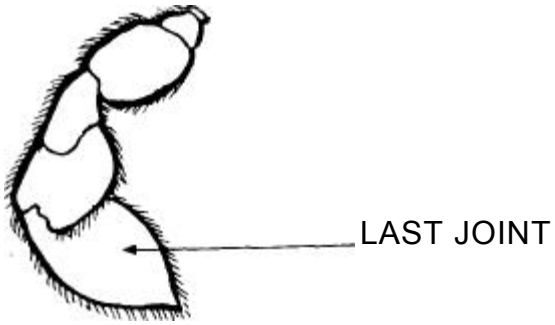


Figure 11a.

In other **edible crabs** these joints are **pointed** (see Figure 11 b.)

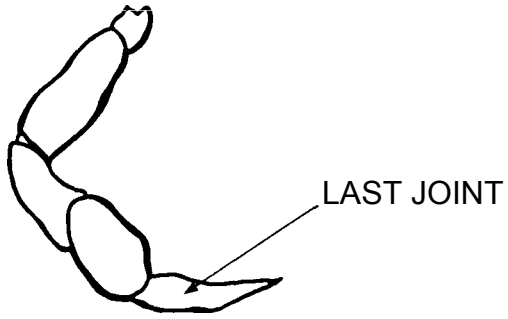


Figure 11b.

USE OF THE SHELLFISH IDENTIFICATION KEY

There are no SAQ's in this Segment since the use of the identification key is considered to be adequate to achieve the objective set out on page 11.

Now use the **identification key** given in appendix 2 with the features that we have just described to name the shellfish on your image.

To help you on your way, make two lists of image numbers before you start. One for **molluscs** and one for **crustaceans.**

Use the key to identify all the molluscs then move onto the crustaceans by starting at **No. 13** in the key.

⚠
The shellfish you come across during your work may be differently coloured to some of the images

Nevertheless the identification exercise should help you towards identifying the various species covered.

As with the fish identification images use the shellfish images whenever you have a spare moment to try and identify the various species. You should soon be able to dispense with the use of the key.

Responses to the Self Assessment Questions

Responses to the Self Assessment Questions

SAQ 1

The completed table is:

PICTURE NUMBER	NUMBER OF DORSAL FINS	NUMBER OF ANAL FINS	NUMBER OF PECTORAL FINS	NUMBER OF PELVIC FINS	NUMBER OF ADIPOSE FINS	PRESENCE OF A JAW BARBEL (YES or NO)	NAME OF FISH
1	2	1	2	2	0	YES	LING
23	1	1	2	2	1	NO	SALMON
6	2	1	2	2	0	NO	REDFISH
8	2	2	2	2	0	NO	DORY
12	3	2	2	2	0	NO	COLEY
19	2	1	2	2	0	NO	RED GURNARD
21	1	1	2	2	1	NO	SEA TROUT
28	3	2	2	2	0	YES	COD
32	1	1	2	0	0	NO	CATFISH

Check your answers with mine. If you have an error look at the pictures and make sure you understand my answers. I have given the names of these fish so that, with usage, you will remember them. From the table you will see there are a lot of differences between the nine fish. I hope you did not forget that a sideways-on diagram only shows one each of the pectoral fins, when, in practice, there are two, one each side of the fish.

Look at each of the pictures carefully and write the name of the fish on paper.

SAQ 31

The answer to the first question is **no** so we go to question 2.

The answer to the second question is **yes**. We know this is a **skate** from what I told you earlier. So far so good!

SAQ 3

The answers are all on your sheets.

You should have put them there earlier and corrected them if you had made an error. Did you?

SAQ 4

It is in fact a round fish. If we were to look straight down onto a flat fish the eyes would be on one side of the head only. With this fish the eyes are on both sides of the head. The flat parts (or wings) of this fish are modified pectoral fins and are the parts that are eaten. This fish is in fact a **skate**. Sometimes known as a **ray** or **roker**. Write these three names down.

SAQ 5

Fish No. 25	This fish has two jaw barbels (and it is a **red mullet**).
Fish No. 28	The lateral line is white. (Can you remember the name of this fish?)
Fish No. 9	The first dorsal fin is spiny and the second is softer. (It is a **sea bass**).
Fish No. 8	The length and the depth are about the same. (You have seen this picture before. Can you name this fish?)
Fish No. 3	The length is very very much greater than the depth (and it is a **conger eel**).

You have now been introduced to three more types of fish. Write their names down.

SAQ

You should have five pictures of fish with three dorsal fins i.e. numbers 7, 12, 13, 27 and 28. (You might also have picked No. 2. In fact this fish has 2 dorsal fins. The first appears separated in this diagram.) By using the key these fish can be identified as:

7	Haddock
12	Coley (or Saithe or Coalfish)
13	Pollack (or Pollock or Lythe)
27	Whiting
28	Cod

I expect you got all these correct and by now have the basic idea of using the key. Correct those you have got wrong.

You should have the following.

4	Dab
5	Witch
10	Megrim
11	Plaice
15	Turbot
18	Flounder
22	Lemon Sole
24	Sole (or Dover Sole)
30	Brill
36	Halibut

I hope you got all these correct. Some of the features covered in the key are not all that clear to see like the prickles of the Flounder (Picture 18) and the bony knobs of the Plaice (Picture 11). If you had some incorrect try again with the key and see if you can get them right. Correct any if you have them wrong.

SAQ 8

You could have chosen six of the following:

- Number of dorsal fins;
- Number of anal fins;
- Existence of pelvic fins;
- Colour of the lateral line;
- Comparison of length to depth of the fish;
- Presence of spiny fins;
- Number of jaw barbels;
- Presence of an adipose fin;
- Length and breadth of a fin.

Check your list with mine and note the ones you don't have. Of course there are others e.g. colour (see later).

SAQ 9

1. Ling
2. Mackerel
3. Conger (or Conger eel)
8. Dory (or John Dory)
9. Sea Bass
14 Dog Fish (or Huss or Flake or Rigg)
16 Sardine
17 Pilchard
20 Gey Mullet
21 Sea Trout
23 Salmon
26 Skate
28 Pilchard
29 Herring
31 Hake
32 Catfish
33 Sprat
34 Monkfish (or Anglerfish)

I hope you got all these correct. If you ended up at Question 35 you have made a mistake. Go through the key again with any that you have got incorrect and correct the names you have written down.

.....

SAQ 10

You should have found four red coloured fish.
The image numbers are 6, 19, 25 and 35.

No. 6 is a **Red Fish**
No. 19 is a **Red Gurnard**
No. 25 is a **Red Mullet**
No. 35 is a **Sea Bream (Red)**

There is also a black Sea-Bream, and other species of Gurnard.

SAQ 11

The flat fish picture numbers are:

4, 5, 10, 11, 15, 18, 22, 24,30 and 36.

The round fish picture numbers are:

1, 2, 3, 6, 7, 8, 9, 12, 13, 14, 16, 17, 19, 20, 21, 23, 25, 27, 28, 29, 31, 32, 33, 34 and 35.

I hope you remembered that the Skate (picture 26) is a round fish.

Appendix 1 – Seafish Identification Key

Appendix 1 – Seafish Identification Key

1. Is the fish a flat fish?

   If **yes** go to 37
   If **no** go to 2.

2. Is the fish

   flat in appearance;
   one eye on each side of its head;
   and normally between 1 – 1.5 metres in length?

   If **yes** it is a **Skate** (or **Ray** or **Roker**)
   If **no** go to 3

3. Is the fish mainly red in colour?

   If **yes** go to 4
   If **no** go to 9

4. Is the fish deep bodied? (i.e. about half as deep as it is long).

   If **yes** go to 5
   If **no** go to 7

5. Has the fish a distinctive blue colouring, one broad dorsal fin and a black dot behind the eye?

   If **yes** it is a **Sea Bream**
   If **no** go to 6

6. Has the fish a maximum body length of about a metre; a short, but broad based, first dorsal fin with spines; and a spineless second dorsal fin?

   If **yes** it is a **Redfish**
   If **no** go to 35

7. Has the fish a broad based and spiny second dorsal find, almost **2** its body length;
broad based and spiny anal fin, the same breadth as the second dorsal fin;
a longish spiny first dorsal fin;
and bony extensions to the lateral line?

   If **yes** it is a **Red Gurnard**
   If **no** go to 8

8. Has the fish a distinctive spiny first dorsal fin with markings;
a very steep head front;
two lower jaw barbels;
and large scales?

   If **yes** it is a **Red Mullet**
   If **no** go to 35

9. Has the fish a very large head compared to its body;
large pectoral fins;
a big mouth;
and mottled brown colourings?

   If **yes** it is a **Monkfish (or Anglerfish)**
   If **no** go to 10

10. Does the fish have three dorsal fins?

    If **yes** go to 11
    If **no** go to 17

11. Does the fish have a jaw barbel?

    If **yes** go to 13
    If **no** go to 12

12. Does the fish have:
a triangular first dorsal fin with long rays and a curved back edge;
and a large black spot above the pectoral fin?

    If **yes** it is a **Haddock**
    If **no** go to 13

13. Has the fish a single barbel;
a white lateral line;
and does the upper jaw stick out in front of the lower?

If **yes** it is a **Cod**
If **no** go to 14

14. Has the fish a short but broad based first anal fin;
a lateral line that forms a bump above the pectoral fin;
and an upper jaw which comes further forward than the lower?

If **yes** it is a **Whiting**
If **no** go to 15

15. Has the fish an obvious 'V' shape at the end of its tail fin;
jaws of equal length;
a gap between the first and second anal fins;
a pale or white lateral line and a dark coloured back?

If **yes** it is a **Coley** (or **Saithe** or **Coalfish**)
If **no** go to 16

16. Has the fish a tail fin almost square cut;
a broad based first anal fin;
and a lower jaw that sticks out in front of the upper jaw?

If **yes** it is a **Pollack** (or **Pollock** or **Lythe**)
If **no** go to 35

17. Does the fish have two dorsal fins?

If **yes** go to 18
If **no** go to 25

18. Has the fish one long barbel;
a long body, 1 or 2 metres in length;
a narrow based first dorsal fin;
a broad based second dorsal fin;
and a broad based anal fin?

If **yes** it is a **Ling**
If **no** go to 19

19. Does the fish have a narrow based first dorsal fin;
a broad based second dorsal fin;
a broad based anal fin (half the body length);
and a body 75 – 180 cms in length?

    If **yes** it is a **Hake**
    If **no** go to 20

20. Does the fish have its mouth directly under the eyes,
and on the underside of its head;
a long body 60 – 100 cms in length;
a tail with the top lobe much bigger than the bottom one;
a grey back;
and a spine in front of each dorsal fin?

    If **yes** it is a **Dog Fish** (or **Huss** or **Flake** or **Rigg**)
    If **no** go to 21

21. Does the fish have a blue-green back with irregular black markings; and five very small fins behind the second dorsal fin?

    If **yes** it is a **Mackerel**
    If **no** go to 22

22. Does the fish have a large head;
a deep body;
a spiny long first dorsal fin;
and a black circular dot on the body?

    If **yes** it is a **Dory** (or **John Dory**)
    If **no** go to 23

23. Has the fish grey colouring;
two narrow based dorsal fins;
a spiny first dorsal fin, with four spines only;
a clear space between the first and second dorsal fins;
a body covered in large scales;
and no lateral line?

    If **yes** it is a **Grey Mullet**
    If **no** go to 24

24. Does the fish have a first dorsal fin with 8 or 9 stout spines;
no space between first and second dorsal fins;

If **yes** it is a **Sea Bass**
If **no** go to 35

25. Does the fish have one dorsal fin?

If **yes** go to 26
If **no** go to 36

26. Has the fish a very long body, up to 2m;
a round body;
a very broad dorsal fin, almost full body length;
a very broad anal fin, a little less broad than the dorsal fin;
and a pointed pectoral fin?

If **yes** it is a **Conger** (or **Conger Eel**)
If **no** go to 27

27. Has the fish a body length of 80 – 125 cms;
a large round head;
a broad dorsal fin extending from head to tail;
and a small tail?

If **yes** it is a **Catfish**
If **no** go to 28

28. Has the fish:
silvery coloured sides;
a deep ‘V’ shaped tail fin;
is it less than 50 cm in length?

If **yes** go to 29
If **no** go to 33

29. Has the fish a length of 18 – 25 cms;
and a dorsal fin base that starts in front of the pelvic fin base?

If **yes** it is a **Pilchard**
If **no** go to 30

30. Is the fish similar to the Pilchard but only 8 cm in length?

    If **yes** it is a **Sardine**
    If **no** go to 31

31. Has the fish a body length of 25 – 45 cms;
    and a dorsal fin base that starts in front of the pelvic fin base?

    If **yes** it is a **Herring**
    If **no** go to 32

32. Has the fish a body length of 13 – 16 cms;
    and a dorsal fin base that starts behind the base of the pelvic fin?

    If **yes** it is a **Sprat**
    If **no** go to 35

33. Has the fish a length of 75 – 150 cms;
    does it have an adipose fin;
    a square cut tail fin?

    If **yes** it is a **Sea Trout**
    If **no** go to 34

34. Has the fish a slightly forked tail fin;
    silver colouring;
    an adipose fin?

    If **yes** it is a **Salmon**
    If **no** go to 35

35. If you have ended up here you have got a fish that is not included in this study module, or you have invented a new type of fish! If you are sure you have not made an error somewhere in this key try to find someone who knows something about fish identification.

36. Fish usually have one, two or three dorsal fins and no more than this. If you have arrived here you could have made an error. If you feel you are right find someone who knows about fish identification.

37. Yes we are considering flat fish. You answered yes to Question 1.

    You could have a Skate. A Skate has a rounded body between two flat 'wings'. Look at your fish to see if this is the case. Check by going to 2 or move into 38 if you know you have a type of flat fish.

38. Has the fish a deep body, almost as deep as it is long, making it appear almost circular?

    If **yes** go to 39
    If **no** go to 41

39. Has the fish a long body 50-90 cms in length;
    no scales on the eye side;
    and bony knobs in the skin?

    If **yes** it is a **Turbot**
    If **no** go to 40

40. Has the fish a medium body length, 27 – 50 cms long;
    first few rays of the dorsal and anal fins separate to the rest; and a mottled appearance?

    If **yes** it is a **Brill**
    If **no** go to 44

41. Has the fish red, orange or orange-red dots on the body surface?

    If **yes** go to 42
    If **no** go to 44

42. Has the fish bony knobs between upper gill opening and the eye;
    and a straight smooth lateral line?

    If **yes** it is a **Plaice**
    If **no** go to 43

43. Has the fish sharp prickles along the base of the dorsal fin;
sharp prickles along the base of the anal fin;
and a lateral line that is straight and prickly?

If **yes** it is a **Flounder**
If **no** go to 44

44. Has the fish:
a very long body, 75 – 200 cms in length;
a lower jaw which sticks out?

If **yes** it is a **Halibut**
If **no** go to 45

45. Has the fish a small curved mouth, that almost touches one eye;
dark colouring;
a dorsal fin that starts in front of the upper eye;
an upper eye in front of the lower eye?

If **yes** it is a **Sole** (or **Dover Sole**)
If **no** go to 46

46. Has the fish yellow-brown colouring;
a large head (for a flatfish);
a large mouth;
and a lateral line that is curved above the pectoral fin?

If **yes** it is a **Megrim**
If **no** go to 47

47. Has the fish a relatively small head;
a very small mouth;
a fairly light brownish colouring;
a mottled skin with some small black dots;
an almost straight lateral line?

If **yes** it is a **Lemon Sole**
If **no** go to 48

48. Is the fish about half as deep as it is long?
Is the lateral line almost straight with no obvious bumps?
Does it have a fairly small head;
uniform brown colouring?

If **yes** it is a **Witch**
If **no** go to 49

49. Has the fish a moderate sized head;
a curved lateral line above the pectoral fin;
a dot patterning to the skin?

If **yes** it is a **Dab**
If **no** go to 35

Appendix 2 – Shellfish Identification Key

Appendix 2 – Shellfish Identification Key

1. Is the shellfish a crustacean?

   If **yes** go to 13
   If **no** go to 2

2. The shellfish is a mollusc.
   Is the animal torpedo-shaped;
   about 200 – 750 mm long;
   greyish in colour?
   Does it have triangle shaped side fins;
   two eyes on either side of the head;
   and five pairs of tentacles with two much longer than the rest?

   If **yes** it is a **common squid**
   If **no** go to 3

3. Does the mollusc have one shell or two?
   (Card S12 shows only one shell of the two).

   If one go to 4
   If two go to 6

4. Is the single shell yellowish white in colour;
   with a long spiral about 60 mm long and marked with ridges?

   If **yes** it is a **whelk**
   If **no** go to 5

5. Is the single shell dark brown in colour;
   about 15 mm long;
   with a short spiral;
   and a round opening?

   If **yes** it is a **winkle**
   If **no** go back to 3

6. Are the shells dark blue in colour?
   smooth and shiny;
   and about 50 mm long?

   If **yes** it is a **mussel**
   If **no** go to 7

7. Are the shells round in shape with clearly marked channels and ridges?
   Do they have a noticeable hinge along one side?

   If **yes** go to 9
   If **no** go to 8

8. Are the shells irregular in shape;
   and about 70 mm long?
   Are the outsides of the shells dark grey in colour;
   with a rough appearance because of overlapping plates?
   Are the insides of the shells white in colour;
   and very smooth?

   If **yes** it is an **oyster**
   If **no** go to 9

9. Are the shells regular in shape?
   Is the size about 100 mm long?

   If **yes** go to 12
   If **no** go to 10

10. Are the shells about 30 mm long;
    and dirty white in colour with brown markings?

    If **yes** it is a **cockle**
    If **no** go to 11

11. Are the shells orange-brown in colour;
    and about 7 cm long?

    If **yes** it is a **queen scallop**
    If **no** go to 12

12. Are the shells about 100 mm long?

    If **yes** it is a **scallop** also known as a **clam**
    If **no** go back to 6 and try again

13. Does the crustacean have a long tail?
    Or is the body oval shaped with no tail visible?

    If **long tail** go on to 14
    If **oval body** it is a type of crab so go to 20

14. Does the crustacean have a long body and a pair of large claws?

    If **yes** go on to 15
    If **no** go to 17

15. Is the crustacean dark blue in colour?
    (Be careful these animals are only red when they are cooked.)
    Is the body about 280 mm long?

    If **yes** it is a lobster
    If **no** go to 16

16. Is the crustacean orange-red in colour, with 2 long claws?
    Is it about 120 mm long?

    If **yes** it is a **Norway lobster** also known as **scampi, Dublin Bay Prawn** and **Nephrops**
    If **no** go back to 14

17. Is the crustacean dark brown in colour with reddish markings?
    Does it have 2 very large feelers?
    Is the body 30 – 40 cm long?

    If **yes** it is a **crawfish**
    If **no** go to 18

18. Is the crustacean pink?
    Is the body about 50 mm long with 2 pairs of feelers;
    and does the shell point forward between the eyes?

    If **yes** it is a **cooked** common **prawn**
    If **no** go to 19

19. Is the crustacean greenish-grey in colour and about 50 mm long?
    Is there only one pair of feelers?

    If **yes** it is a **shrimp**
    If **no** go back to 13

20. Is the crab brown in colour;
    with an oval carapace that is smooth;
    and about 150 mm across?
    Are the 2 claws black at the tips?

    If **yes** it is a **brown crab**
    If **no** go to 21

21. Is the crab yellow-brown and patterned with light and dark areas?
    Is the body about 5 cm across?

    If **yes** it is a **green crab**
    If **no** go to 22

22. Is the crab mustard-brown in colour?
    Is the carapace about 7 cm across?
    Is the last joint on the back legs round and flat, and are the eyes red?

    If **yes** it is a **velvet swimming crab**
    If **no** go to 23

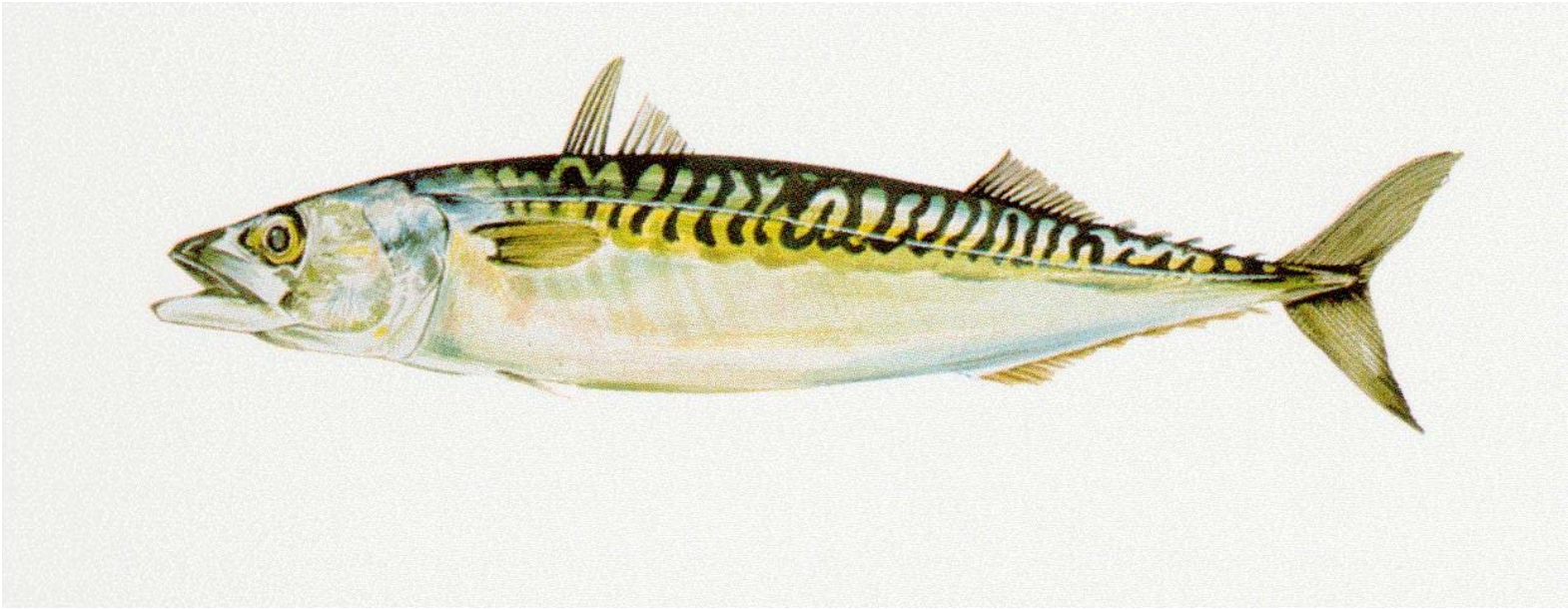
23. Is the crab orange in colour;
    with two large points between the eyes;
    and many spines over the shell?
    Does it have long, thin legs and claws?

    If **yes** it is a **spider crab**
    If **no** you have gone wrong somewhere so go back to 20 and try again.

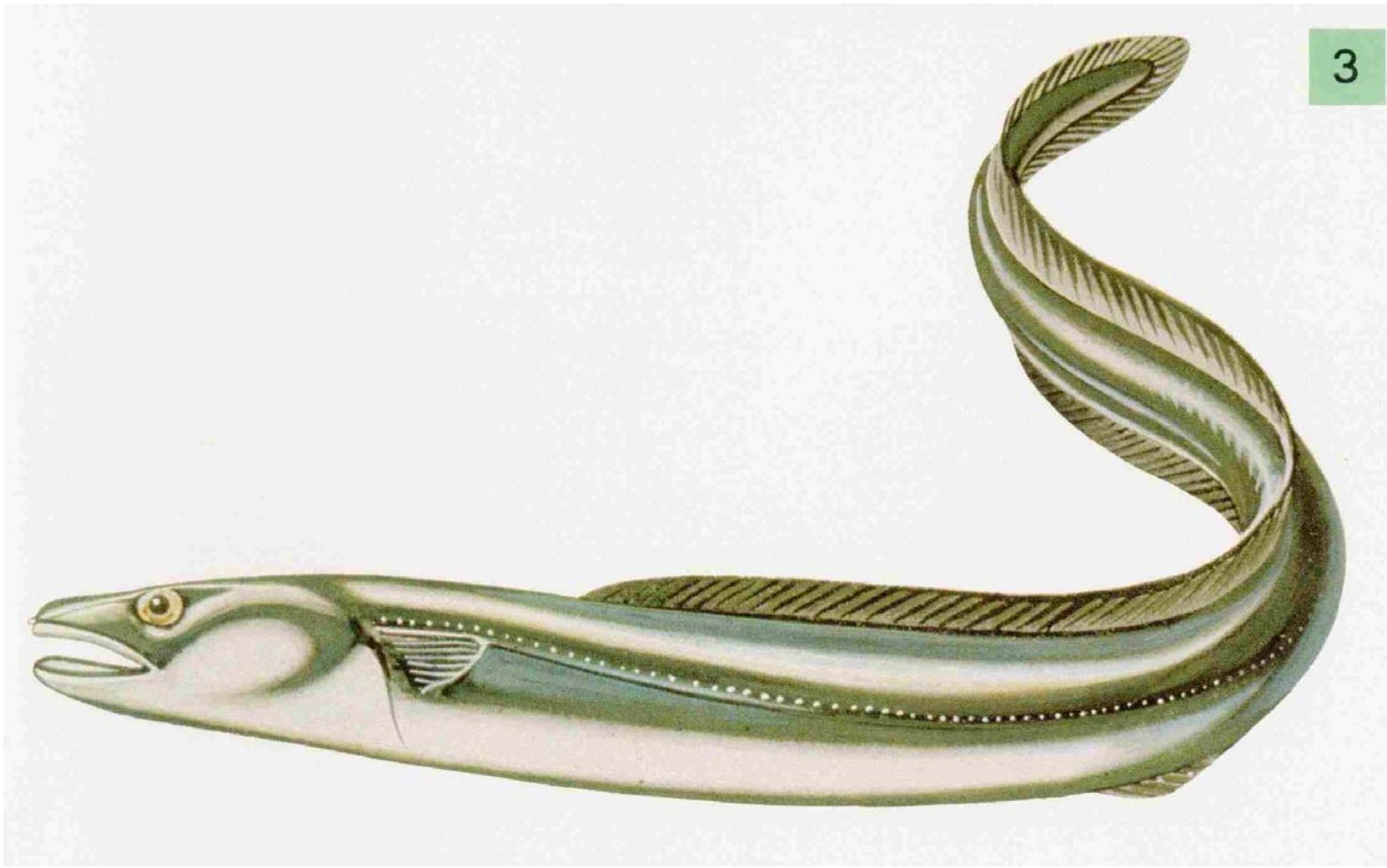
The original Fish and Shellfish Identification Cards are still available for sale from Seafish. The following images are scanned from these cards.

Fish 1 Maximum Length: 200 cm Normal length range: 100-150 cm

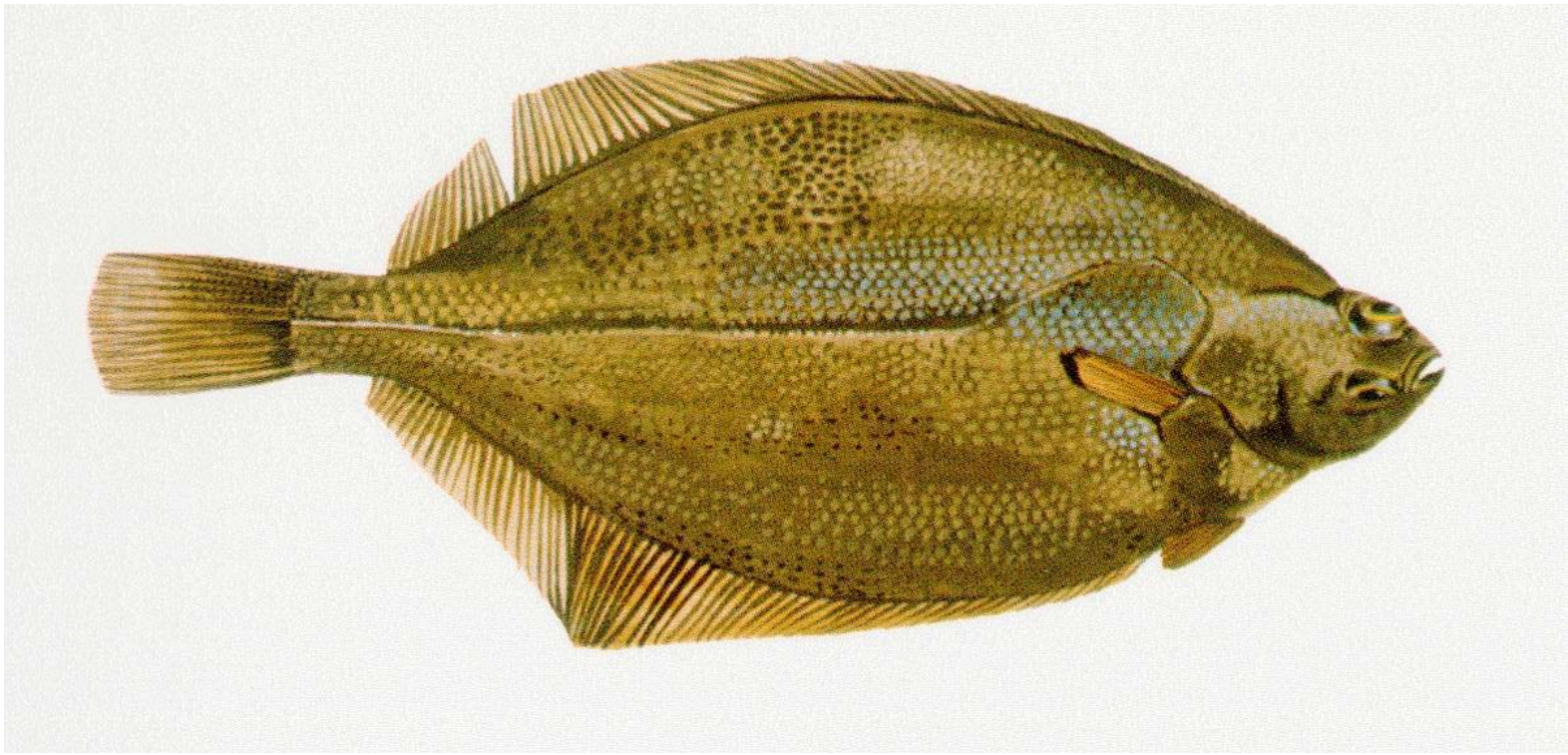
Fish 2 Maximum Length: 66 cm Normal length range: 25-30 cm



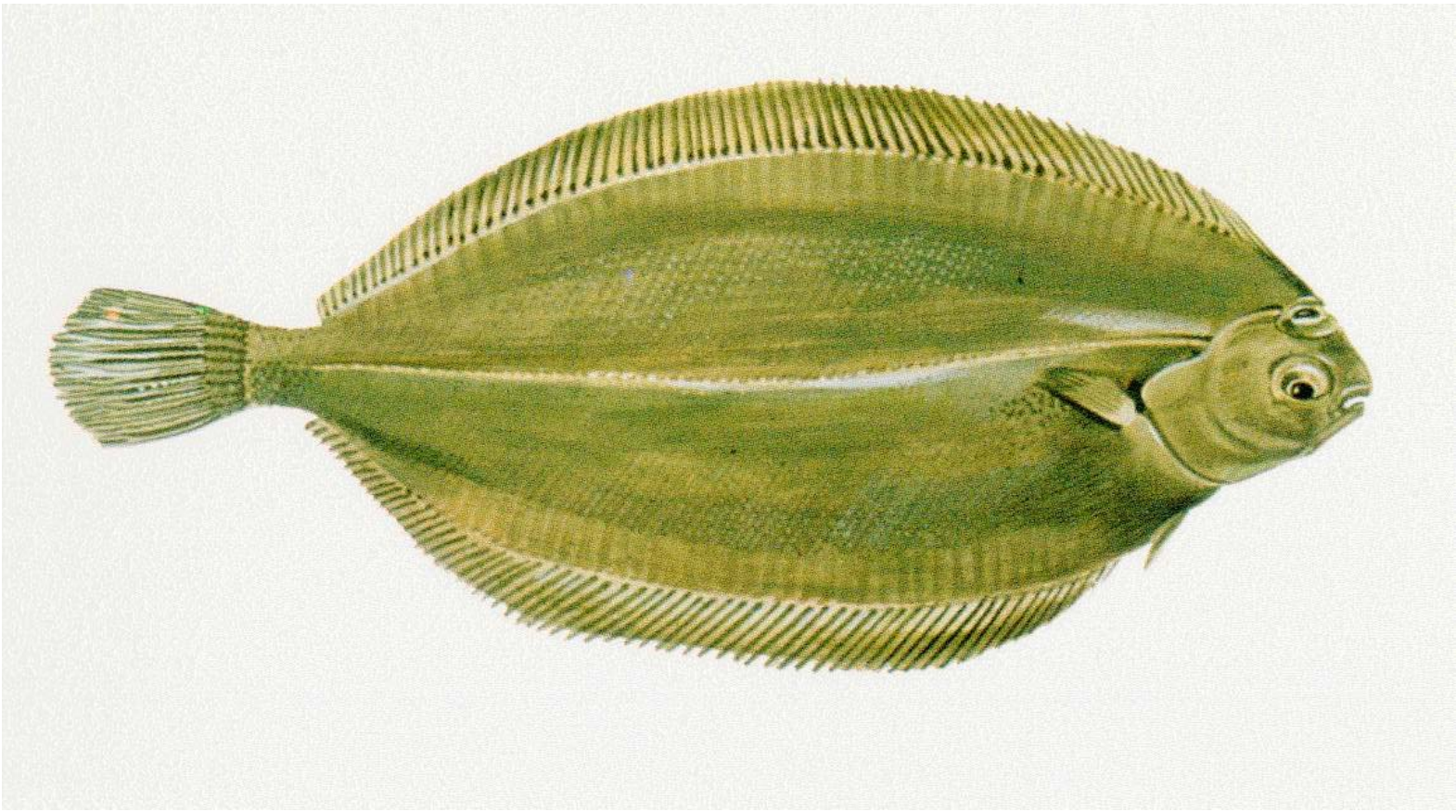
Fish 3 Maximum Length: 300 cm Normal length range: 100-200 cm



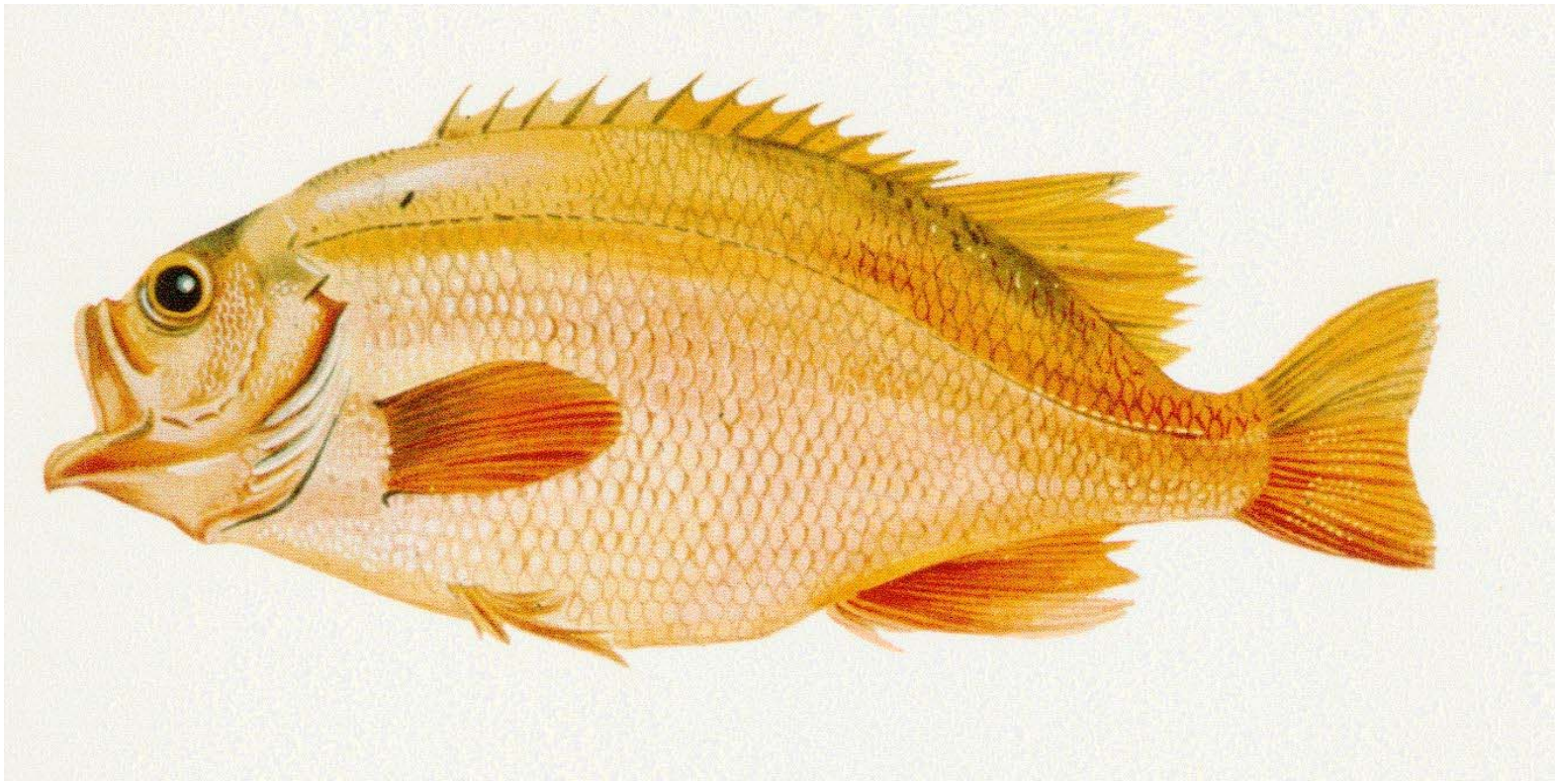
Fish 4 Maximum Length: 40 cm Average length 30 cm



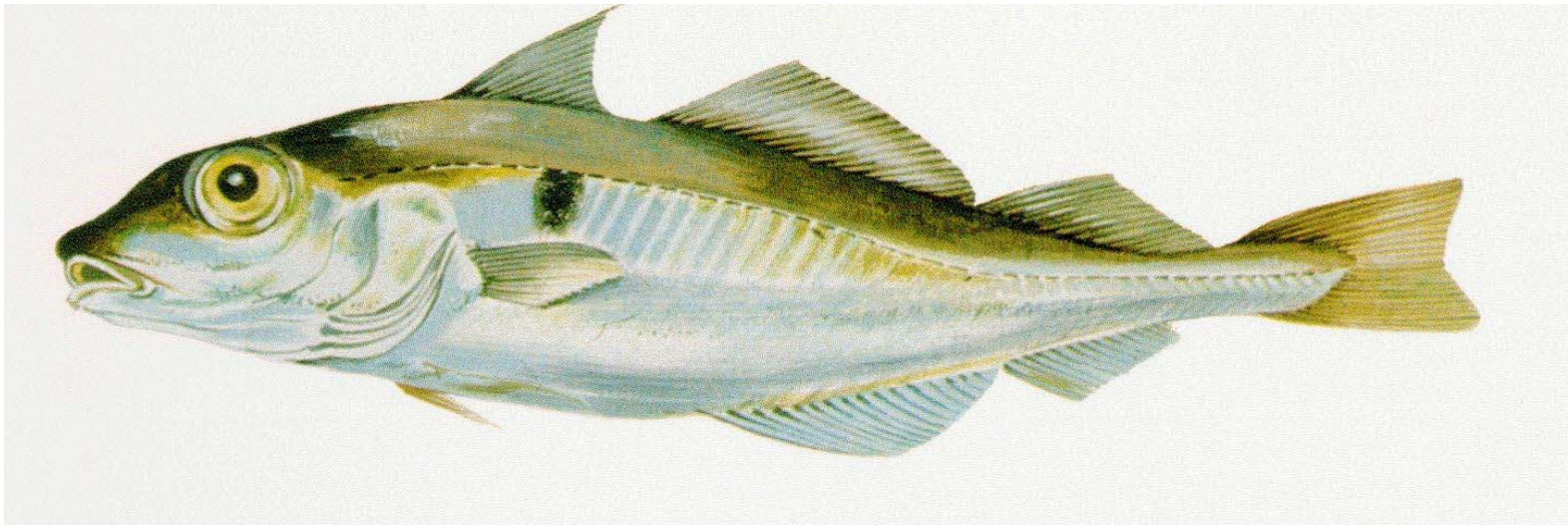
Fish 5 Maximum Length: 55 cm Average length: 35 cm



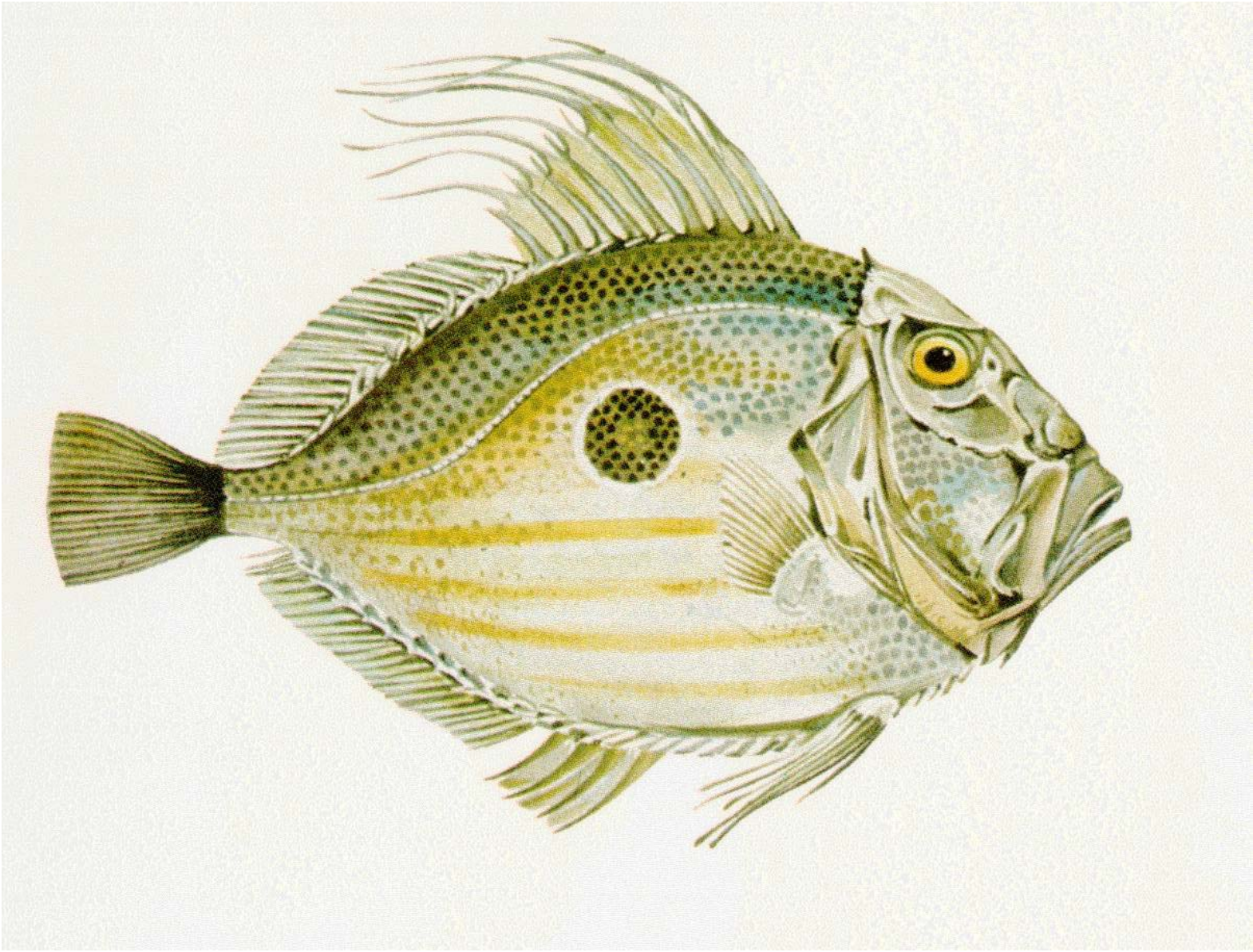
Fish 6 Maximum Length: 100 cm Average length: 45 cm



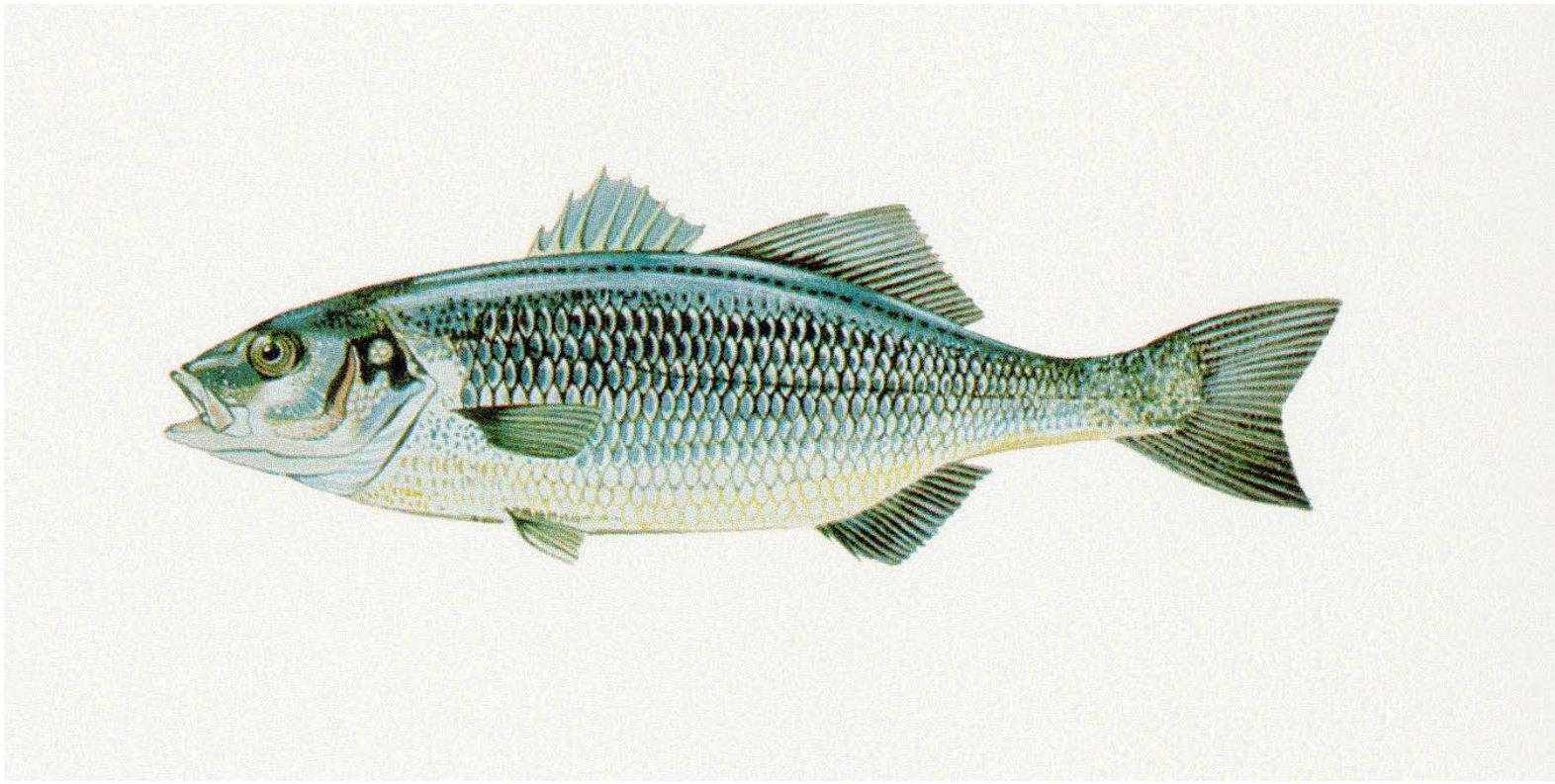
Fish 7 Maximum Length: 76 cm Normal length range: 38-64 cm



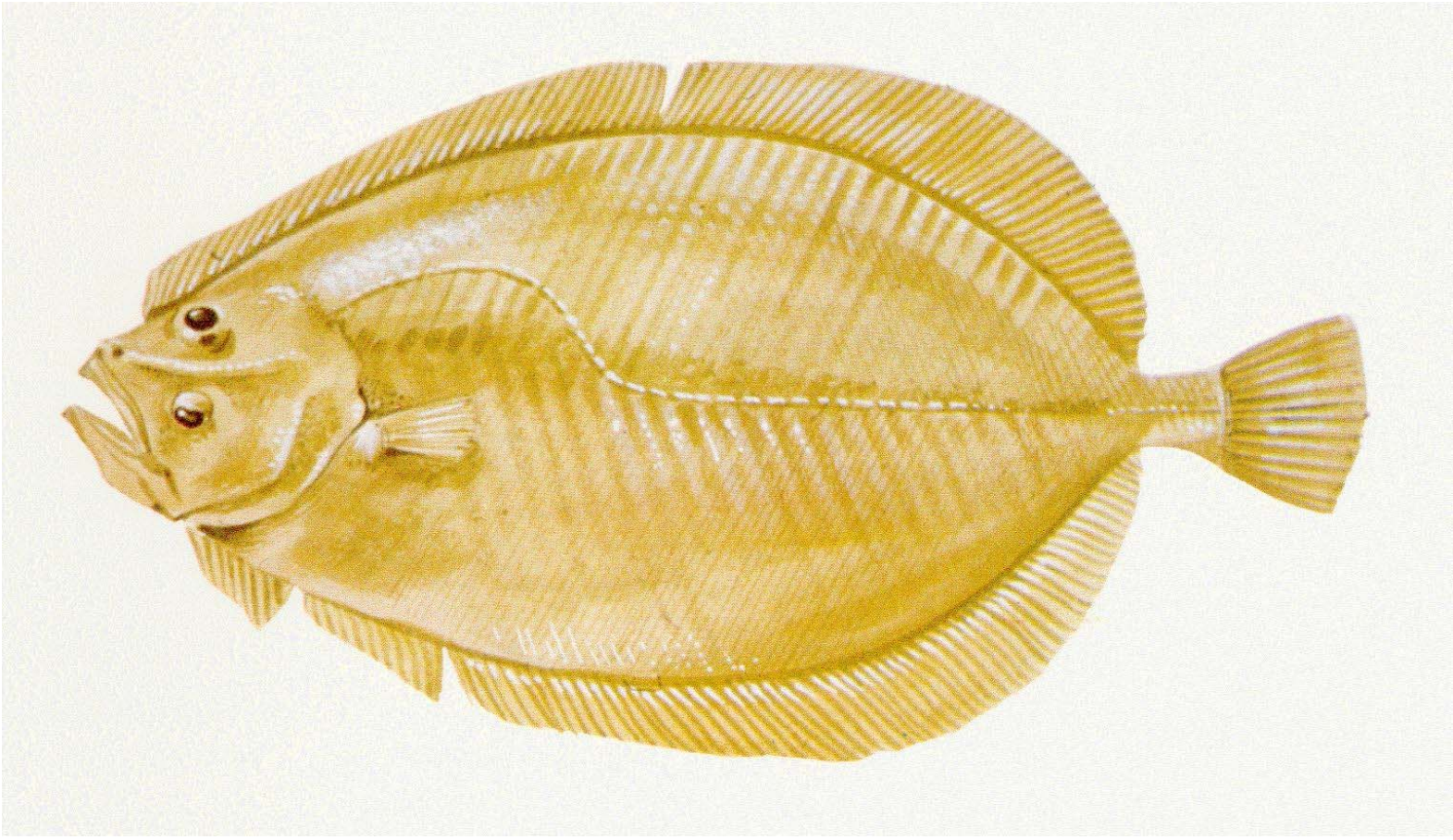
Fish 8 Maximum Length: 66 cm Normal length range: 25-30 cm



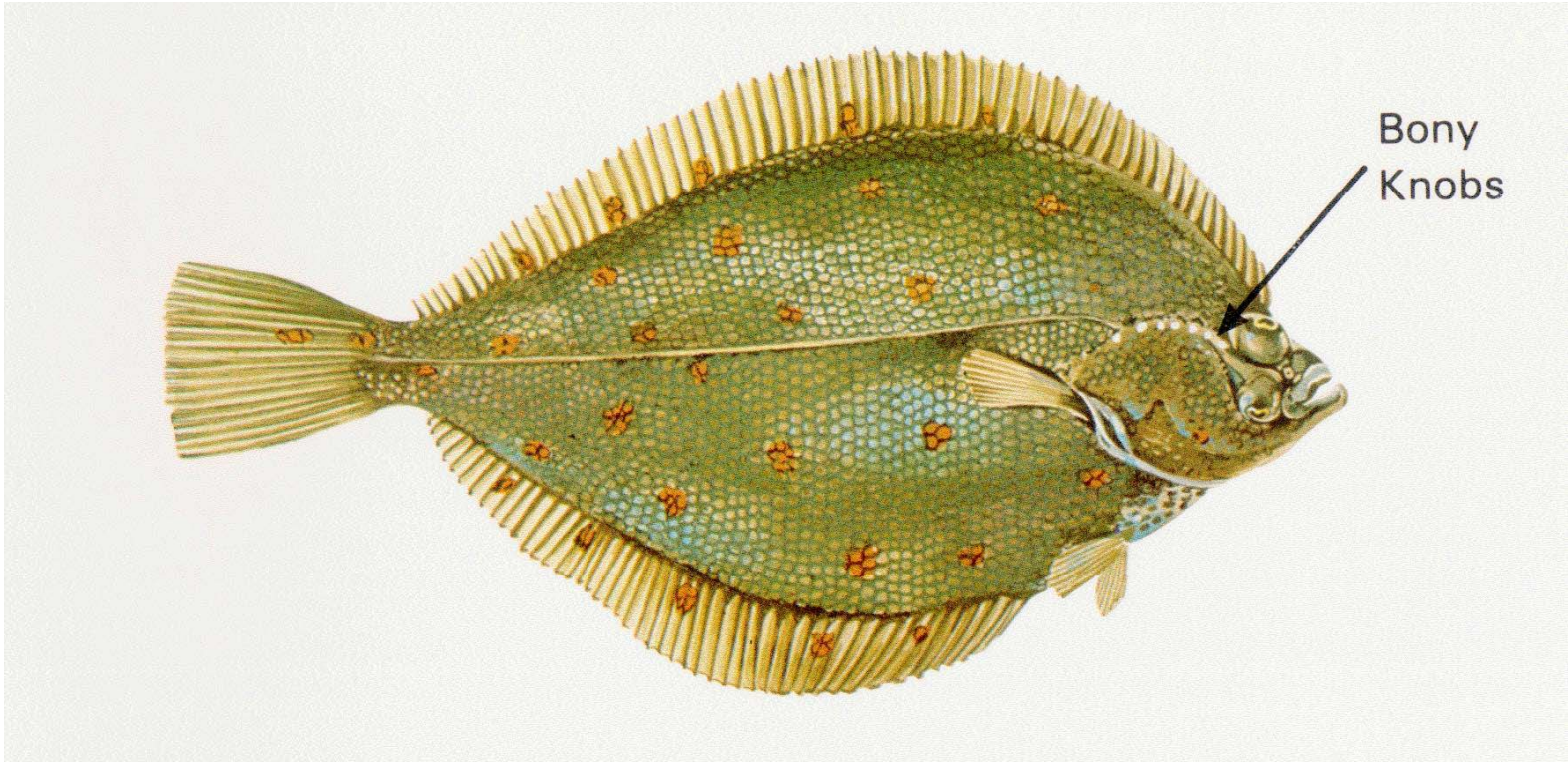
Fish 9 Maximum Length: 100 cm Average length: 35 cm



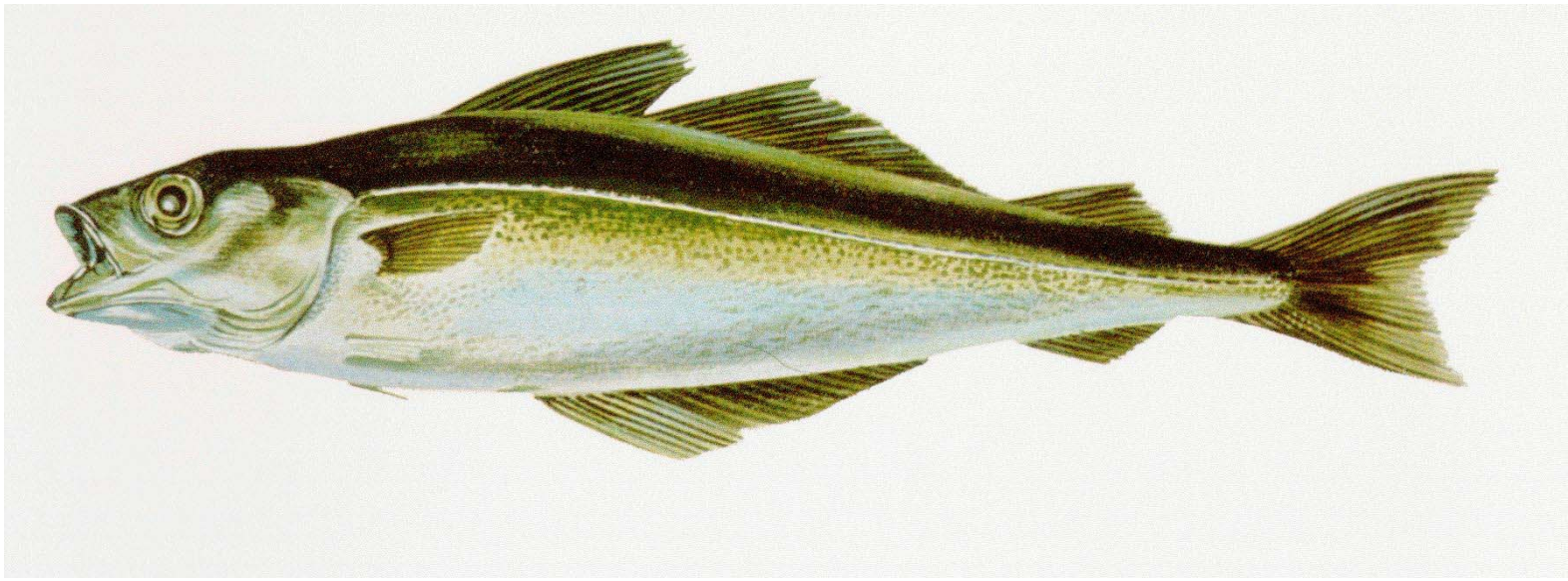
Fish 10 Maximum Length: 61 cm Normal length range: 35-45 cm



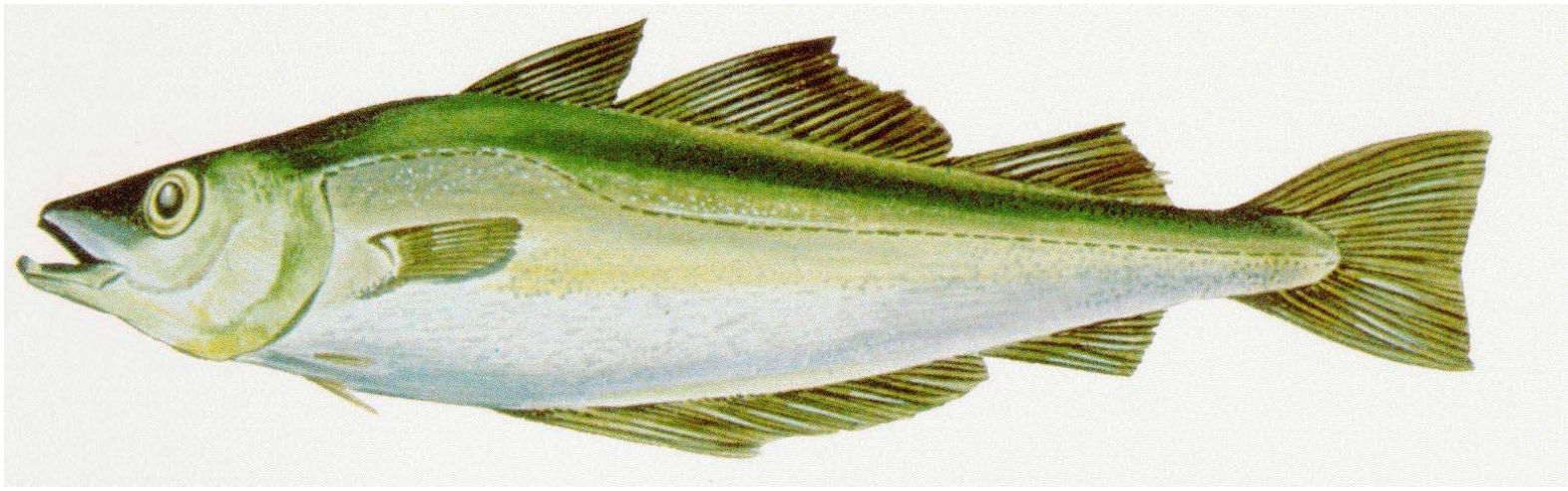
Fish 11 Maximum Length: 91 cm Normal length range: 37-50 cm



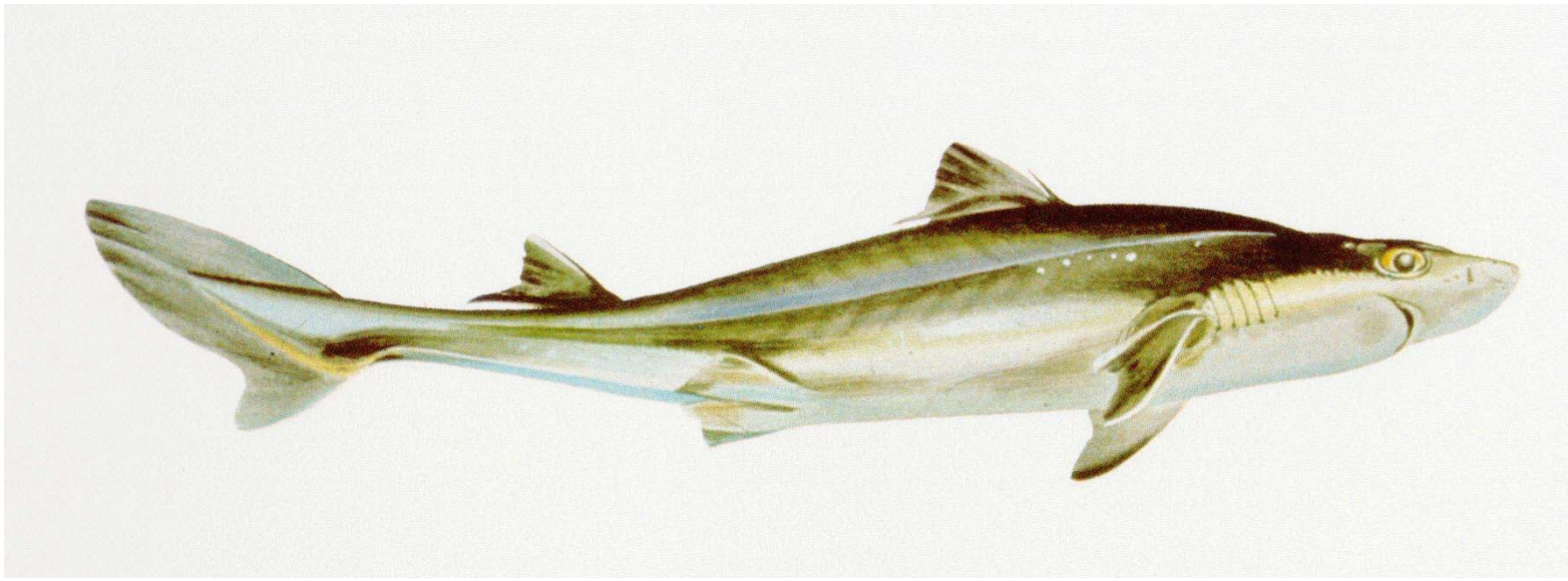
Fish 12 Maximum Length: 130 cm   Normal length range: 50-75 cm



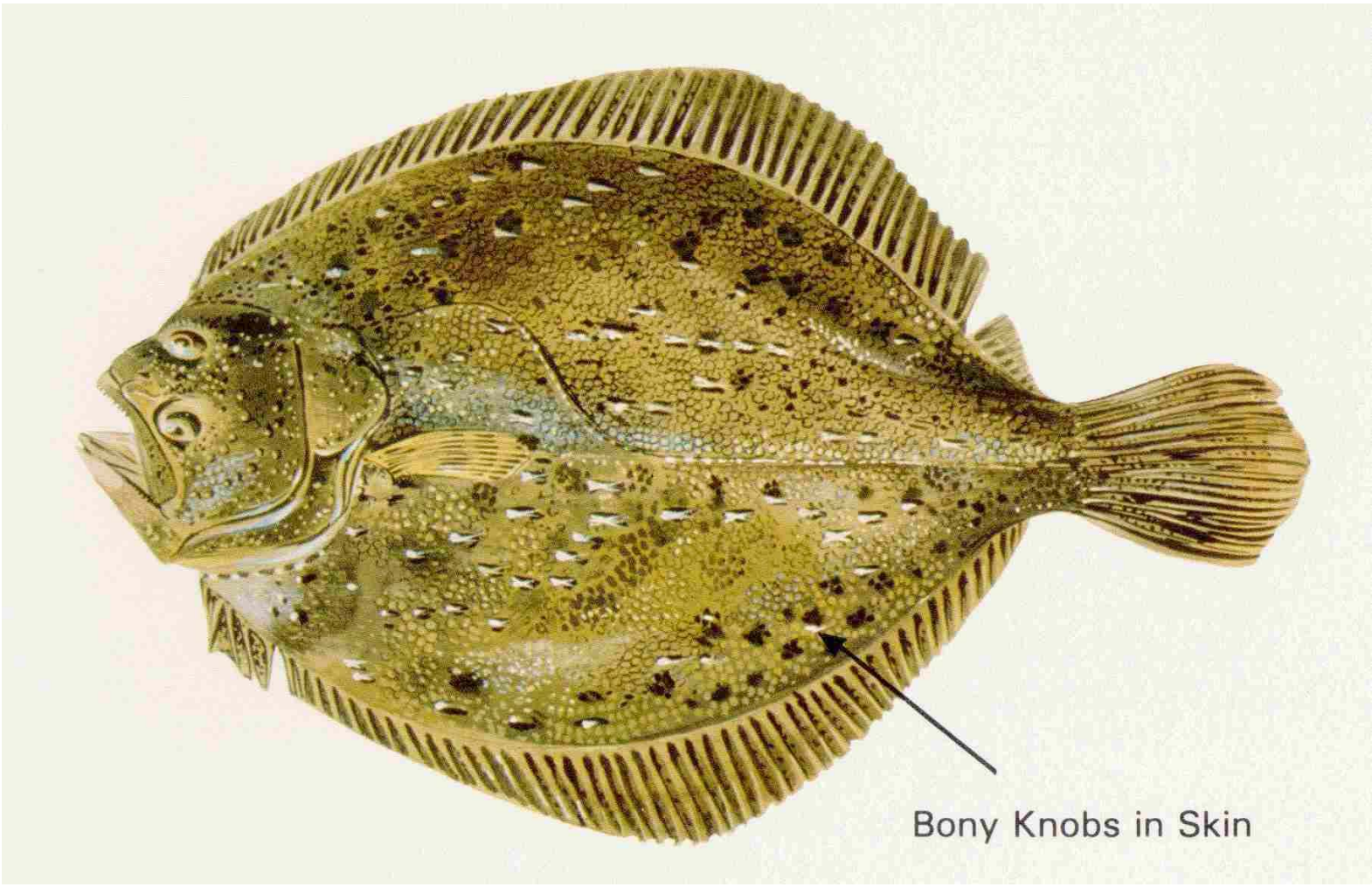
Fish 13 Maximum Length: 180 cm Average length: 50 cm

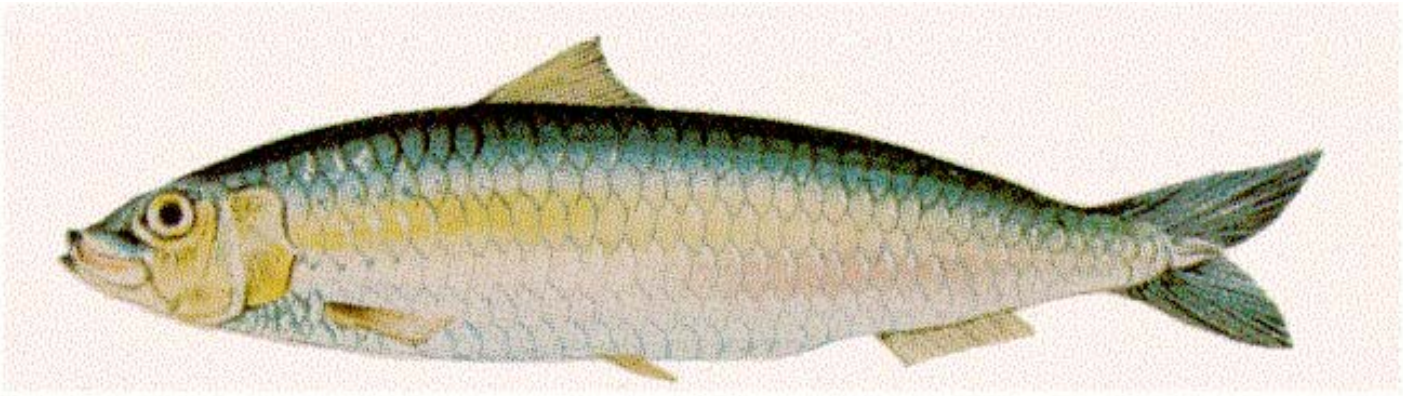


Fish 14 Maximum Length: 100 cm   Normal length range: 60-70 cm



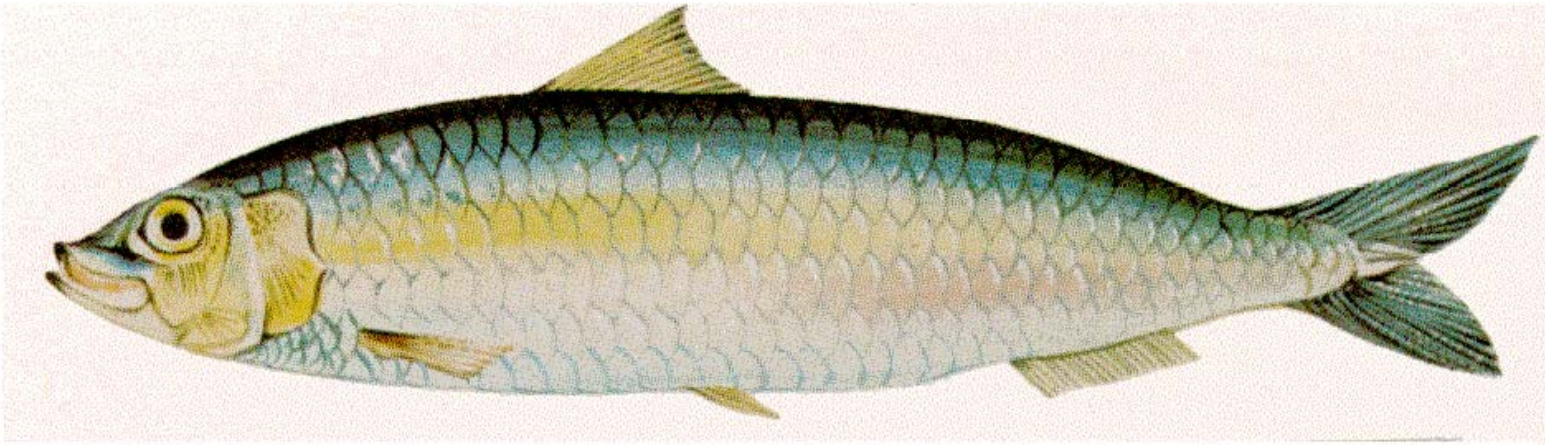
Fish 15 Maximum Length: 100 cm Normal length range: 50-80 cm





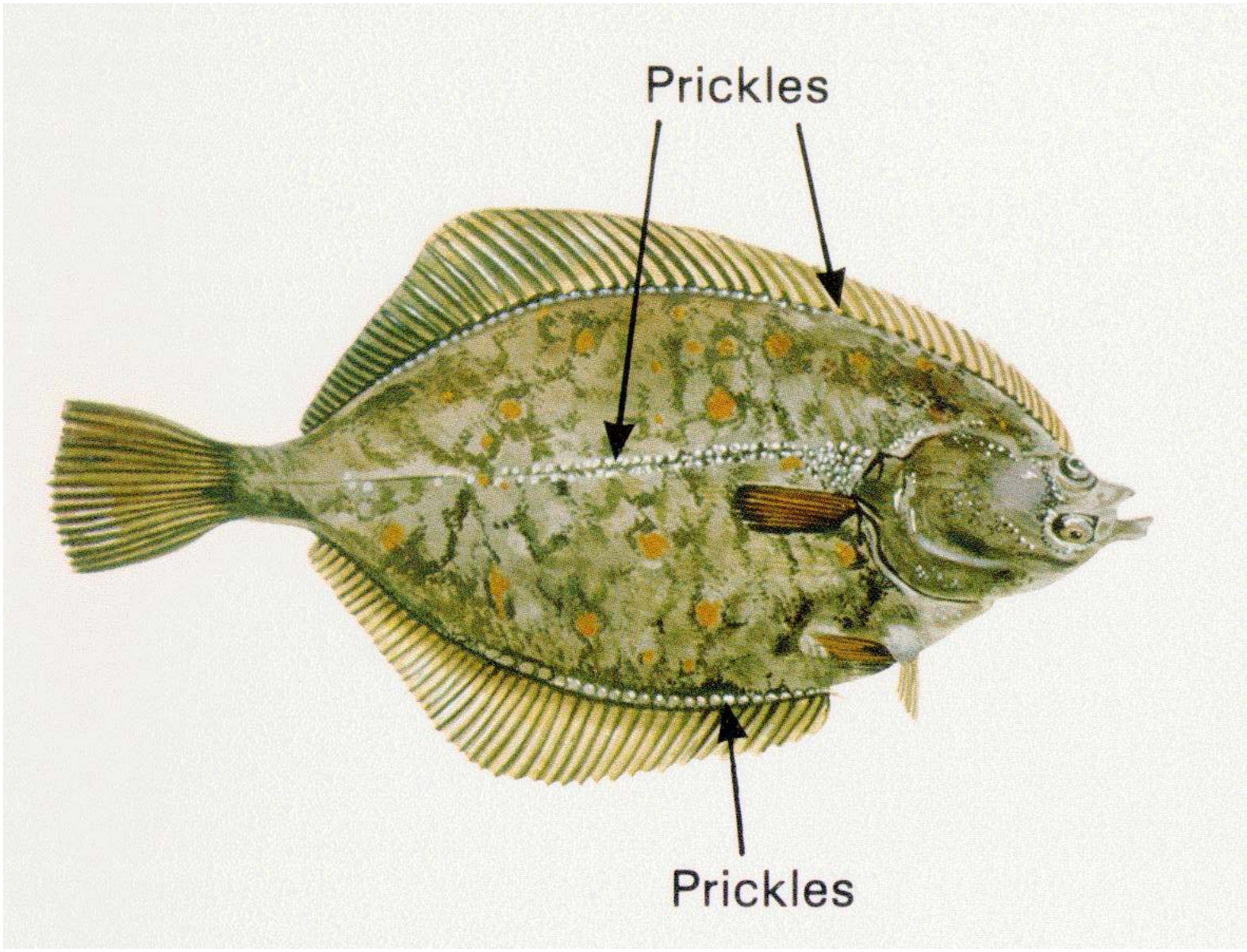
Average length: 8 cm

Fish 17 Normal Length range: 18-25 cm

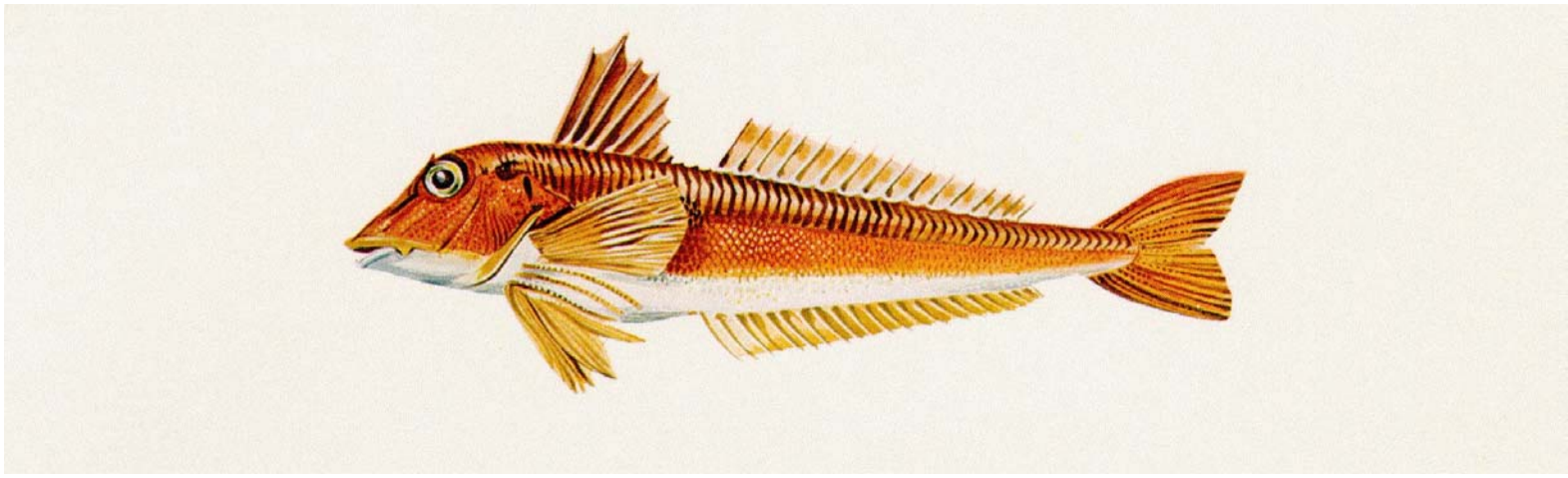


Normal length range: 18 - 25 cm

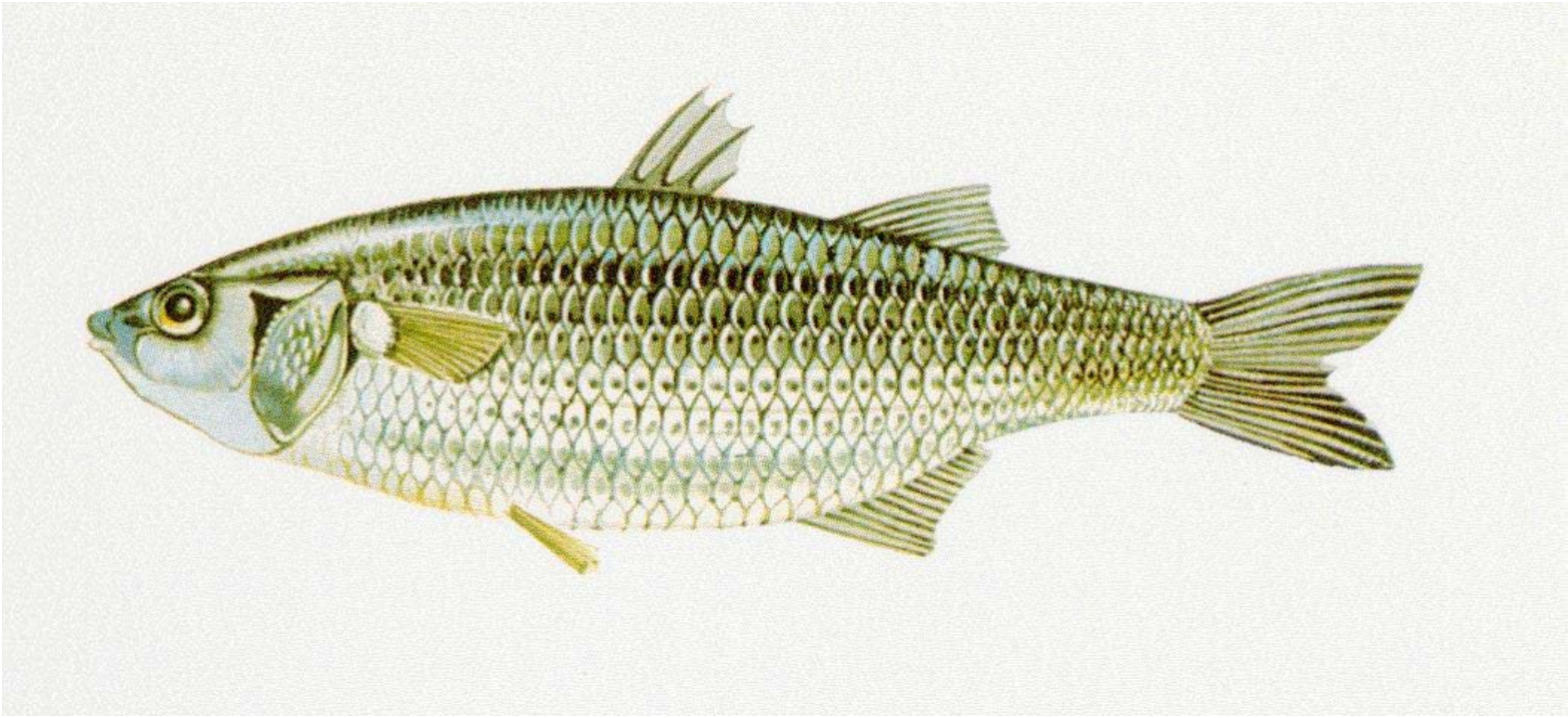
Fish 18 Maximum Length: 51 cm Average length: 30 cm



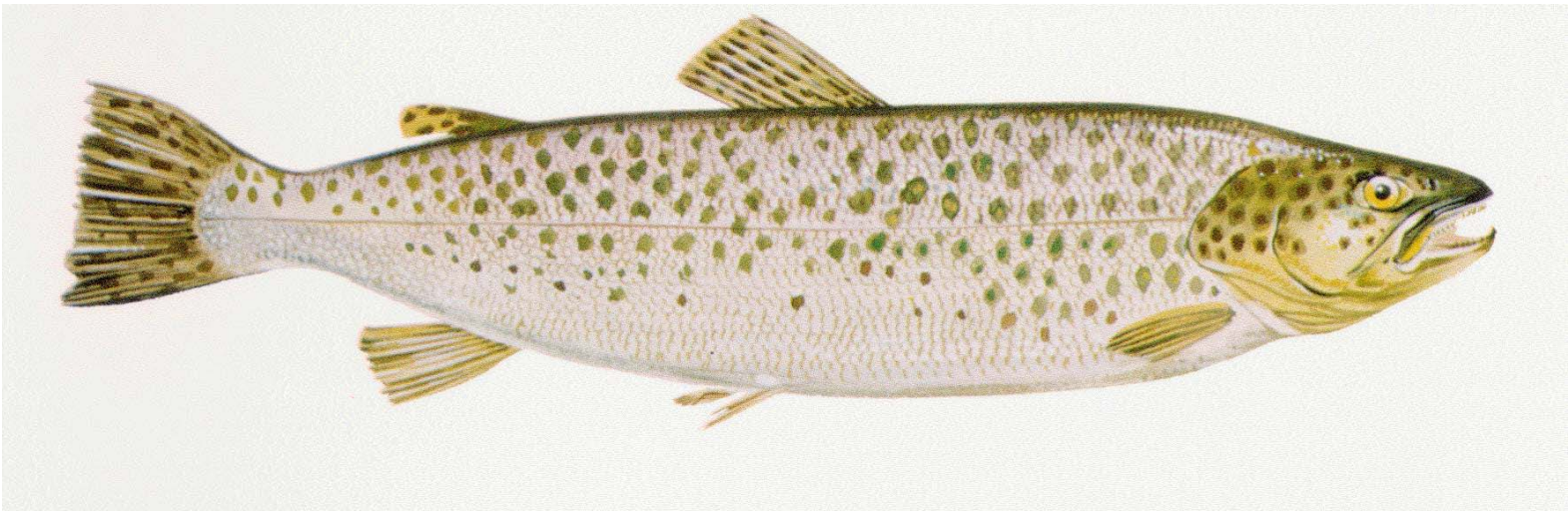
Fish 19 Normal length range: 30-40 cm



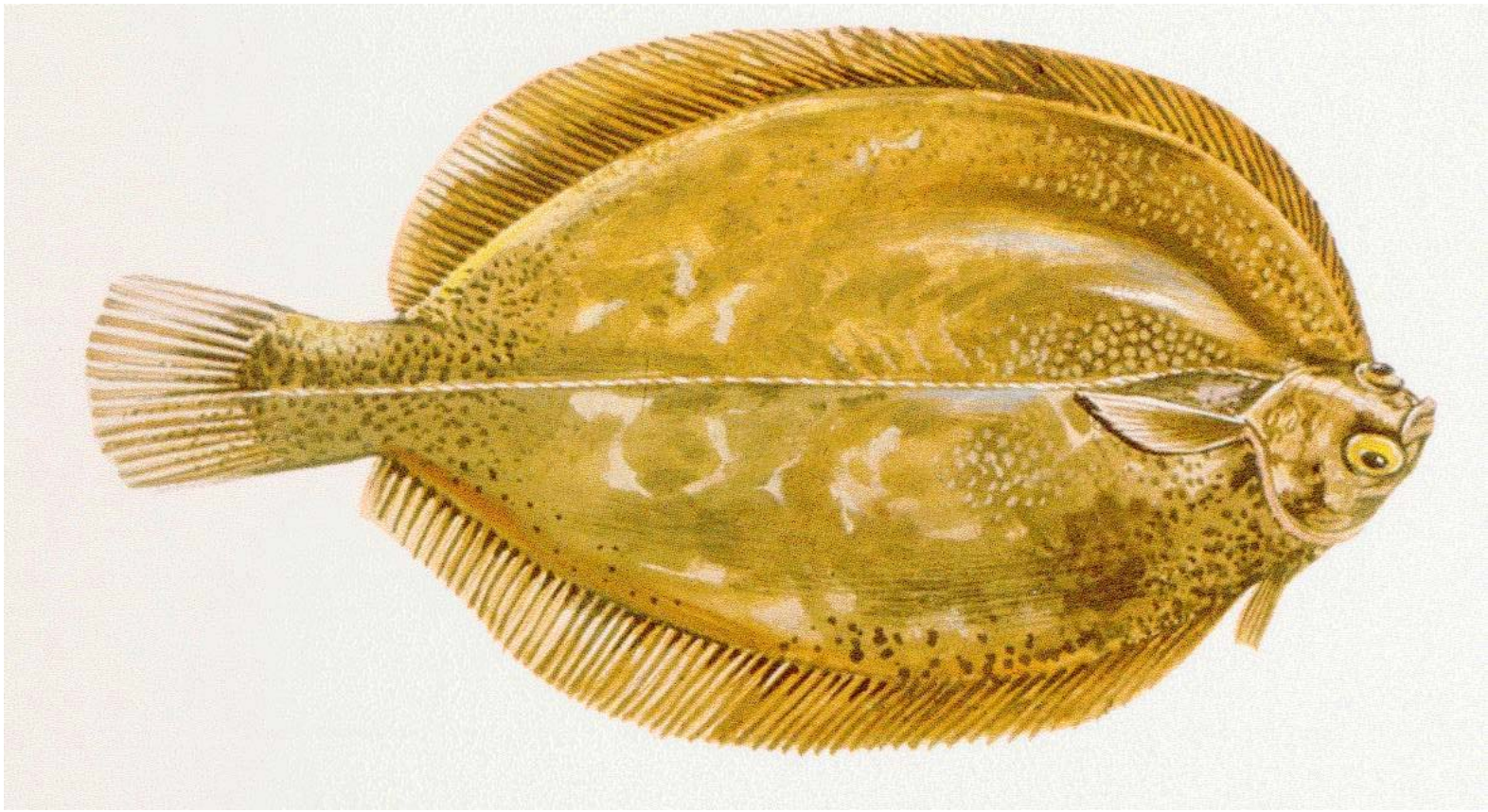
Fish 20 Maximum Length: 75 cm Average length: 25 cm



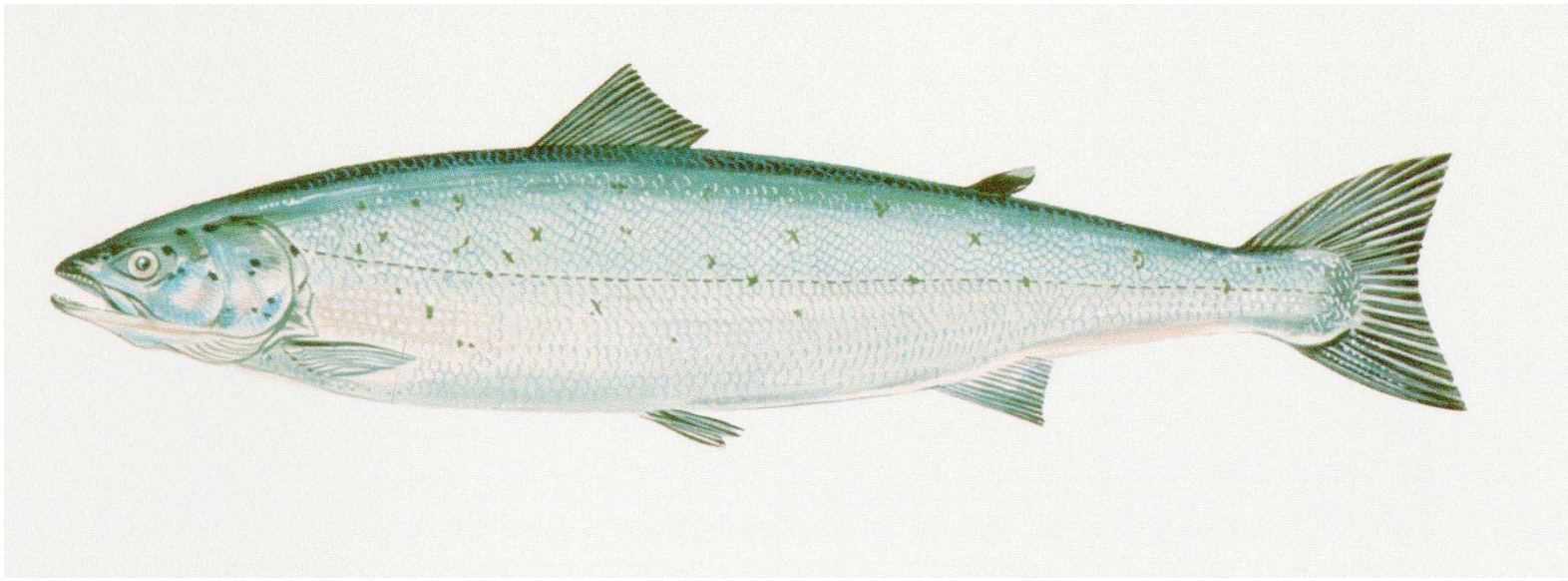
Fish 21 Maximum Length: 150 cm Normal length range: 75-100 cm



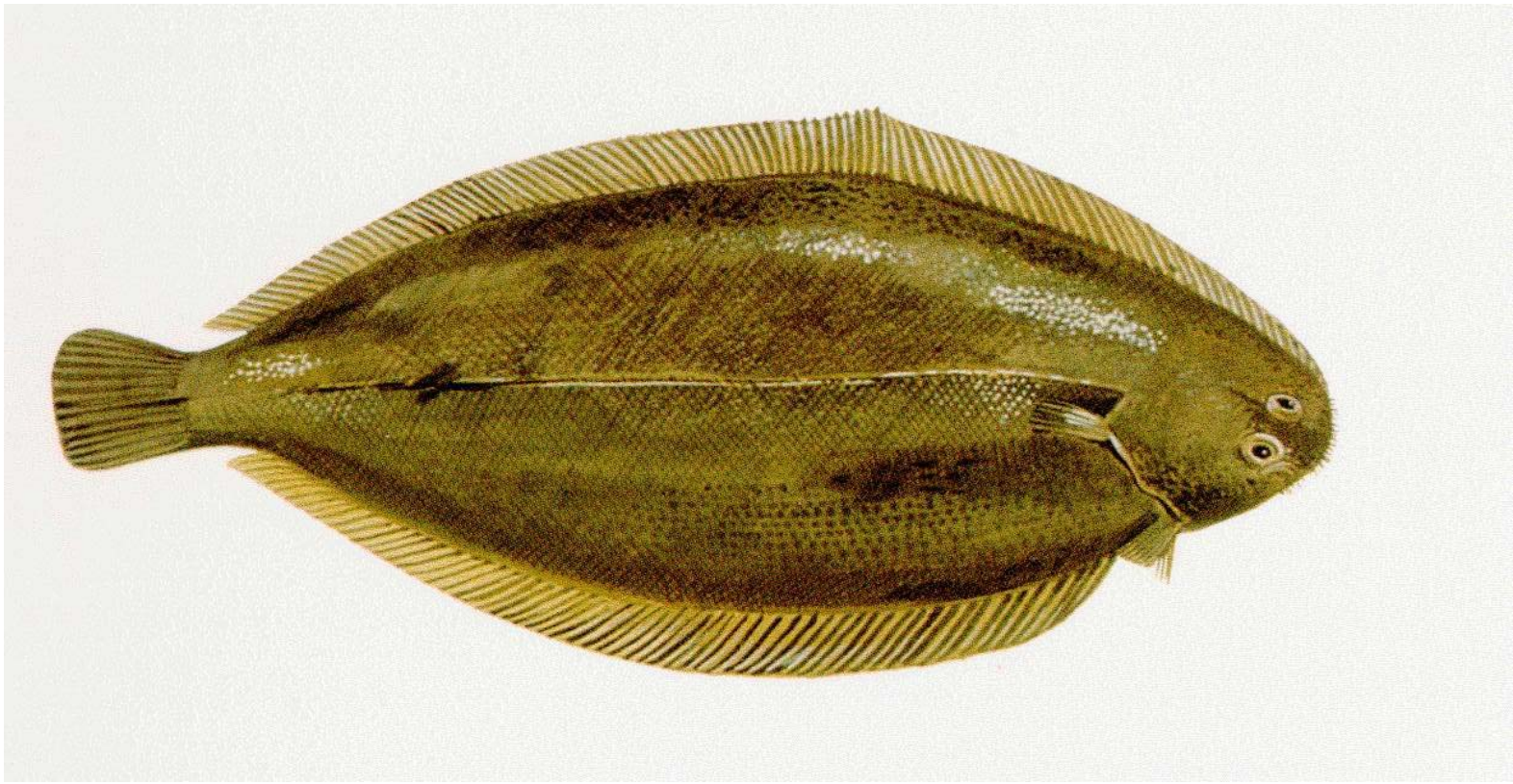
Fish 22 Maximum Length: 66 cm Average length: 30 cm



Fish 23 Maximum Length: 150 cm   Normal length range: 75-100 cm

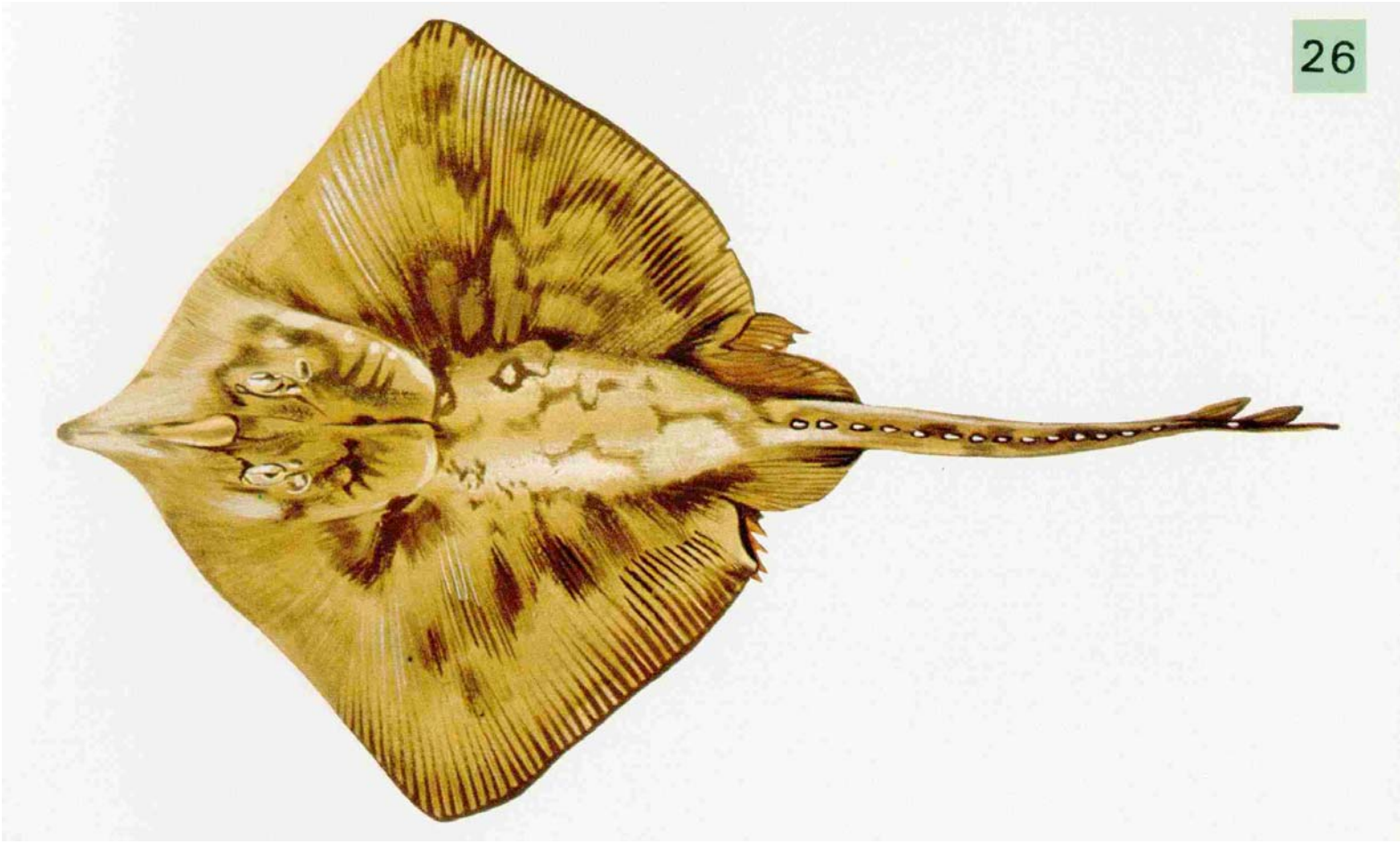


Fish 24 Maximum Length: 60 cm Normal length range: 30-40 cm

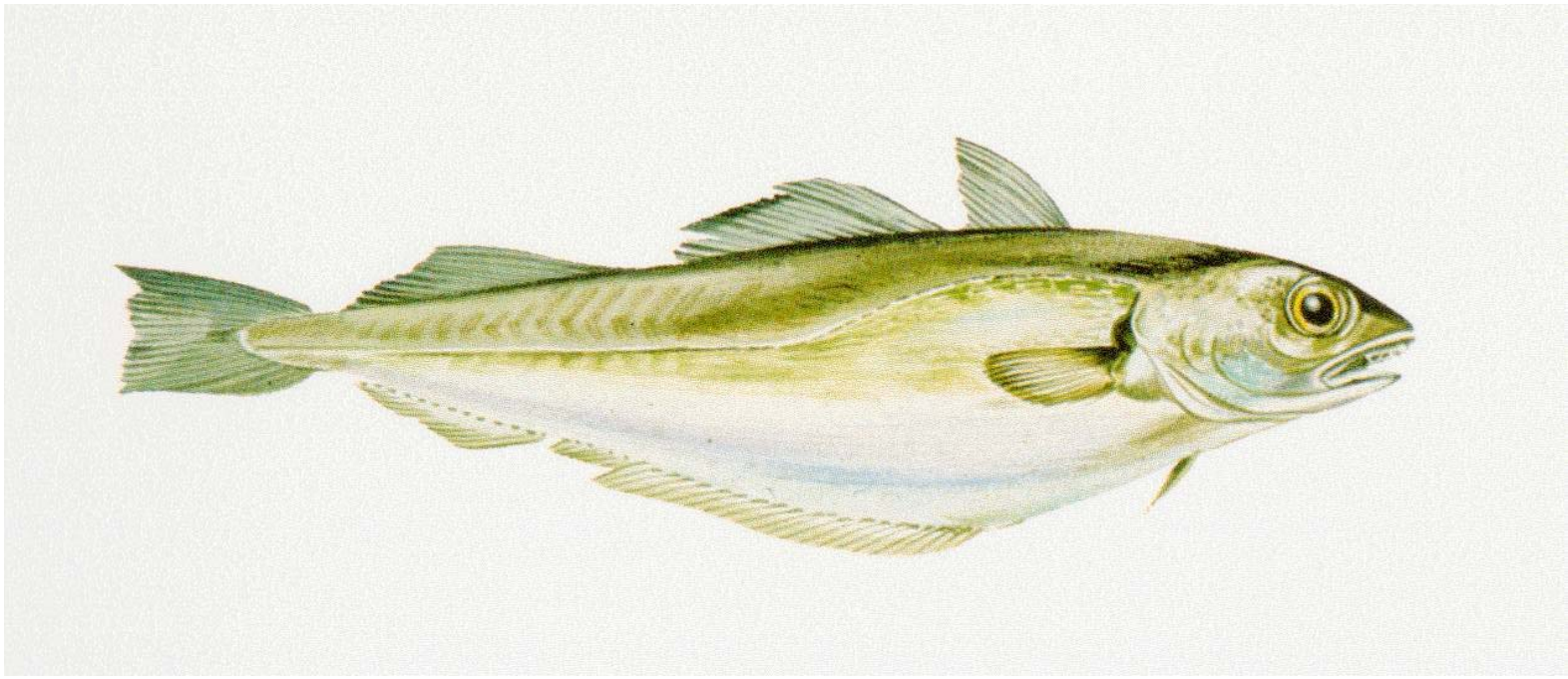


Fish 25 Maximum Length: 40 cm Average length: 17 cm

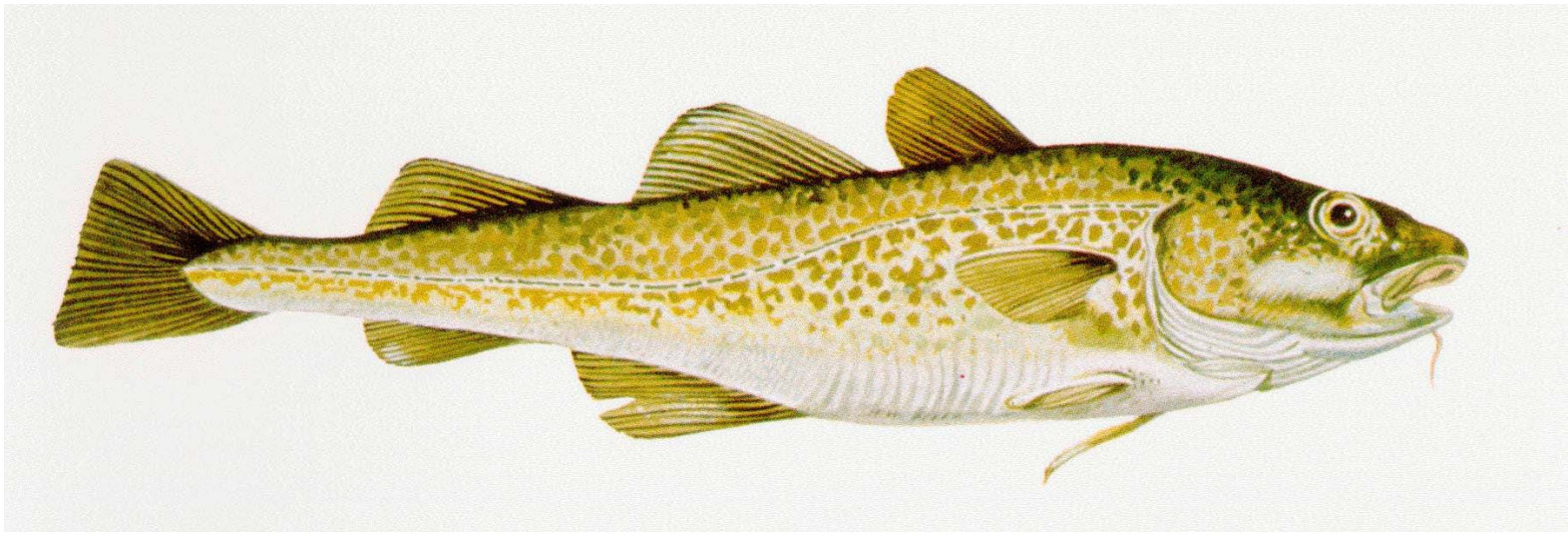
Fish 26 Maximum Length: 250 cm Normal length range: 100-150 cm



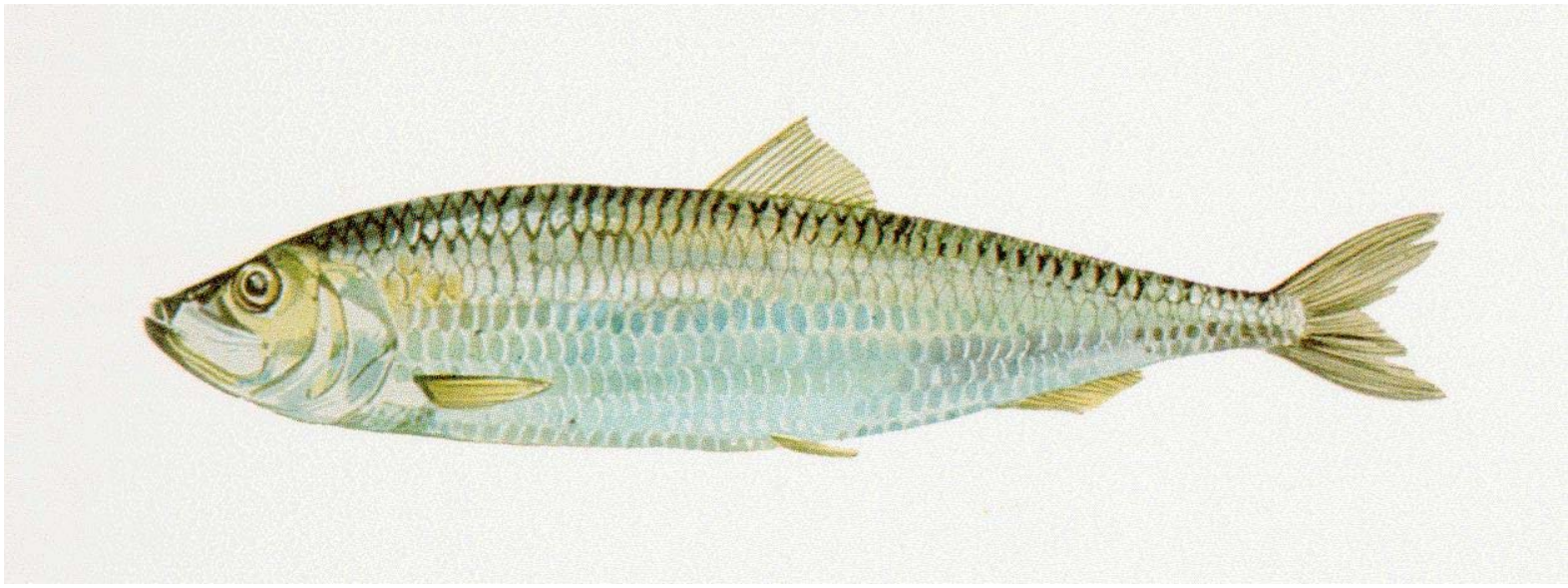
Fish 27 Maximum Length: 70 cm Normal length range: 30-40 cm



Fish 28 Maximum Length: 120 cm Average length: 60 cm

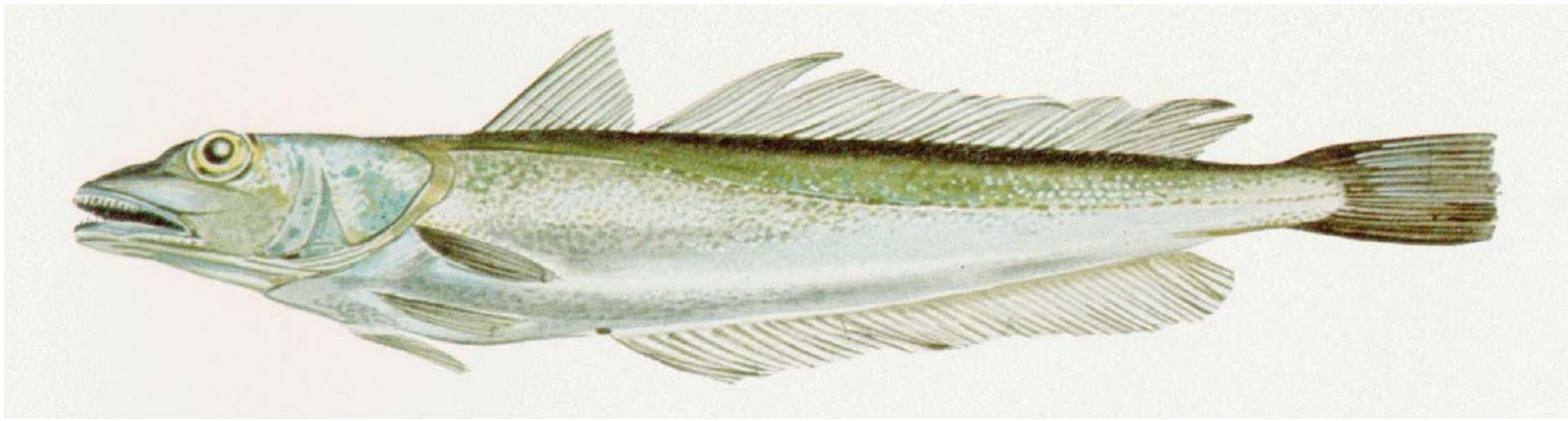


Fish 29 Maximum Length: 45 cm Normal length range: 25-35 cm



Fish 30 Maximum Length: 75 cm Normal length range: 25-35 cm

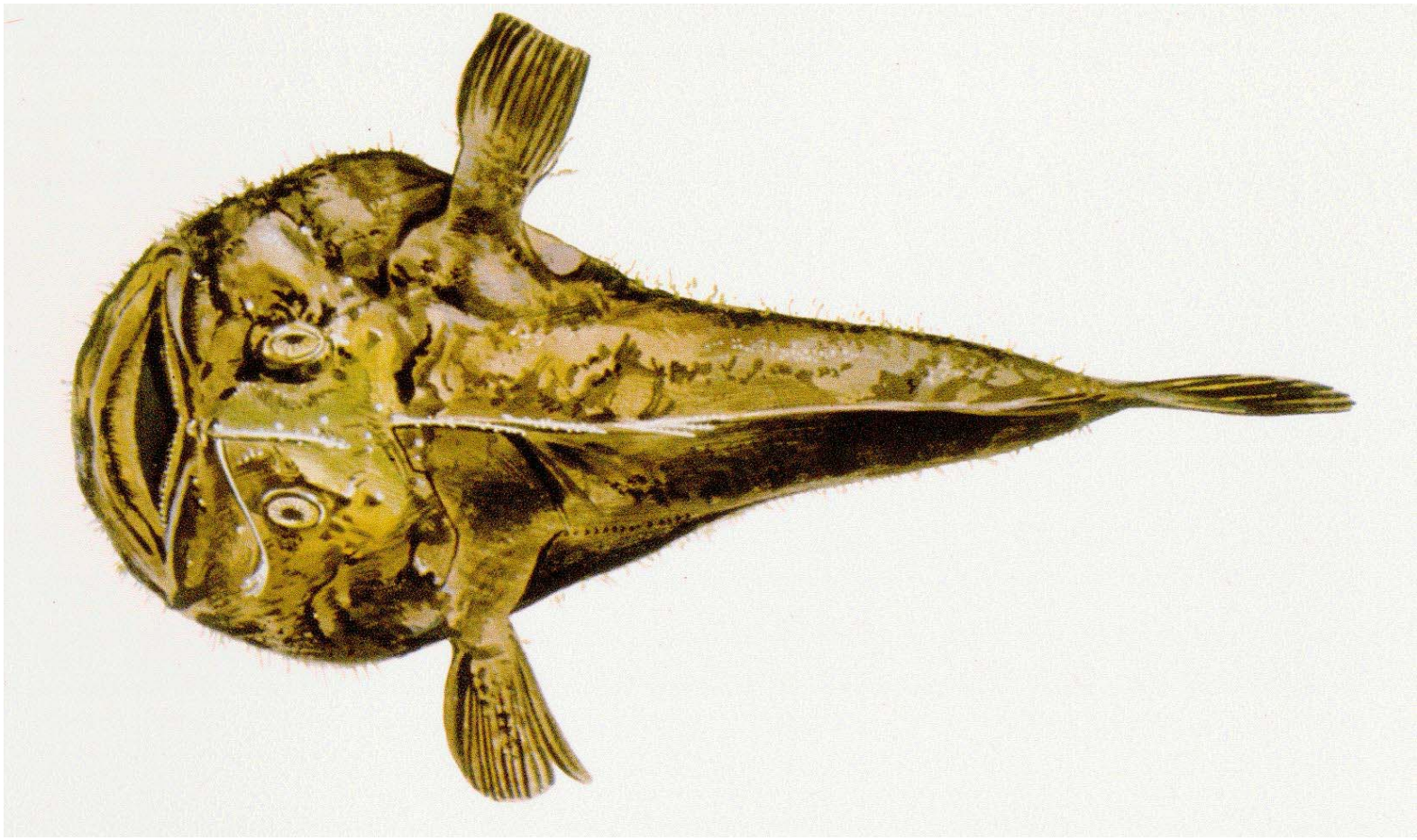
Fish 31 Maximum Length: 180 cm Normal length range: 75-100 cm



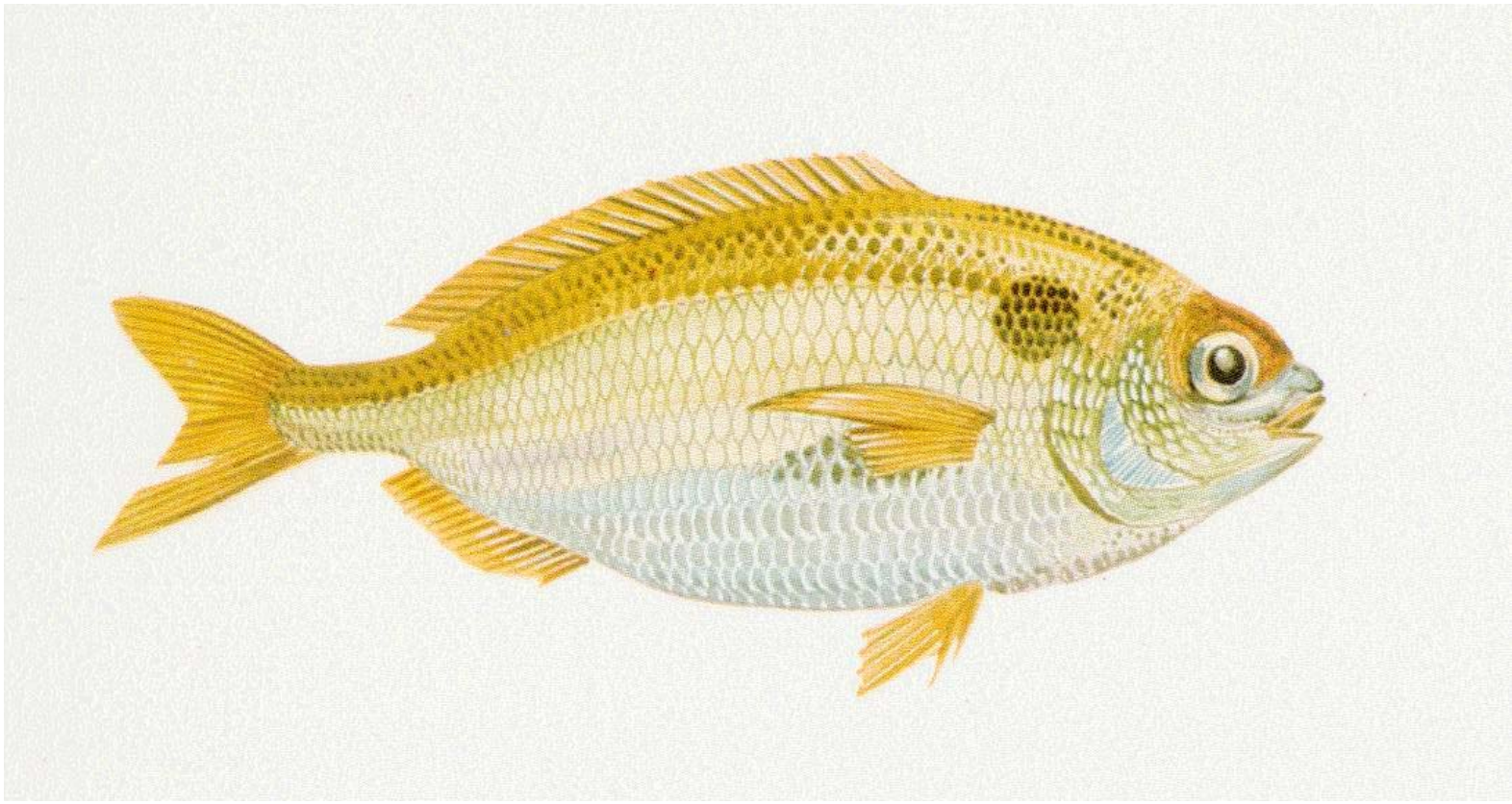
Fish 32 Maximum Length: 125 cm Normal length range: 80-100 cm

Fish 33 Maximum Length: 17 cm Normal length range: 8-15 cm

Fish 34 Maximum Length: 190 cm Normal length range: 40-640 cm

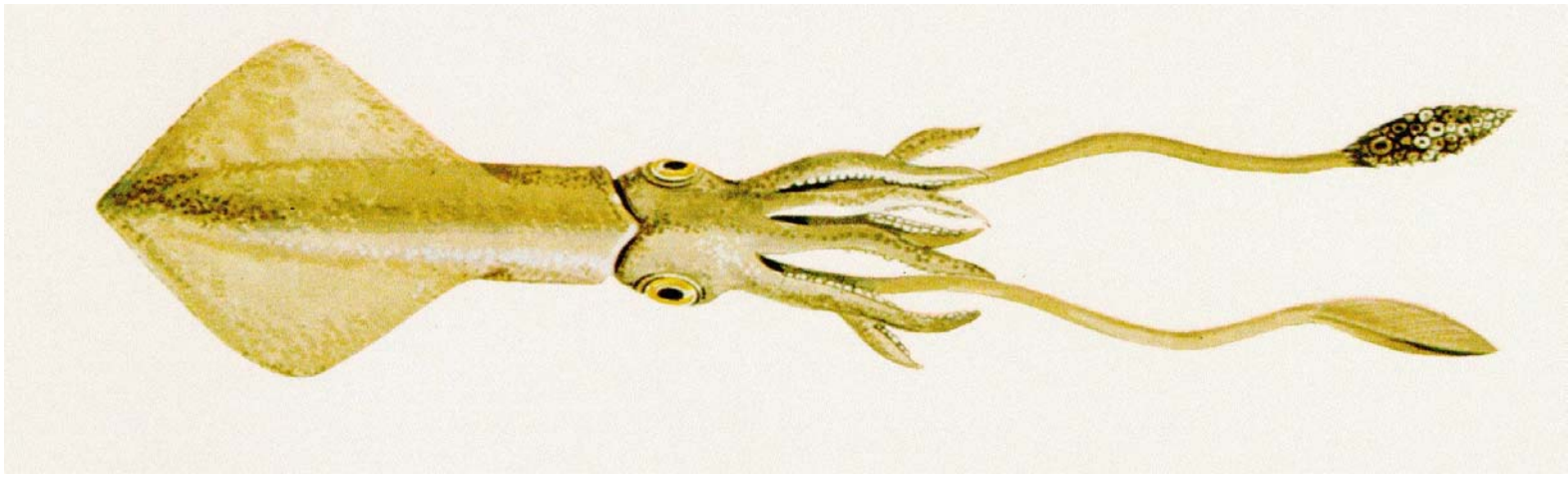


Fish 35 Maximum Length: 50 cm Average length: 23 cm

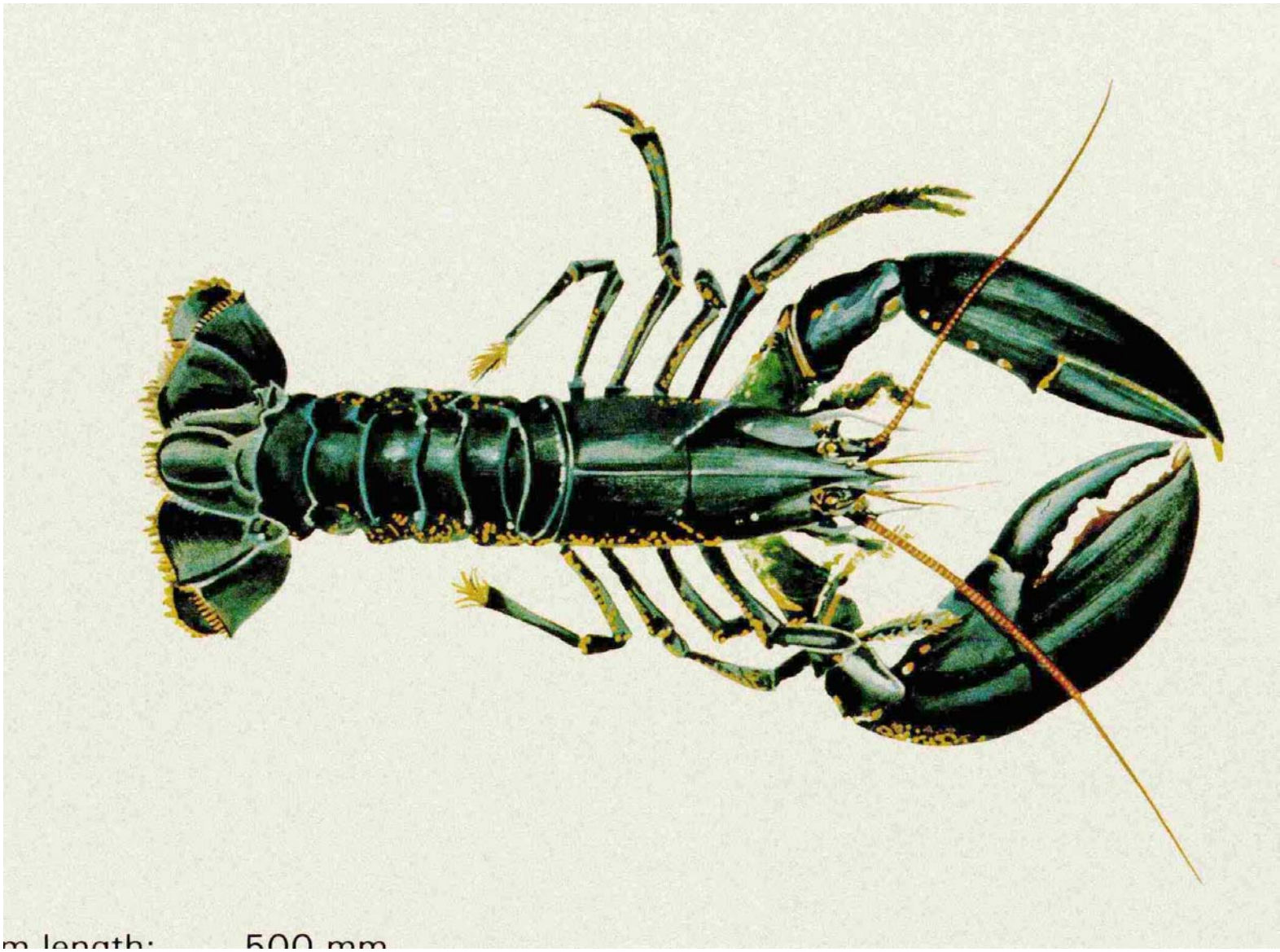


Fish 36 Maximum Length: 400 cm   Normal length range: 75-200 cm

Shellfish 1 Maximum Length: 750 mm Average length: 250 mm



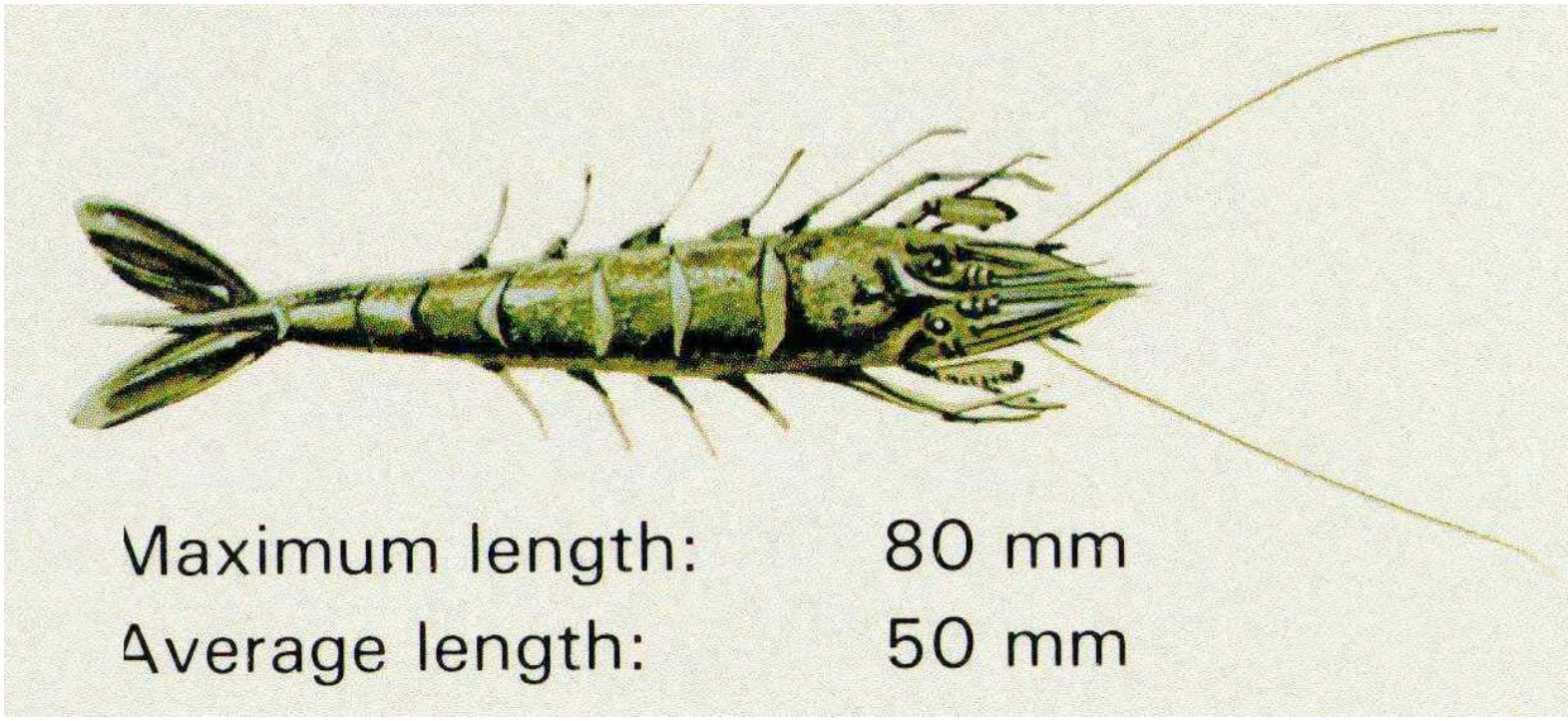
Shellfish 2 Maximum Length: 500 mm Average length: 280 mm



m length: 500 mm

Shellfish 3 Maximum Length: 190 mm Average length: 120 mm

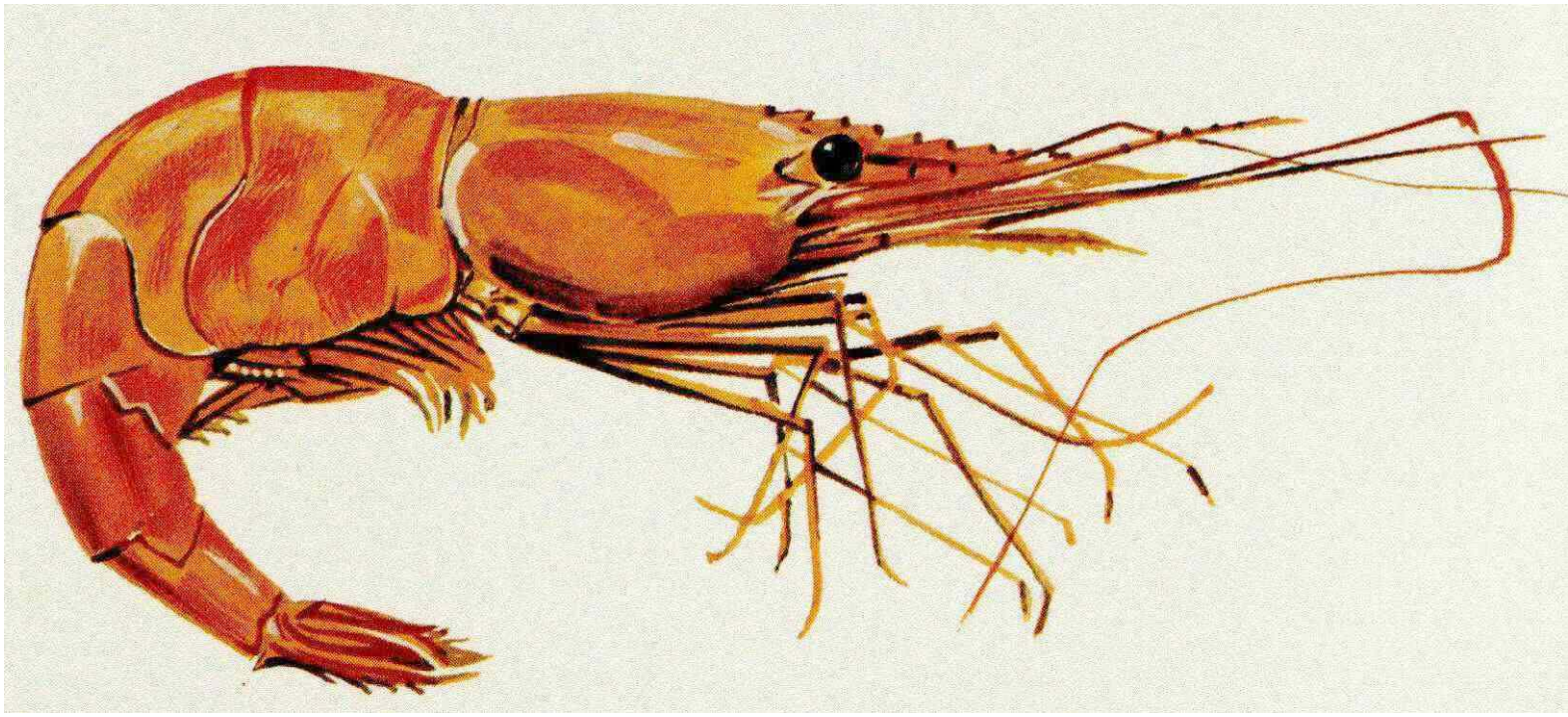
Shellfish 4 Maximum Length: 80 mm Average length: 50 mm



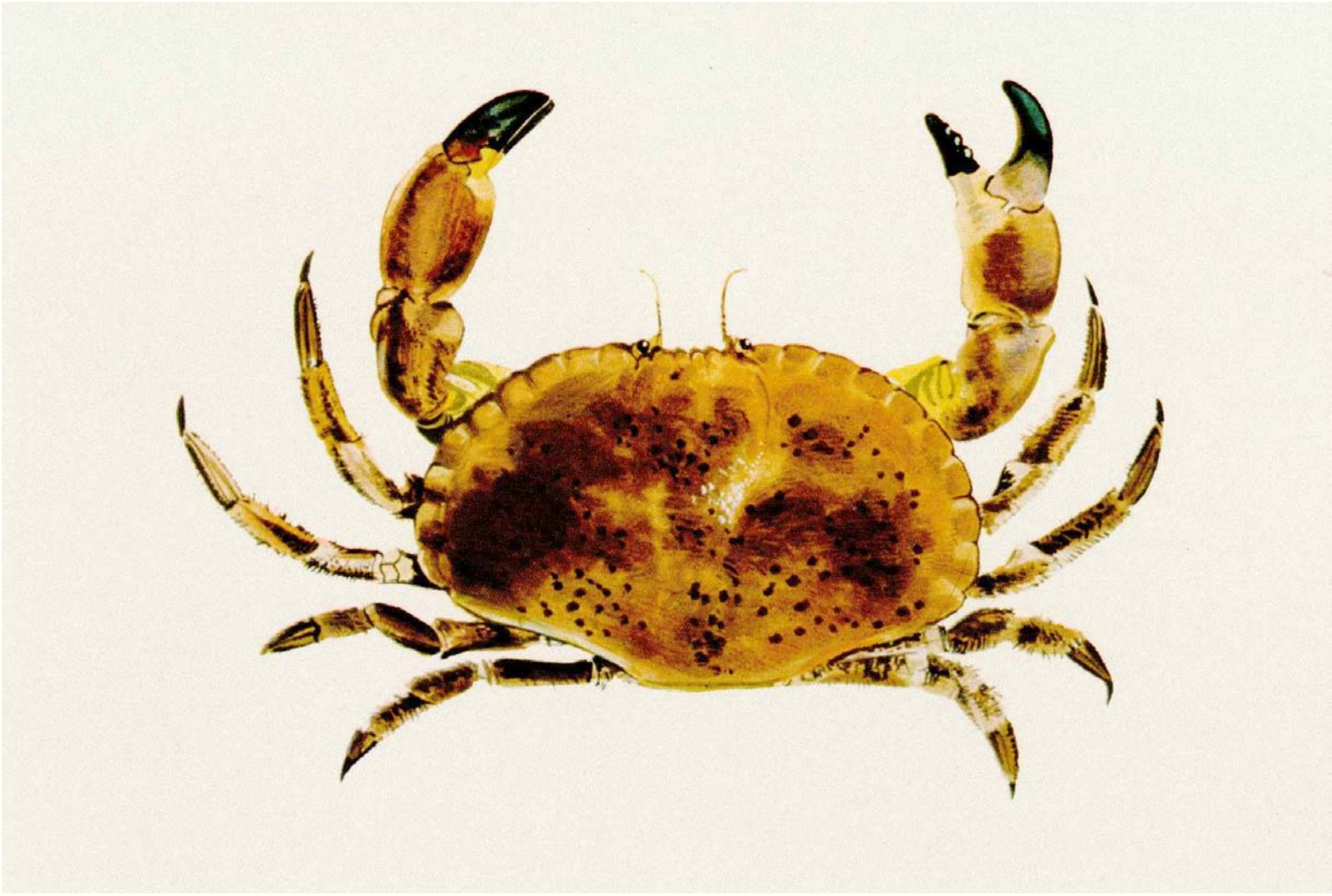
Maximum length: 80 mm

Average length: 50 mm

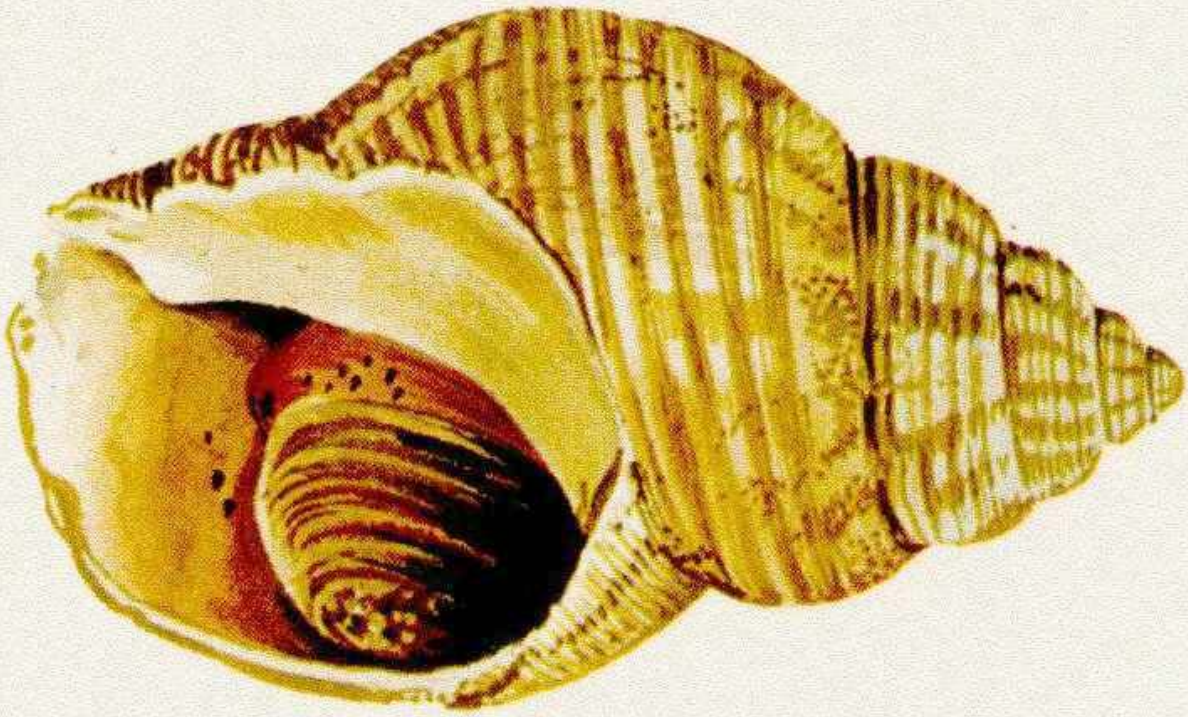
Shellfish 5 Maximum Length: 80 mm Average length: 50 mm



Shellfish 6 Maximum Breadth: 250 mm Average Breadth: 150 mm



Shellfish 7 Maximum Length: 90 mm Average length: 60 mm



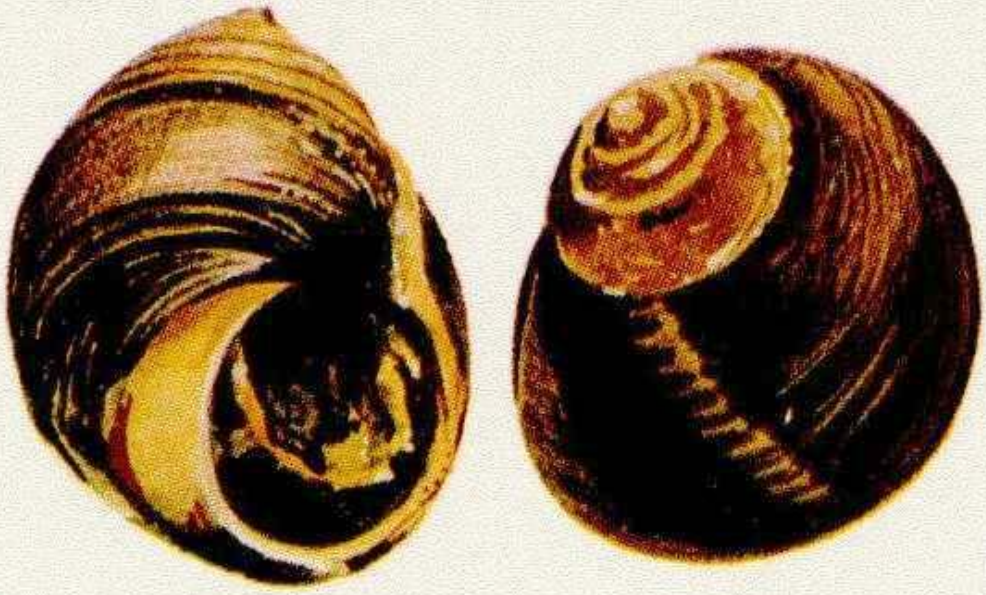
Maximum length: 90 mm

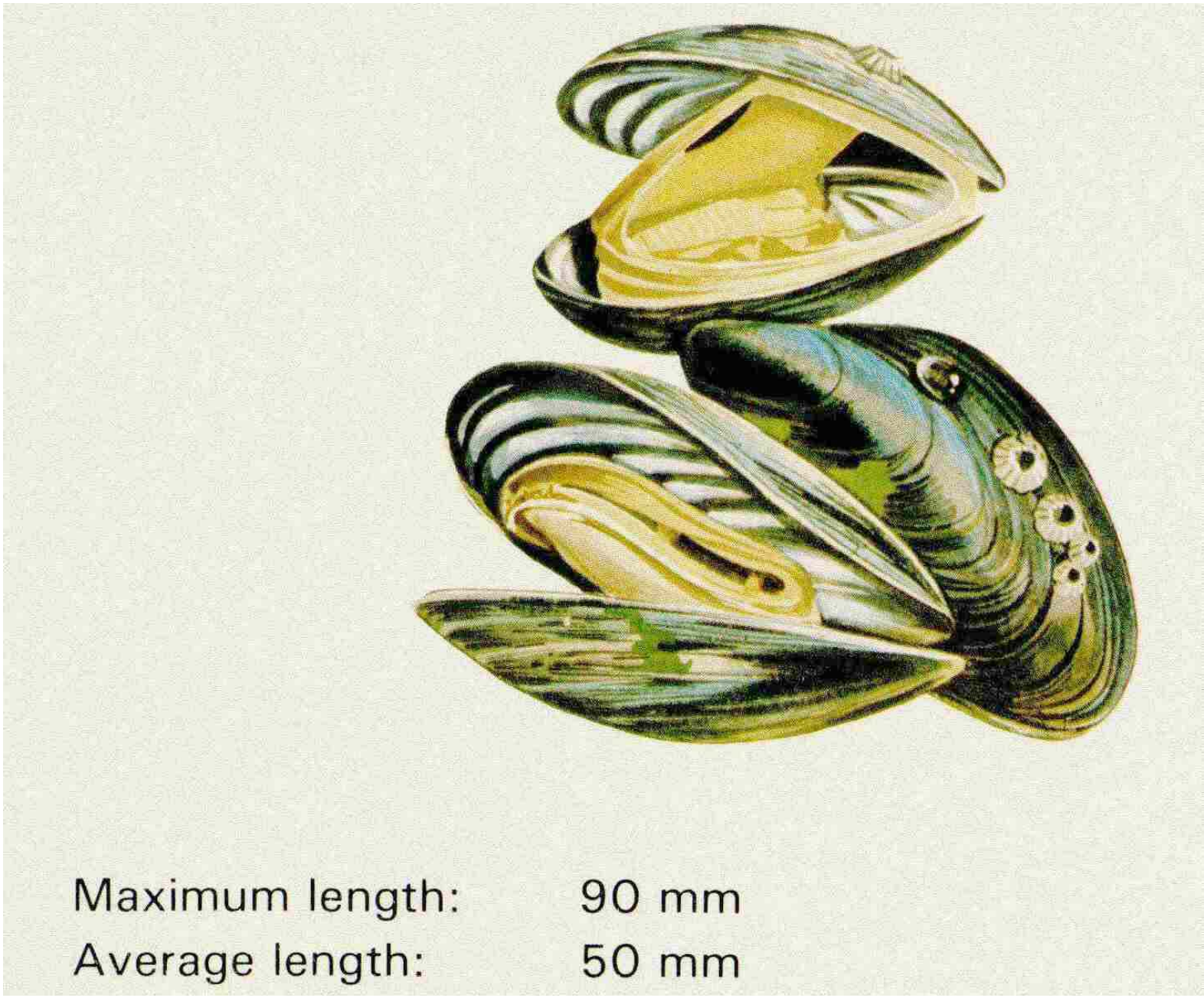
Average length: 60 mm

Shellfish 8 Maximum Length: 30 mm Average length: 15 mm

Maximum length: 90 mm

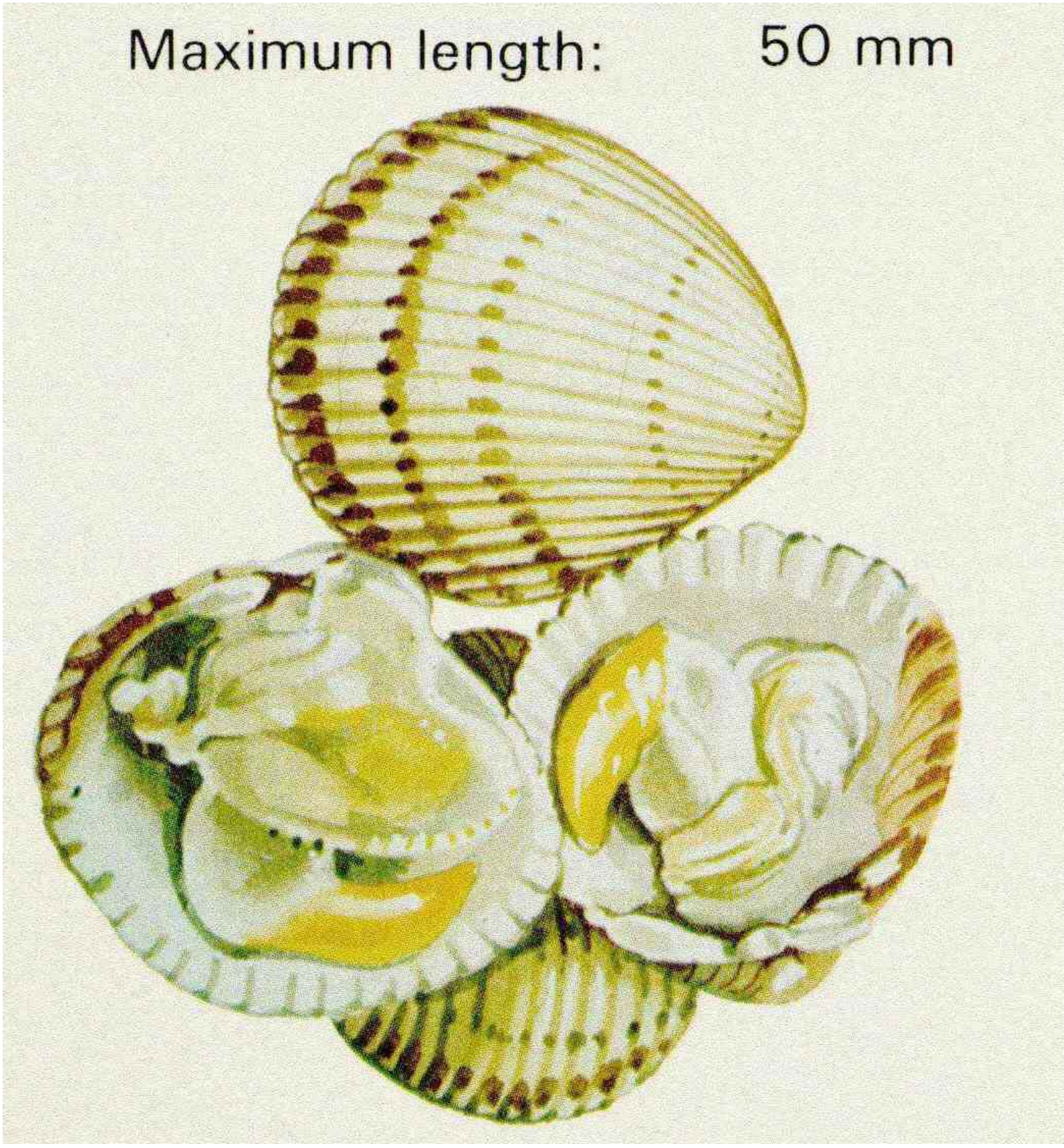
Average length: 60 mm



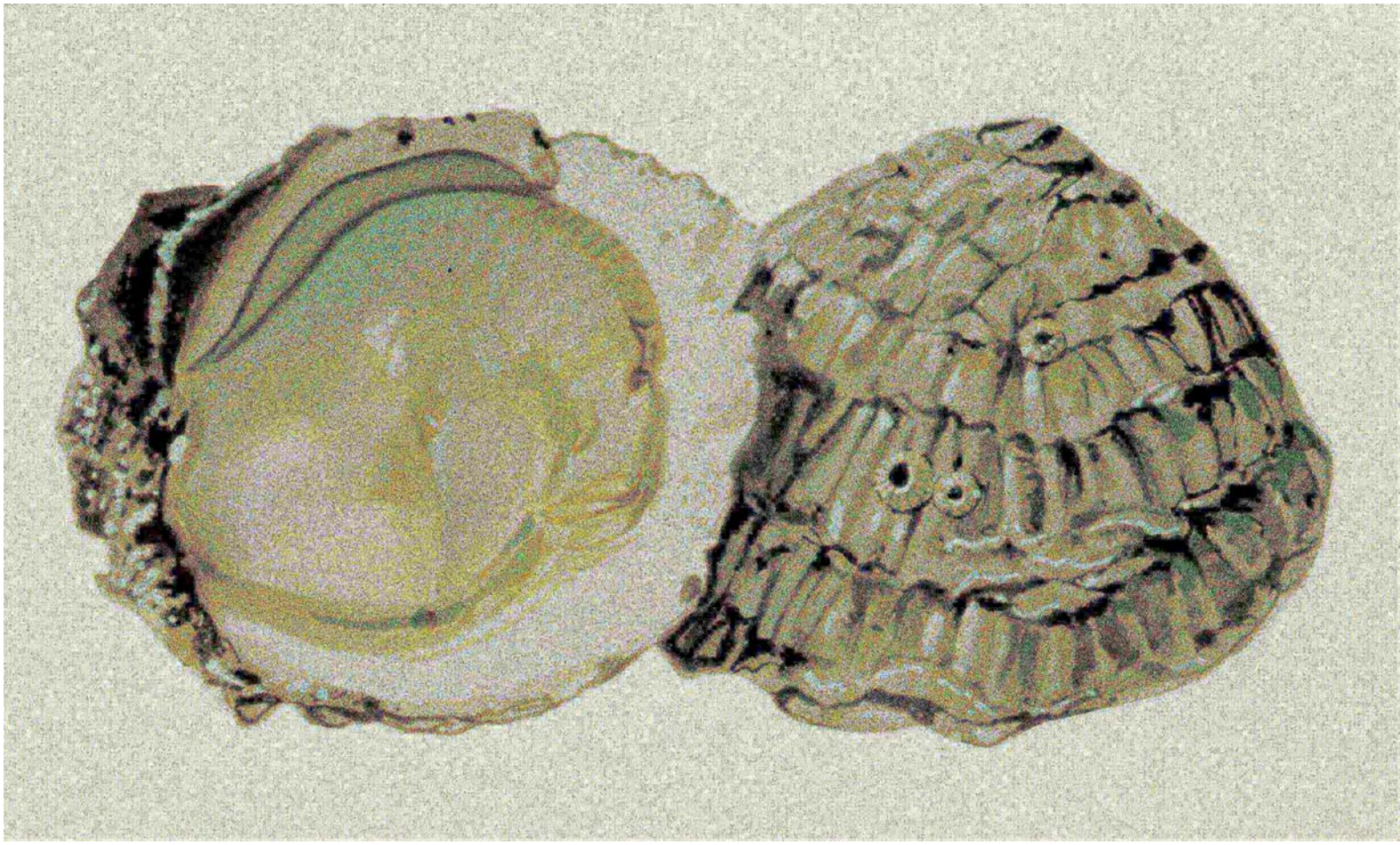


Maximum length: 90 mm

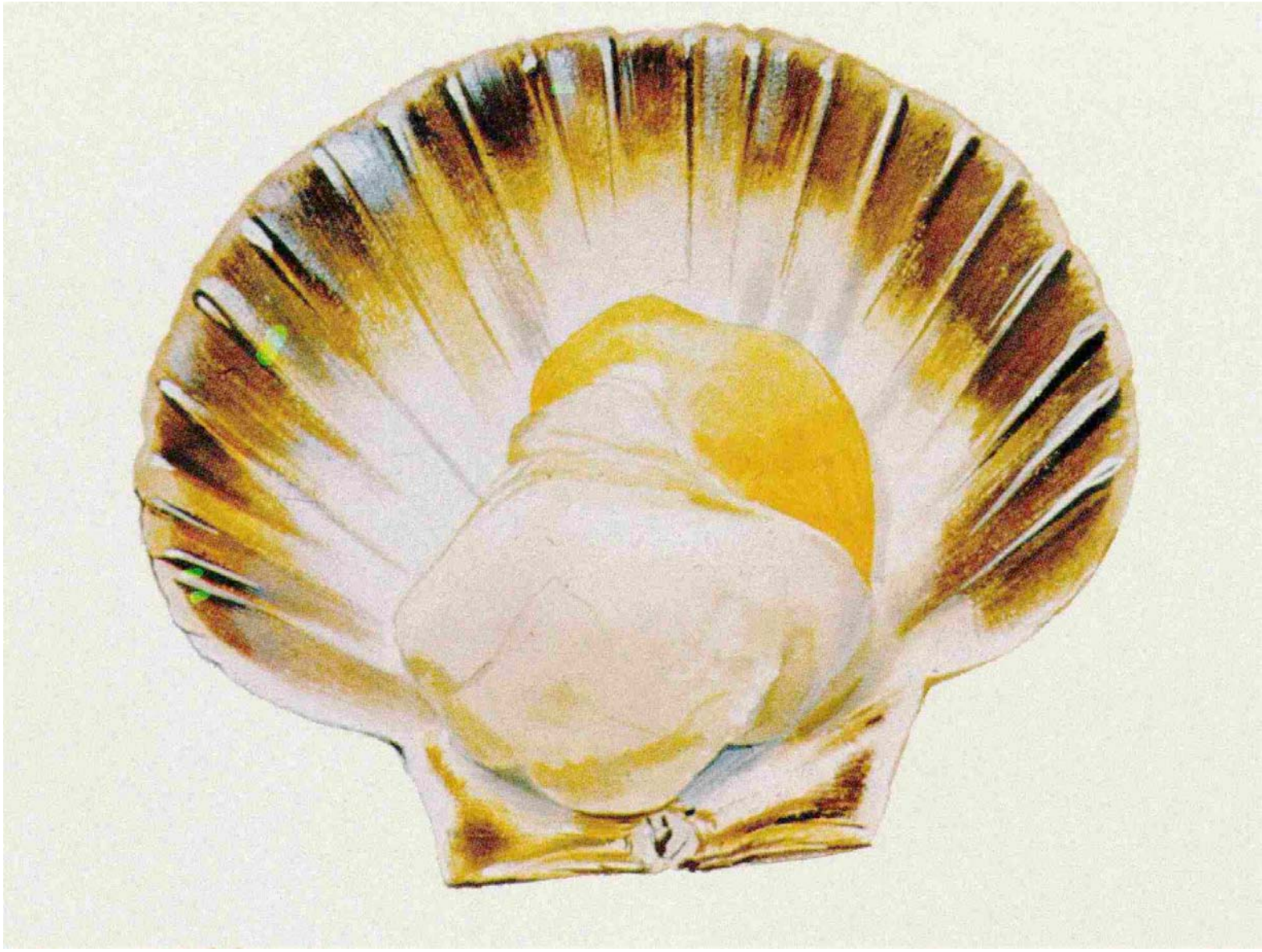
Average length: 50 mm


Maximum length:
50 mm

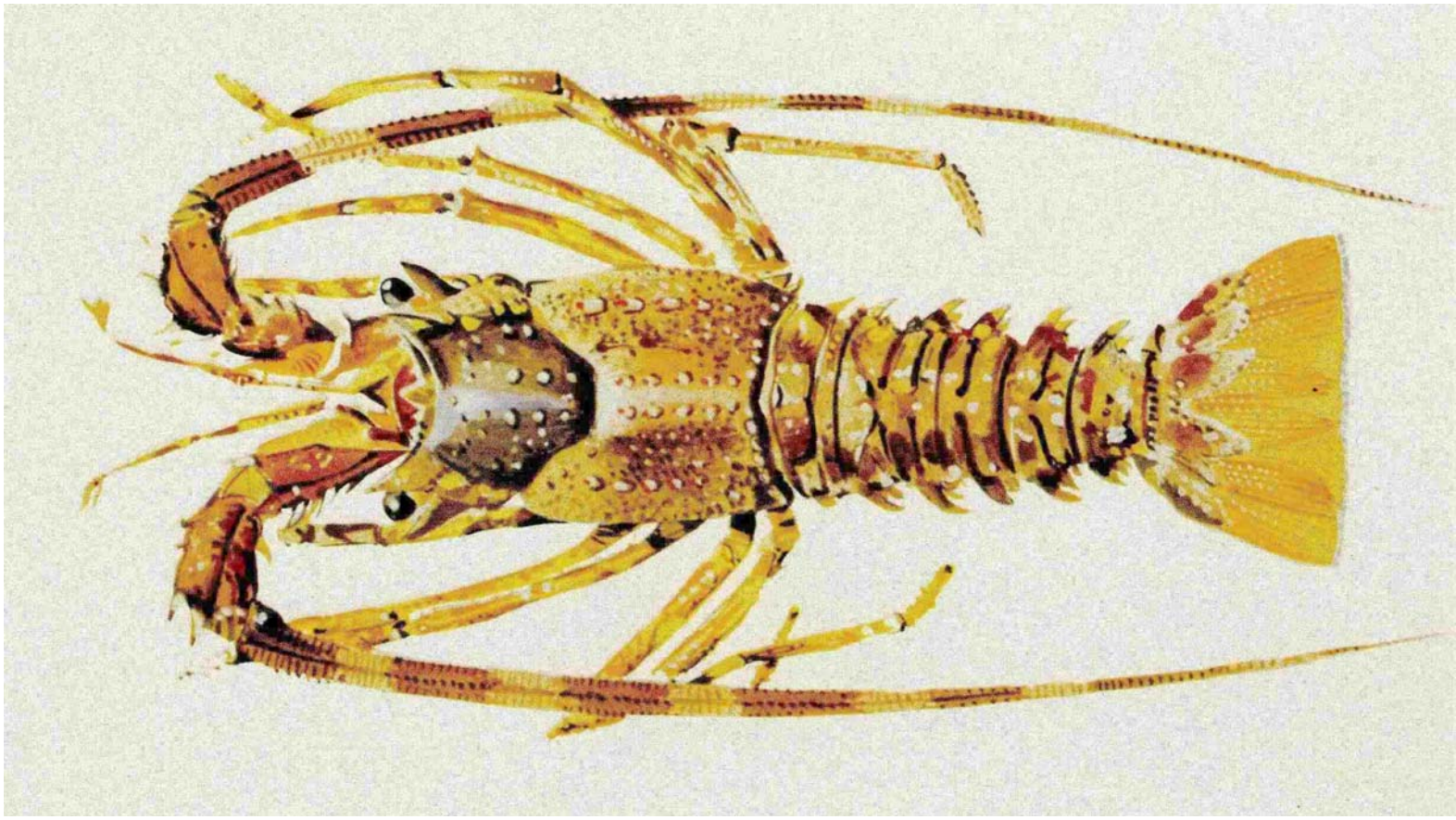
Shellfish 11 Maximum Length: 120 mm Average length: 70 mm



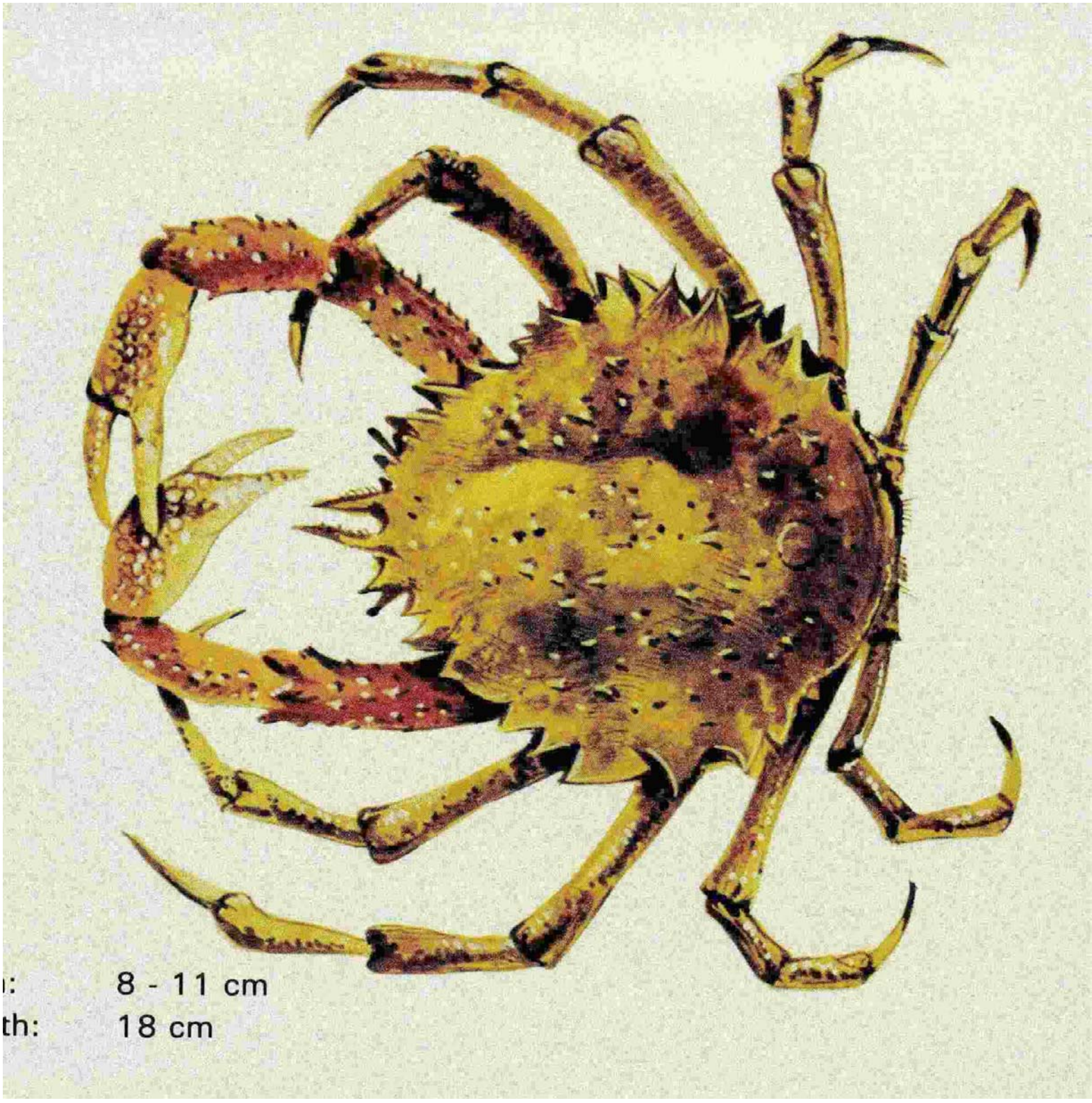
Shellfish 12 Maximum Length: 130 mm Average length: 100 mm



Shellfish 13 Maximum Length: 50 cm Average length: 30-40 cm



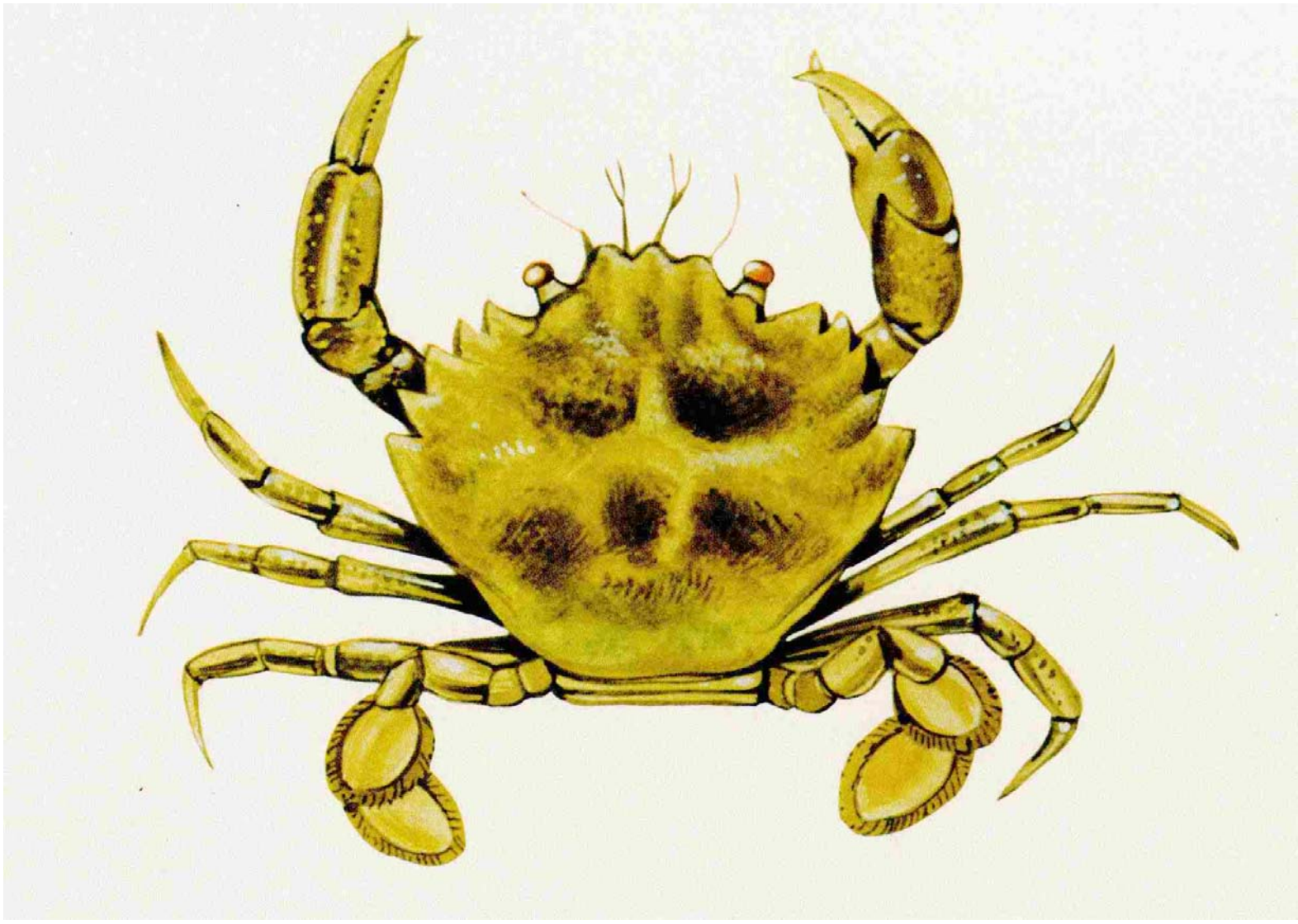
Shellfish 14 Maximum Breadth: 18 cm Average Breadth: 8-11 cm



Shellfish 15 Maximum Length: 7 cm Average length: 9 cm

Shellfish 16 Maximum Breadth: 9 cm Average Breadth: 5 cm

Shellfish 17 Maximum Breadth: 10 cm Average Breadth: 7 cm



Fish Image List and Size Information

Fish 1 = Ling - Maximum Length: 200 cm Normal Length Range: 100-150 cm
Fish 2 = Mackerel - Maximum Length: 66 cm Normal Length Range: 25-30 cm
Fish 3 = Conger eel - Maximum Length: 300 cm Normal Length Range: 100-200 cm
Fish 4 = Dab - Maximum Length: 40 cm Average Length 30 cm
Fish 5 = Witch - Maximum Length: 55 cm Average Length: 35 cm
Fish 6 = Redfish - Maximum Length: 100 cm Average Length: 45 cm
Fish 7 Haddock - Maximum Length: 76 cm Normal Length Range: 38-64 cm
Fish 8 = John Dory - Maximum Length: 66 cm Normal Length Range: 25-30 cm
Fish 9 = Sea bass Maximum Length: 100 cm Average Length: 35 cm
Fish 10 = Megrim - Maximum Length: 61 cm Normal Length Range: 35-45 cm
Fish 11 = Plaice - Maximum Length: 91 cm Normal Length Range: 37-50 cm
Fish 12 = Coley or Coalfish or Saithe - Max Length: 130 cm Normal Range: 50-75 cm
Fish 13 = Pollack or Lythe - Maximum Length: 180 cm Average Length: 50 cm
Fish 14 = Dogfish - Maximum Length: 100 cm Normal Length Range: 60-70 cm
Fish 15 =Turbot - Maximum Length: 100 cm Normal Length Range: 50-80 cm
Fish 16 = Sardine - Average Length: 8 cm
Fish 17 = Pilchard - Normal Length Range: 18-25 cm
Fish 18 = Flounder - Maximum Length: 51 cm Average Length: 30 cm
Fish 19 = Red Gurnard Normal Length Range: 30-40 cm
Fish 20 Grey Mullet - Maximum Length: 75 cm Average Length: 25 cm
Fish 21 = Sea Trout - Maximum Length: 150 cm Normal Length Range: 75-100 cm
Fish 22 = Lemon Sole - Maximum Length: 66 cm Average Length: 30 cm
Fish 23 = Salmon - Maximum Length: 150 cm Normal Length Range: 75-100 cm
Fish 24 = Dover Sole - Maximum Length: 60 cm Normal Length Range: 30-40 cm
Fish 25 = Red Mullet - Maximum Length: 40 cm Average Length: 17 cm
Fish 26 = Skate - Maximum Length: 250 cm Normal Length Range: 100-150 cm
Fish 27 =Whiting - Maximum Length: 70 cm Normal Length Range: 30-40 cm
Fish 28 = Cod Maximum Length: 120 cm Average Length: 60 cm
Fish 29 = Herring - Maximum Length: 45 cm Normal Length Range: 25-35 cm
Fish 30 = Brill - Maximum Length: 75 cm Normal Length Range: 25-35 cm
Fish 31 = Hake - Maximum Length: 180 cm Normal Length Range: 75-100 cm
Fish 32 = Catfish Maximum Length: 125 cm Normal Length Range: 80-100 cm
Fish 33 = Sprat - Maximum Length: 17 cm Normal Length Range: 8-15 cm
Fish 34 = Monkfish or Angler fish - Max Length: 190 cm Normal Range: 40-640 cm
Fish 35 = Red Sea Bream - Maximum Length: 50 cm Average Length: 23 cm
Fish 36 =Halibut - Maximum Length: 400 cm Normal Length Range: 75-200 cm

Shellfish Image List and Size Information

Shellfish 1= Squid -Maximum Length: 750 mm Average Length: 250 mm
Shellfish 2= Lobster -Max 500 mm Average 280 mm
Shellfish 3= Noway Lobster, Scampi, Nephrops -Max: 190 mm Average : 120 mm
Shellfish 4= Shrimp -Maximum Length: 80 mm Average Length: 50 mm
Shellfish 5= Cooked shrimp -Maximum Length: 80 mm Average Length: 50 mm
Shellfish 6= Brown Crab -Maximum Breadth: 250 mm Average Breadth: 150 mm
Shellfish 7= Whelk -Maximum Length: 90 mm Average Length: 60 mm
Shellfish 8= Winkle -Maximum Length: 30 mm Average Length: 15 mm
Shellfish 9= Mussel -Maximum Length: 90 mm Average Length: 50 mm
Shellfish 10= Cockle -Maximum Length: 50 mm Average Length: 30 mm
Shellfish 11= Oyster -Maximum Length: 120 mm Average Length: 70 mm
Shellfish 12= King Scallop -Maximum Length: 130 mm Average Length: 100 mm
Shellfish 13= Crayfish -Maximum Length: 50 cm Average Length: 30-40 cm
Shellfish 14= Spider Crab -Maximum Breadth: 18 cm Average Breadth: 8-11 cm
Shellfish 15= Queen Scallop -Maximum Length: 7 cm Average Length: 9 cm
Shellfish 16= Green Crab -Maximum Breadth: 9 cm Average Breadth: 5 cm
Shellfish 17= Velvet Swimming Crab -Maximum Breadth: 10 cm Average Breadth: 7 cm

FISH AND SHELLFISH

IDENTIFICATION