



普通高等教育“十三五”规划教材

教育部高等学校水产类专业教学指导委员会推荐教材

# 实用远洋渔业英语

PRACTICAL ENGLISH  
FOR DISTANT-WATER FISHERIES

宋利明 主编



科学出版社



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教育部高等学校水产类专业教学指导委员会推荐教材

全国普通高等教育海洋渔业科学与技术专业系列教材

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北京

## 内 容 简 介

本书共分四个部分。第一部分介绍海洋中的生物；第二部分介绍渔具、捕捞技术、有关渔具检查的情景对话、阅读材料（捕捞渔业技术发展趋势）等；第三部分介绍渔业生产报表、观察员报表的内容和填写实例；第四部分介绍负责任渔业、阻止非法捕捞行为、阅读材料（什么是非法捕捞、非法捕捞的解决办法等）、公海登临检查的程序（什么是海上检查、关于非法捕捞的情景对话、中西太平洋渔业委员会登临检查程序）。

本书可作为“海洋渔业科学与技术”专业“远洋渔业英语”课程的教材、渔业领域全日制农业硕士专业学位（远洋渔业方向）研究生实践课程教学参考书、远洋渔业船员培训教材、远洋渔业管理部门和远洋渔业企业技术人员自学远洋渔业英语用书。

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# 前 言

本书根据“海洋渔业科学与技术”专业“远洋渔业英语”课程的教学大纲编写而成。

本书在编写时，考虑到“海洋渔业科学与技术”专业的部分毕业生将从事远洋渔业资源调查与开发、渔业生产和涉外渔业管理等工作的需要，也考虑到目前从事远洋渔业生产、中美北太平洋渔业联合执法和涉外渔业管理等工作的技术人员自学提高和实际应用的需要。本书的基本出发点是帮助远洋渔业工作人员掌握基本的远洋渔业专业词汇和专业用语，提高他们对远洋渔业英语的理解和应用能力。

本书的读者应具备基础英语语法知识和基本的日常英语会话能力。通过本书的学习能应用所学的知识在远洋渔业生产、渔业联合执法和涉外渔业管理中用英语进行交流；掌握英文版渔捞日志的填写方法、各类表格的填写方法等。

本书由上海海洋大学宋利明教授担任主编。宋利明编写了第一部分和第二部分，上海海洋大学邹晓荣和河北农业大学宋波澜编写了第三部分，上海海洋大学唐建业编写了第四部分。上海海洋大学邹磊磊对全书的英语表达进行了检查和修改，全书由宋利明统稿。

上海海洋大学周应祺教授对本书提出了许多宝贵的意见，在编写过程中得到硕士研究生武亚萍、惠明明、杨嘉樛和李杰等的大力帮助，本书的出版获“上海高校高峰高原学科——水产学高峰学科项目”及“全国农业专业学位研究生实践教学示范基地项目(MA201601010)”的资助，编者谨致深切谢意。

由于时间及水平有限，缺乏经验，书中难免有一些不足之处，恳请读者提出宝贵意见和建议。

宋利明

2017年2月28日于上海

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# Part One

## Life in the Sea

The sea occupies a greater area of the earth's surface than the land. It is the home for millions of living things. Animals and plants of various shapes, colours and sizes live in the sea. Do you know why there are more lives in the sea than on the land?

The animals and plants of the sea are very important to man as a source of food. Sea animals like lobsters, crabs, fishes and many shellfishes can be eaten. Some sea plants, like seaweed, can also be consumed as food.

The seashore is where the land meets the sea. At certain times of the day the level of the seawater rises, which is called the high tide. When the level of seawater drops, it is the low tide. The area of the seashore between the high tide mark and the low tide mark is called the intertidal region, the habitats for many kinds of unusual plants and animals.

The plant life of the shore consists mainly of different types of algae. Two forms of algae exist—the drifting algae and the fixed algae. The drifting algae are very small. Many of them consist only of one cell. However, they can still grow like any other ordinary plant by taking in water, minerals and carbon dioxide. The fixed algae or seaweed are relatively big. They have different colours—green, greenish, blue, red, brown or yellow. Algae grow best on sunlit shores.

The sea animals range from tiny one-celled animals to huge mammals. The most well-known of all the sea animals are the fishes. The majority of them live in the shallow parts of the sea.

The fishes vary greatly in colour, size and shape. The goby, the smallest fish, is only 1.5 cm long; however, the whale shark, the largest fish, is over 15 m long. The weight of fishes can range from a few grams to about 900 kg. Most fishes' life spans range from a few months to several year.

Although fishes are different in many ways, they have certain common features. All of them have special organs, which help them live in water. Let us see what these special organs are.

Look at the picture of this fish (Fig. 1-1). It has fins. The fins help the fish to swim in the water. They also help the fish keep steady and steer itself as it moves through the water.

*Katsuwonus pelamis*

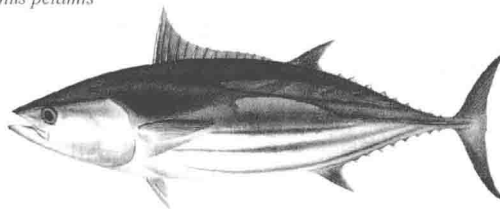


Fig. 1-1 The morphology of skipjack

The gills are comb-like structure on either side of the fish head. The fish breathes by swallowing water and passing the water over the gills. The gills absorb the oxygen from the water. The water then comes out from the openings on the sides of its head. These openings have covers over them, which are called gill covers.

Most fishes also have air bladders. They help the fish float. All fishes have a line on either side of their bodies, which is called the lateral line and used to detect sound vibrations and changes with the water pressure.

Some of the common sea fishes that we eat are mackerel, sardine, herring, tuna, long-finned herring, croaker, horse mackerel, hairtail, marine eel, plaice, hornfish, shark, and etc.

Scientists know a lot about fishes, but there is still much to be learned. For example, do fishes sleep? Do fishes age? "To age" means that the fish stops growing and is beginning to get weaker. Scientists are still trying to find the answers to these questions. Do you know anything about them?

Besides fishes, there are many other types of sea animals. They include the sponges, corals, lobsters, crabs, sea stars, sea urchins and sea cucumbers. Most of them live at the bottom of the sea, or on the seabed. The shallow seabed near the seashore is the best part of the sea for the animal life. Sunlight reaches all the way down to the seabed, and the waters are rich in mineral salts. Food of all kinds is also plentiful in this region.

According to the theory of evolution, the earliest forms of life on this Earth have started in the sea. Gradually certain kinds of animals left the water to live on the land. Many years later some of these animals returned to the sea again. Examples of these animals are the whales, seals, sea lions, dolphins and sea cows. They all belong to the most advanced group in the animal kingdom—the mammals. Man is also the mammal. Man hunts nearly all of the mammals for their skin, meat, and almost everything in their bodies.

Whales are considered to be the biggest animals of the sea, but it is only true for two species—the sperm whale and the blue whale.

Those who have studied about life either on the land or in the sea often talk about "the food chain". It simply means that larger animals which, in turn, are eaten by even larger animals, eat smaller animals. The sequence of eating and being eaten forms a chain since every plant or animal is the pest for some other animals. In this way, the life of one organism is interacted with the life of another just like the links of a chain.

In the sea, just as on the land, plants form the starting point or the first link in the chain. The plant plankton can make the food by using the energy from sunlight and by absorbing mineral salts from the surrounding water.



A food chain, like the one given above, links some sea plants and animals together.

In this food chain the plant plankton are known as the producer organisms since they are able to produce and provide food for other organisms. The animal plankton and the fishes are known as consumers because they have to be fed on or consume other organisms in order to survive.

Sea is one of the last remaining places on earth which have not been fully explored by man. Today more and more scientists are exploring the sea because the human population on earth is increasing so fast that very soon the land alone will not be able to provide enough food for man, and this is the reason why man is turning to the sea for the food. The sea is like a huge storehouse, containing not only the food but also many other valuable things like oil and minerals. The sea can also provide us with a lot of fresh water.

### Vocabulary

- |                                       |                               |
|---------------------------------------|-------------------------------|
| 1. lobster 龙虾                         | 21. large yellow croaker 大黄鱼  |
| 2. crab 蟹, 蟹肉                         | 22. little yellow croaker 小黄鱼 |
| 3. shellfish 甲壳类(有壳的水生动物, 如螺类、贝类和虾蟹类) | 23. horse mackerel 竹筴鱼; 马鲛鱼   |
| 4. seaweed 海藻, 海草                     | 24. hairtail 带鱼               |
| 5. high tide mark 高潮标志                | 25. marine eel 海鳗             |
| 6. low tide mark 低潮标志                 | 26. plaice 欧鲽, 拟鳎             |
| 7. intertidal region 潮间带              | 27. hornfish 扁颌针鱼, 短吻三刺鲀      |
| 8. algae (alga 的复数) 藻(类), 水藻, 海藻      | 28. sponge 海绵                 |
| 9. one-cell animal 单细胞动物              | 29. coral 珊瑚                  |
| 10. goby, gobies 鰕虎鱼科                 | 30. sea urchin 海胆             |
| 11. whale shark 鲸鲨                    | 31. sea cucumber 海参           |
| 12. gill cover 鳃盖                     | 32. seal 海豹                   |
| 13. air bladder 鳔                     | 33. sea lion 海狮               |
| 14. lateral line 侧线                   | 34. dolphin 海豚                |
| 15. mackerel 鲭鱼                       | 35. sea cow 海牛                |
| 16. sardine 沙丁鱼                       | 36. sperm whale 抹香鲸           |
| 17. herring 鲱鱼                        | 37. blue whale 蓝鲸             |
| 18. tuna 金枪鱼                          | 38. food chain 食物链            |
| 19. long-finned herring 鳓鱼            | 39. plankton 浮游生物             |
| 20. croaker 石首鱼科                      | 40. plant plankton 浮游植物       |
|                                       | 41. animal plankton 浮游动物      |

## Part Two

# Fishing Gears

## Section One

### Fishing Gears and Fishing Technology

#### 1.1 Netting materials

##### Nylon

Nylon is a well known-netting material. Its trade name is polyamide 66, i. e., PA66. Nylon was discovered in 1935 by an American scientist. Now there are two PA types, PA6 and PA66. From the fisheries point of view, there is no difference between PA6 and PA66. In practice they have the same properties.

The main physical properties of nylon are as follows: its specific gravity is 1.14 and is about 35% lighter than cotton fibres with equal diameter. Nylon's continuous filaments are less than 30% lighter than PES' continuous filaments.

Nylon netting yarns (nylon twine) have the highest wet knot breaking strength, followed by PP, PE and PES. Therefore under the condition of the same wet knot breaking strength, the diameter of nylon twines is smaller than that of any other synthetic fibre twine. Though the strength of nylon will be decreased by up to 15% after immersed in water and will be reduced by 10% after knotting, nylon twines are about 25% thinner than PE twines of the same wet knot breaking load.

Nylon has very favorable degree of extensibility coupled with high elasticity. It can withstand the shock load when fishing in the rough waters. Nylon also has the feature of small diameter while with high abrasion resistance.

The main weak feature of nylon netting yarns is its lower light-proofness and higher price.

Because nylon twines have so many good properties that they are widely used in fisheries around the world. Now all gill nets and purse seines use nylon as their netting materials. They are also popularly used in trawls abroad.

## PE netting twines

Polyethylene (PE) fibres were produced in the early 1950s. The specific gravity of PE fibres is 0.96, so it floats on the water surface when immersed in water.

PE twines are not affected by water and their loss in strength by knotting is lower. For this reason, though PE monofilament netting yarns have a relatively lower dry breaking load, this disadvantage can be partially compensated by the above advantages.

Low price is the main advantage of PE twines, and it is probably the main reason for its being widely used. In most countries it is the cheapest of all synthetic fibre products.

Up to now, all the netting materials used for bottom trawls in our country are PE netting fibre. The main reason for this is its low price and its properties which can meet the requirements for trawling. In addition, the surface of PE twines is smooth so that the fishing gears made of PE fibres have good filterability and their water resistance will be reduced. PE trawls are said to be easier to handle or to clean from rubbish, and spiny fish are not entangled much because they are stiffer. On the rough ground the PE netting yarns are less subject to damage because of the lower specific gravity.

Owing to its lower specific gravity and comparatively weak strength, PE fibres are not suitable for purse seine and gillnet. Even so, it is still the most popular netting material to us.

## Vocabulary

- |                             |       |                                |          |
|-----------------------------|-------|--------------------------------|----------|
| 1. abrasion resistance      | 耐磨性   | PA66—polyamide (Nylon)         | 尼龙、锦纶    |
| 2. continuous filaments     | 连续纤维  | PE—polyethylene                | 聚乙烯      |
| 3. elasticity               | 弹性    | PES—polyester                  | 聚酯纤维, 涤纶 |
| 4. extensibility            | 延展性   | PP—polypropylene               | 聚丙烯      |
| 5. filterability            | 滤水性   | PVC—polyvinyl Chloride         | 聚氯乙烯     |
| 6. knotting                 | 打结、结节 | 12. polyethylene               | 聚乙烯      |
| 7. light-proofness          | 抗光性   | 13. shock load                 | 冲击载荷     |
| 8. monofilament             | 单丝    | 14. specific gravity           | 相对密度     |
| 9. netting material         | 网材料   | 15. wet knot breaking load     | 湿态结节断裂载荷 |
| 10. netting yarns/twine     | 网线    | 16. wet knot breaking strength | 湿态结节断裂强度 |
| 11. PA6—polyamide (Capolon) | 卡普纶   |                                |          |

## 1.2 Classifications of fishing gears

Since modern fishing gears take many forms, clear classification is required. There are several different classification systems for fishing gears, which identify the principal differences

and unique technical features of various types of gears. The best known is the International Standard Statistical Classification accepted by FAO, under which, the classes are characterized by the various principles of fish capture and each class is subdivided into gear types characterized by the structure of the particular fishing gear and the method of its operation. The following is 12 principal classes of fishing gears.

a) Surrounding nets, in which the fish are surrounded not only from the side but also from below, allowing them to be caught over very deep waters. The principal types are purse seines with purse line to close the bottom of the net operated from one or two boats, ring nets and lampara nets without purse lines.

b) Seine nets, in which an area of water is surrounded by the net and by lines set from beaches and shore installations or from craft, including rafts and platforms. The nets may or may not have symmetrical wings and/or one or more bags. These gears are usually operated in coastal or shallow waters where the bottom and/or water surface act as barriers. The principal types are beach seines and boat seines (Danish seines, Scottish seines, pair seines).

c) Trawl nets, which are operated by dragging or towing the flexible net through the water by fishing craft. In particular, otter trawls may be operated from the side or the stern of the fishing craft. They are broadly divided into bottom trawls which fish on or near the seabed (beam trawls, one-boat otter trawls, two-boat pair trawls) as well as midwater trawls which fish clear of the seabed (one-boat otter trawls and two-boat pair trawls).

d) Dredges, which are rigid structures dragged over the seabed to separate mollusks, crustacean, fishes, etc. from the water, mud, sand, etc. The principal types are boat dredges and hand dredges.

e) Lift nets, which are raised or hauled upward from a submerged horizontal position to catch the fish lying above the net by straining the water. This class includes small and hand-operated lift nets, hoop nets, blanket nets, large, mechanically/pneumatically-operated nets. In some cases, they are divided into portable lift nets, boat-installed lift nets and shore-operated lift nets.

f) Falling gears, with which the fish are covered and then gathered when the net is lifted and the water is strained. Falling gears are usually operated in shallow waters. The principal types are hand cast nets, mechanized cast nets, short cast nets, gallows cast nets, drive cast nets, cover pots, covering baskets and lantern nets.

g) Gill nets and entangling nets, in which the fish are gilled, entangled or enmeshed. Gill nets and entangling nets may be hung as a single (gill net), double or triple (trammel) sheet. The nets may be used solo or attached end-to-end in fleets, and different netting types and mesh sizes may be intermixed. The principal types are set nets (anchored or staked at the seabed), drift nets (drifting freely or attached to the craft and floating at or near the surface) and encircling drive-in nets (with which the fish are first surrounded and then driven from the center by the noise or some other means).

h) Traps, which are set passively. The fishes are guided into collecting units from which escape is discouraged by labyrinths and retarding devices such as constrictions and funnels. Principal types are stationary uncovered pound nets (large anchored or staked netting structures known in Japan as set nets), covered pots and fyke nets (either set or drifting and used solo or in a system of several units with wings and leaders), stow nets (staked or anchored either to boats or not, only in rivers and strong ocean currents, with the mouth usually held open by a frame), barriers, fences, weirs and corrals usually made of indigenous materials, and aerial traps in the form of boxes, rafts, boats and veranda nets used to catch jumping or flying fish.

i) Hooks and lines, to which fishes are enticed by edible or artificial baits or lures and caught by the hook or spike and held by the line. The fish may also simply snag on a hook passing nearby. The hook may be secured to the line solo or in large numbers. The principal types are handlines and pole lines, jiglines, set longlines, drifting longlines and trolling lines.

j) Grappling and wounding gears, which are used to immobilize and retain the fish by wounding, killing and grappling them. The principal types are harpoons, spears, clamps, tongs, rakes, bow-and-arrow and any other wounding and killing implement.

k) Harvesting machines, which are relatively new and used to transfer the fish mechanically from the water. Principal types are pumps used to remove fish from their natural waters and mechanized dredges, involving hydraulic jets and/or a conveyer belt or other lifting devices.

l) Other fish-capture gears, including hand and landing nets, drive-in nets, hand gathering with or without simple hand implements and/or diving equipment, stupefying materials (e. g., toxic chemicals) and explosives, trained animals and electrically induced narcosis.

## Vocabulary

- |                               |                           |
|-------------------------------|---------------------------|
| 1. aerial trap 空架陷阱网          | 15. dredge 耙网, 采泥器        |
| 2. barrier 墙网, 栅栏, 屏障         | 16. drift net 流网          |
| 3. beach seine (net) 大拉网, 地曳网 | 17. drive-in net (一种) 驱赶网 |
| 4. beam trawl 桁拖网             | 18. enmesh 刺入网中           |
| 5. blanket net 诱饵扳缙网          | 19. entangling net 缠网     |
| 6. boat dredge 船耙网            | 20. falling gear 掩罩类      |
| 7. boat seine 船曳网, (丹麦式) 旋曳网  | 21. fence 鱼簾, 鱼栅          |
| 8. bottom trawl 底拖网           | 22. fishing craft 渔船      |
| 9. cast net 撒网, 投网            | 23. fish pump (吸) 鱼泵      |
| 10. clamps 挟具                 | 24. funnel 漏斗, 喇叭口; 漏斗网   |
| 11. corral 栅栏, 鱼簾             | 25. fyke net 袋张网, 捕鳗袋网    |
| 12. covered pot 一种有盖的鱼笼       | 26. grappling gear 抓钩     |
| 13. cover pot 掩网, 罩网          | 27. hand dredge 手耙网       |
| 14. Danish seine 丹麦式旋曳网       | 28. handline 手钩           |



- 29. harpoon 鱼叉
- 30. harvesting machine 采捕机器
- 31. hooks and lines 钓具
- 32. hoop net 袋网, 圈网
- 33. jigline 滚钩 (钓)
- 34. labyrinth 迷宫, 迷魂阵
- 35. lampara net 伦巴拉网
- 36. lantern net 提灯网, 罩网
- 37. lift net 敷网, 缙网
- 38. longline 延绳钓
- 39. mechanized dredge 机械化耙具
- 40. midwater trawl 中层拖网
- 41. mollusk 软体动物

### 1.3 Midwater otter trawls

**General description:** A midwater otter trawl is a cone-shaped net which is towed in the midwater. It consists of a cone-shaped body, normally made of four panels, ending in a codend, having lateral wings extending forward from the opening. The horizontal opening is maintained by otter boards. Floats and/or sail kites on the headline and weights on the groundline serve for the vertical opening (Fig. 2-1). Large modern midwater trawls are rigged in such a way that the weights in front of and along the groundline serve for the vertical opening of the trawl. The cable transmitting acoustic signal from the net sonde might also provide a lifting force that maximizes the vertical trawl opening. To reduce the resistance of the gear and achieve a large opening, the front part of the trawls is usually made with very large rhombic or hexagonal meshes. The use of nearly parallel ropes instead of meshes in the front part is also a common

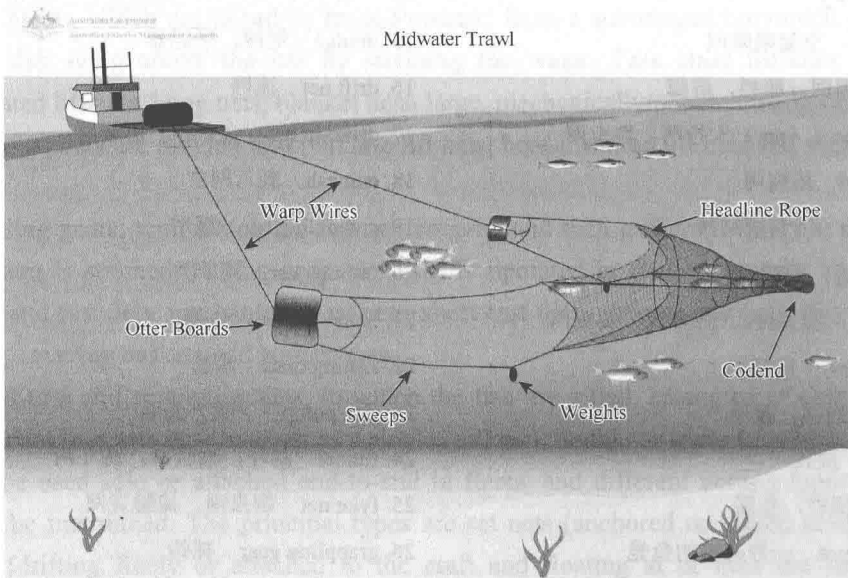


Fig. 2-1 A midwater otter trawl

Source: Australian Fisheries Management Authority, Australian Government