

# 海洋工程英语 阅读与翻译教程

English Reading and Translation for Marine Engineering

主 编 郭艳玲 王 倩



大连海事大学出版社  
DALIAN MARITIME UNIVERSITY PRESS

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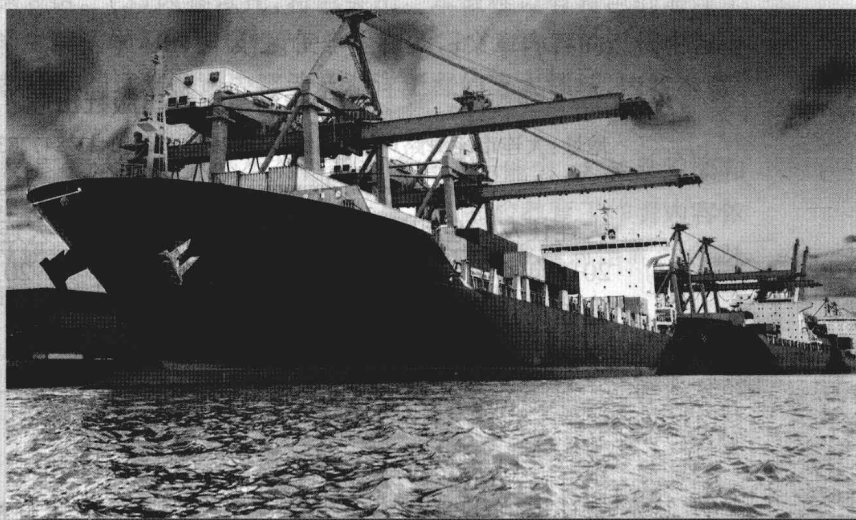
English Reading and Translation for Marine Engineering

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# 前 言

《海洋工程英语阅读与翻译教程》以英语为载体,以海洋工程领域文章为依托,使学生在获取海洋工程相关知识的基础上,提高英语的阅读和翻译能力。本教程能拓宽学生视野和思路,扩大海洋工程英语词汇,扩充海洋工程英语的文体特征等系统知识,提高学生综合应用海洋工程英语的能力。

本教程包括海洋生物工程、海洋建筑工程、海洋运输工程、海洋信息工程、海洋土木工程等 5 个章节。每章节包括 4 个单元,每个单元分别包括 A、B 两篇课文及词汇、短语、专有名词、翻译及解析、练习和趣味短文等部分。教材内容新颖,跟踪海洋工程新发展,保持目的语文本与源语之间一定的关联性,图文并茂,是融科学性、可读性和实用性于一体的英语教材。

本教程主要特点:(1)着眼海洋,内容丰富。课文均选编于近年来英语国家出版的海洋领域教科书、科普知识网站和国内英语期刊上选载的海洋英语读物,知识和内容兼具实效性、普适性和专业性。(2)主题鲜明,实用性强。课文用词严谨,语言规范,突出海洋工程英语的语言特点,追求地道的海洋工程英语表达。(3)内容依托,特色突出。本教程以有特色的海洋工程主题文章为依托,有利于激发学生英语学习的积极性,使在学习文章内容过程中习得语言。(4)侧重阅读与翻译。本教程的阅读与翻译内容涉及海洋工程的五大领域,内容丰富、实用性强。

《海洋工程英语阅读与翻译教程》有利于提高学生英语语言综合应用能力,尤其是阅读和翻译能力,使学生在了解海洋工程领域知识的过程中习得语言,是我国高校教育工作者内容依托教学的适用教材,也是本科生及研究生专业英语学习必要的参考书。本教程对培养适合 21 世纪需要的兼顾海洋工程知识和英语应用能力的复合应用型人才具有重要意义。

编 者

2018 年 5 月

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# Chapter 1

## *Marine Biological Engineering*





# Unit 1

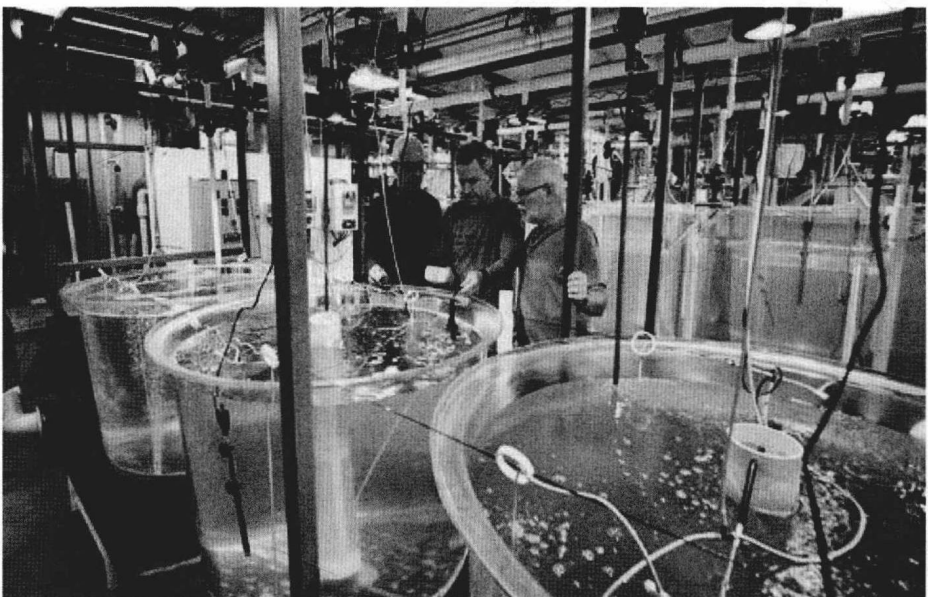
## Marine Biotechnology

### *Pre-reading*

- 1. To know the definition and research field of biotechnology.
- 2. To learn the sea is a gigantic, largely untapped reservoir of biodiversity. Careful and cautious exploitation is essential in order not to damage and disturb this fragile ecosystem.

### *Text A*

### *What should be done in Marine Biotechnology?*



### TEXT

1. Marine biotechnology, which represents a small segment of the biotechnology industry in the U. S. , approximately 85 companies or about 7 percent of all biotechnology companies has applications in medicine, agriculture, materials science, natural products chemistry, and bioremediation. It may be defined as the search for commercial uses of marine biology, biochemistry, and biophysics, and it is a **fledgling** field of study having substantial potential. At the simplest level, there is a sense that organisms living in a saline medium, often at high pressures or temperatures, contain biochemical agents that may be of use to industry in marine biotechnology. Most of the world's tropical nations are very well suited to pursue marine biotechnology because of their **proximity** to the oceans and because of their suitable climates. Worldwide, marine aquaculture produced 14 million metric tons of fish in 1991 with a market value of approximately \$28 billion. And there is evidence that the European Union is accelerating its investment in marine biotechnology. A research collaboration between the United States and Mexico could yield considerable benefits for both countries, because the United States is experiencing a **boom** in biotechnology while some of the most promising locations in which to perform marine biotechnology field research are in Mexico.
2. **Aquaculture** is the branch of marine biotechnology that is most closely related to agriculture and is of ten included under that classification. Demand for seafood worldwide is expected to increase by 70 percent in the next 35 years. Thus, world aquaculture will need to increase production seven-fold by the year 2025 in order to meet the demand. Unfortunately, this increase in demand comes at a time when the world fisheries are over-exploited and/or "commercially extinct". The USDA foresees biotechnology aiding in improvement of captive management and reproduction of species, leading to more efficient species that make better use of food supplies, production of healthier **organisms**, and improvement in food and nutritional qualities of the organisms. Furthermore, aquaculture can produce organisms used as biomedical models in research, reservoirs for bioactive **molecule** production, and organisms useful in bioremediation. Aquaculture is no longer a means of producing luxury foods, such as lobsters, but a critical solution to the world fisheries problems.
3. **Algal** aquaculture, an ancient art in Asia, not only produces seaweeds, but microalgal **cultivation** produces food supplements, such as the omega-3 fatty acids and beta car-

otene. The polysaccharides of algae are a valuable commodity and a much sought after natural product. The achievements of marine biotechnology since 1983 included many important milestones. The realization that natural products associated with marine animals and plants are produced by **bacteria** is one example. It is now possible to **utilize** marine micro organisms as a source of metabolites, potential **antibiotics**, anti tumor agents, and related pharmaceuticals.

4. There is an enormous biological diversity in the world oceans, another important discovery. The Azoic theory has been disproved, a theory which held that the deepest parts of the world oceans were **devoid** of life. The discovery of the hydrothermal vents made it clear that there is an enormous diversity of life in the deep sea. The discoveries of large populations of viruses, of the influence of viruses in regulating algal populations, as well as of the presence of hyperthermophile **viruses** in the deep sea are other examples. The numbers of viruses in estuaries have been shown to be greater than that of bacteria at certain times of the year, as well as seasonality in virus **abundance** and distribution.
5. The discovery of the archaea, an ancient line of microorganisms, more closely related to higher animals and plants than to the "true bacteria", has been documented and a new determination of the **phylogeny** of life on the planet has been derived. Extremophiles, microorganisms living in extreme environments such as high pH, low pH, high hydrostatic pressure, low temperature, i. e. , freezing , and extremely high temperatures(above boiling ) , have been isolated, characterized, and shown to be a source of commercially important products. Psychrophiles, bacteria able to grow at temperatures less than 10 °C were isolated many years ago, but the potential of psychrophiles has been underestimated. It is now clear that **enzymes** functioning at very low temperatures have valuable commercial applications. Novel species of marine bacteria have been isolated and described, including a giant bacterium visible to the naked eye. Also described, but not yet isolated, are bacteria occurring in abundance in deeper regions of the Sargasso Sea in the Atlantic Ocean and areas of the Pacific Ocean. These taxa cannot yet be grown in culture, but have been described by ribosomal RNA techniques. The use of molecular probes to discover new , as yet uncultured, taxa has been widely applied and proven exciting.
6. It has been discovered during the past decade that pure cultures are not necessarily the best means of understanding communities of bacteria in the natural environment. In fact, mixed cultures and biofilm cultures are proving to be effective in biodegradation and in carrying out **metabolic** processes in the natural environment. Successful production of **vaccines** for aquaculture that are effective, starting in the 1970's, have provided significant advances in aquaculture of a variety of marine species, including

salmonids.

7. The sea is a gigantic, largely untapped reservoir of biodiversity. Careful and cautious exploitation is essential in order not to damage and disturb this **fragile** ecosystem. The field of marine biotechnology aims to explore and utilize this biodiversity, and has great potential for beneficial outcomes for mankind. To realize this aim and potential, creative thinking and inter-disciplinary research and developments are required. The opportunity to sample marine microorganisms, including extreme thermophilic bacteria from the **geothermal vent** systems and extreme halophiles from salt ponds, can significantly expand the biomedical potential of Gulf of California organisms. The fledgling marine biotechnology industry has shown considerable interest in extreme thermophilic marine bacteria because they produce enzymes that are stable and efficient at high temperatures and pressures and are therefore attractive for use in industrial processes. The hydrothermal vent systems in the Guaymas Basin are known to be an excellent source of extreme thermophiles, but there are also many shallow-water seeps, salt ponds, **mangrove** swamps, and other unique marine microenvironments that could provide a diversity of microorganisms useful to the biotechnology industry.

(1,043 words)

### ➤ New Words

fledgling [ˈfledʒlɪŋ]

a. young and inexperienced 无经验的;刚开始的

Avatar communication has the potential to change that, and this potential defines the potential of our fledgling industry.

虚拟交流有改变的潜力,这种潜力揭示了我们这个新兴产业发展的潜力。

proximity [prɒkˈsɪmɪtɪ]

n. the property of being close together 亲近;接近

With batch computing, the proximity of the business logic to the data significantly impacts performance.

使用批处理计算,业务逻辑与数据的接近程度将极大地影响性能。

boom [bu:m]

n. a state of economic prosperity 繁荣

Our country is basking in an economic boom.

我国正处在经济繁荣之中。

aquaculture [ˈækwəkʌltʃə]

n. rearing aquatic animals or cultivating aquatic plants for food 水产养殖;水产业

Genetics also has a key role to play in helping aquaculture meet the world's growing demand for fish.

遗传学在帮助水产养殖满足世界对鱼类日益增长的需求方面也可发挥关键作用。



- organism [ˈɔ:gənɪz(ə)m]      n. a living thing that has (or can develop) the ability to act or function independently 有机体;生物体;微生物  
Not all chemicals normally present in living organisms are harmless.  
并非所有正常存在于活的有机体中的化学物质都是无害的。
- molecule [ˈmɒlɪkjʊ:l]      n. (physics and chemistry) the simplest structural unit of an element or compound 分子;摩尔  
So if we add them all up, there should be no net charge on the molecule, if the molecule is neutral.  
因此如果我们把它们都加起来,这个分子上应该没有净电荷,如果这个分子是中性的话。
- algal [ˈælg(ə)l]      a. relating to alga 海藻的  
Similarly, changes in oceanic algal populations can, through a series of natural processes, actually lower air and water temperatures.  
同样,海藻种群的变化可以通过一系列自然过程降低大气和水的温度。
- cultivation [kʌltɪ'veɪʃ(ə)n]      n. socialization through training and education 培养;耕作;耕种  
They were in the garden, but that was all; they had no share in the cultivation of its flowers.  
他们虽在花园里面却不过只在花园里面罢了;他们对于花园里面花草的栽种一点也没尽过力。
- bacteria [bæk'tɪərɪə]      n. (microbiology) single-celled or noncellular spherical organisms 细菌  
When you eat off the plate, the bacteria go into your stomach.  
当你吃掉了盘子里的食物时,细菌就会进入你的肚子。
- utilize [ˈju:tɪlaɪz]      v. to put into service; to make work or employ (something) for a particular purpose 利用  
If applications wish to match this behavior, they must utilize and duplicate the output of those applications.  
如果应用程序希望匹配这一行为,它们必须利用并复制这些应用程序的输出。
- antibiotics [ˌæntɪbaɪ'ɒtɪks]      n. a chemical substance derivable from a mold or bacterium that kills microorganisms and cures infections 抗生素;抗生学  
He's hexed to discover the antibiotics.  
他着了魔似的想研究出抗生素。
- devoid [dɪ'vɔɪd]      a. completely lacking 缺乏的;全无的

- How, then, could this race devoid of spirituality clothe in myths the profound horror of its life?  
这个缺乏灵性的种族,那时,怎么可能为其生命深层次的恐怖披上神话的外衣呢?
- virus [ˈvaɪrəs]      n. ultramicroscopic infectious agent that replicates itself only within cells of living hosts 病毒;毒素  
The virus has infected the operating system of his computer.  
病毒已使他的计算机操作系统受到感染。
- abundance [əˈbʌndəns]      n. the property of a more than adequate quantity or supply 充裕;丰富  
There is an abundance of things to talk about regarding the holidays—so go for it.  
关于假期有非常丰富的事情可以讲,所以要把它提出来大家一起讨论。
- phylogeny [faɪˈlɒdʒ(ə)nɪ]      n. (biology) the sequence of events involved in the evolutionary development of a species or taxonomic group of organisms 种系发生;系统发生  
Resolution of the primate species phylogeny here provides a validated framework essential in the development, interpretation and discovery of the genetic underpinnings of human adaptation and disease.  
而灵长类系统关系的解决能为发展、解释和发现人类适应和疾病的遗传基础提供合理的基本框架。
- enzyme [ˈenzaim]      n. any of several complex proteins that are produced by cells and act as catalysts in specific biochemical reactions [生物]酶  
It is believed that it inhibits an enzyme that promotes cell proliferation in tumors.  
据说它能抑制一种能在肿瘤中导致细胞增殖的酶的生成。
- metabolic [metəˈbɒlɪk]      a. of or relating to metabolism 变化的;新陈代谢的  
So if you weigh 250 pounds then your metabolic rate will be around 2,500 calories per day.  
所以,如果你体重 250 磅,那么你的新陈代谢率大约是每天 2 500 卡路里。
- vaccine [vækˈsɪn]      n. immunogen consisting of a suspension of weakened or dead pathogenic cells injected in order to stimulate the production of antibodies 疫苗;牛痘苗  
Seven million doses of vaccine are annually given to British children.  
英国孩子每年要接种 700 万剂疫苗。

- fragile [ 'frædʒaɪl ] a. easily broken or damaged or destroyed 脆的;易碎的  
Raising prices while the world economy is in such a fragile state is "a very dangerous game", he said.  
当世界经济还处在那么一个脆弱的状况,提高价格是“一个非常危险的游戏”,他说。
- geothermal [ ,dʒi:əʊ'θɜ:m(ə)l ] a. of or relating to the heat in the interior of the earth 地热的;地温的  
So here's what I've finally concluded: Geothermal was the right call in terms of finding an alternative to oil or gas boilers to heat the house, since we are in New England.  
所以,我最后得出的结论是:既然我们住在新英格兰,那么要找到一种能够替代石油或天然气的取暖方式的话,地热是一个不错的选择。
- vent [ vent ] n. a hole for the escape of gas or air 出口;通风孔;(感情的)发泄  
His hostility to the woman found vent in a sharp remark.  
他用尖刻的话语发泄对那个女人的敌意。
- mangrove [ 'mæŋgrəʊv ] n. a tropical tree or shrub bearing fruit that germinates while still on the tree and having numerous prop roots that eventually form an impenetrable mass and are important in land building 红树林  
Hainan's mangrove and rich coral reef are well-known attractions.  
海南的红树林和丰富的珊瑚礁都是著名的景观。

## ➤ Phrases and Expressions

a segment of .....的一部分

be of use 使用;利用

lead to 导致

be devoid of 缺乏

carry out 执行

a variety of 各种各样的

## ➤ Proper Nouns

European Union 欧盟

USDA (United States Department of Agriculture) 美国农业部

RNA 核糖核酸

Sargasso Sea 马尾藻海(大西洋中,围绕着百慕大区域)

Atlantic Ocean 大西洋

Pacific Ocean 太平洋

Guaymas Basin 瓜伊马斯盆地

## ► Translation

1. It may be defined as the search for commercial uses of marine biology, biochemistry, and biophysics, and it is a fledgling field of study having substantial potential. (Para. 1)

它可以定义为寻找海洋生物学、生物化学和生物物理学的商业用途,是具有巨大潜力的新兴的研究领域。

2. Most of the world's tropical nations are very well suited pursue marine biotechnology because of their proximity to the oceans and because of their suitable climates. (Para. 1)

世界上大多数的热带国家非常适合研究海洋生物技术,因为他们有得天独厚的条件:靠近海洋,气候适宜。

【这个句子中有两个由 because of 组成的原因状语。翻译时如果把这种结构直接转换成汉语,译文会略显啰唆。这时,需要考虑采用增译的方法并调整语序。翻译时补充出热带地区适合研究海洋生物技术的原因,增译“得天独厚”。把原因状语调整成四字短语,并列置于句尾,使译文表达清楚。】

3. A research collaboration between the United States and Mexico could yield considerable benefits for both countries, because the United States is experiencing a boom in biotechnology while some of the most promising locations in which to perform marine biotechnology field research are in Mexico. (Para. 1)

美国和墨西哥之间的科研合作可以为两国带来可观的利益,因为美国的生物技术正处于繁荣的发展阶段,而墨西哥地处进行海洋生物技术研究的绝佳地理位置。

4. The USDA foresees biotechnology aiding in improvement of captive management and reproduction of species, leading to more efficient species that make better use of food supplies, production of healthier organisms, and improvement in food and nutritional qualities of the organisms. (Para. 2)

美国农业部预计协助改善圈养管理和物种繁殖的生物技术,这样做能导致更多有用的物种的出现。这些物种将更有利于食品供给,带来更健康的生物,改善食品和生物的营养品质。

5. Aquaculture is no longer a means of producing luxury foods, such as lobsters, but a critical solution to the world fisheries problems. (Para. 2)

水产养殖不再是生产诸如龙虾之类的奢侈食品的手段,而是解决世界渔业问题的关键途径。

6. It is now possible to utilize marine microorganisms as a source of metabolites, potential antibiotics, anti tumor agents, and related pharmaceuticals. (Para. 3)

现在可以利用海洋微生物作为代谢物、潜在的抗生素、抗肿瘤药物和相关药物的来源。



7. The discoveries of large populations of viruses, of the influence of viruses in regulating algal populations, as well as of the presence of hyperthermophile viruses in the deep sea are other examples. (Para. 4)

其他的发现有:大量病毒的存在,病毒在调节藻类种群方面的影响作用,以及深海热病毒的存在。

【这个句子中有三个由 of 组成的表示所属关系的名词性短语作主语。谓语处在句末。翻译时如果按原文语序结构直接翻译成汉语,译文会头重脚轻。这时,需要考虑采用调整语序的翻译方法,理顺信息量大的主语部分,调整后符合汉语的表达习惯。】

8. Novel species of marine bacteria have been isolated and described, including a giant bacterium visible to the naked eye. (Para. 5)

新物种的海洋细菌已经被隔离和描述出来,包括肉眼可见的巨大细菌。

9. The field of marine biotechnology aims to explore and utilize this biodiversity, and has great potential for beneficial outcomes for mankind. (Para. 7)

海洋生物技术领域的目标是探索和利用生物多样性,为人类带来有益的结果。

10. The hydrothermal vent systems in the Guaymas Basin are known to be an excellent source of extreme thermophiles, but there are also many shallow-water seeps, salt ponds, mangrove swamps, and other unique marine microenvironments that could provide a diversity of micro-organisms useful to the biotechnology industry. (Para. 7)

墨西哥西北瓜伊马斯盆地的地热喷口系统被认为是极端嗜热生物的极佳来源,但也有许多浅水渗流、盐池、红树林沼泽和其他独特的海洋微生物环境,这些环境可以为生物技术产业提供多种微生物。



## Exercises

### 1. Fill in the blanks with the proper given words, and then translate the sentences into Chinese.

|           |         |              |              |
|-----------|---------|--------------|--------------|
| fledgling | boom    | devoid       | vaccine      |
| metabolic | utilize | cultivation  | abundance    |
| unique    | luxury  | considerable | a variety of |
| ancient   | extreme | represent    | micro        |

- 1) We \_\_\_\_\_ 47 nations from every region of the world, and I thank each of you for being here.
- 2) They have warned the world to expect more frequent and intense \_\_\_\_\_ weather events, and this is what we are seeing.