



NATIONAL
GEOGRAPHIC

READING EXPEDITIONS™

国 家 地 理

科学探索丛书

SCIENTISTS IN THE FIELD

实地科学探索

SYLVIA EARLE

Protecting the Seas

保护海洋

REBECCA L. JOHNSON (美) 著



外语教学与研究出版社

FOREIGN LANGUAGE TEACHING AND RESEARCH PRESS

(京)新登字 155 号

京权图字: 01-2004-4819

图书在版编目(CIP)数据

实地科学探索 保护海洋 (美)约翰逊(Johnson, R. L.)著;朱燕燕注. —北京:外语教学与研究出版社, 2004.8

(国家地理科学探索丛书·自然科学系列:英文注释版)

ISBN 7-5600-4259-7

I. 实… II. ①约… ②朱… III. 英语—语言读物, 海洋 IV. H319.4: P

中国版本图书馆 CIP 数据核字(2004)第 078592 号

Copyright © (2002) National Geographic Society. All rights reserved.

Copyright © (2004) (in English/Chinese bilingual) National Geographic Society. All rights reserved.

国家地理科学探索丛书(英文注释版主题合订版)由美国北极星传媒有限公司策划并授权出版

仅限中国大陆地区销售 不得在香港、澳门、台湾地区销售,不得出口

实地科学探索

保护海洋

REBECCA L. JOHNSON (美) 著

朱燕燕 注

* * *

责任编辑:余 军

出版发行:外语教学与研究出版社

社 址:北京市西三环北路 19 号(100089)

网 址: <http://www.fltp.com>

印 刷:北京画中画印刷有限公司

开 本:740×975 1/16

印 张:2

版 次:2004 年 8 月第 1 版 2004 年 8 月第 1 次印刷

书 号:ISBN 7-5600-4259-7 G·2191

全套定价:29.50 元

* * *

如有印刷、装订质量问题出版社负责调换

制售盗版必究 举报查实奖励

版权保护办公室举报电话:(010)88817519

致读者

如果你希望读到地道的英语，在享受英语阅读乐趣的同时又能增长知识、开拓视野，这套由外语教学与研究出版社与美国国家地理学会合作出版的“国家地理科学探索丛书”正是你的选择。

“国家地理科学探索丛书”分为9个系列，内容涉及自然科学和社会研究，秉承《国家地理》杂志图文并茂的特色，书中配有大量精彩的图片，文字通俗易懂、深入浅出，将科学性和趣味性完美结合，称得上是一套精致的小百科。

这套丛书以英文注释形式出版，注释由国内重点中学教学经验丰富的英语教师完成。特别值得推荐的是本套丛书在提高青少年读者英语阅读能力的同时，还注重培养他们的科学探索精神、动手能力、逻辑思维能力和沟通能力。

本丛书既适合学生自学，又可用于课堂教学。丛书各个系列均配有一本教师用书，内容包括背景知识介绍、技能训练提示、评估测试、多项选择题及答案等详尽的教学指导，是对课堂教学的极好补充。

本套丛书是适合中学生及英语爱好者的知识读物。

 NATIONAL
GEOGRAPHIC

国家地理

科学探索丛书

SCIENTISTS IN THE FIELD

实地科学探索

SYLVIA EARLE

Protecting the Seas

保护海洋

REBECCA L. JOHNSON (美) 著

朱燕燕 注

外语教学与研究出版社

FOREIGN LANGUAGE TEACHING AND RESEARCH PRESS

北京 BEIJING

CONTENTS

目 录

Introduction 4

引言

Into the Deep

涉入深海

Chapter 1 6

第一章

Sylvia Earle:

Explorer of Wonders

西尔维亚·厄尔：奇迹探索者

Chapter 2 14

第二章

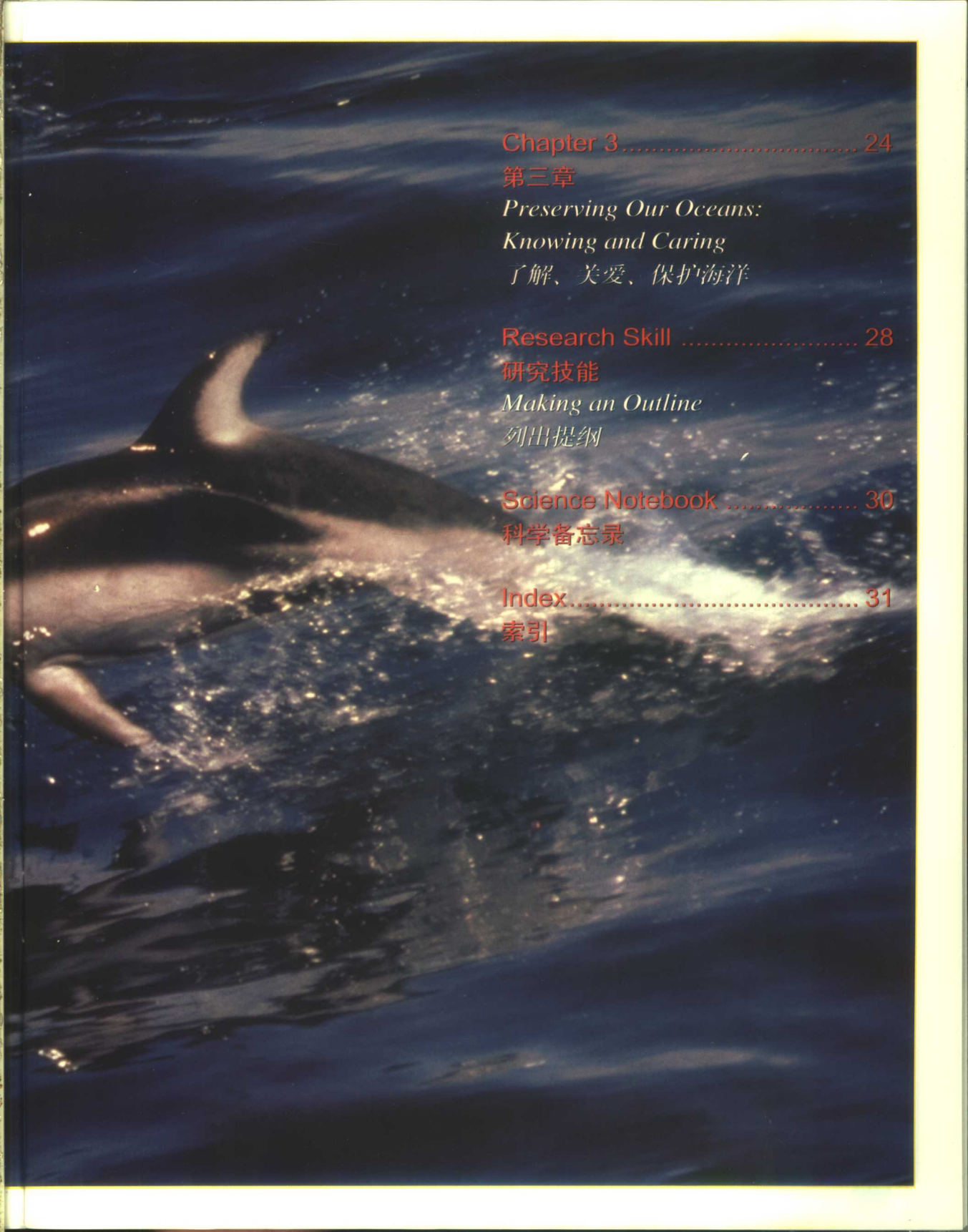
In the Field:

A Dive to the Seafloor

实地作业：潜至海底

Tools of the Trade 22

探索工具



Chapter 3 24

第三章

Preserving Our Oceans:

Knowing and Caring

了解、关爱、保护海洋

Research Skill 28

研究技能

Making an Outline

列出提纲

Science Notebook 30

科学备忘录

Index 31

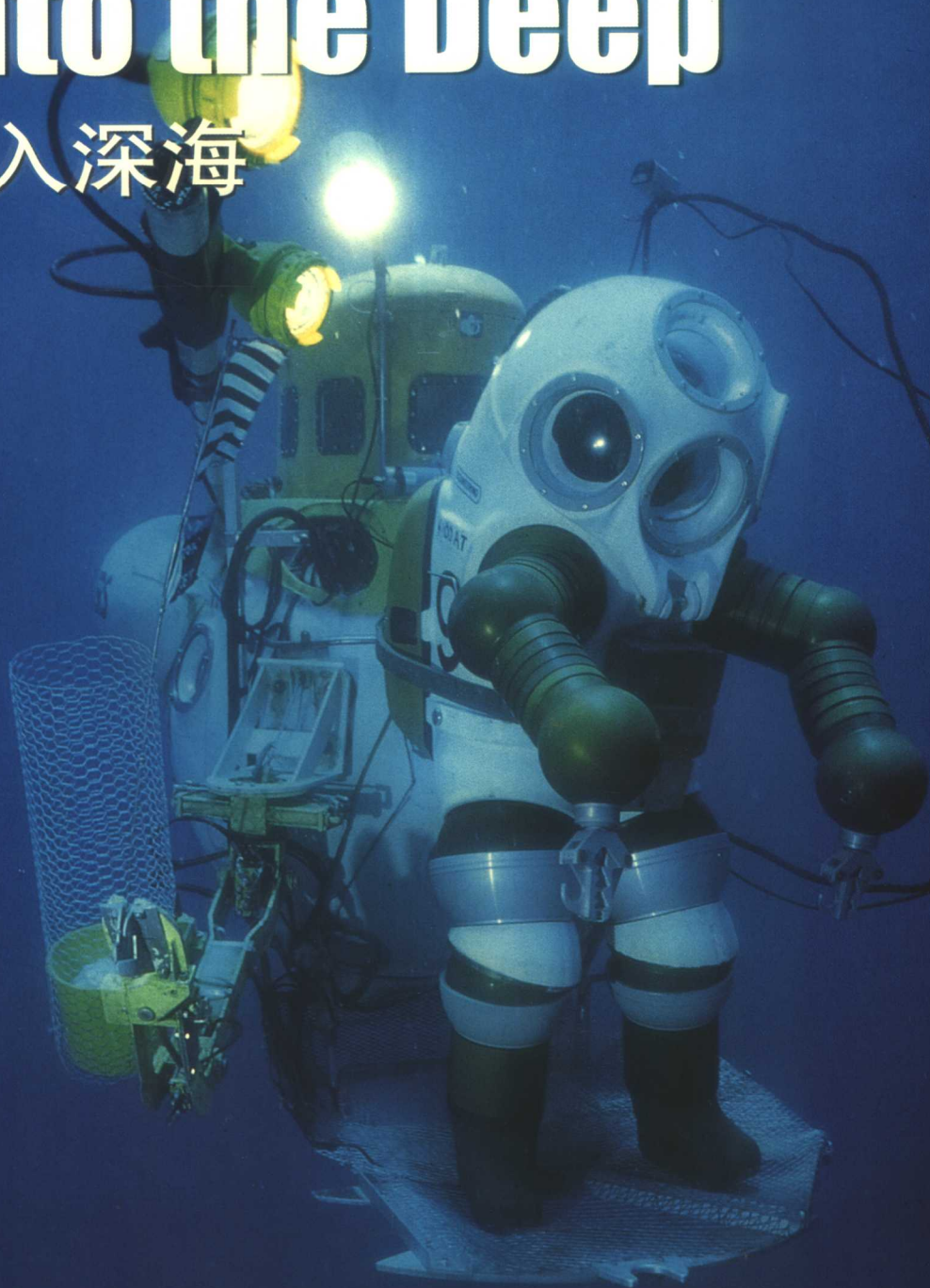
索引

INTRODUCTION

引言

Into the Deep

涉入深海



The tiny¹ submarine² drifted³ down, down, down. Sylvia Earle sat strapped⁴ to the nose⁵ of the sub. But she was safe and dry inside her diving suit⁶. Through the porthole⁷ windows, Sylvia watched the light fade⁸. The color of the seawater changed from turquoise⁹ to dark blue to black.



Sylvia Earle, oceanographer³²

Minutes later, the sub came to rest on the floor of the Pacific Ocean¹⁰. The strap connecting the special diving suit to the sub was released¹¹. Sylvia stepped down. It was October 1979, and she was walking alone on the seafloor¹² off the coast¹³ of the Hawaiian island of Oahu¹⁴—at a record depth¹⁵ of 379 meters (1,250 feet). Today she still holds the record for the deepest dive by any person using such a suit without a connection to the surface¹⁶.

For the next two-and-a-half hours, Sylvia explored¹⁷ the mysterious¹⁸ world of the deep sea. She saw bright red crabs¹⁹ with long, spindly²⁰ legs and a gray eel²¹ with skin²² as smooth²³ as silk. She saw thin, twisting²⁴ corals²⁵ that lit up²⁶ with an eerie²⁷ blue light every time she touched them.

That record-setting dive to the seafloor earned²⁸ Sylvia the nickname²⁹ Her Royal Deepness³⁰. It's a fitting title for someone who has led more than 50 diving expeditions³¹ and spent more than 6,000 hours underwater. This is a book about ocean scientist Sylvia Earle, who has spent most of her life exploring the seas and working to protect them. Get set to follow Sylvia into the deep.

1. tiny	adj.	极小的
2. submarine	n.	潜艇(口语称 sub)
3. drift	v.	漂流
4. strap	v.	用带缚住
5. nose	n.	突出部分(船头)
6. diving suit		潜水服
7. porthole	n.	舷窗
8. fade	v.	变暗
9. turquoise	n.	青绿色
10. Pacific Ocean		太平洋
11. release	v.	松开; 放开
12. seafloor	n.	海底
13. coast	n.	海岸
14. Hawaiian island of Oahu		夏威夷群岛的瓦胡岛
15. record depth		保持纪录的深度
16. surface	n.	水面

17. explore	v.	探索
18. mysterious	adj.	神秘的
19. crab	n.	螃蟹
20. spindly	adj.	细长的
21. eel	n.	鳗鲡; 鳗
22. skin	n.	皮肤
23. smooth	adj.	光滑的
24. twist	v.	扭曲; 弯曲
25. coral	n.	珊瑚
26. light up		发光; 发亮
27. eerie	adj.	怪诞的; 奇异的
28. earn	v.	使得到
29. nickname	n.	绰号
30. Her Royal Deepness		深海皇后
31. expedition	n.	探险
32. oceanographer	n.	海洋学家

Sylvia Earle: Explorer of Wonders

西尔维亚·厄尔：奇迹探索者

Are you a nature lover? Do you like to go exploring in wild places? Sylvia Earle has been fascinated¹ by nature and wild critters² for as long as she can remember.

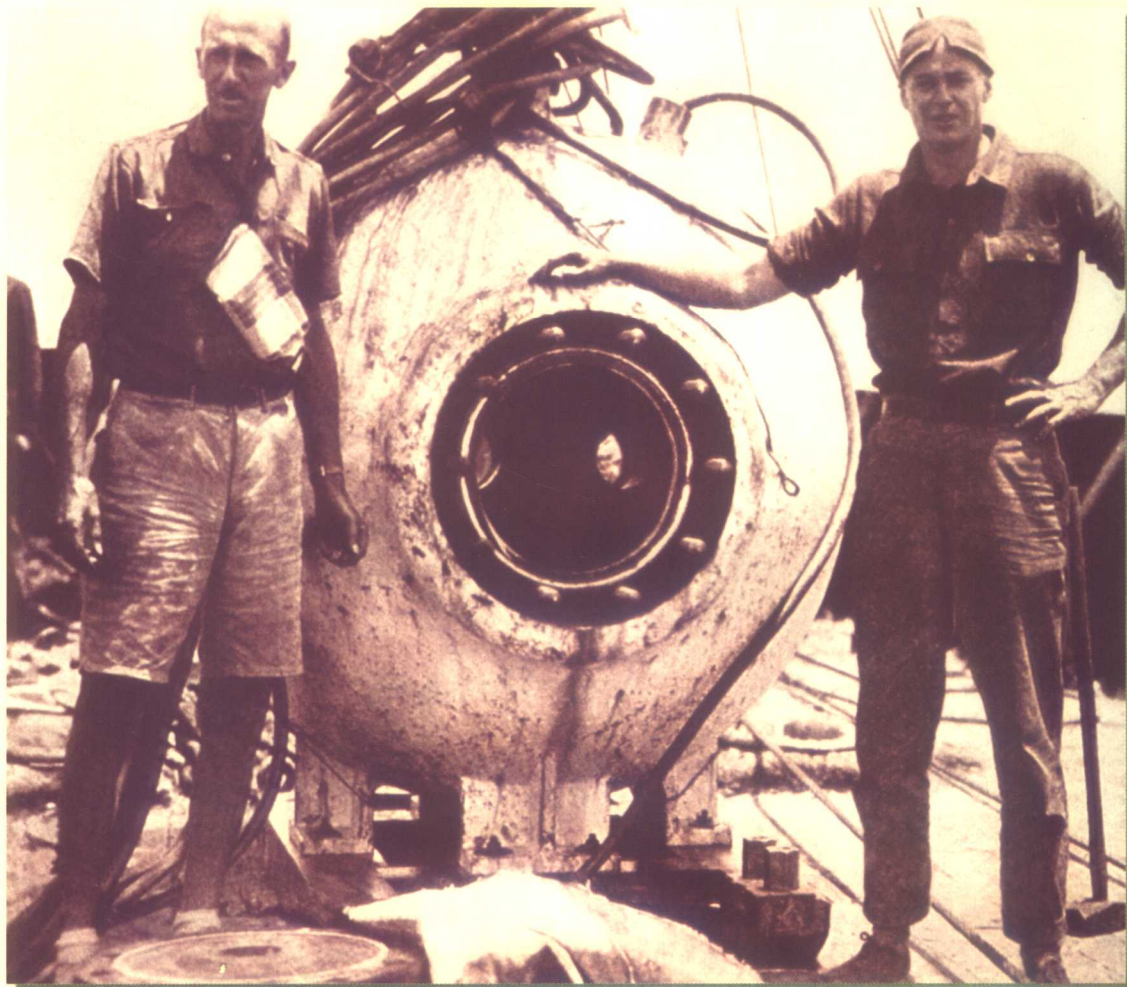
For the first 12 years of her life, Sylvia lived on a small farm near Camden³, New Jersey⁴. Her parents encouraged her and her two brothers to explore nature—especially the woods near the farm. The woods were a place of wonder. Among the branches and leaves were beetles⁵, birds, frogs, caterpillars⁶, and lots of other creatures⁷. Sylvia wanted to get to know them all. She wasn't afraid of anything, no matter how slimy⁸ or scaly⁹ or slithery¹⁰.

The farm wasn't far from the ocean. A trip to the ocean was always a special treat¹¹ for Sylvia. Like the woods, the seashore was home to amazing¹² animals. Sylvia could sit for hours and watch big horseshoe crabs¹³ bulldoze¹⁴ through the sand or seagulls¹⁵ soar¹⁶ above the water. What lay beyond the shore, she wondered? What lived beneath the waves?

- | | | |
|--------------------|------|--------|
| 1. fascinate | v. | 使着迷 |
| 2. wild critter | | 野生动物 |
| 3. Camden | | 卡姆登市 |
| 4. New Jersey | | 新泽西州 |
| 5. beetle | n. | 甲虫 |
| 6. caterpillar | n. | 毛虫 |
| 7. creature | n. | 动物 |
| 8. slimy | adj. | 黏糊糊的 |
| 9. scaly | adj. | 多鳞的 |
| 10. slithery | adj. | 滑溜的 |
| 11. special treat | | 特别的乐事 |
| 12. amazing | adj. | 令人惊奇的 |
| 13. horseshoe crab | | 蟹 |
| 14. bulldoze | v. | 拱 |
| 15. seagull | n. | 海鸥 |
| 16. soar | v. | 高飞, 翱翔 |

Sylvia Earle at
age 10





Some of Sylvia's questions were answered in school. There was *always* something new to learn. When she read for pleasure, she chose the encyclopedia¹. Every time she turned a page, she felt like she was making a discovery. Sylvia also read books about the sea and the people who explored it. One of her favorite² authors³ was William Beebe. He was one of the first scientists to go several hundred meters below the ocean's surface. Beebe's descriptions⁴ of strange, deep-sea creatures made Sylvia long to⁵ do what Beebe had done.

William Beebe, left, Otis Barton, and the diving sphere⁶ they invented for deep-sea exploration

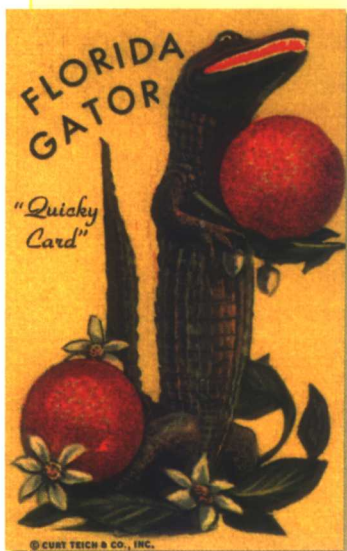
- | | | | | | |
|-----------------|-------------|-------|----------------|-----------|------|
| 1. encyclopedia | <i>n.</i> | 百科全书 | 4. description | <i>n.</i> | 描绘 |
| 2. favorite | <i>adj.</i> | 特别喜爱的 | 5. long to | | 渴望 |
| 3. author | <i>n.</i> | 作家 | 6. sphere | <i>n.</i> | 球(体) |

The Urge¹ to Submerge²



▲
Copper diving helmet

This Florida postcard
pictures one of Sylvia's
favorite critters.



When Sylvia was 12 years old, her family moved to Florida³. They lived right by the ocean. Suddenly the Gulf of Mexico⁴ became Sylvia's backyard⁵. She explored beaches, salt marshes⁶, and mudflats⁷ where she met new kinds of shallow-water⁸ ocean creatures. But what lived in deeper water was still out of reach.

A few years later, Sylvia was able to experience⁹ the underwater world in a new way. With a borrowed copper diving helmet¹⁰ and an air compressor¹¹, Sylvia could explore underwater. She put on the helmet and stepped into the Weeki Wachee River¹². The water swirled¹³ over her head. Inside the helmet, which was being pumped¹⁴ full of air, she could breathe¹⁵ and she could see. There were fish all around her. Some of them were watching her as closely as she was watching them!

Sylvia was 16 years old when she went on this first dive. That same year she finished high school. She graduated¹⁶ from Florida State University¹⁷ three years later with a degree in botany¹⁸. Botany is the study of plants. Sylvia focused on ocean plants. She decided to identify¹⁹ all the ocean plants in the Gulf of Mexico. In fact, Sylvia Earle is still collecting and classifying²⁰, or grouping, plants from Gulf waters. "I've always known what I wanted to do," Sylvia says. "I didn't always know what to call it, but later I discovered it was called a scientist, a biologist, and ultimately²¹ an oceanographer."

- | | | | | |
|--------------------------|-------------|---------|------------------------------|------------------|
| 1. urge | <i>n.</i> | 强烈欲望 | 12. Weeki Wachee River | 威基沃奇河 |
| 2. submerge | <i>v.</i> | 潜水 | 13. swirl | <i>v.</i> 打漩 |
| 3. Florida | | 佛罗里达州 | 14. pump | <i>v.</i> 打气 |
| 4. Gulf of Mexico | | 墨西哥湾 | 15. breathe | <i>v.</i> 呼吸 |
| 5. backyard | <i>n.</i> | 后院 | 16. graduate | <i>v.</i> 毕业 |
| 6. salt marsh | | 盐沼; 盐碱滩 | 17. Florida State University | 佛罗里达州立大学 |
| 7. mudflat | <i>n.</i> | 泥滩 | 18. botany | <i>n.</i> 植物学 |
| 8. shallow-water | <i>adj.</i> | 浅水的 | 19. identify | <i>v.</i> 识别; 鉴别 |
| 9. experience | <i>v.</i> | 经历 | 20. classify | <i>v.</i> 分类 |
| 10. copper diving helmet | | 铜制潜水头盔 | 21. ultimately | <i>adv.</i> 最终 |
| 11. air compressor | | 空气压缩机 | | |



Later, Sylvia earned more advanced¹ science degrees at Duke University². She became an oceanographer and went on ocean expeditions that took her all over the world. By this time, Sylvia did most of her underwater exploring wearing scuba gear³. She breathed through a mouthpiece⁴ that was connected⁵ to a tank of⁶ air on her back. In order to be safe, scuba divers⁷ cannot dive much below 45 meters (150 feet), and their air supply doesn't last very long. Sylvia wanted to go deeper and stay longer underwater. She dreamed of being able to live in the sea.

Sylvia saw a gar⁸ on her first dive.

- | | | |
|--------------------|-------------|----------|
| 1. advanced | <i>adj.</i> | 高级的 |
| 2. Duke University | | 杜克大学 |
| 3. scuba gear | | 自携式水下呼吸器 |
| 4. mouthpiece | <i>n.</i> | (管子的)口 |
| 5. connect | <i>v.</i> | 连接 |
| 6. a tank of | | 一罐 |
| 7. scuba diver | | 戴水肺的潜水员 |
| 8. gar | <i>n.</i> | 雀鳝; 鸭嘴鱼 |

Living Underwater

The chance to do just that came in 1970. Sylvia was asked to lead the first team of women to live and work in an underwater laboratory. Called Tektite II, the lab sat on the seafloor in about 15 meters (50 feet) of water, off the Virgin Islands¹ in the Caribbean Sea². Sylvia and four other scientists spent two weeks in this undersea home. Can you imagine³ living on the ocean bottom⁴ and having fish peer⁵ in through your windows?

Did you ever wonder...

...why the sea is so important?

Sylvia says the sea is basic¹⁵ to life itself. Plants in the sea produce most of the world's oxygen¹⁶. Oceans affect¹⁷ our climate¹⁸ too. Sylvia thinks our planet¹⁹'s seas are so important that maybe Earth should be called Ocean instead!

Every day—and at night, too—Sylvia and her fellow aquanauts⁶ explored their underwater neighborhood outside Tektite II. Wearing scuba gear, they collected information and took samples⁷. They spent many hours watching the fish and other animals. Sylvia discovered that each fish is different, with its own personality⁸.

The Tektite II team made headlines⁹ when they returned to the surface. Sylvia saw this publicity¹⁰ as a chance to tell many people—not just other scientists—what she had seen beneath the waves. She gave interviews¹¹ and spoke to groups of people about her work. She wrote about her underwater experiences. Sylvia wanted everyone to understand the ocean world and why it was important. She also wanted them to know that pollution¹² and overfishing¹³ were harming¹⁴ it.

1. Virgin Islands	维尔京群岛	10. publicity	<i>n.</i>	宣传文字; 宣传
2. Caribbean Sea	加勒比海	11. interview	<i>n.</i>	会见; 接见
3. imagine	<i>v.</i> 想像	12. pollution	<i>n.</i>	污染
4. ocean bottom	海底	13. overfish	<i>n.</i>	过度捕捞
5. peer	<i>v.</i> 窥视, 凝视	14. harm	<i>v.</i>	损害, 危害
6. aquanaut	<i>n.</i> 海底(实验室)工作人员	15. basic	<i>adj.</i>	基本的
7. sample	<i>n.</i> 样本	16. oxygen	<i>n.</i>	氧; 氧气
8. personality	<i>n.</i> 特点	17. affect	<i>v.</i>	影响
9. headline	<i>n.</i> 头版头条新闻	18. climate	<i>n.</i>	气候
		19. planet	<i>n.</i>	行星(此处指地球)

Sylvia collects underwater plants for study in the Tektite II laboratory.





Sylvia sights a humpback tail disappearing¹⁴ under the surface of Glacier Bay¹⁵, Alaska¹⁶.

Protecting the Seas

Later, Sylvia's work took her to the Galápagos Islands¹, to waters² off China, Panama³, and the Bahamas⁴, and to islands in the Pacific and Indian Oceans. During one study, she traveled across thousands of kilometers of ocean to observe humpback whales⁵. She wanted to learn more about how whales communicate⁶, care for their young, and get the food they need.

With each dive, Sylvia's desire⁷ to go deeper grew stronger. Scuba had its limits⁸. But what about a small submarine, or submersible⁹? A sub could safely carry a scientist into the deep for many hours at a time. So Sylvia and some friends started a company to design¹⁰ and build submersibles. In 1985 Sylvia piloted¹¹ *Deep Rover*, a one-person submersible she helped create¹², to about 1,000 meters (3,000 feet) beneath the waves.

1. Galápagos Islands	加拉帕戈斯群岛	9. submersible	n.	潜水器
2. waters	n.	10. design	v.	设计
3. Panama	巴拿马	11. pilot	v.	驾驶
4. Bahamas	巴哈马	12. create	v.	制造
5. humpback whale	座头鲸	13. prefix	n.	前缀
6. communicate	v.	14. disappear	v.	消失
7. desire	n.	15. Glacier Bay		冰川湾
8. limit	n.	16. Alaska		阿拉斯加州

Word Power

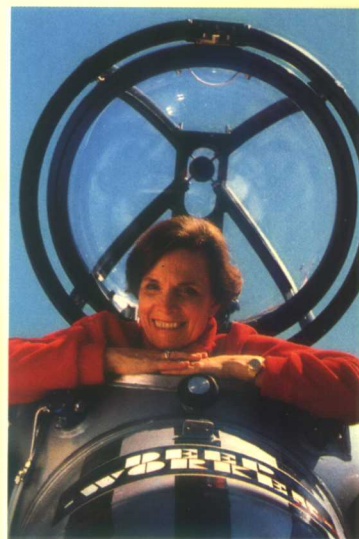
The word *submarine* is made up of the prefix¹³ *sub* meaning "under or below" and the base word *marine* meaning "of the sea."

A few years later, Sylvia became the first woman to serve as chief scientist¹ at NOAA², the National Oceanic and Atmospheric Administration. NOAA oversees³ America's oceans and the National Marine Sanctuaries⁴. A marine sanctuary is like an underwater national park.

Today, Sylvia is back to being a full-time ocean explorer. She is in charge of⁵ a program called the Sustainable⁶ Seas Expeditions. Using the latest technology⁷, she and other scientists are exploring the deep waters of the National Marine Sanctuaries. The star of the show is *Deep Worker*, a new submersible Sylvia often pilots.

Deep Worker's hatch⁸ is open. Climb on in and join Sylvia Earle on one of her expeditions to explore the bottom of the sea.

1. chief scientist		首席科学家
2. NOAA		(美国)国家海洋和 大气局
3. oversee	v.	检查; 监督
4. National Marine Sanctuary		国家海洋生物 保护区
5. in charge of		负责
6. sustainable	adj.	可持续的
7. technology	n.	技术
8. hatch	n.	舱门



Sylvia in *Deep Worker*



In the Field: A Dive to the Seafloor

实地作业：潜至海底

Have you ever dreamed you could explore the world deep beneath the waves? Imagine gliding¹ slowly along in a submersible, moving weightlessly² through a liquid world of deepest blue.



Queen angelfish²⁰

Thrusters³ whirl⁴ as *Deep Worker* moves over corals that grow crowded together on top of the reef⁵. Hundreds of fish dressed in every imaginable shade⁶ of red, orange, blue, and green dart⁷ through the clear water. At the edge of the reef, you check your gauges⁸ and signal⁹ to the surface. Then you press down on one of the pedals¹⁰ at your feet. The sub tilts¹¹ forward and heads down into the unknown.

Deep Worker descends¹² about 30 meters (100 feet) a minute. As moments tick by¹³, the water changes from blue to deep purple¹⁴. At 300 meters (1,000 feet) below the surface, the light has disappeared. The water is inky black. At 450 meters (1,480 feet) the on-board sonar system¹⁵ shows that you're nearing the ocean floor. You let up¹⁶ on the pedal to slow your descent. Moments later the bottom appears in the sub's lights. *Deep Worker* settles¹⁷ gently down on a patch of¹⁸ pale¹⁹ sand.

1. glide	v.	滑行	12. descend	v.	下降
2. weightlessly	adv.	失重地	13. tick by		使(分、秒等)滴答滴答过去
3. thruster	n.	推进器	14. deep purple		深紫色
4. whirl	v.	急速旋转	15. sonar system		声纳系统
5. reef	n.	礁	16. let up		停止；减缓
6. shade	n.	(色彩的)浓淡深浅	17. settle	v.	停留
7. dart	v.	猛冲	18. a patch of		一片
8. gauge	n.	测量仪表	19. pale	adj.	灰白的
9. signal	v.	发信号	20. queen angelfish		皇后神仙鱼
10. pedal	n.	脚蹬			
11. tilt	v.	倾斜			