



Here is a
ing ships. S
war, pirate
on the reef
alone, sev
here, and t
gleaned clo
vage opera

In today
aries are m
tually will
the lovely c
active visit
and bob fa
er look at g
ous strap o
the beautif
photograph
idly on pag

Author 1

Heavy se
barrier, wh
comes up
of the Gul
found the s
chester, wh
five miles e

A British
a crew of 3
fought with
war with F
islands. Mi
at Jamaica
home. But
the sea—be

Giant sea v
the sun like s
striped grun
the smaller l

Gold
which
shows
the mi
bears
iron o
the b
fitting

Wh
grave
canno
brass s
1941, l
visit 2
and a

Jan 1962 P 60

THE CORAL REEF

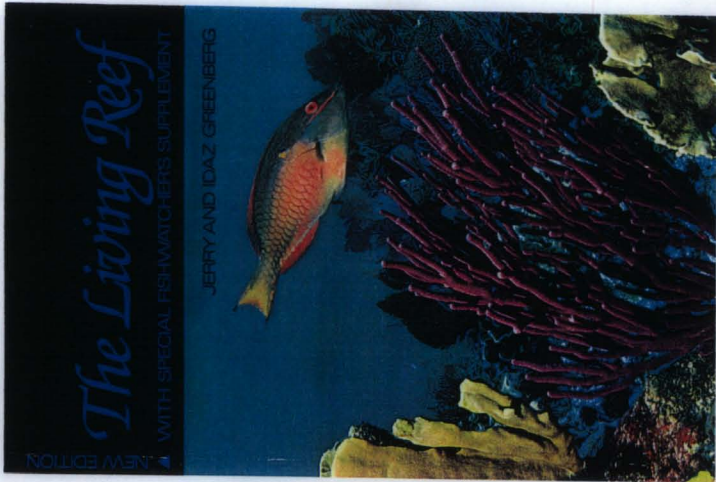
- Match the lighted clue to its picture, then press the picture's number.



9 French Angelfish



Butt



The Living Reef

WITH SPECIAL FISH WATCHERS SUPPLEMENT

JERRY AND IDAZ GREENBERG

NEW EDITION

Parrotfish

An efficient recycling machine, the parrotfish turns coral and rock into fine sand in the process of grazing algae and other organisms from the reef. The larger male has a more brilliant color and is called a terminal phase male. The stoplight parrotfish (*Sparisoma viride*) below right, may be male or female, while its companion to the left is a terminal male of the same species, reaching about 20 inches in length. The smaller species above, the parrot surgeonfish (*Acanthurus lineatus*), is a smaller species, about ten inches in length.





4
wins
its
es
the
Yellow-edged
Lyretail

Moray Eel 6



Moray eels

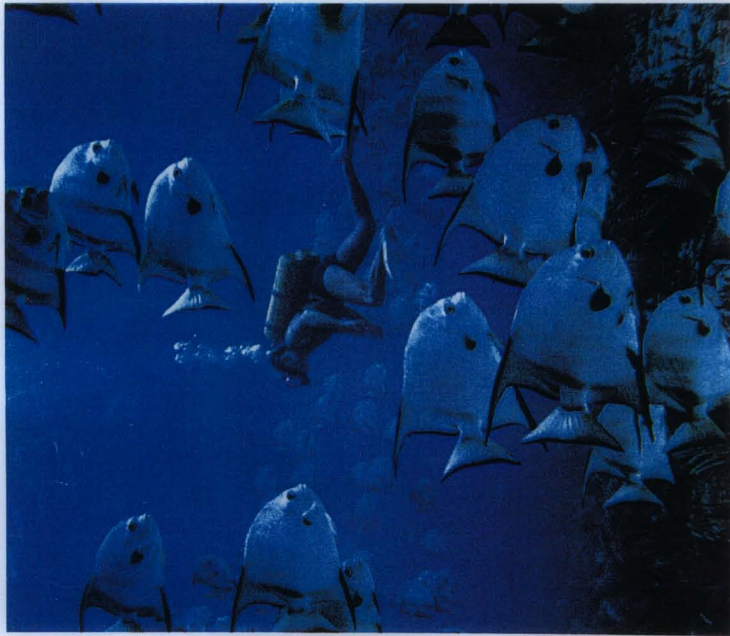
As the world's first and only eel to be kept in a home aquarium, the Moray eel is a popular choice for hobbyists. It is a voracious predator, feeding on a variety of fish, crustaceans, and mollusks. The Moray eel is a highly intelligent animal, capable of learning to recognize its keeper and even respond to its name.



■ Select each statement correctly.



8



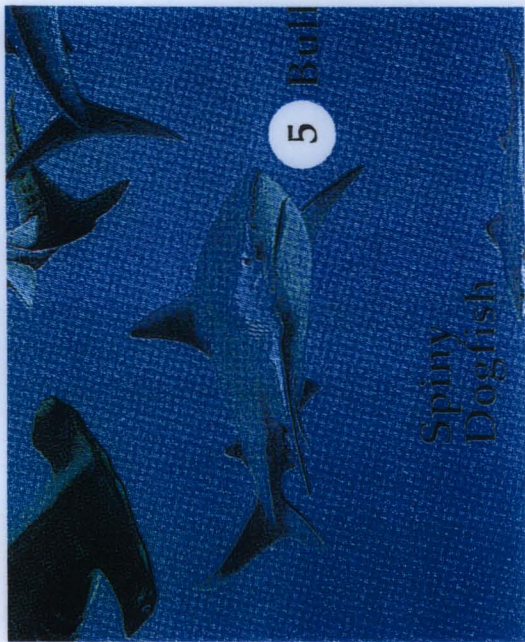
9

plete each statement correctly. ■

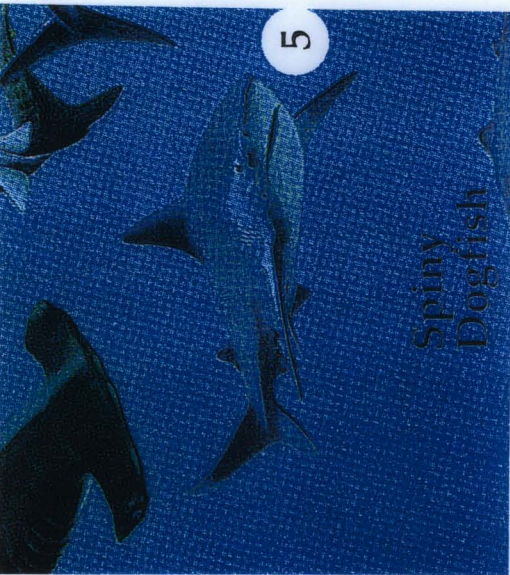


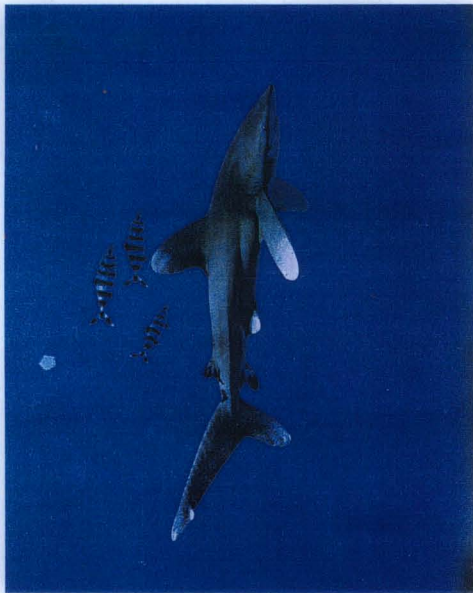
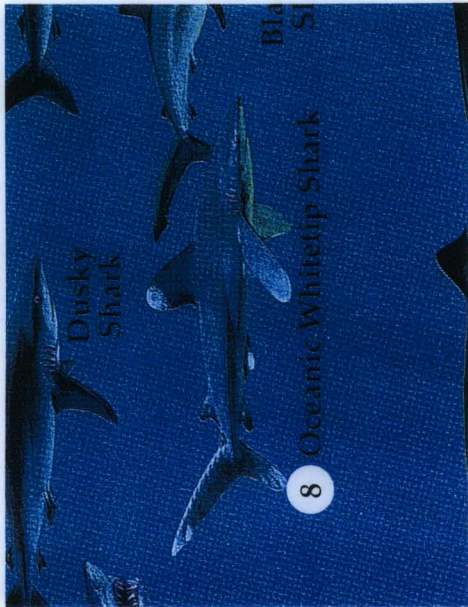


13



12





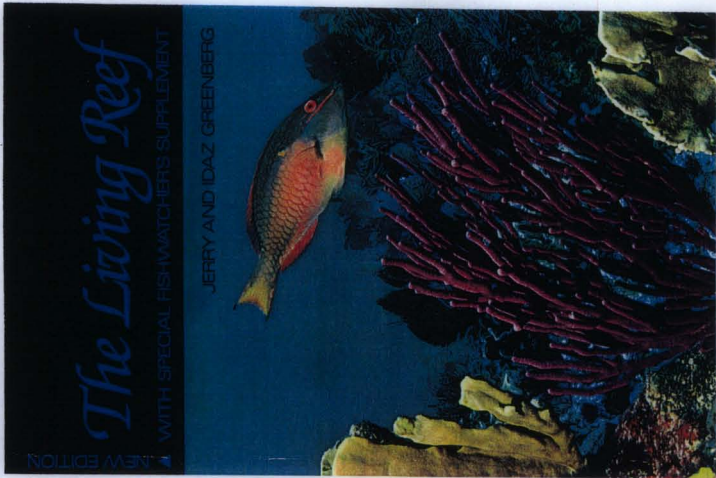
THE CORAL REEF

- Match the lighted clue to its picture, then press the picture's number.



9 French Angelfish

Butt



Parrotfish

An efficient recycling machine, the parrotfish turns coral and seaweed into sand in the process of grazing algae. Females are larger than males and often share a color pattern, but an occasional male attains a larger size and more brilliant color and is called a terminal-phase male. The stoplight parrotfish (*Sparisoma viride*) below right, may be male or female, while its companion to the left is a female. The terminal male redband parrotfish (*Sparisoma aurofrenatum*) on the left, is a smaller species, about ten inches in length.



Parrotfishes scum
and speckled

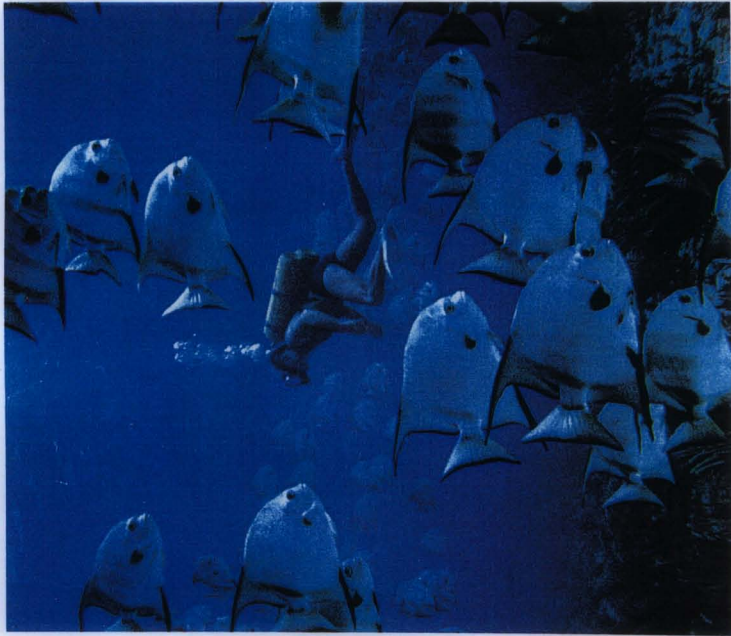
An eye and
to make a fish in
and the black

A fish-like
ing and the
make another bird
on the

Write each statement correctly.



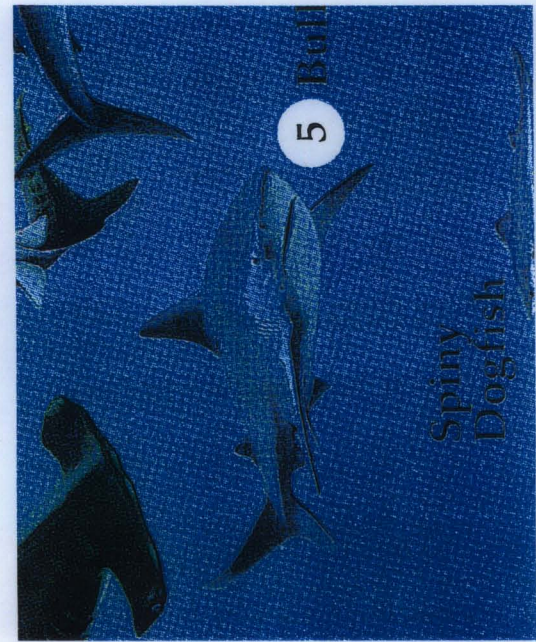
8



9

plete each statement correctly. ■

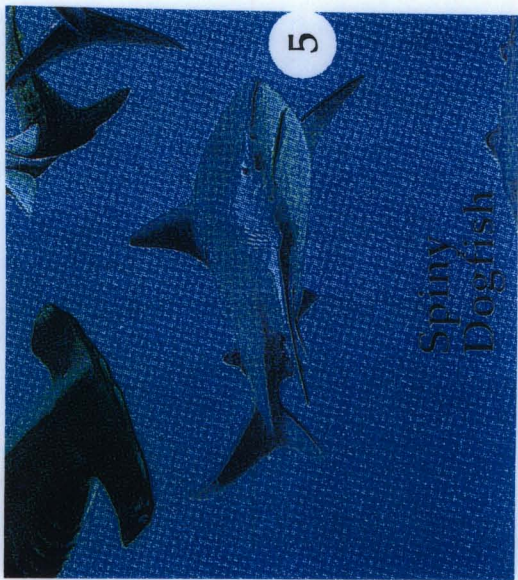


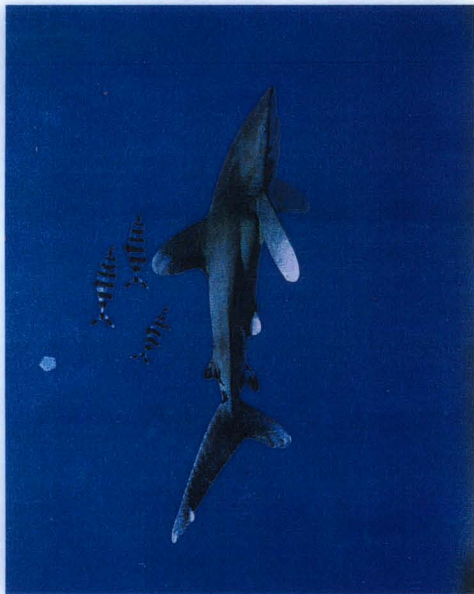
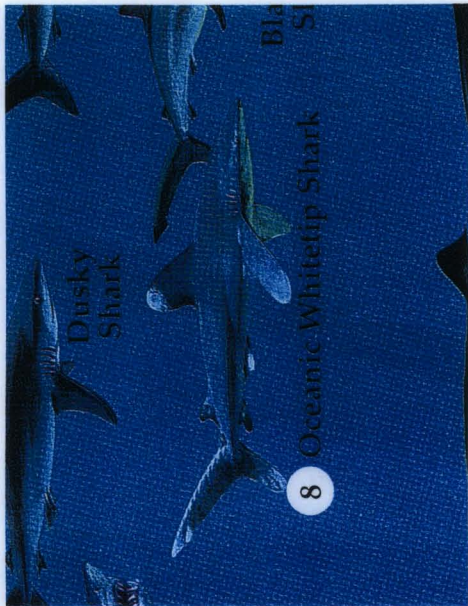


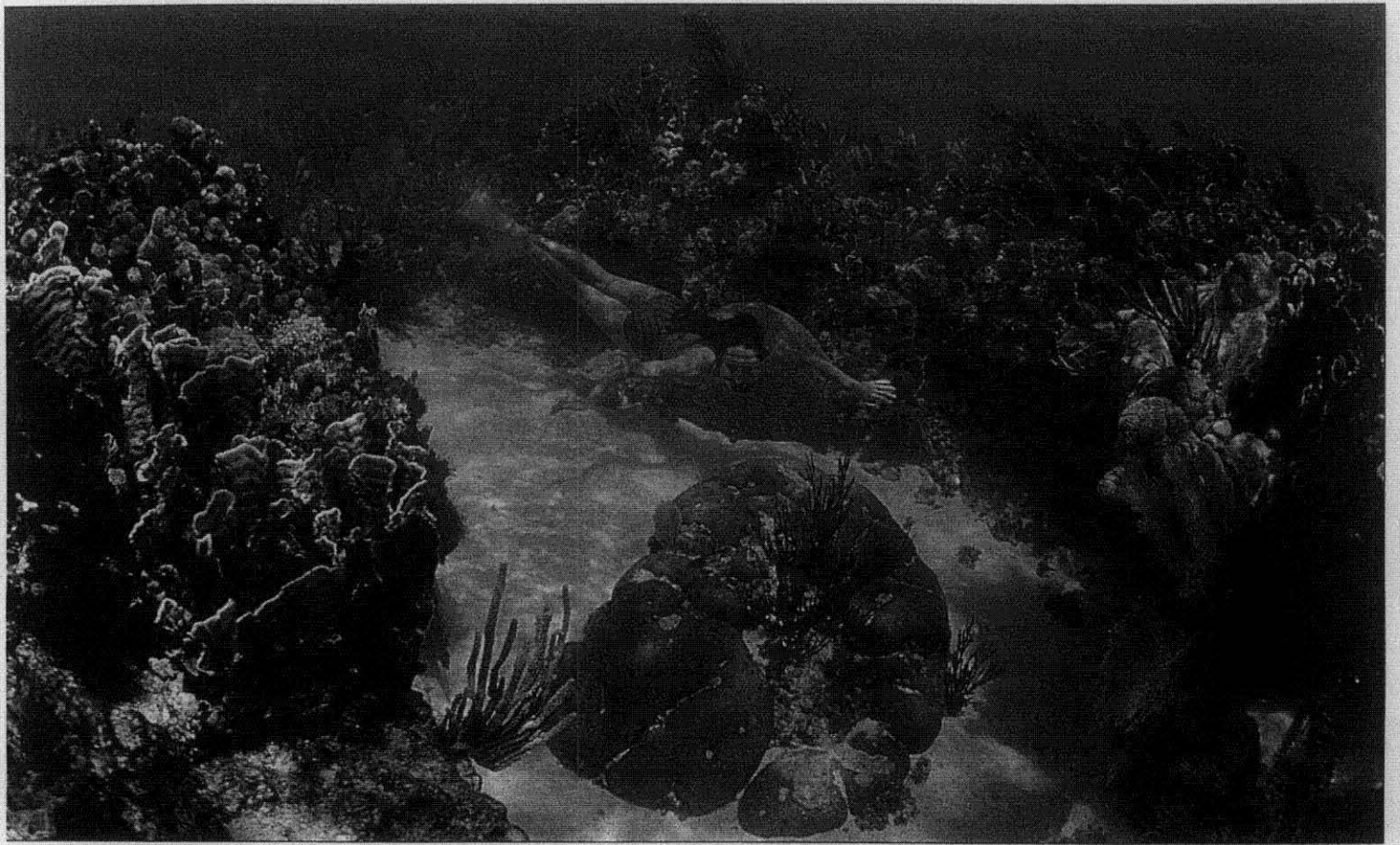
12



13

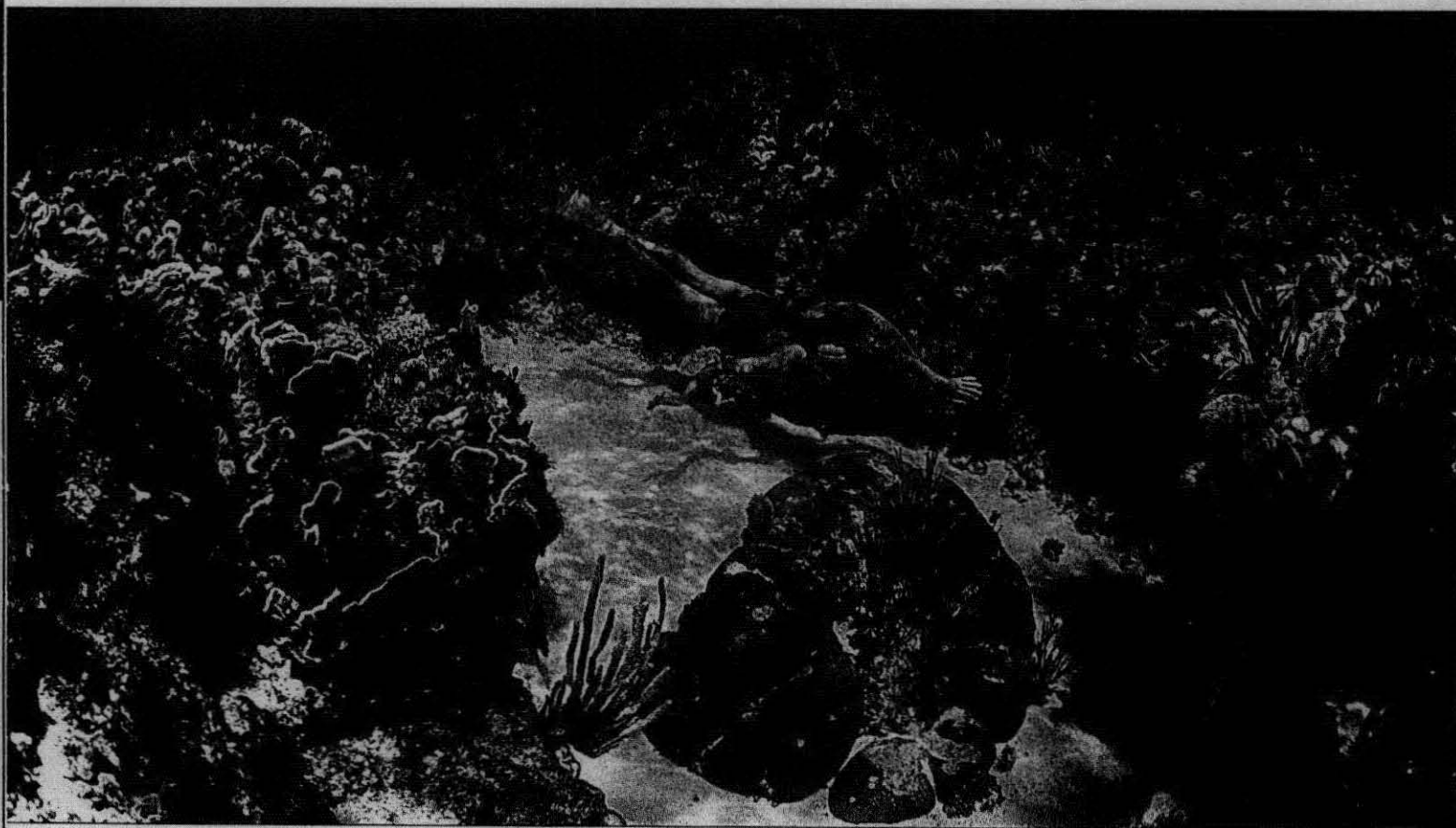






Christ of the Deep (right) presides over a coral sanctuary in the underwater park (above).

F l o r i d a
JOHN PENNEKAMP
CORAL REEF



Christ of the Deep (right) presides over a coral sanctuary in the underwater park (above).

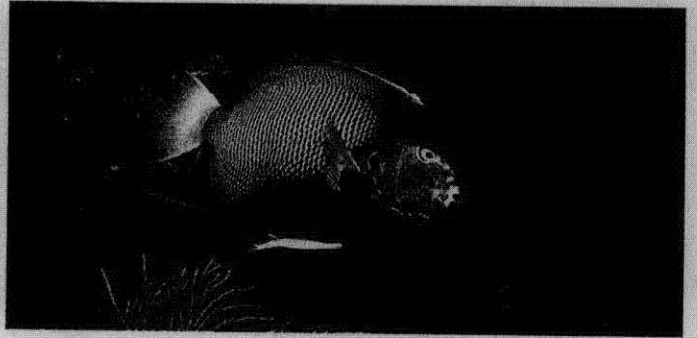
An underwater forest of bold colors and extravagant shapes, this reef-park arcs out from the Florida Keys for 78 square miles. Over 100,000 years in the making, its intricate, living-coral architecture supports a wealth of sea creatures.

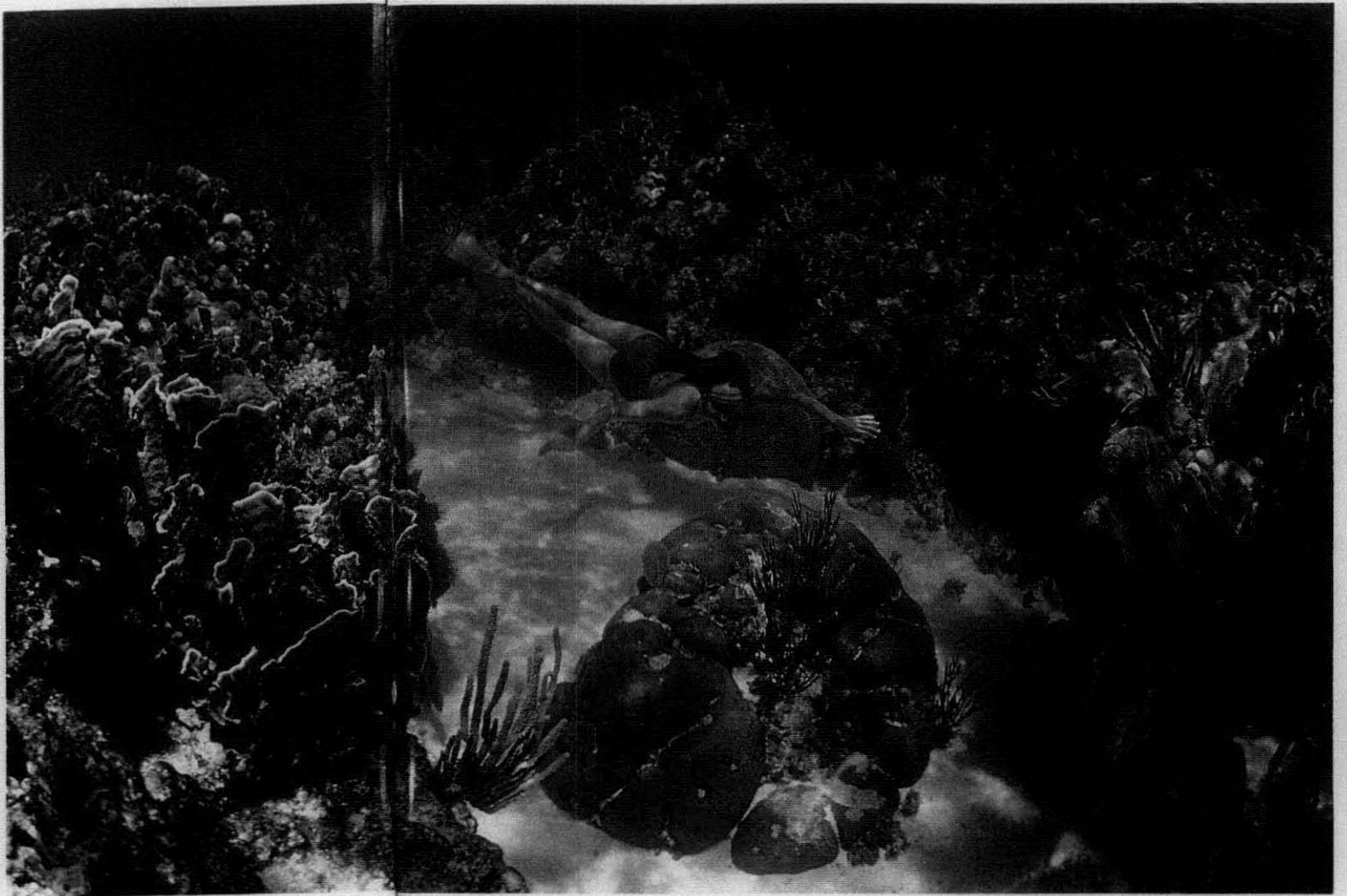
stay dry, opt for one of the glass-bottom boats that shuttle from the mainland to the reef. Or stop off at the park visitors center, where aquarium tanks display the gaudy natural glamour of creatures of the deep.

145^o/_o

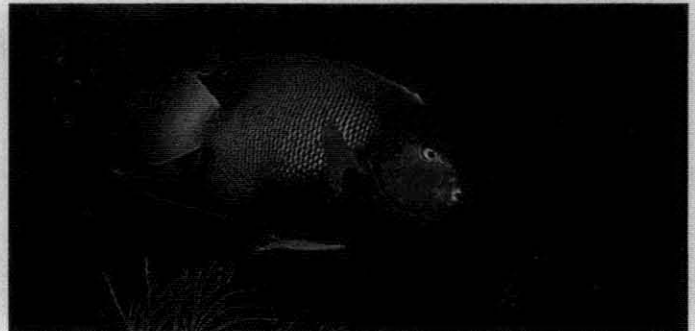


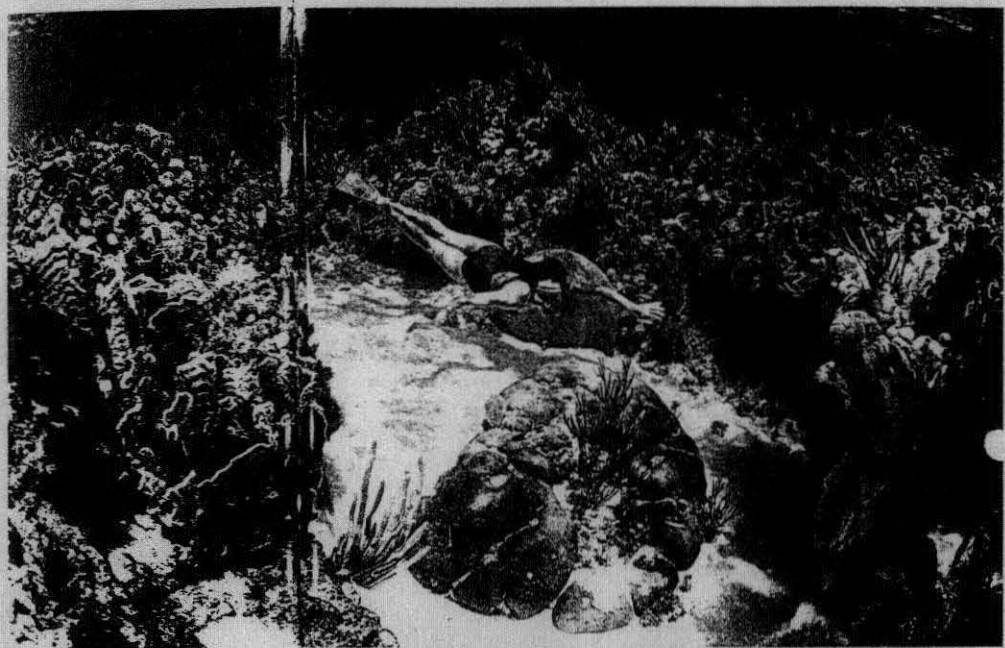
a skin diver finds that it takes all
mounds, elkhorn and staghorn coral in
a garden but a housing development,
lited by small animals called polyps,
s of poison—the reef as predator.
the trumpetfish (right), stands on its
gs, then sucks up unsuspecting prey
grouper (above, left) would rather
it changes to an unobtrusive color for
of company, the friendly queen
s to approach within a few feet.





liver finds that it takes all
 ; elkhorn and staghorn coral in
 i but a housing development,
 i small animals called polyps,
 on—the reef as predator.
 npetfish (right), stands on its
 sucks up unsuspecting prey
 (above, left) would rather
 ies to an unobtrusive color for
 iny, the friendly queen
 roach within a few feet.





diver finds that it takes all
 elkhorn and staghorn coral in
 but a housing development,
 small animals called polyps,
 on—the reef as predator.
 mpetfish (right), stands on its
 sucks up unsuspecting prey
 (above, left) would rather
 es to an unobtrusive color for
 the friendly queen
 each within a few feet.



Christ of the Deep (right) presides over a coral sanctuary in the underwater park (above).

PART II

PART II



The long look

Beyond the sun-dappled shallows lies the world of the deep-sea. In this film, we go 25 to 400 feet deep, only the light from the surface. By a well-learned and expert crew, they effortlessly take a long look at the intricate structures of the real.

65%



You will become, not a subscriber, but a *member* of the National Geographic Society. Of course you will receive the magazine—but you'll also have the satisfaction of knowing that a portion of your dues will be used to finance explorations which enlarge the world's store of knowledge. More than a half-century ago, we helped send Peary and Byrd to the ends of the earth. Now the total number of Society research grants is in excess of eleven hundred!

The Society has supported explorations which have changed the face of the world...

- 1890 - Discovery of Mount Logan, North America's second highest peak.
- 1909 - Support of Robert E. Peary, first to reach the North Pole.
- 1912 - Exploration of Machu Picchu, lost mountaintop city of the Incas.
- 1928 - Support of the Byrd Antarctic Expedition.
- 1934 - Sponsor of Explorer I, stratosphere balloon flight.
- 1949 - Support of Palomar Observatory's Atlas of the Heavens.



Today, Society-sponsored scientists are working in many fields, in many lands...

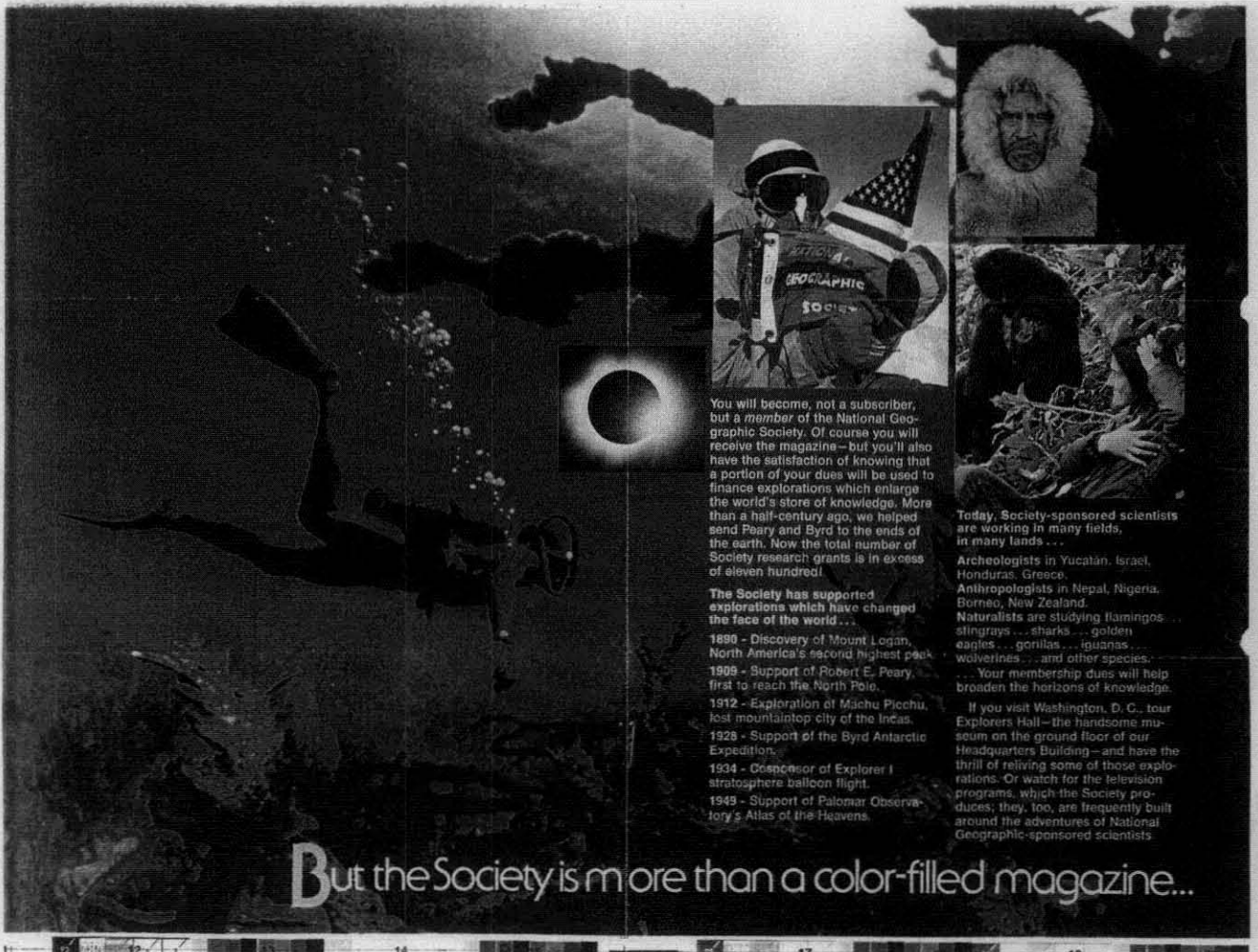
Archaeologists in Yucatan, Israel, Honduras, Greece.
 Anthropologists in Nepal, Nigeria, Borneo, New Zealand.
 Naturalists are studying flamingos, stingrays, sharks, golden eagles, gorillas, iguanas, wolverines... and other species.

Your membership dues will help broaden the horizons of knowledge.

If you visit Washington, D. C., tour Explorers Hall—the handsome museum on the ground floor of our Headquarters Building—and have the thrill of reliving some of those explorations. Or watch for the television programs, which the Society produces; they, too, are frequently built around the adventures of National Geographic-sponsored scientists.

But the Society is more than a color-filled magazine...

65%



You will become, not a subscriber, but a *member* of the National Geographic Society. Of course you will receive the magazine—but you'll also have the satisfaction of knowing that a portion of your dues will be used to finance explorations which enlarge the world's store of knowledge. More than a half-century ago, we helped send Peary and Byrd to the ends of the earth. Now the total number of Society research grants is in excess of eleven hundred!

The Society has supported explorations which have changed the face of the world...

- 1890 - Discovery of Mount Logan, North America's second highest peak
- 1909 - Support of Robert E. Peary, first to reach the North Pole.
- 1912 - Exploration of Machu Picchu, lost mountaintop city of the Incas.
- 1928 - Support of the Byrd Antarctic Expedition.
- 1934 - Cosponsor of Explorer I stratosphere balloon flight.
- 1949 - Support of Palomar Observatory's Atlas of the Heavens.

Today, Society-sponsored scientists are working in many fields, in many lands...

Archaeologists in Yucatan, Israel, Honduras, Greece.
 Anthropologists in Nepal, Nigeria, Borneo, New Zealand.
 Naturalists are studying flamingos, stingrays... sharks... golden eagles... gorillas... iguanas... wolverines... and other species.

Your membership dues will help broaden the horizons of knowledge.

If you visit Washington, D. C., tour Explorers Hall—the handsome museum on the ground floor of our Headquarters Building—and have the thrill of reliving some of those explorations. Or watch for the television programs, which the Society produces; they, too, are frequently built around the adventures of National Geographic-sponsored scientists.

But the Society is more than a color-filled magazine...



The long lo

beyond the sun-dappled sha
the world of the deep reef. In
the zone from 25 to 60 feet
only it's never freed from that
by a well-maintained air supply
rains are necessary for a long to
the separate wonders of the r

where a tank of air can last an experienced diver about an hour and a half.

And what wonders we saw!

Let me show you this world beneath the waves that I find so intriguing and that claims so much of my life. Slip a mask over your face, clench the Aqua-Lung's rubber mouthpiece between your teeth, and drop down with me into the sea.

Awed Diver Feels Like Trespasser

As you sink slowly, you experience an exhilarating sense of buoyancy. The air tank felt heavy above the surface, now you are scarcely aware of it on your back. Freed from the demands of gravity, you move like a bird,

free to dive or soar with no other power but your arms and flippers.

Just below the surface, jellyfish pump past as you submerge. Living parachutes, they range in size from a dime to a dinner plate. At 20 feet you touch down on the reef. What had seemed a blurred tapestry of color at the surface now assumes dimensions and patterns.

Deep, winding gullies carpeted with sand-slice plateaus of coral seemingly so soft, so untouchable you fear they may fade away before your eyes. Such primitive beauty and solitude make a man feel he is trespassing on forbidden ground.

The silence is awesome. Only the sound of breathing through the mouthpiece and





Silhouetted against blazing sun, a diver glides to the floor of the coral reef preserve.

Scrawled Filefish With Puckered Mouth Seems Asking for a Kiss

Actually, *Aluteru scripta* is making a grunting sound as he swims. Other brilliant reef fish share John Pennekamp Coral Reef State Park with artist-diver Judy Meade: Wide-eyed French grunt (*Haemulon flavolineatum*) inspects her fingers; gaudy sergeant major (*Abudefduf saxatilis*) darts between her flippers; Bluehead wrasses and yellowtail snappers (*Ocyurus chrysurus*) swim past leisurely. Stinging coral at upper right resembles a basket of flowers. Lobed star coral decorates the reef at lower right.

welcomes the free diver, the rod-and-reel fisherman, and the fish watcher. But to the spearfisherman, it is forbidden territory.

While exploring this magnificent marine realm, I encountered only three or four sharks. They did not molest me or any member of my diving party, and we interrupted their privacy only long enough to capture their portraits (pages 71 and 80).

My crew members, who doubled as models, included Judy Meade, a commercial artist; Carl Gage, Paul Dammann, and young Van Cardenhead. Van learned to use an Aqua-Lung three years ago, when he was 10 years old. Now he swims and dives with the best.

72

Working off my 20-foot runabout, I dived four or five days a week. Many days I stayed submerged six hours, ascending only to switch air tanks and reload the cameras.

Often we made underwater photos at dusk. Sometimes we dived under a full moon, and the visibility was good enough to see 30 feet in any direction.

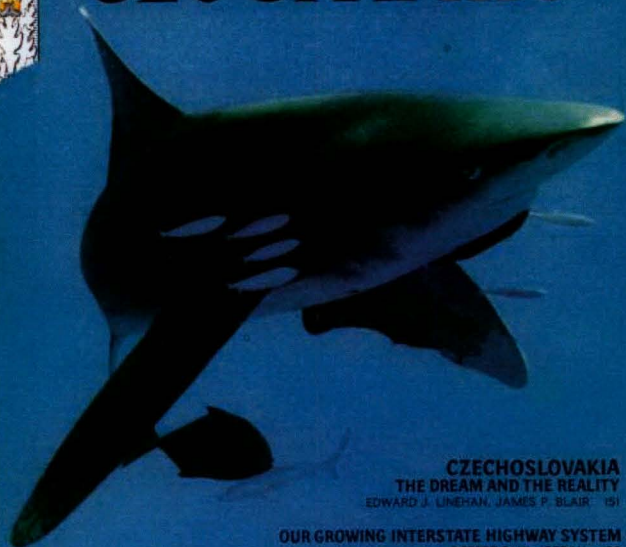
To photograph the reef's eerie beauty, I used four Rolleiflex cameras in Rolleimarin housings, four Leicas in special Seahawk housings, three electronic flashes in underwater casings, and assorted flash guns. To facilitate the changing of cameras, I suspended all gear on lines dropped over the boat's side. We worked mostly in depths of 15 to 30 feet.



VOL. 133, NO. 2

FEBRUARY, 1968

NATIONAL GEOGRAPHIC



CZECHOSLOVAKIA THE DREAM AND THE REALITY

EDWARD J. LINEHAN, JAMES P. BLAIR 151

OUR GROWING INTERSTATE HIGHWAY SYSTEM

ROBERT PAUL JORDAN 195

SHARKS: WOLVES OF THE SEA

NATHANIEL T. KENNEY 222

ECUADOR—LOW AND LOFTY LAND ASTRIDE THE EQUATOR

LOREN MCINTYRE 259

SEE "AMAZON" TUESDAY, FEBRUARY 20, ON CBS TV (page 295A)

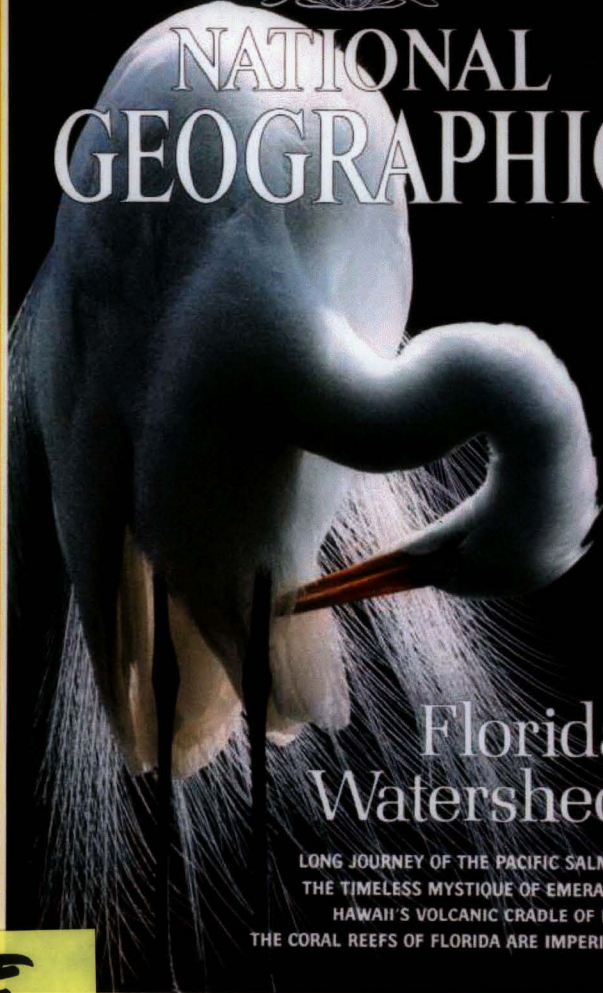
OFFICIAL JOURNAL OF THE NATIONAL GEOGRAPHIC SOCIETY WASHINGTON, D. C.

VOL. 178, NO. 1



JULY 1990

NATIONAL GEOGRAPHIC



Florida Watershed ⁸⁹

LONG JOURNEY OF THE PACIFIC SALMON ³

THE TIMELESS MYSTIQUE OF EMERALDS ³⁸

HAWAII'S VOLCANIC CRADLE OF LIFE ⁷⁰

THE CORAL REEFS OF FLORIDA ARE IMPERILED ¹¹⁵

JOURNAL OF THE NATIONAL GEOGRAPHIC SOCIETY WASHINGTON, D.C.

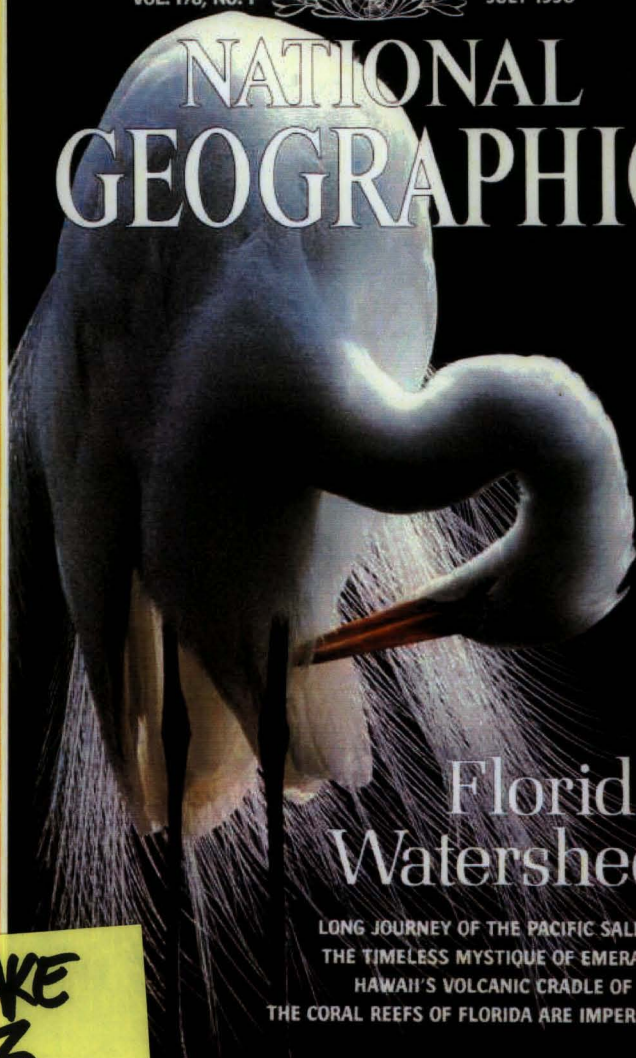
MAKE
3 105¢

VOL. 178, NO. 1



JULY 1990

NATIONAL GEOGRAPHIC



Florida Watershed ⁸⁹

LONG JOURNEY OF THE PACIFIC SALMON ³

THE TIMELESS MYSTIQUE OF EMERALDS ³⁸

HAWAII'S VOLCANIC CRADLE OF LIFE ⁷⁰

THE CORAL REEFS OF FLORIDA ARE IMPERILED ¹¹⁵

MAKE
3

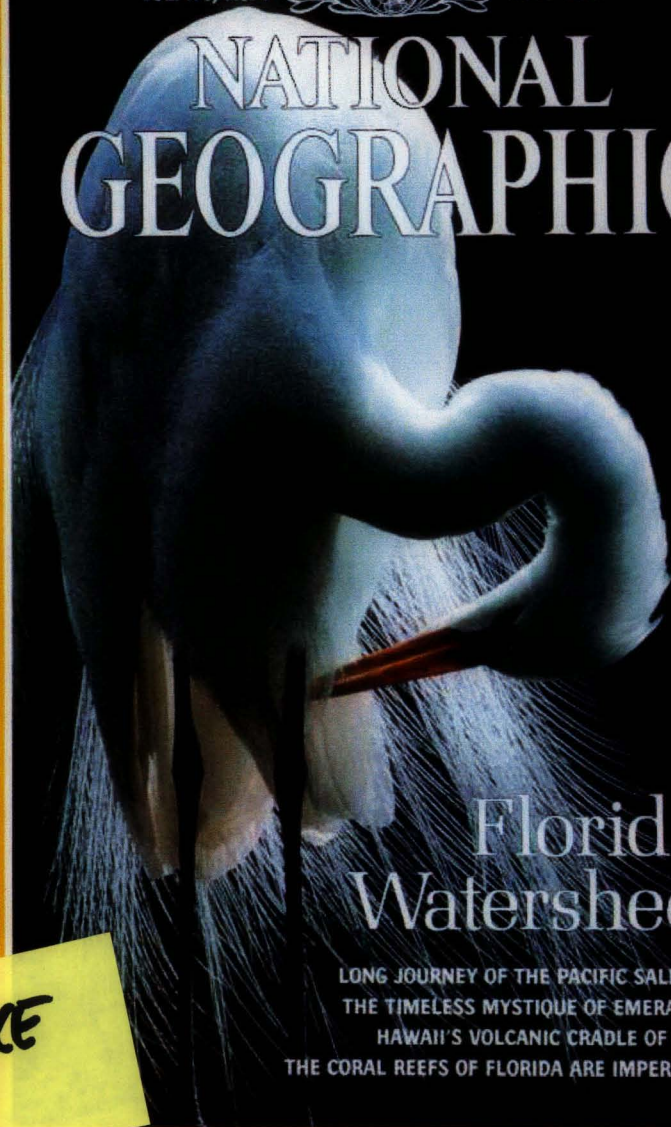
OF THE NATIONAL GEOGRAPHIC SOCIETY WASHINGTON, D.C.

VOL. 178, NO. 1



JULY 1990

NATIONAL GEOGRAPHIC



Florida Watershed ⁸⁹

LONG JOURNEY OF THE PACIFIC SALMON ³

THE TIMELESS MYSTIQUE OF EMERALDS ³⁸

HAWAII'S VOLCANIC CRADLE OF LIFE ⁷⁰

THE CORAL REEFS OF FLORIDA ARE IMPERILED ¹¹⁵

MAKE
1

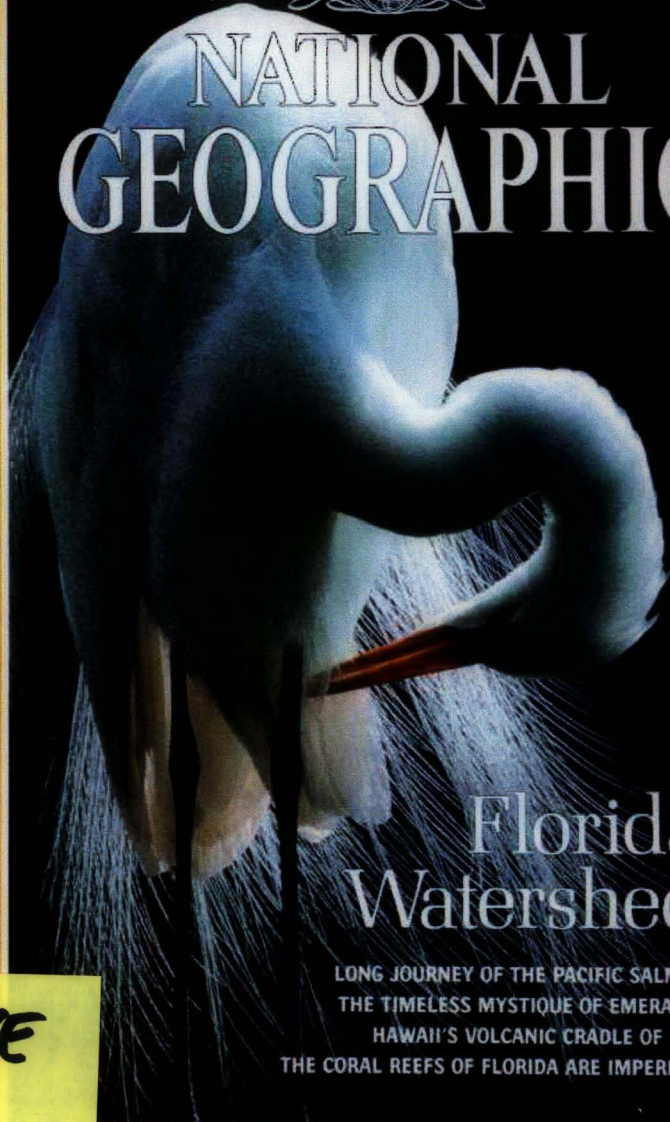
OFFICIAL JOURNAL OF THE NATIONAL GEOGRAPHIC SOCIETY WASHINGTON, D.C.

VOL. 178, NO. 1



JULY 1990

NATIONAL GEOGRAPHIC



Florida Watershed 89

LONG JOURNEY OF THE PACIFIC SALMON 3

THE TIMELESS MYSTIQUE OF EMERALDS 38

HAWAII'S VOLCANIC CRADLE OF LIFE 70

THE CORAL REEFS OF FLORIDA ARE IMPERILED 115

WAKE
I

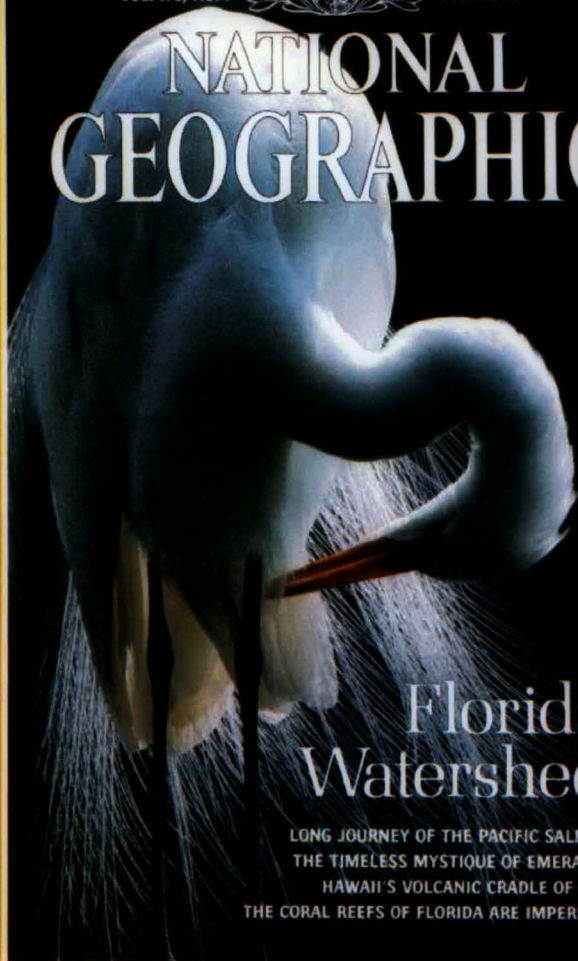
JOURNAL OF THE NATIONAL GEOGRAPHIC SOCIETY WASHINGTON, D.C.

VOL. 178, NO. 1



JULY 1990

NATIONAL GEOGRAPHIC



Florida Watershed

89

LONG JOURNEY OF THE PACIFIC SALMON 3

THE TIMELESS MYSTIQUE OF EMERALDS 38

HAWAII'S VOLCANIC CRADLE OF LIFE 70

THE CORAL REEFS OF FLORIDA ARE IMPERILED 115

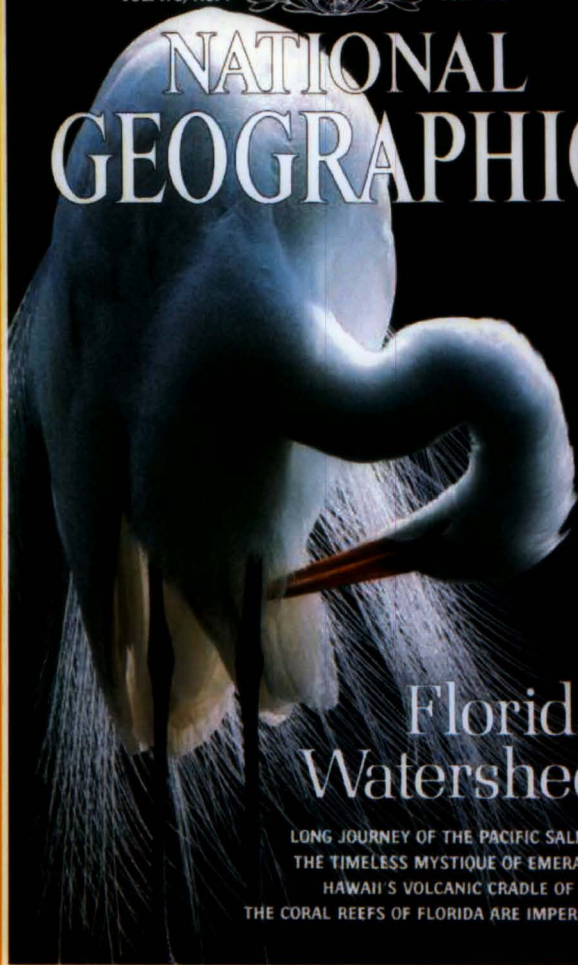
OFFICIAL JOURNAL OF THE NATIONAL GEOGRAPHIC SOCIETY WASHINGTON, D.C.

VOL. 178, NO. 1



JULY 1990

NATIONAL GEOGRAPHIC



Florida Watershed ⁸⁹

LONG JOURNEY OF THE PACIFIC SALMON 3

THE TIMELESS MYSTIQUE OF EMERALDS 38

HAWAII'S VOLCANIC CRADLE OF LIFE 70

THE CORAL REEFS OF FLORIDA ARE IMPERILED 115

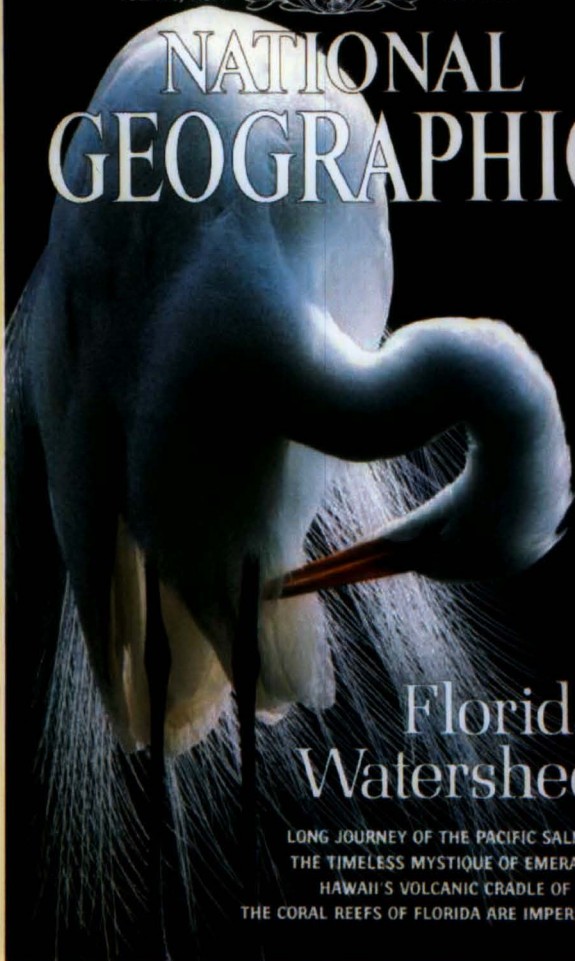
OFFICIAL JOURNAL OF THE NATIONAL GEOGRAPHIC SOCIETY WASHINGTON, D.C.

VOL. 178, NO. 1



JULY 1990

NATIONAL GEOGRAPHIC



Florida Watershed ⁸⁹

LONG JOURNEY OF THE PACIFIC SALMON 3

THE TIMELESS MYSTIQUE OF EMERALDS 38

HAWAII'S VOLCANIC CRADLE OF LIFE 70

THE CORAL REEFS OF FLORIDA ARE IMPERILED 115

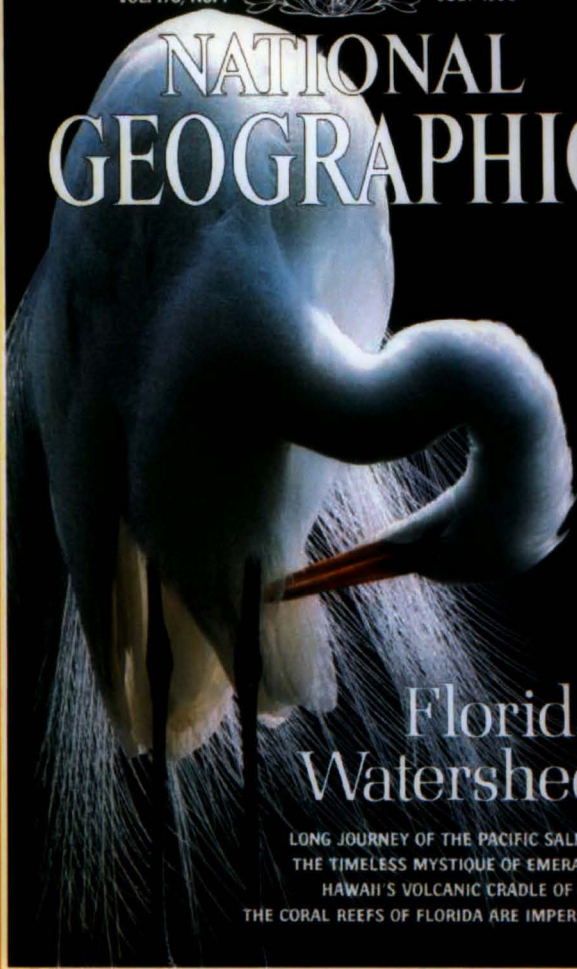
OFFICIAL JOURNAL OF THE NATIONAL GEOGRAPHIC SOCIETY WASHINGTON, D.C.

VOL. 178, NO. 1



JULY 1990

NATIONAL GEOGRAPHIC



Florida Watershed

89

LONG JOURNEY OF THE PACIFIC SALMON 3

THE TIMELESS MYSTIQUE OF EMERALDS 38

HAWAII'S VOLCANIC CRADLE OF LIFE 70

THE CORAL REEFS OF FLORIDA ARE IMPERILED 115

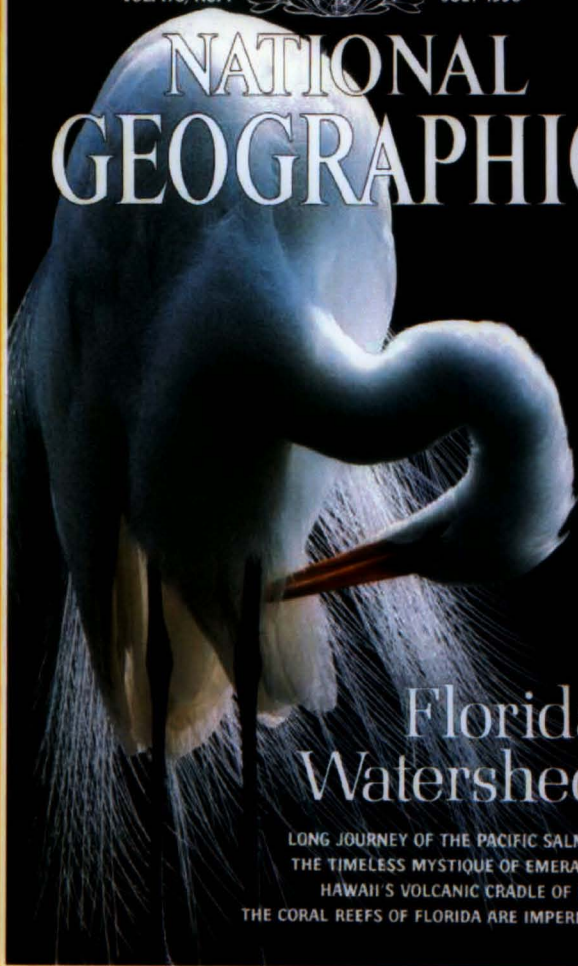
OFFICIAL JOURNAL OF THE NATIONAL GEOGRAPHIC SOCIETY WASHINGTON, D.C.

VOL. 178, NO. 1



JULY 1990

NATIONAL GEOGRAPHIC



Florida Watershed

89

LONG JOURNEY OF THE PACIFIC SALMON 3

THE TIMELESS MYSTIQUE OF EMERALDS 38

HAWAII'S VOLCANIC CRADLE OF LIFE 70

THE CORAL REEFS OF FLORIDA ARE IMPERILED 115

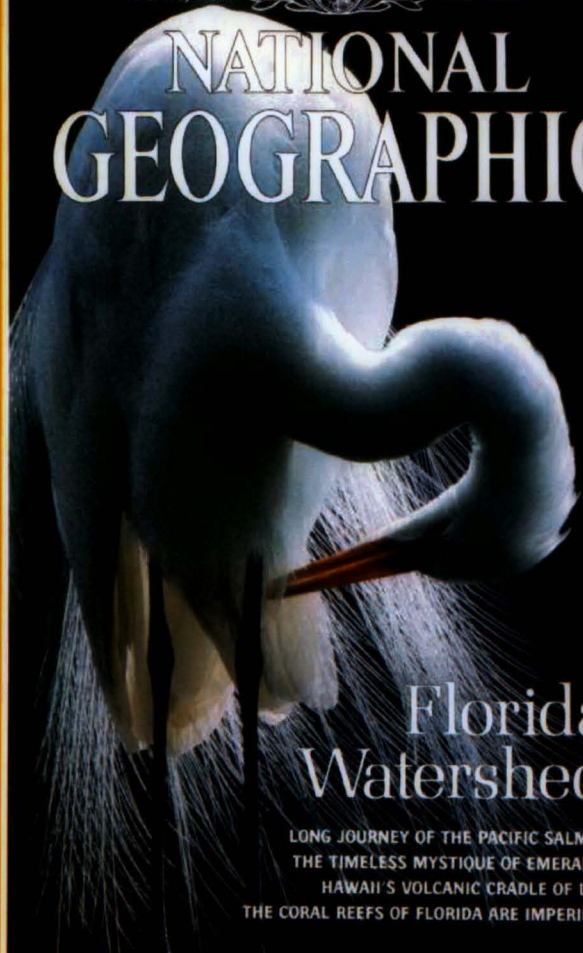
OFFICIAL JOURNAL OF THE NATIONAL GEOGRAPHIC SOCIETY WASHINGTON, D.C.

VOL. 178, NO. 1



JULY 1990

NATIONAL GEOGRAPHIC



Florida Watershed

89

LONG JOURNEY OF THE PACIFIC SALMON 3

THE TIMELESS MYSTIQUE OF EMERALDS 38

HAWAII'S VOLCANIC CRADLE OF LIFE 70

THE CORAL REEFS OF FLORIDA ARE IMPERILED 115

OFFICIAL JOURNAL OF THE NATIONAL GEOGRAPHIC SOCIETY WASHINGTON, D.C.

where a tank of air can last an experienced diver about an hour and a half.

And what wonders we saw!

Let me show you this world beneath the waves that I find so intriguing and that claims so much of my life. Slip a mask over your face, clench the Aqua-Lung's rubber mouthpiece between your teeth, and drop down with me into the sea.

Awed Diver Feels Like Trespasser

As you sink slowly, you experience an exhilarating sense of buoyancy. The air tank felt heavy above the surface, now you are scarcely aware of it on your back. Freed from the demands of gravity, you move like a bird,

free to dive or soar with no other power but your arms and flippers.

Just below the surface, jellyfish pump past as you submerge. Living parachutes, they range in size from a dime to a dinner plate. At 20 feet you touch down on the reef. What had seemed a blurred tapestry of color at the surface now assumes dimensions and patterns.

Deep, winding gullies carpeted with sand-slice plateaus of coral seemingly so soft, so untouchable you fear they may fade away before your eyes. Such primitive beauty and solitude make a man feel he is trespassing on forbidden ground.

The silence is awesome. Only the sound of breathing through the mouthpiece and





Silhouetted against blazing sun, a diver glides to the floor of the coral reef preserve.

Scrawled Filefish With Puckered Mouth Seems Asking for a Kiss

Actually, *Abudefduf scriptus* is making a grunting sound as he swims. Other brilliant reef fish share John Pennekamp Coral Reef State Park with artist-diver Judy Meade. Wide-eyed French grunt (*Haemulon flavolineatum*) inspects her fingers; gaudy sergeant major (*Abudefduf saxatilis*) darts between her flippered feet. Bluehead wrasses and yellowtail snappers (*Ocyurus chrysurus*) swim past leisurely. Stinging coral at upper right resembles a basket of flowers. Lobed star coral decorates the reef at lower right.

welcomes the free diver, the rod-and-reel fisherman, and the fish watcher. But to the spearfisherman, it is forbidden territory.

While exploring this magnificent marine realm, I encountered only three or four sharks. They did not molest me or any member of my diving party, and we interrupted their privacy only long enough to capture their portraits (pages 71 and 80).

My crew members, who doubled as models, included Judy Meade, a commercial artist; Carl Gage, Paul Dammann, and young Van Cadenhead. Van learned to use an Aqua-Lung three years ago, when he was 10 years old. Now he swims and dives with the best.

72

Working off my 20-foot runabout, I dived four or five days a week. Many days I stayed submerged six hours, ascending only to switch air tanks and reload the cameras.

Often we made underwater photos at dusk. Sometimes we dived under a full moon, and the visibility was good enough to see 30 feet in any direction.

To photograph the reef's eerie beauty, I used four Rolleiflex cameras in Rolleimarin housings, four Leicas in special Seahawk housings, three electronic flashes in underwater casings, and assorted flash guns. To facilitate the changing of cameras, I suspended all gear on lines dropped over the boat's side. We worked mostly in depths of 15 to 50 feet.



where a tank of air can last an experienced diver about an hour and a half.

And what wonders we saw!

Let me show you this world beneath the waves that I find so intriguing and that claims so much of my life. Slip a mask over your face, clench the Aqua-Lung's rubber mouthpiece between your teeth, and drop down with me into the sea.

Awed Diver Feels Like Trespasser

As you sink slowly, you experience an exhilarating sense of buoyancy. The air tank felt heavy above the surface; now you are scarcely aware of it on your back. Freed from the demands of gravity, you move like a bird,

free to dive or soar with no other power but your arms and flippered feet.

Just below the surface, jellyfish pump past as you submerge. Living parachutes, they range in size from a dime to a dinner plate. At 20 feet you touch down on the reef. What had seemed a blurred tapestry of color at the surface now assumes dimensions and patterns.

Deep, winding gullies carpeted with sand-slice plateaus of coral seemingly so soft, so untouchable you fear they may fade away before your eyes. Such primitive beauty and solitude make a man feel he is trespassing on forbidden ground.

The silence is awesome. Only the sound of breathing through the mouthpiece and





Silhouetted against blazing sun, a diver glides to the floor of the coral reef preserve.

Scrawled Filefish With Puckered Mouth Seems Asking for a Kiss

Actually, *Alutera scripta* is making a grunting sound as he swims. Other brilliant reef fish share John Pennekamp Coral Reef State Park with artist-diver Judy Meade: Wide-eyed French grunt (*Harmalan flavolineatus*) inspects her fingers, gaudy sergeant major (*Abudefduf saxatilis*) darts between her flippered feet. Bluehead wrasses and yellowtail snappers (*Oreocetes chrysoceus*) swim past leisurely. Stinging coral at upper right resembles a basket of flowers. Lobed star coral decorates the reef at lower right.

welcomes the free diver, the rod-and-reel fisherman, and the fish watcher. But to the spearfisherman, it is forbidden territory.

While exploring this magnificent marine realm, I encountered only three or four sharks. They did not molest me or any member of my diving party, and we interrupted their privacy only long enough to capture their portraits (pages 71 and 80).

My crew members, who doubled as models, included Judy Meade, a commercial artist; Carl Gage, Paul Dammann, and young Van Cadenhead. Van learned to use an Aqua-Lung three years ago, when he was 10 years old. Now he swims and dives with the best.

72

Working off my 20-foot runabout, I dived four or five days a week. Many days I stayed submerged six hours, ascending only to switch air tanks and reload the cameras.

Often we made underwater photos at dusk. Sometimes we dived under a full moon, and the visibility was good enough to see 30 feet in any direction.

To photograph the reef's eerie beauty, I used four Rolleiflex cameras in Rolleimarin housings, four Leicas in special Seahawk housings, three electronic flashes in underwater casings, and assorted flash guns. To facilitate the changing of cameras, I suspended all gear on lines dropped over the boat's side. We worked mostly in depths of 15 to 30 feet.





Silhouetted against blazing sun, a diver glides to the floor of the coral reef preserve.

Scrawled Filefish With Puckered Mouth Seems Asking for a Kiss

Actually, *Alutera scripta* is making a grunting sound as he swims. Other brilliant reef fish share John Pennekamp Coral Reef State Park with artist-diver Judy Meade: Wide-eyed French grunt (*Haemulon flavolineatum*) inspects her fingers; gaudy sergeant major (*Abudefduf saxatilis*) darts between her flippers; feet; Bluehead wrasses and yellowtail snappers (*Oxyura chrysurus*) swim past leisurely. Stinging coral at upper right resembles a basket of flowers. Lobed star coral decorates the reef at lower right.

welcomes the free diver, the rod-and-reel fisherman, and the fish watcher. But to the spearfisherman, it is forbidden territory.

While exploring this magnificent marine realm, I encountered only three or four sharks. They did not molest me or any member of my diving party, and we interrupted their privacy only long enough to capture their portraits (pages 71 and 80).

My crew members, who doubled as models, included Judy Meade, a commercial artist; Carl Gage, Paul Dammann, and young Van Cadenhead. Van learned to use an Aqua-Lung three years ago, when he was 10 years old. Now he swims and dives with the best.

72

Working off my 20-foot runabout, I dived four or five days a week. Many days I stayed submerged six hours, ascending only to switch air tanks and reload the cameras.

Often we made underwater photos at dusk. Sometimes we dived under a full moon, and the visibility was good enough to see 30 feet in any direction.

To photograph the reef's eerie beauty, I used four Rolleiflex cameras in Rolleiflex housings, four Leicas in special Seahawk housings, three electronic flashes in underwater casings, and assorted flash guns. To facilitate the changing of cameras, I suspended all gear on lines dropped over the boat's side. We worked mostly in depths of 15 to 30 feet.



where a tank of air can last an experienced diver about an hour and a half.

And what wonders we saw!

Let me show you this world beneath the waves that I find so intriguing and that claims so much of my life. Slip a mask over your face, clench the Aqua-Lung's rubber mouthpiece between your teeth, and drop down with me into the sea.

Awed Diver Feels Like Trespasser

As you sink slowly, you experience an exhilarating sense of buoyancy. The air tank felt heavy above the surface; now you are scarcely aware of it on your back. Freed from the demands of gravity, you move like a bird,

free to dive or soar with no other power but your arms and flippered feet.

Just below the surface, jellyfish pump past as you submerge. Living parachutes, they range in size from a dime to a dinner plate. At 20 feet you touch down on the reef. What had seemed a blurred tapestry of color at the surface now assumes dimensions and patterns.

Deep, winding gullies carpeted with sand slice plateaus of coral seemingly so soft, so untouchable you fear they may fade away before your eyes. Such primitive beauty and solitude make a man feel he is trespassing on forbidden ground.

The silence is awesome. Only the sound of breathing through the mouthpiece and

PHOTOGRAPH BY JERRY GREENBERG FOR NATIONAL GEOGRAPHIC SOCIETY



where a tank of air can last an experienced diver about an hour and a half.

And what wonders we saw!

Let me show you this world beneath the waves that I find so intriguing and that claims so much of my life. Slip a mask over your face, clench the Aqua-Lung's rubber mouthpiece between your teeth, and drop down with me into the sea.

Awed Diver Feels Like Trespasser

As you sink slowly, you experience an exhilarating sense of buoyancy. The air tank felt heavy above the surface, now you are scarcely aware of it on your back. Freed from the demands of gravity, you move like a bird,

free to dive or soar with no other power but your arms and flippers.

Just below the surface, jellyfish pump past as you submerge. Living parachutes, they range in size from a dime to a dinner plate. At 20 feet you touch down on the reef. What had seemed a blurred tapestry of color at the surface now assumes dimensions and patterns.

Deep, winding gullies carpeted with sand-lice plateaus of coral seemingly so soft, so untouchable you fear they may fade away before your eyes. Such primitive beauty and solitude make a man feel he is trespassing on forbidden ground.

The silence is awesome. Only the sound of breathing through the mouthpiece and





Silhouetted against blazing sun, a diver glides to the floor of the coral reef preserve.

Scrawled Filefish With Puckered Mouth Seems Asking for a Kiss

Actually, *Aluterus scriptus* is making a grunting sound as he swims. Other brilliant reef fish share John Pennekamp Coral Reef State Park with artist-diver Judy Meade. Wide-eyed French grunt (*Haemulon flavolineatum*) inspects her fingers; gaudy sergeant major (*Abudefduf saxatilis*) darts between her flippered feet. Bluehead wrasses and yellowtail snappers (*Ocyurus chrysurus*) swim past leisurely. Stinging coral at upper right resembles a basket of flowers. Lobed star coral decorates the reef at lower right.

welcomes the free diver, the rod-and-reel fisherman, and the fish watcher. But to the spearfisherman, it is forbidden territory.

While exploring this magnificent marine realm, I encountered only three or four sharks. They did not molest me or any member of my diving party, and we interrupted their privacy only long enough to capture their portraits (pages 71 and 80).

My crew members, who doubled as models, included Judy Meade, a commercial artist; Carl Gage, Paul Dammann, and young Van Cadenhead. Van learned to use an Aqua-Lung three years ago, when he was 10 years old. Now he swims and dives with the best.

72

Working off my 20-foot runabout, I dived four or five days a week. Many days I stayed submerged six hours, ascending only to switch air tanks and reload the cameras.

Often we made underwater photos at dusk. Sometimes we dived under a full moon, and the visibility was good enough to see 30 feet in any direction.

To photograph the reef's serene beauty, I used four Roliflex cameras in Roliflex housings, four Leicas in special Seahawk housings, three electronic flashes in underwater castings, and assorted flash guns. To facilitate the changing of cameras, I suspended all gear on lines dropped over the boat's side. We worked mostly in depths of 15 to 30 feet.



where a tank of air can last an experienced diver about an hour and a half.

And what wonders we saw!

Let me show you this world beneath the waves that I find so intriguing and that claims so much of my life. Slip a mask over your face, clench the Aqua-Lung's rubber mouthpiece between your teeth, and drop down with me into the sea.

Awed Diver Feels Like Trespasser

As you sink slowly, you experience an exhilarating sense of buoyancy. The air tank felt heavy above the surface; now you are scarcely aware of it on your back. Freed from the demands of gravity, you move like a bird,

free to dive or soar with no other power but your arms and flippers.

Just below the surface, jellyfish pump past as you submerge. Living parachutes, they range in size from a dime to a dinner plate. At 20 feet you touch down on the reef. What had seemed a blurred tapestry of color at the surface now assumes dimensions and patterns.

Deep, winding gullies carpeted with sand slice plateaus of coral seemingly so soft, so untouchable you fear they may fade away before your eyes. Such primitive beauty and solitude make a man feel he is trespassing on forbidden ground.

The silence is awesome. Only the sound of breathing through the mouthpiece and





Silhouetted against blazing sun, a diver glides to the floor of the coral reef preserve.

Scrawled Filefish With Puckered Mouth Seems Asking for a Kiss

Actually, *Aluterus scriptus* is making a grunting sound as he swims. Other brilliant reef fish share John Pennekamp Coral Reef State Park with artist-diver Judy Meade. Wide-eyed French grunt (*Haemulon flavolineatum*) inspects her fingers, gaudy sergeant major (*Abudefduf saxatilis*) darts between her flippered feet. Bluehead wrasses and yellowtail snappers (*Ocyurus chrysurus*) swim past leisurely. Stinging coral at upper right resembles a basket of flowers. Lobed star coral decorates the reef at lower right.

welcomes the free diver, the rod-and-reel fisherman, and the fish watcher. But to the spearfisherman, it is forbidden territory.

While exploring this magnificent marine realm, I encountered only three or four sharks. They did not molest me or any member of my diving party, and we interrupted their privacy only long enough to capture their portraits (pages 71 and 80).

My crew members, who doubled as models, included Judy Meade, a commercial artist; Carl Gage, Paul Dammann, and young Van Cadenhead. Van learned to use an Aqua-Lung three years ago, when he was 10 years old. Now he swims and dives with the best.

72

Working off my 20-foot runabout, I dived four or five days a week. Many days I stayed submerged six hours, ascending only to switch air tanks and reload the cameras.

Often we made underwater photos at dusk. Sometimes we dived under a full moon, and the visibility was good enough to see 80 feet in any direction.

To photograph the reef's serene beauties, I used four Rolleiflex cameras in Rolleimarin housings, four Leicas in special Seahawk housings, three electronic flashes in underwater casings, and assorted flash guns. To facilitate the changing of cameras, I suspended all gear on lines dropped over the boat's side. We worked mostly in depths of 15 to 30 feet.

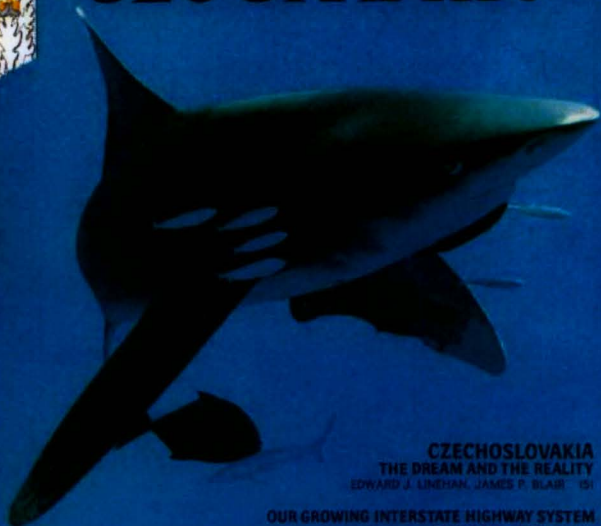


WALL MAP SUPPLEMENT: THE UNITED STATES (page 220)

VOL. 133, NO. 2

FEBRUARY, 1968

NATIONAL GEOGRAPHIC



CZECHOSLOVAKIA
THE DREAM AND THE REALITY
EDWARD J. LINEHAN, JAMES P. BLAIR 151

OUR GROWING INTERSTATE HIGHWAY SYSTEM
ROBERT PAUL JORDAN 195

SHARKS: WOLVES OF THE SEA
NATHANIEL T. KENNEDY 222

**ECUADOR—LOW AND LOFTY LAND
ASTRIDE THE EQUATOR**
LOREN MURTYRE 258

SEE "AMAZON" TUESDAY, FEBRUARY 20, ON CBS TV (page 295A)

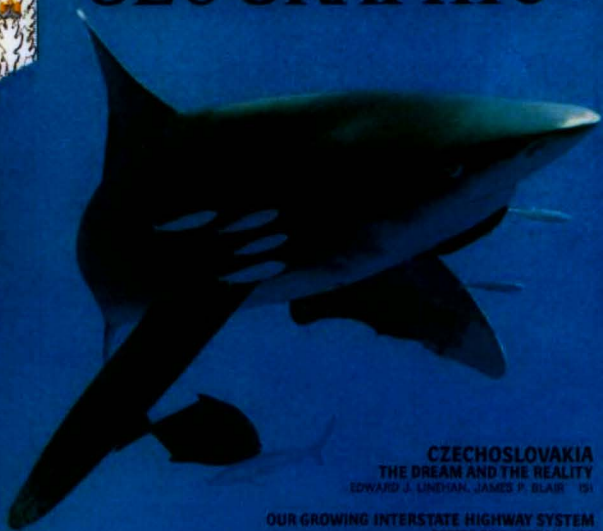
OFFICIAL JOURNAL OF THE NATIONAL GEOGRAPHIC SOCIETY WASHINGTON, D. C.

WALL MAP SUPPLEMENT: THE UNITED STATES (page 220)

VOL. 133, NO. 2

FEBRUARY, 1968

NATIONAL GEOGRAPHIC



CZECHOSLOVAKIA
THE DREAM AND THE REALITY
EDWARD J. LINEHAN, JAMES P. BLAIR 151

OUR GROWING INTERSTATE HIGHWAY SYSTEM
ROBERT PAUL JORDAN 195

SHARKS: WOLVES OF THE SEA
NATHANIEL T. KENNEY 223

**ECUADOR—LOW AND LOFTY LAND
ASTRIDE THE EQUATOR**
LORDEN MINTYRE 259

SEE "AMAZON" TUESDAY, FEBRUARY 20, ON CBS TV (page 295A)

OFFICIAL JOURNAL OF THE NATIONAL GEOGRAPHIC SOCIETY WASHINGTON, D. C.

WALL MAP SUPPLEMENT: THE UNITED STATES (page 220)

VOL. 133, NO. 2

FEBRUARY, 1968

NATIONAL GEOGRAPHIC



CZECHOSLOVAKIA
THE DREAM AND THE REALITY
EDWARD J. LINZHAN, JAMES P. BLAIR 151

OUR GROWING INTERSTATE HIGHWAY SYSTEM
ROBERT PAUL JORDAN 195

SHARKS: WOLVES OF THE SEA
NATHANIEL T. KENNETH 222

**EQUADOR—LOW AND LOFTY LAND
ASTRIDE THE EQUATOR**
LORDS MURPHY 259

SEE "AMAZON" TUESDAY, FEBRUARY 20, ON CBS TV (page 295A)

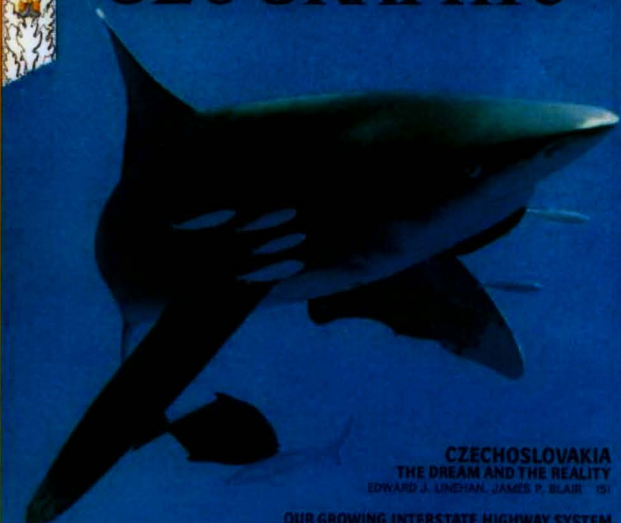
OFFICIAL JOURNAL OF THE NATIONAL GEOGRAPHIC SOCIETY WASHINGTON, D. C.

WALL MAP SUPPLEMENT: THE UNITED STATES (page 220)

VOL. 133, NO. 2

FEBRUARY, 1968

NATIONAL GEOGRAPHIC



CZECHOSLOVAKIA THE DREAM AND THE REALITY

EDWARD J. LINDEMAN, JAMES P. BLAIR 151

OUR GROWING INTERSTATE HIGHWAY SYSTEM

ROBERT PAUL JORDAN 185

SHARKS: WOLVES OF THE SEA

NATHANIEL T. KENNEY 222

EQUADOR—LOW AND LOFTY LAND ASTRIDE THE EQUATOR

LOREN MCINTYRE 259

SEE "AMAZON" TUESDAY, FEBRUARY 20, ON CBS TV (page 295A)

OFFICIAL JOURNAL OF THE NATIONAL GEOGRAPHIC SOCIETY WASHINGTON, D. C.

VOL. 121, NO. 1

JANUARY, 1962

NATIONAL GEOGRAPHIC

- Hong Kong Has Many Faces JOHN SCOFIELD 1
- Ghost From the Depths: the Warship Vasa ANDERS FRANZEN 42
- Key Largo Reef: America's First Undersea Park CHARLES M. BROOKFIELD 58
- Florida's Coral City Beneath the Sea JERRY GREENBERG 70
- Easter Island and Its Mysterious Monuments EDWARD LAFAY, THOMAS J. ARSCROWHIE 90
- Brazil's Big-lipped Indians HARALD SCHULZE 118
- Strange Courtship of the Cock-of-the-Rock E. THOMAS GILLIARD 134



\$8.00 A YEAR

\$1.00 A COPY

THE JOURNAL OF THE NATIONAL GEOGRAPHIC SOCIETY WASHINGTON, D. C.

VOL. 121, NO. 1

JANUARY, 1962

NATIONAL GEOGRAPHIC

- Hong Kong Has Many Faces JOHN SCOFIELD 1
- Ghost From the Depths: the Warship *Vasa* ANDERS FRANZEN 42
- Key Largo Reef: America's First Undersea Park CHARLES M. BROOKFIELD 58
- Florida's Coral City Beneath the Sea JERRY GREENBERG 70
- Easter Island and Its Mysterious Monuments HOWARD LAFAY, THOMAS J. AMERCRIMMIE 90
- Brazil's Big-lipped Indians HARALD SCHULTE 118
- Strange Courtship of the Cock-of-the-Rock R. THOMAS GILLARD 134



\$8.00 A YEAR

\$1.00 A COPY

THE JOURNAL OF THE NATIONAL GEOGRAPHIC SOCIETY WASHINGTON, D. C.

VOL. 121, NO. 1

JANUARY, 1962

NATIONAL GEOGRAPHIC

Hong Kong Has Many Faces	JOHN SCOFIELD	1
Ghost From the Depths: the Warship <i>Vasa</i>	ANDERS FRANZEN	42
Key Largo Reef: America's First Undersea Park	CHARLES M. BROOKFIELD	58
Florida's Coral City Beneath the Sea	JERRY GREENBERG	70
Easter Island and Its Mysterious Monuments	HOWARD LAFAY, THOMAS J. ARSCHMIDT	90
Brazil's Big-lipped Indians	HARALD SCHULTE	118
Strange Courtship of the Cock-of-the-Rock	E. THOMAS GILLIARD	124



\$8.00 A YEAR

\$1.00 A COPY

THE JOURNAL OF THE NATIONAL GEOGRAPHIC SOCIETY WASHINGTON, D. C.

VOL. 121, NO. 1

JANUARY, 1962

NATIONAL GEOGRAPHIC

Hong Kong Has Many Faces	JOHN SCOFIELD	1
Ghost From the Depths: the Warship <i>Vasa</i>	ANDERS FRANZEN	42
Key Largo Reef: America's First Undersea Park	CHARLES M. BROOKFIELD	58
Florida's Coral City Beneath the Sea	JERRY GREENBERG	70
Easter Island and Its Mysterious Monuments	HOWARD LAFAY, THOMAS J. ANSCHUTZ	90
Brazil's Big-lipped Indians	HARALD SCHULZE	118
Strange Courtship of the Cock-of-the-Rock	E. THOMAS GILLIARD	134



\$8.00 A YEAR

\$1.00 A COPY

THE JOURNAL OF THE NATIONAL GEOGRAPHIC SOCIETY WASHINGTON, D. C.

VOL. 121, NO. 1

JANUARY, 1962

NATIONAL GEOGRAPHIC

- | | | |
|--|--------------------------------------|-----|
| Hong Kong Has Many Faces | JOHN SCOFIELD | 1 |
| Ghost From the Depths: the Warship <i>Vasa</i> | ANDERS FRANZEN | 42 |
| Key Largo Reef: America's
First Undersea Park | CHARLES M. BROOKFIELD | 58 |
| Florida's Coral City Beneath the Sea | JERRY GREENBERG | 70 |
| Easter Island and Its Mysterious Monuments | HOWARD LAFAY, THOMAS J. ABERCHROMBIE | 80 |
| Brazil's Big-lipped Indians | HARALD SCHULTZ | 116 |
| Strange Courtship of the Cock-of-the-Rock | THOMAS DILLIARD | 124 |



\$8.00 A YEAR

\$1.00 A COPY

THE JOURNAL OF THE NATIONAL GEOGRAPHIC SOCIETY WASHINGTON, D. C.

VOL. 121, NO. 1

JANUARY, 1962

NATIONAL GEOGRAPHIC

- Hong Kong Has Many Faces JOHN SCOFIELD 1
- Ghost From the Depths: the Warship *Vasa* ANDERS FRANZEN 42
- Key Largo Reef: America's First Undersea Park CHARLES M. BROOKFIELD 58
- Florida's Coral City Beneath the Sea JERRY GREENBERG 70
- Easter Island and Its Mysterious Monuments HOWARD LAFAY, THOMAS J. AMERSONDHE 89
- Brazil's Big lipped Indians HARALD SCHULTZ 118
- Strange Courtship of the Cock-of-the-Rock E. THOMAS GILLIARD 134



\$8.00 A YEAR

\$1.00 A COPY

THE JOURNAL OF THE NATIONAL GEOGRAPHIC SOCIETY WASHINGTON, D. C.

A

NATIONAL GEOGRAPHIC

May 1992, Vol. 75, No. 5
Special Price for Single Copies: \$4.99
\$12.99 for 3 issues
\$34.99 for 12 issues
\$69.99 for 24 issues
\$139.99 for 48 issues
\$279.99 for 96 issues
\$559.99 for 192 issues
\$1119.99 for 384 issues
\$2239.99 for 768 issues
\$4479.99 for 1536 issues
\$8959.99 for 3072 issues
\$17919.99 for 6144 issues
\$35839.99 for 12288 issues
\$71679.99 for 24576 issues
\$143359.99 for 49152 issues
\$286719.99 for 98304 issues
\$573439.99 for 196608 issues
\$1146879.99 for 393216 issues
\$2293759.99 for 786432 issues
\$4587519.99 for 1572864 issues
\$9175039.99 for 3145728 issues
\$18350079.99 for 6291456 issues
\$36700159.99 for 12582912 issues
\$73400319.99 for 25165824 issues
\$146800639.99 for 50331648 issues
\$293601279.99 for 100663296 issues
\$587202559.99 for 201326592 issues
\$1174405119.99 for 402653184 issues
\$2348810239.99 for 805306368 issues
\$4697620479.99 for 1610612736 issues
\$9395240959.99 for 3221225472 issues
\$18790481919.99 for 6442450944 issues
\$37580963839.99 for 12884901888 issues
\$75161927679.99 for 25769803776 issues
\$150323855359.99 for 51539607552 issues
\$300647710719.99 for 103079215104 issues
\$601295421439.99 for 206158430208 issues
\$1202590842879.99 for 412316860416 issues
\$2405181685759.99 for 824633720832 issues
\$4810363371519.99 for 1649267441664 issues
\$9620726743039.99 for 3298534883328 issues
\$19241453486079.99 for 6597069766656 issues
\$38482906972159.99 for 13194139533312 issues
\$76965813944319.99 for 26388279066624 issues
\$153931627888639.99 for 52776558133248 issues
\$307863255777279.99 for 105553116266496 issues
\$615726511554559.99 for 211106232532992 issues
\$1231453023109119.99 for 422212465065984 issues
\$2462906046218239.99 for 844424930131968 issues
\$4925812092436479.99 for 1688849860263936 issues
\$9851624184872959.99 for 3377699720527872 issues
\$19703248369745919.99 for 6755399441055744 issues
\$39406496739491839.99 for 13510798882111488 issues
\$78812993478983679.99 for 27021597764222976 issues
\$157625986957967359.99 for 54043195528445952 issues
\$315251973915934719.99 for 108086391056891904 issues
\$630503947831869439.99 for 216172782113783808 issues
\$1261007895663738879.99 for 432345564227567616 issues
\$2522015791327477759.99 for 864691128455135232 issues
\$5044031582654955519.99 for 1729382256910270464 issues
\$10088063165309911039.99 for 3458764513820540928 issues
\$20176126330619822079.99 for 6917529027641081856 issues
\$40352252661239644159.99 for 13835058055282163712 issues
\$80704505322479288319.99 for 27670116110564327424 issues
\$161409010644958576639.99 for 55340232221128654848 issues
\$322818021289917153279.99 for 110680464442257309696 issues
\$645636042579834306559.99 for 221360928884514619392 issues
\$1291272085159668613119.99 for 442721857769029238784 issues
\$2582544170319337226239.99 for 885443715538058477568 issues
\$5165088340638674452479.99 for 1770887431076116955136 issues
\$10330176681277348904959.99 for 3541774862152233910272 issues
\$20660353362554697809919.99 for 7083549724304467820544 issues
\$41320706725109395619839.99 for 14167099448608935641088 issues
\$82641413450218791239679.99 for 28334198897217871282176 issues
\$165282826900437582479359.99 for 56668397794435742564352 issues
\$330565653800875164958719.99 for 113336795588871485128704 issues
\$661131307601750329917439.99 for 226673591177742970257408 issues
\$1322262615203500659834879.99 for 453347182355485940514816 issues
\$2644525230407001319669759.99 for 906694364710971881029632 issues
\$5289050460814002639339519.99 for 1813388729421943762059264 issues
\$10578100921628005278679039.99 for 3626777458843887524118528 issues
\$21156201843256010557358079.99 for 7253554917687775048237056 issues
\$42312403686512021114716159.99 for 14507109835375550096474112 issues
\$84624807373024042229432319.99 for 29014219670751100192948224 issues
\$169249614746048084458864639.99 for 58028439341502200385896448 issues
\$338499229492096168917729279.99 for 116056878683004400771792976 issues
\$676998458984192337835458559.99 for 232113757366008801543585952 issues
\$1353996917968384675670917119.99 for 464227514732017603087171904 issues
\$2707993835936769351341834239.99 for 928455029464035206174343808 issues
\$5415987671873538702683668479.99 for 1856910058928070412348687616 issues
\$10831975343747077405367336959.99 for 3713820117856140824697375232 issues
\$21663950687494154810734673919.99 for 7427640235712281649394750464 issues
\$43327901374988309621469347839.99 for 14855280471424562898789500928 issues
\$86655802749976619242938695679.99 for 29710560942849125797579001856 issues
\$173311605499953238485877391359.99 for 59421121885698251595158003712 issues
\$346623210999906476971754782719.99 for 118842243771396503190316007424 issues
\$693246421999812953943509565439.99 for 237684487542793006380632014848 issues
\$1386492843999625907887019130879.99 for 475368975085586012761264029696 issues
\$2772985687999251815774038261759.99 for 950737950171172025522528059392 issues
\$5545971375998503631548076523519.99 for 1901475900342344051045056118784 issues
\$11091942751997007263096153047039.99 for 3802951800684688102090112237568 issues
\$22183885503994014526192306094079.99 for 7605903601369376204180224475136 issues
\$44367771007988029052384612188159.99 for 15211807202738752408360448950272 issues
\$88735542015976058104769224376319.99 for 30423614405477504816720897900544 issues
\$177471084031952116209538448752639.99 for 60847228810955009633441795801088 issues
\$354942168063904232419076897505279.99 for 121694457621910019266883591602176 issues
\$709884336127808464838153795010559.99 for 243388915243820038533767183204352 issues
\$1419768672255616929676307590021119.99 for 486777830487640077067534366408704 issues
\$2839537344511233859352615180042239.99 for 973555660975280154135068732817408 issues
\$5679074689022467718705230360084479.99 for 1947111321950560308270137465634816 issues
\$11358149378044935437410460720168959.99 for 3894222643901120616540274931269632 issues
\$22716298756089870874820921440337919.99 for 7788445287802241233080549862539264 issues
\$45432597512179741749641842880675839.99 for 1557689057560448246616099724507808 issues
\$90865195024359483499283685761351679.99 for 3115378115120896493232199449015616 issues
\$181730390048718966998567371522713359.99 for 6230756230241792986464398898031232 issues
\$363460780097437933997134743045426719.99 for 12461512460483585972928797796062464 issues
\$726921560194875867994269486090853439.99 for 24923024920967171945857595592124928 issues
\$1453843120389751735988538972181706879.99 for 4984604984193434389171519118424976 issues
\$2907686240779503471977077944363413759.99 for 9969209968386868778343038236849952 issues
\$5815372481559006943954155888726827519.99 for 19938419936773737556686076473699904 issues
\$11630744963118013887908311777453655039.99 for 39876839873547475113372152947399808 issues
\$23261489926236027775816623554907310079.99 for 79753679747094950226744305894799616 issues
\$46522979852472055551633247109814620159.99 for 159507359494189900453488611789599232 issues
\$93045959704944111103266494219629240319.99 for 319014718988379800906977223579198464 issues
\$186091919409888222206532988439258480639.99 for 638029437976759601813954447158396928 issues
\$372183838819776444413065976878516961279.99 for 1276058875953519203627908894316793856 issues
\$744367677639552888826131953757033922559.99 for 2552117751907038407255817788633587712 issues
\$1488735355279105777652263907514067845119.99 for 5104235503814076814511635577267175424 issues
\$297747071055821155530452781502813569039.99 for 10208471007628153629023271154534350848 issues
\$595494142111642311060905563005627138179.99 for 20416942015256307258046542309068701696 issues
\$1190988284223284622121811126011254276359.99 for 40833884030512614516093084618137403392 issues
\$238197656844656924424362225202250953679.99 for 81667768061025229032186169236274806784 issues
\$47639531368931384884872445040450190759.99 for 163335536122050458064372338472549613568 issues
\$95279062737862769769744890080900381519.99 for 326671072244100916128744676945099227136 issues
\$190558125475725539539489780161800763039.99 for 653342144488201832257489353890198454272 issues
\$381116250951451079078979560323601526079.99 for 1306684288976403664514978707780396908544 issues
\$762232501902902158157959120647203052159.99 for 2613368577952807329029957415560793817088 issues
\$1524465003805804316315918241294406104319.99 for 5226737155905614658059914831121587634176 issues
\$304893000761160863263183648258881208639.99 for 1045347431181122931611982966224317468352 issues
\$609786001522321726526367296517762417319.99 for 2090694862362245863223965932448634936704 issues
\$121957200304464345305273459303554834639.99 for 4181389724724491726447931864897269873408 issues
\$243914400608928690610546918607109669279.99 for 8362779449448983452895863729794539746816 issues
\$487828801217857381221093837214219338559.99 for 16725558898897966905791727459589079133312 issues
\$975657602435714762442187674428438677119.99 for 3345111779779593381158345491917815826664 issues
\$1951315204871429524884375348856877354239.99 for 6690223559559186762316700983835631653328 issues
\$3902630409742859049768750697713554708479.99 for 13380447119118373524633401967671263306656 issues
\$780526081948571809953750139542710941679.99 for 26760894238236747049266803935342526613312 issues
\$1561052163897143619907500279085421883359.99 for 53521788476473494098533607870685053226624 issues
\$3122104327794287239815000558170843766719.99 for 107043576952946988197067215741370106453248 issues
\$6244208655588574479630001116341687533439.99 for 21408715390589397639413443148274021290648 issues
\$12488417311177148959260002232683375066879.99 for 42817430781178795278826886296548042581296 issues
\$2497683462235429791852000446536675013359.99 for 85634861562357590557653772593096085615712 issues
\$4995366924470859583704000893073350026719.99 for 171269723124715181115307545186192171231424 issues
\$9990733848941719167408001786146700053439.99 for 342539446249430362230615090372384342462848 issues
\$19981467697883438334816003572293400106679.99 for 685078892498860724461230180744768684925696 issues
\$39962935395766876669632007144586800213359.99 for 1370157784997721448922460361489537369851392 issues
\$79925870791533753339264014289173600426719.99 for 274031556999544289784492072297907473970272 issues
\$15985174158306750667852802857834720085359.99 for 548063113999088579568984144595814947940544 issues
\$31970348316613501335705605715669440170719.99 for 1096126227998177159137968289191629895881088 issues
\$63940696633227002671411201141338880341439.99 for 2192252455996354318275936578383259791762176 issues
\$12788139326645400534282240228267776682879.99 for 438450491199270863655187315676651957352432 issues
\$25576278653290801068564804556535553365759.99 for 876900982398541727310374631353303914704864 issues
\$5115255730658160213712960911307110673519.99 for 175380196479708345462074926270660782880928 issues
\$10230511461316320427425921822614221347039.99 for 350760392959416690924149852541321565761856 issues
\$20461022922632640854851843645228442694079.99 for 701520785918833381848299705082643131523712 issues
\$40922045845265281709703687290456885388159.99 for 1403041571837666763696599410165286263047424 issues
\$8184409169053056341940737458091377077639.99 for 280608314367533352739319882033057252609488 issues
\$16368818338106112683881474916182754155279.99 for 561216628735066705478639764066114505218976 issues
\$32737636676212225367762949232365508310559.99 for 1122433257470133410957279528132229010437952 issues
\$65475273352424450735525898464731016621119.99 for 224486651494026682191455905626445802087584 issues
\$130950546704848901471051796929462033242239.99 for 448973302988053364382911811252891604151768 issues
\$261901093409697802942103593858924066484479.99 for 897846605976106728765823622505783208303536 issues
\$523802186819395605884207187717848132968959.99 for 1795693211952213457531647245011566416607104 issues
\$1047604373638791211768414375435696265937919.99 for 359138642390442691506329449002313283212208 issues
\$20952087472775824235368287508713925318759.99 for 718277284780885383012658898004626566424416 issues
\$41904174945551648470736575017427850637519.99 for 1436554569561770766025317796009253132848832 issues
\$83808349891103296941473150034855701275039.99 for 2873109139123541532050635592018506265697664 issues
\$16761669978220659388294630006971140250079.99 for 574621827824708306410127118403701251139528 issues
\$33523339956441318776589260013942280500159.99 for 1149243655649416612820254236807402502279056 issues
\$67046679912882637553178520027884561000319.99 for 2298487311298833225640508473614805004558112 issues
\$134093359825765275106357040055769122000639.99 for 4596974622597666451281016947229610091116224 issues
\$268186719651530550212714080111538244001279.99 for 919394924519533290256203389445922018223248 issues
\$536373439303061100425428160223076488002559.99 for 1838789849039066580512406778891844036446496 issues
\$1072746878606122200850856320446152976005119.99 for 3677579698078133161024813557783688072892992 issues
\$214549375721224440170171264089230595201039.99 for 7355159396156266322049627115567376145775968 issues
\$429098751442448880340342528178461190402079.99 for 14710318792312532644099254231134752291551936 issues
\$858197502884977760680685056356922380804159.99 for 2942063758462506528819850846226950458310384 issues
\$1716395005769955521361370112713844616168319.99 for 5884127516925013057639701692453900916620768 issues
\$343279001153991104272274022542768323233679.99 for 11768255033850026115279403384907801833241536 issues
\$686558002307982208544548045085536646667359.99 for 23536510067700052230558806769815603666483104 issues
\$137311600461596441708909609017107329333679.99 for 47073020135400104461117613539631207332966208 issues
\$274623200923192883417819218034214658667359.99 for 94146040270800208922235227079262414665932416 issues
\$549246401846385766835638436068429317334719.99 for 1882920805416004178444704541585248293318

NATIONAL GEOGRAPHIC

May King Has Many Faces

Clash From the Depths: the Weekly Fight

May Linger Briefly: America's

First Christmas With

President's Grand City Shows How She

Keeps America on the Map

How's My Grand Old

Home Contributed to the World's Best



NATIONAL GEOGRAPHIC

May King Has Many Faces

Clash From the Depths: the Weekly Fight

May Linger Briefly: America's

First Christmas With

President's Grand City Shows How She

Keeps America on the Map

How's My Grand Old

Home Contributed to the World's Best



1982 APRIL

NATIONAL GEOGRAPHIC

May Kory, One Mary Do... 10

Shed From the Skies: the Weekly Fog 11

May Lager Beer: America's First Breweries 12

Florida's Lost City: Discoveries on the 13

Stone: James van der Meulen's Mammals 14

Stone: Continental of the Pacific 15



NATIONAL GEOGRAPHIC

May Kory, One Mary Do... 10

Shed From the Skies: the Weekly Fog 11

May Lager Beer: America's First Breweries 12

Florida's Lost City: Discoveries on the 13

Stone: James van der Meulen's Mammals 14

Stone: Continental of the Pacific 15



NATIONAL GEOGRAPHIC

Many More Than Many More

Most Faint Are Hidden: The Unlikely Yang

More Large Reef: America's

World's Great City: America's

More: America's

World's Most Beautiful

More: America's



NATIONAL GEOGRAPHIC

Many More Than Many More

Most Faint Are Hidden: The Unlikely Yang

More Large Reef: America's

World's Great City: America's

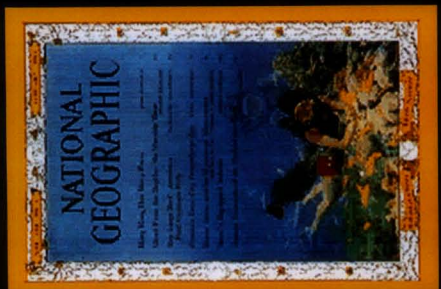
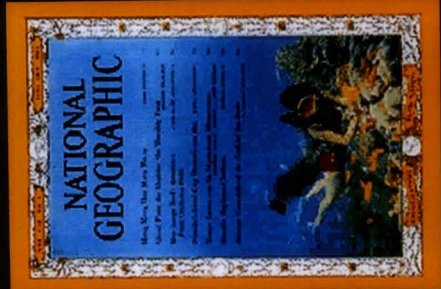
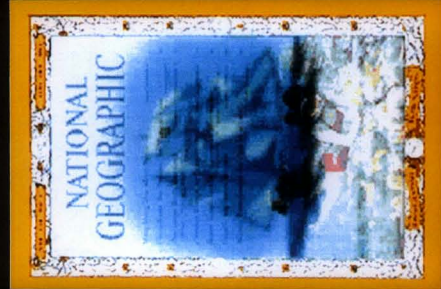
More: America's

World's Most Beautiful

More: America's



®





NATIONAL GEOGRAPHIC

May 1994, Vol. 21, No. 5
Special Double Issue: The
Mystery of the
Mojave Desert
The Mojave Desert is a vast, arid region in the western United States. It is home to a variety of unique plants and animals, including the Mojave sagebrush, the Mojave poplar, and the Mojave ground squirrel. The desert is also a major source of minerals, including gold, silver, and copper. The Mojave Desert is a beautiful and mysterious landscape that has captivated the imagination of people for centuries.



NATIONAL GEOGRAPHIC

May 1994, Vol. 21, No. 5
Special Double Issue: The
Mystery of the
Mojave Desert
The Mojave Desert is a vast, arid region in the western United States. It is home to a variety of unique plants and animals, including the Mojave sagebrush, the Mojave poplar, and the Mojave ground squirrel. The desert is also a major source of minerals, including gold, silver, and copper. The Mojave Desert is a beautiful and mysterious landscape that has captivated the imagination of people for centuries.



NATIONAL GEOGRAPHIC

May 1994, Vol. 21, No. 5
Special Double Issue: The
Mystery of the
Mojave Desert
The Mojave Desert is a vast, arid region in the western United States. It is home to a variety of unique plants and animals, including the Mojave sagebrush, the Mojave poplar, and the Mojave ground squirrel. The desert is also a major source of minerals, including gold, silver, and copper. The Mojave Desert is a beautiful and mysterious landscape that has captivated the imagination of people for centuries.



NATIONAL GEOGRAPHIC

May 1994, Vol. 21, No. 5
Special Double Issue: The
Mystery of the
Mojave Desert
The Mojave Desert is a vast, arid region in the western United States. It is home to a variety of unique plants and animals, including the Mojave sagebrush, the Mojave poplar, and the Mojave ground squirrel. The desert is also a major source of minerals, including gold, silver, and copper. The Mojave Desert is a beautiful and mysterious landscape that has captivated the imagination of people for centuries.



NATIONAL GEOGRAPHIC

May 1994, Vol. 21, No. 5
Special Double Issue: The
Mystery of the
Mojave Desert
The Mojave Desert is a vast, arid region in the western United States. It is home to a variety of unique plants and animals, including the Mojave sagebrush, the Mojave poplar, and the Mojave ground squirrel. The desert is also a major source of minerals, including gold, silver, and copper. The Mojave Desert is a beautiful and mysterious landscape that has captivated the imagination of people for centuries.



NATIONAL GEOGRAPHIC

May 1994, Vol. 21, No. 5
Special Double Issue: The
Mystery of the
Mojave Desert
The Mojave Desert is a vast, arid region in the western United States. It is home to a variety of unique plants and animals, including the Mojave sagebrush, the Mojave poplar, and the Mojave ground squirrel. The desert is also a major source of minerals, including gold, silver, and copper. The Mojave Desert is a beautiful and mysterious landscape that has captivated the imagination of people for centuries.



NATIONAL GEOGRAPHIC

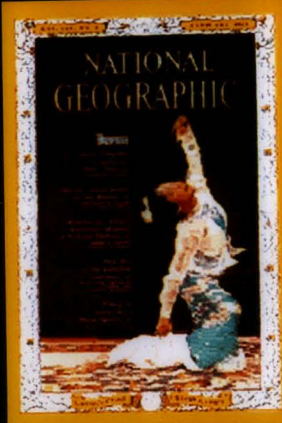
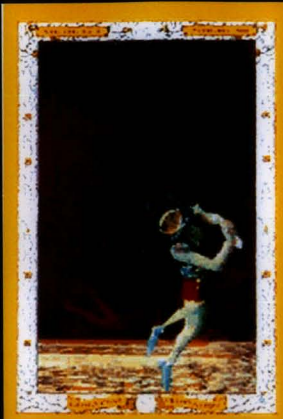
May 1994, Vol. 21, No. 5
Special Double Issue: The
Mystery of the
Mojave Desert
The Mojave Desert is a vast, arid region in the western United States. It is home to a variety of unique plants and animals, including the Mojave sagebrush, the Mojave poplar, and the Mojave ground squirrel. The desert is also a major source of minerals, including gold, silver, and copper. The Mojave Desert is a beautiful and mysterious landscape that has captivated the imagination of people for centuries.

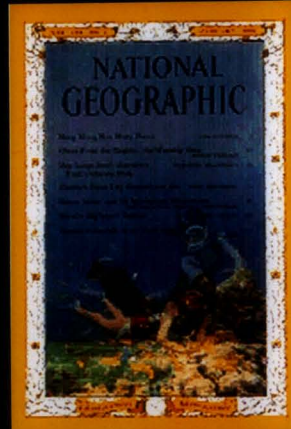
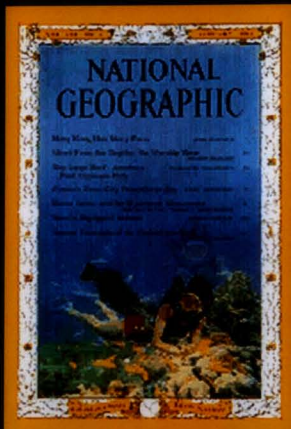
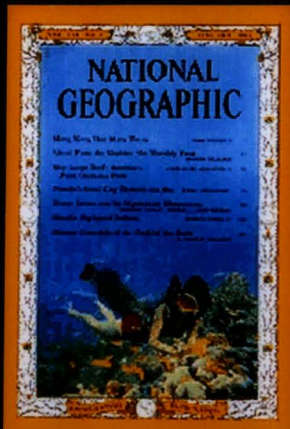
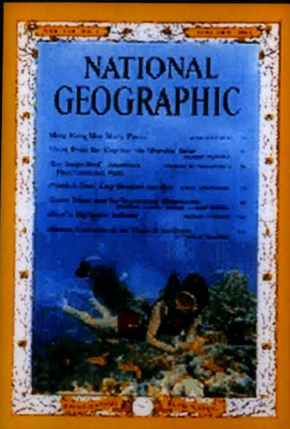
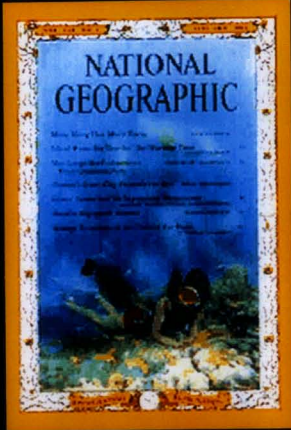
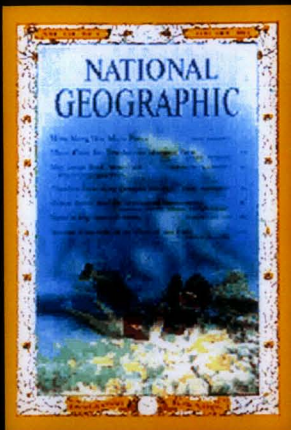
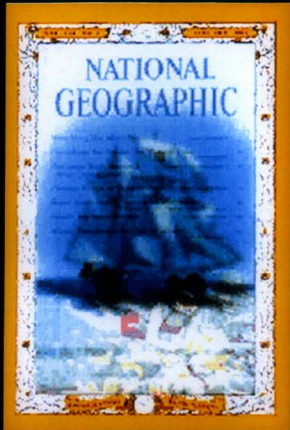
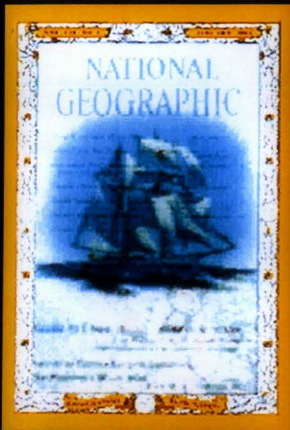


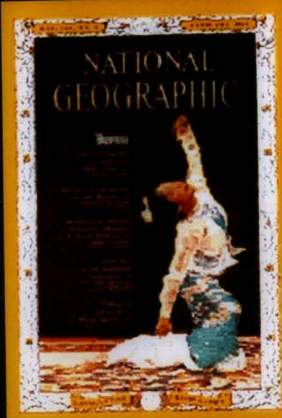
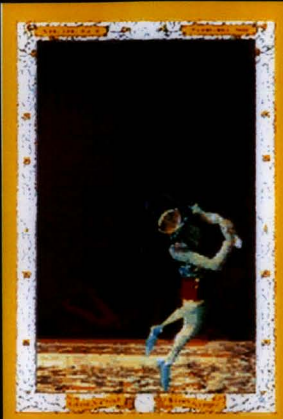
NATIONAL GEOGRAPHIC

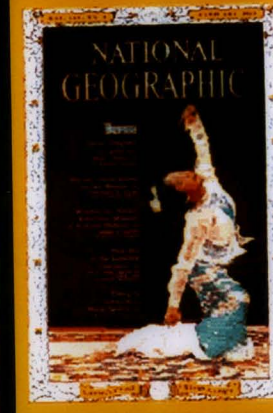
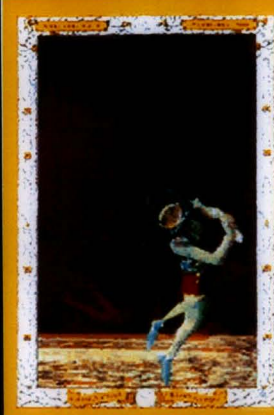
May 1994, Vol. 21, No. 5
Special Double Issue: The
Mystery of the
Mojave Desert
The Mojave Desert is a vast, arid region in the western United States. It is home to a variety of unique plants and animals, including the Mojave sagebrush, the Mojave poplar, and the Mojave ground squirrel. The desert is also a major source of minerals, including gold, silver, and copper. The Mojave Desert is a beautiful and mysterious landscape that has captivated the imagination of people for centuries.

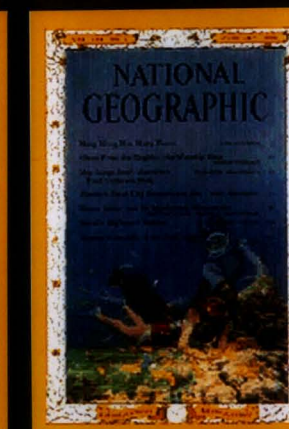
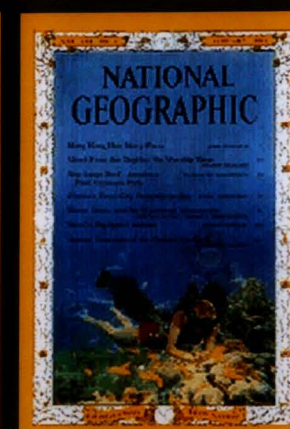
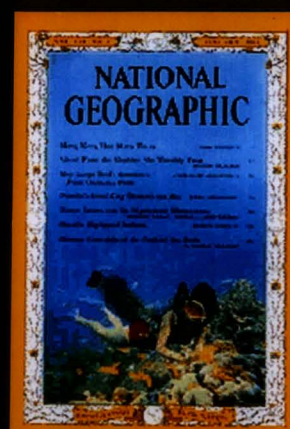
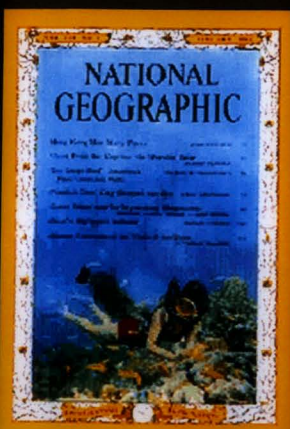
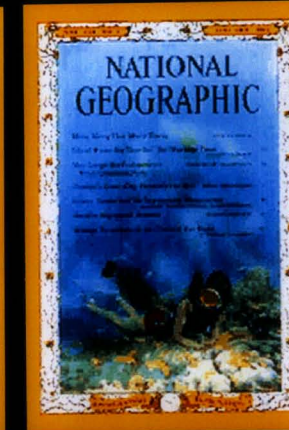
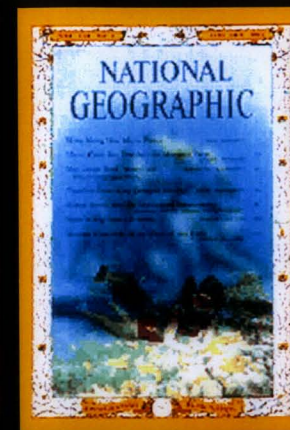
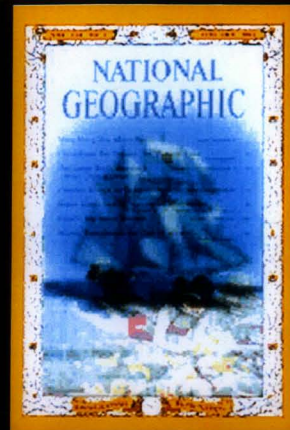
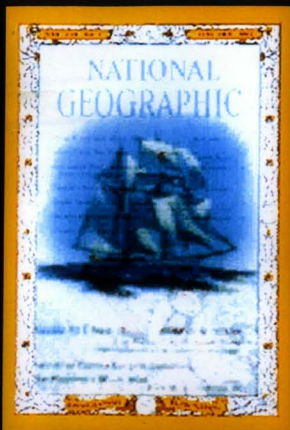


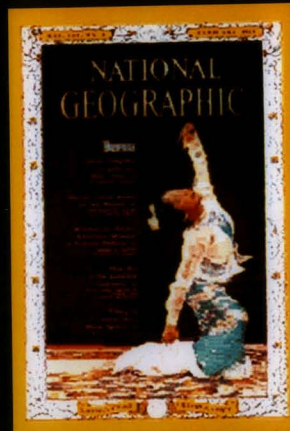
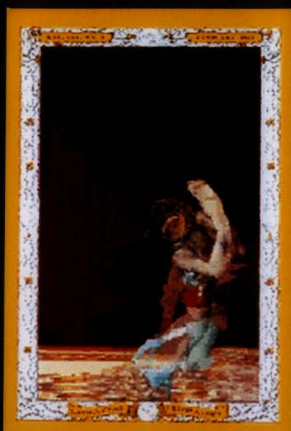












FISH OF THE CORAL REEF

Match the fish to its picture. Write the picture number on the key board.

Reefs and Oceans

CODE 2043

The stripes on the sides of this fish are called stripes. They help the fish disguise itself so the other fish will not see it.

This fish's body is as deep as the front of its yellow stripes.

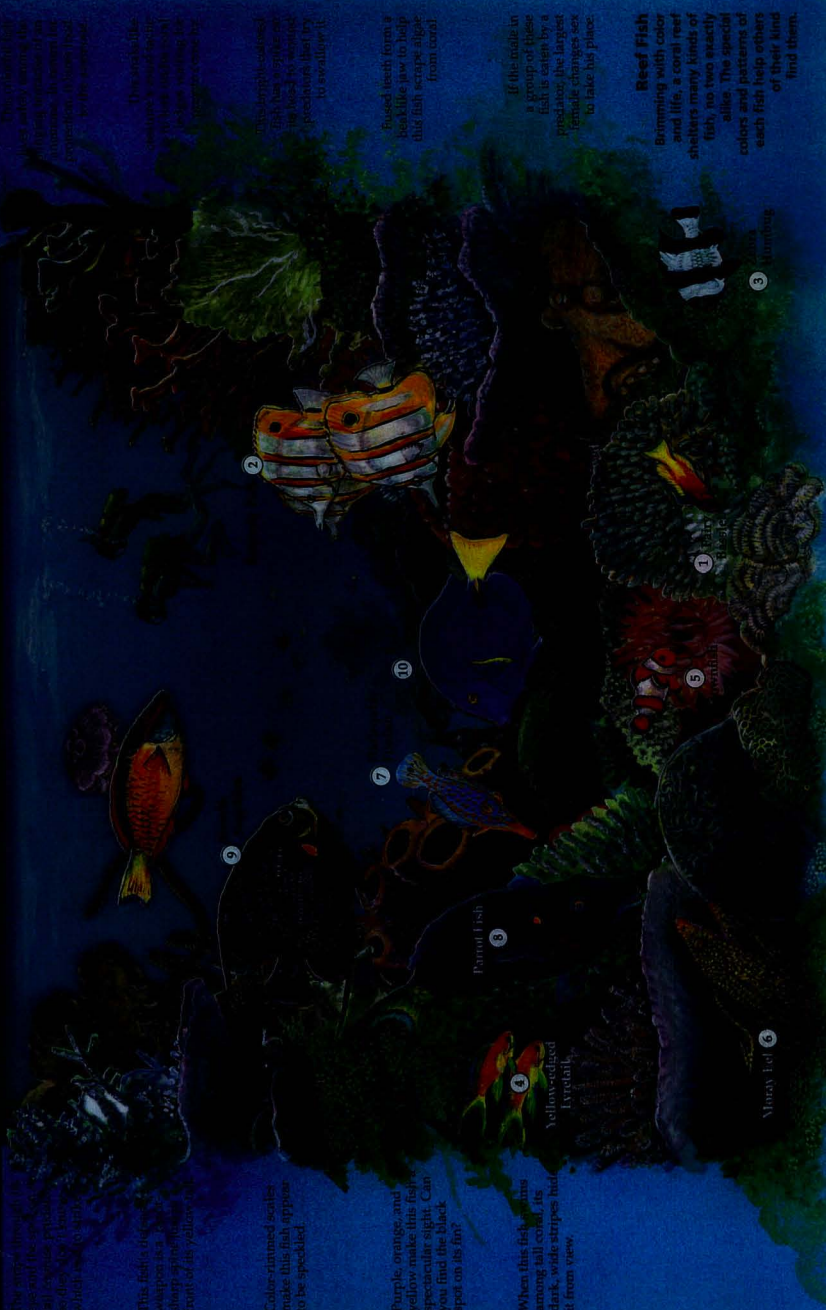
Color-rimmed scales make this fish appear to be speckled.

Purple, orange, and yellow make this fish's spectacular sight. Can you find the black spot on its fin?

When this fish swims among tall coral, its dark, wide stripes help it from view.

Yellow-edged. Extraordinary.

Parrot Fish



The orange-like colors of a coral reef are made up of many different colors. The colors are made by the coral polyps.

Many large animals live in coral reefs. They help keep the reef healthy. Some of the animals are called apex predators. They try to eat all the other fish.

Some fish form a bond with algae. The fish use the algae to help them grow. The algae use the fish to help them grow.

If the male in a group of these fish is eaten by a predator, the largest female changes sex to take his place.

Beef Fish
Brimming with color and life, a coral reef shelters many kinds of fish. The species of fish are two exactly alike. The species of colors and patterns of each fish help others find them.

OF THE CORAL REEF

■ Match the lighted clue to its picture, then press the

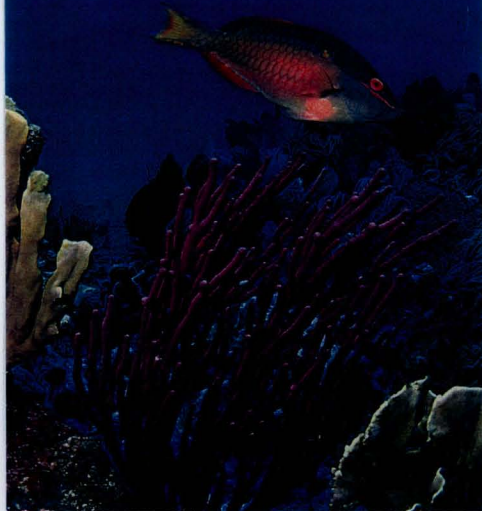


Copyright © 1995 National Geographic Society

The Living Reef

WITH SPECIAL PHOTOGRAPHS BY JERRY AND IDAZ GREENBERG

JERRY AND IDAZ GREENBERG



Copyright © 1972, 1979 Jerry and Idaz Greenberg



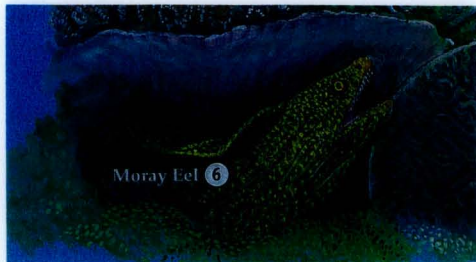
Copyright © 1995 National Geographic Society

Parrotfish

An efficient recycling machine, the parrotfish rock into fine sand in the process of grazing. Males often share a color pattern, but an occasional larger size and more brilliant color and is called phase male. The stoplight parrotfish (*Sparis* right), may be male or female, while its companion is a terminal male of the same species, reaching a larger size and more brilliant color. The terminal male redband parrotfish (*Sparis* left), is a smaller species, about ten inches in



Copyright © 1972, 1979 Jerry and Idaz Greenberg

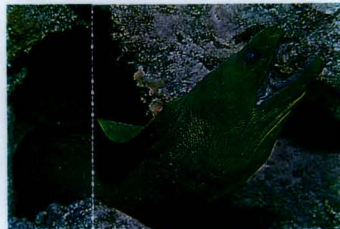


Copyright © 1995 National Geographic Society



83

Moray eels



Copyright © 1972, 1979 Jerry and Idaz Greenberg 84

As beautiful and resilient as the snakes they resemble, these fish are largely nocturnal and inactive by nature. They are hunted in many waters worldwide, hiding in crevices and under coral ledges. The golden moray (*Morone mullus*) left, grows to no more than one foot. The green moray (*Gymnocheilichthys leonidas*) below, has awesome teeth and is among the largest of eels, reaching a length of six feet and weight of 35 pounds.

complete each statement correctly. ■



Copyright © 1995 National Geographic Society



Copyright © 1985 Jerry Greenberg



Copyright © 1995 National Geographic Society

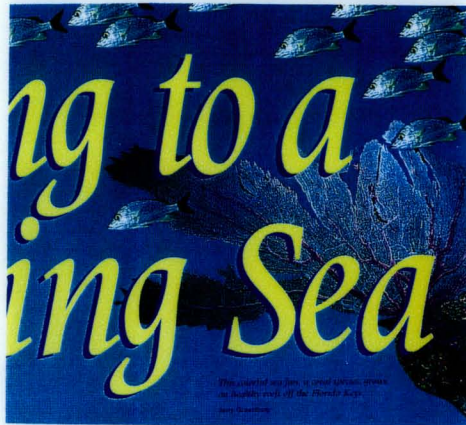


Copyright © 1972, 1979 Jerry and Idaz Greenberg

Sea fan, Copyright © 1990 Jerry Greenberg



Jason Project, Copyright © 1995 National Geographic Society



This exhibit is the property of Jerry and Idaz Greenberg
and must be returned to them at their request.

100's of species on the keyboard



This colorful fish lives safely among the stinging tentacles of an anemone. In return, the protective stings keep the anemone safe.

This remarkable creature's special teeth capture its prey and help it digest its food.

This bright-colored fish has a spike on its head to warn predators that are to swallow it.

Fused teeth form a beaklike jaw to help this fish scrape algae from coral.

If the male in a group of these fish is eaten by a predator, the largest female changes sex to take his place.

Brimming with color and life, a coral reef shelters many kinds of fish, no two exactly alike. The special colors and patterns of each fish help others of their kind find them.

Butterfly Reef

Fairy Basslet

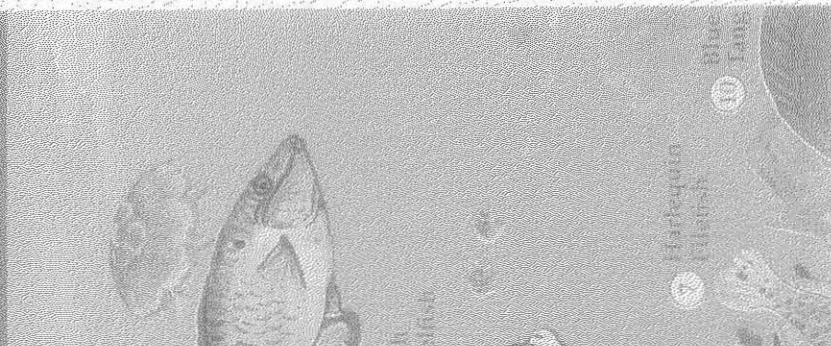
Zebra Humbug

Reef Fish

00000

AL REEF

line to its picture, then press the



Harlequin
 Giltfish
 Blue
 Tang

graphic Society

The Living Reef

WITH SPECIAL FISHWATCHER'S SUPPLEMENT

JERRY AND IDAZ GREENBERG



Copyright © 1972, 1979 Jerry and Idaz Greenberg

Parrotfish

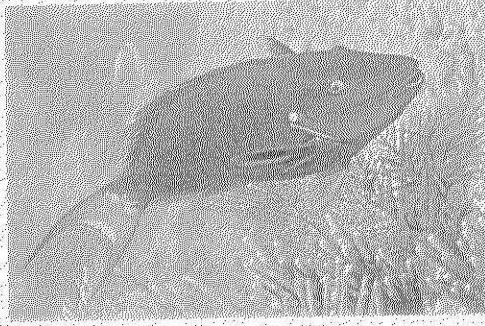
An efficient recycling machine, the parrotfish rakes into the sand in the process of feeding. Many often share a color pattern, but an occasional size and more brilliant color and is called a male. The striped parrotfish (Sparisoma viride) may be found at Florida, while as large a number of the sea surgeon surgeon, (Sparisoma viride) may be found at Florida.



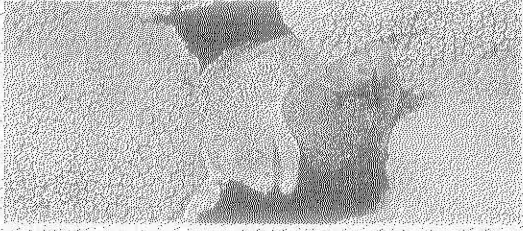
Copyright © 1972, 1973 National Geographic Society

Parrotfish

An efficient recycling machine, the parrotfish rakes into the sand in the process of feeding. Many often share a color pattern, but an occasional size and more brilliant color and is called a male. The striped parrotfish (Sparisoma viride) may be found at Florida, while as large a number of the sea surgeon surgeon, (Sparisoma viride) may be found at Florida.

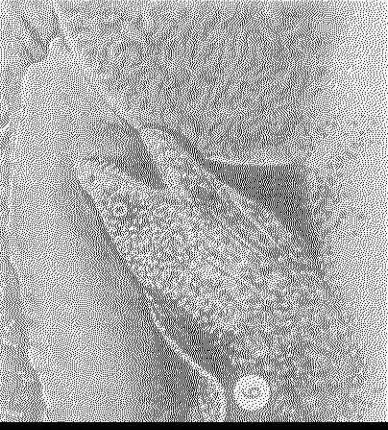
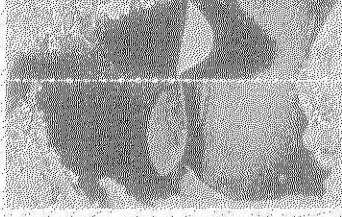


Copyright © 1972, 1973 Jerry and Lois Greenberg

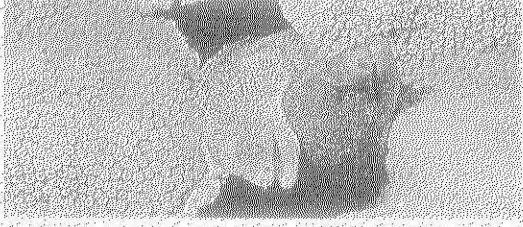


MORAY S.S.S.

Illustration of a fish, likely a cod, shown in profile, facing right.



at Geogisic Society



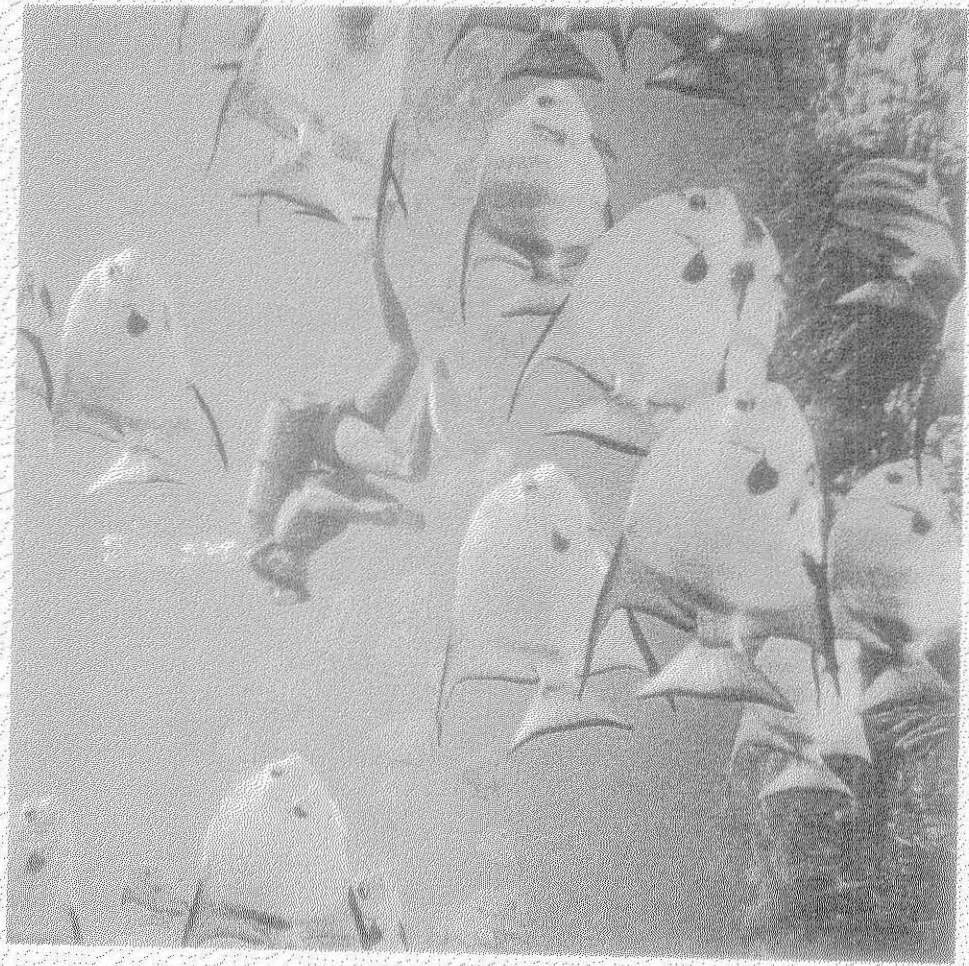
MORAY S.S.S.

Illustration of a fish, likely a cod, shown in profile, facing right.



Copyright © 1972, 1979

Copyright © 1972, 1979 Jerry and Inez Greenberg



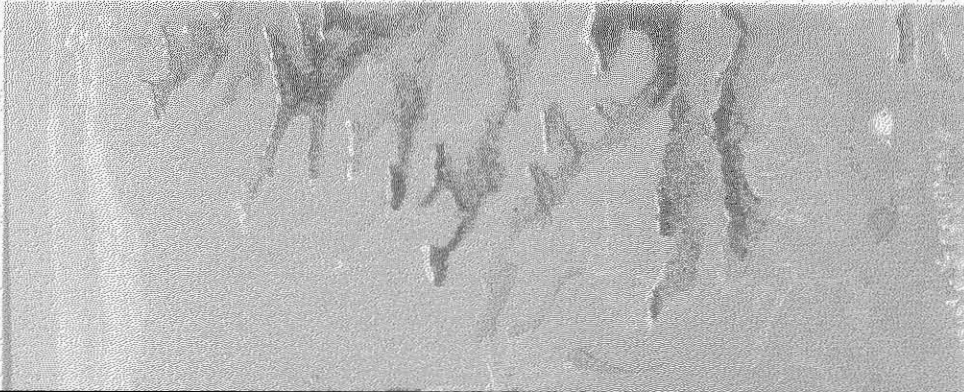
Copyright © 1985, Jerry Grossberg



© 1985

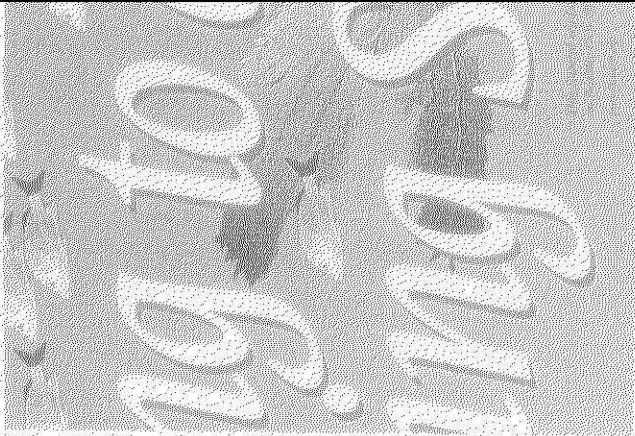


Copyright © 1972, 1976 Jerry and Izzat Greenberg

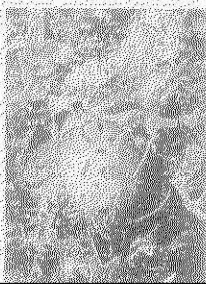
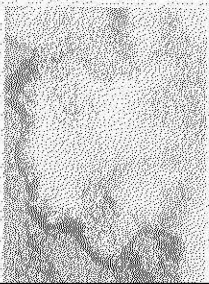
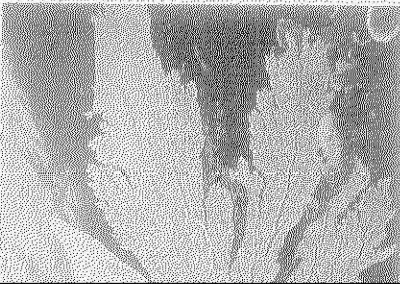


Society

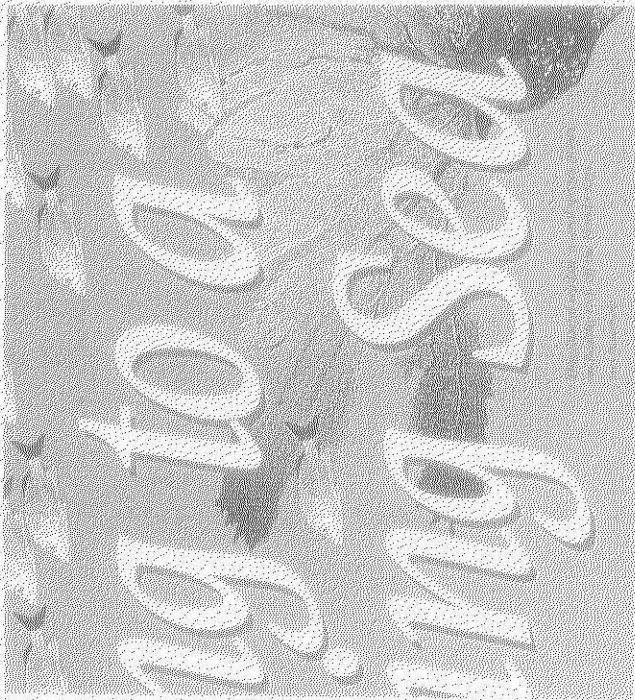
Jason Project, Copyright © 1995 National Geographic Society



© 1995 Jerry D'Arbore



Jason Project, Copyright © 1995 National Geographic Society



This exhibit is the property of Jerry and Idaz Greenberg
and must be returned to them at their request.

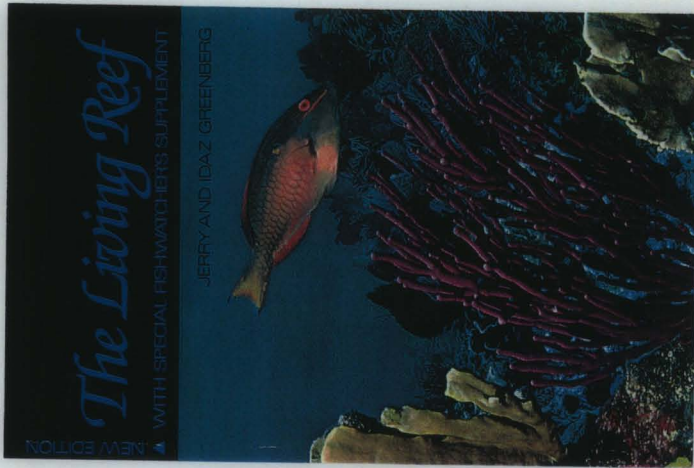
THE CORAL REEF

- Match the lighted clue to its picture, then press the picture's number.



French
9 Angelfish

Butt



Parrotfish

An efficient recycling machine, the parrotfish turns coral and rock into fine sand in the process of grazing algae. Females ar mates often share a color pattern, but an occasional male will change color to resemble the female. The terminal male of the phase male. The stoplight parrotfish (*Sparisoma viride*) below right, may be male or female, while its companion to the left: a terminal male of the same species, reaching about 20 inches. The terminal male redband parrotfish (*Sparisoma aurofrenatum*, left), is a smaller species, about ten inches in length.



⑤ Head Filefish

③ Parrotfish

① Yellowhead Parrotfish

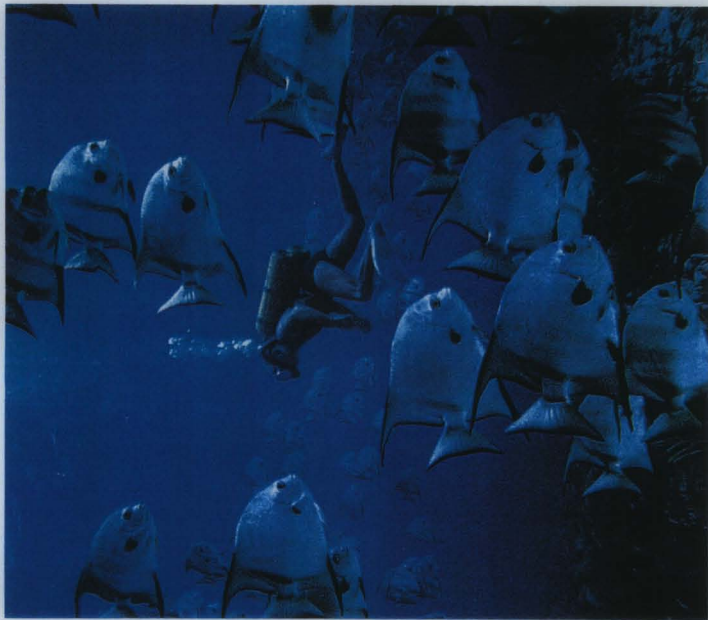
④ Murray's Red Parrotfish



Identify each statement correctly. ■



8



9

plete each statement correctly.





stresses of people, boats, storms, silt, chemicals. Anything can push them over the edge. That fatal "anythink" can

Agricultural runoff, garbage, sewage, and thousands of products that humans discard have seriously raised the level of

ting to a nging Sea

Photo credit: *Photo by a world famous press, the healthy reef of the Florida Keys*
and *Photo credit: www.fishbase.org*

ologists investigating corals for clues about climate change. They'll also see how technology makes it possible for these scientists actually to live under water weeks at a time.

at the National Underwater Research Center's underwater habitat, AQUARIUS, West of Key Largo in Florida Bay, students will explore mangrove islands and sea grass beds that offer refuge to a wide range of creatures, from baby sharks, tarpon, and dolphins to lobsters and sea turtles. And they'll find out how fresh water management schemes will impact the reef and the Everglades. They'll also see how the endangered American crocodile.



Photo credit: *Photo credit: www.fishbase.org*
Photo credit: www.fishbase.org
underwater facility is undergoing its changing environment of south Florida.

THE CORAL REEF

- Match the lighted clue to its picture. Then press the picture's nu



9 French Angelfish



Buti



Parrotfish

An efficient recycling machine, the parrotfish turns coral and algae into sand. Females or males often share a color pattern, but an occasional male attains a larger size and more brilliant color and is called a terminal-phase male. The stoplight parrotfish (*Sparisoma viride*) below right, may be male or female, while its companion to the left is the terminal male redband parrotfish (*Sparisoma aurofrenatum*). The terminal male redband parrotfish, about ten inches in length,

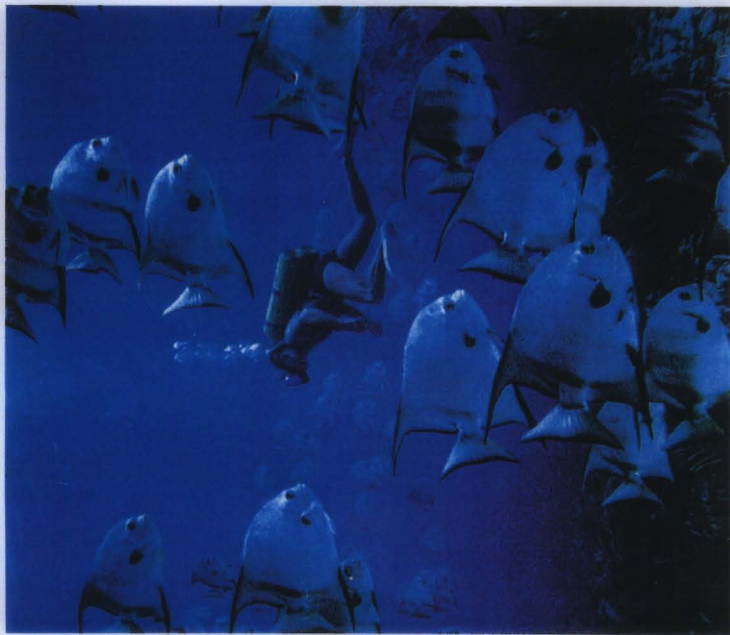


the fish's body appears speckled.

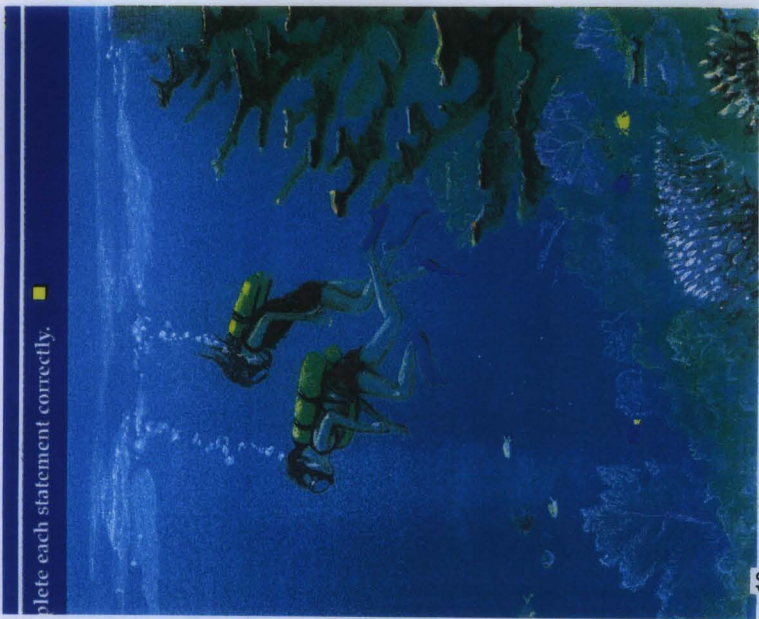
the fish's body appears speckled. Smaller species like the black and blue.

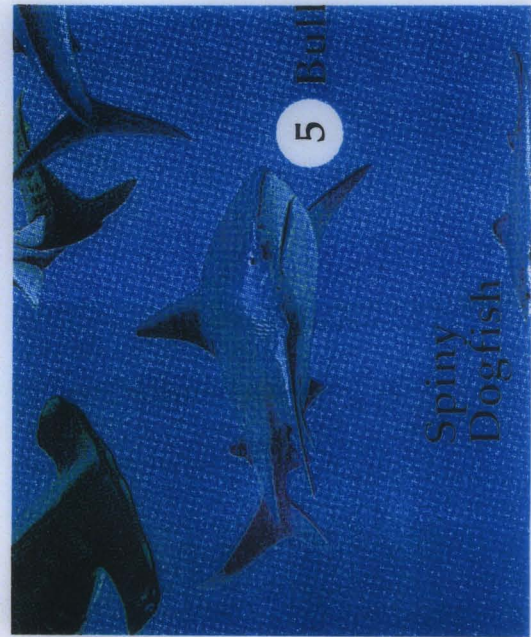
in this fish's narrow range, and its common stripes for the fish.

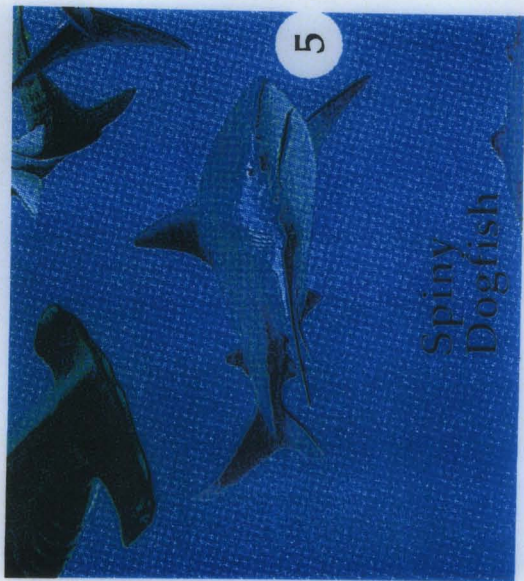
■ Jete each statement correctly.

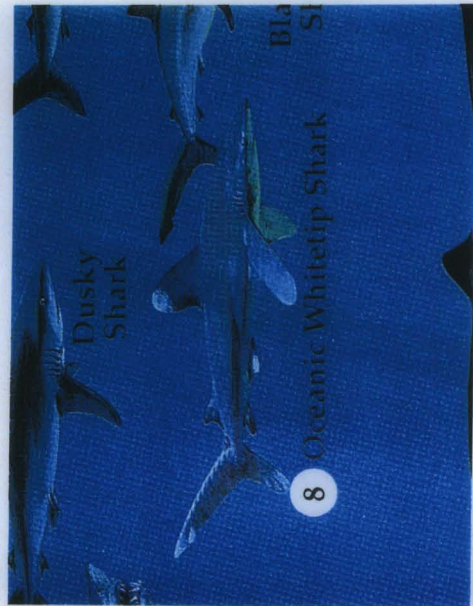


Complete each statement correctly. ■

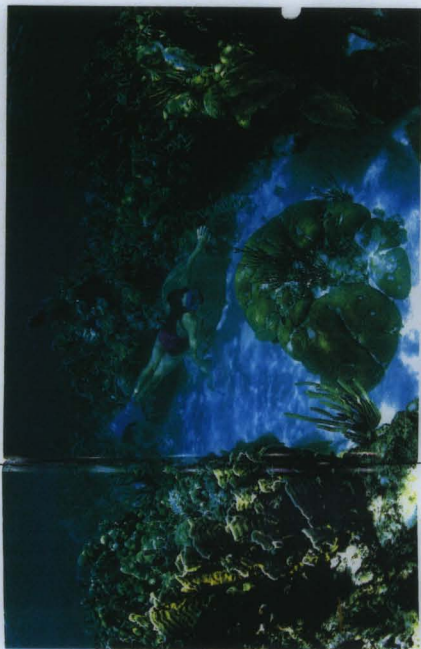












Over finds that it takes all
 v, with horn and stag horn coral in
 t but a housing development,
 me in the reef as predators,
 the reef as predators,
 mpetfish (right), stands on its
 sicks up unsuspecting prey
 . (above, left) would rather
 any, the friendly queen
 rough within a few feet.



Christ of the Deep (right) presides over a coral sanctuary in the underwater park (above).

es
n
/

er
d
d

is
the

is
sent

dis
is

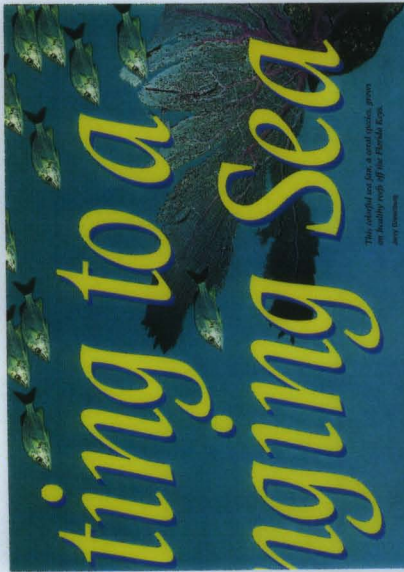
he

5

lies stresses of people, boats, storms, silt, chemicals. Anything can push them over the edge.

Photo: David S. Washburn, ASP

Agricultural runoff, garbage, sewage, and thousands of products that humans discard have certainly reduced the level of



This colorful cutaway reveals a small portion of the Florida Keys' deep seagrass meadows.



A biologist studies a newly discovered, but threatened, deep-sea fish, an endangered species of deep-sea fish, in the deep-sea environment of south Florida.

WATER MAG

ologists investigating corals for clues about climate change. They'll also see how technology makes it possible for these scientists actually to live underwater for weeks at a time as they tour the National Undersea Research Center's underwater habitat, AQUARIUS. West of Key Largo in Florida Bay, students will explore mangrove islands and sea grass beds that offer refuge to a wide range of creatures, from baby sharks, tarpon, and dolphins to ospreys and herons. And they'll find out how fresh water management schemes in south Florida and the Everglades may affect the endangered American crocodile.

THE CORAL REEF

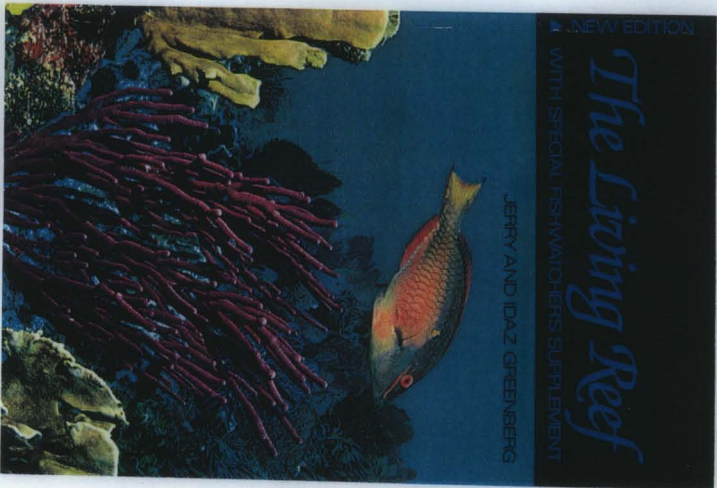
- Match the lighted clue to its picture, then press the picture's number.



9 French Angelfish



But



Parrotfish

An efficient recycling machine, the parrotfish turns coral and rock into fine sand in the process of grazing. In the spawning phase, larger size and more brilliant color and is called a terminal-phase male. The stoplight parrotfish (*Sparisoma viride*) below right, may be male or female, while its companion to the left is a terminal male of the same species, reaching about 20 inches in length. The smaller species, about ten inches in length, shown on the left, is a smaller species, about ten inches in length.



SAME
SIZE



Moray eels

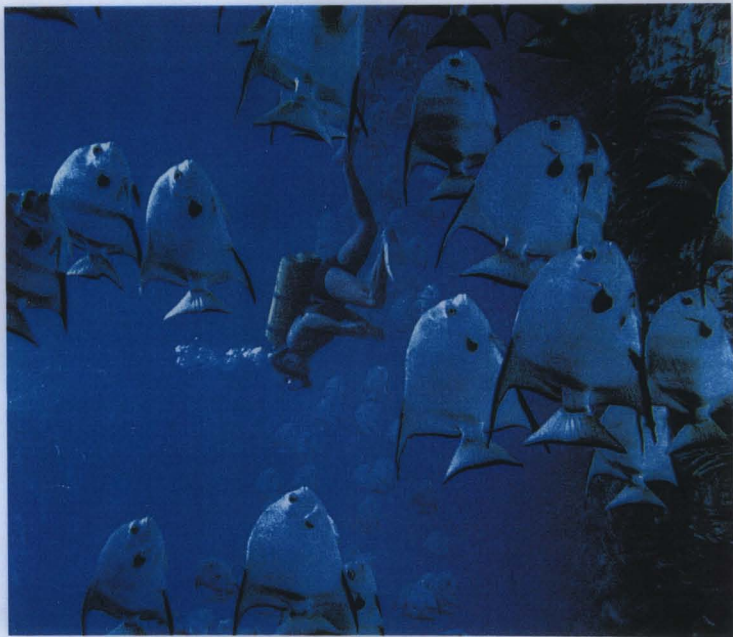
All members of the order of the eels, the eels, have a long, slender body, a pointed snout, and a pair of eyes. They are found in all oceans and seas. The eels are found in the warm and temperate zones. They are found in the shallow and deep waters. They are found in the rocky and sandy bottoms. They are found in the mangroves and the estuaries. They are found in the rivers and streams. They are found in the lakes and ponds. They are found in the swamps and the marshes. They are found in the bays and the harbors. They are found in the fjords and the gulfs. They are found in the straits and the channels. They are found in the gulches and the coves. They are found in the inlets and the bays. They are found in the harbors and the ports. They are found in the harbors and the ports. They are found in the harbors and the ports.



■ Jete each statement correctly.



8



9

plete each statement correctly. ■



10

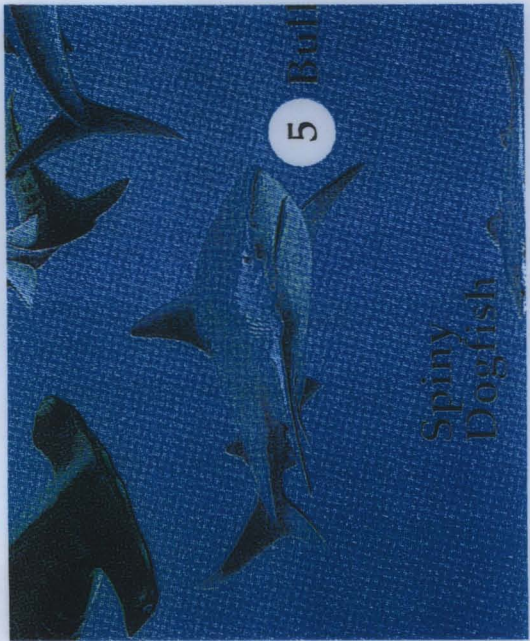


11



13

SLIDE
RD-13



12

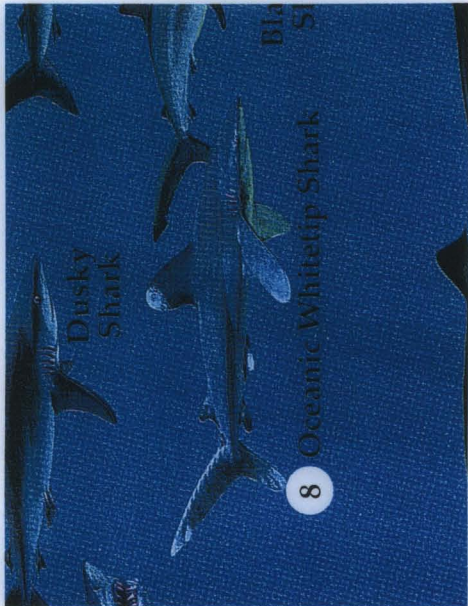


14



(TAIL)
SLIDE
RD-12

15



THE CORAL REEF

- Match the lighted clue to its picture, then press the picture's number.



9 French Angelfish



But!





Parrotfish

An efficient recycling machine, the parrotfish turns coral and rock into fine sand in the process of grazing algae. Females or males often share a color pattern, but an occasional male attai larger size and more brilliant color and is called a terminal-phase male. The stoplight parrotfish (*Sparisoma viride*) below right, may be male or female, while its companion to the left is a terminal male of the same species, reaching about 20 inches. The terminal male redband parrotfish (*Sparisoma aurofrenatum* left, is a smaller species, about ten inches in length.





wins
his
es hide

4
Yellow-edged
Lyretail

Murray Eel 6



5

Murray eels

All Murray eel specimens in the world's top aquariums, from the Monterey Bay Aquarium to the National Marine Science Museum, are from the same source: the 1960s. The eels were first discovered in the 1960s by a diver named Bob Murray. The eels were first seen in the 1960s by a diver named Bob Murray. The eels were first seen in the 1960s by a diver named Bob Murray.



5

plete each statement correctly. ■



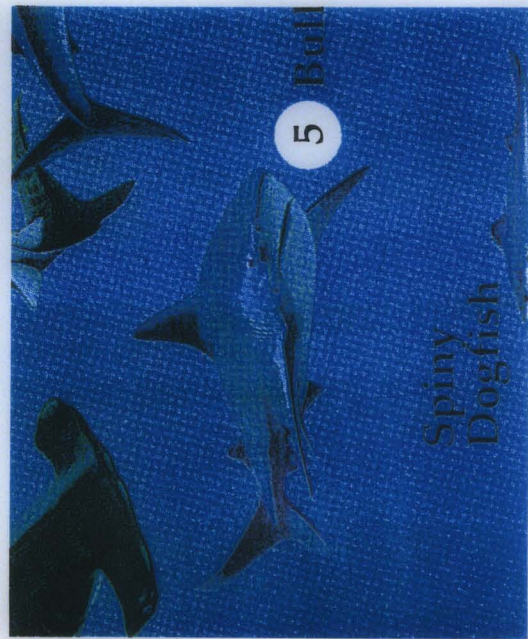
8



9

Complete each statement correctly. ■

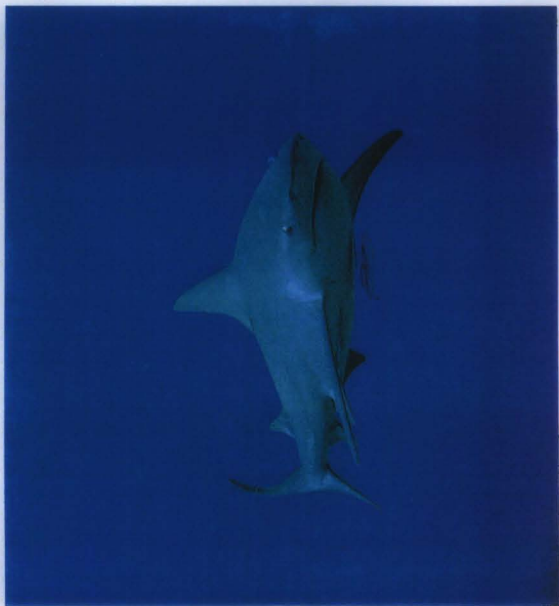


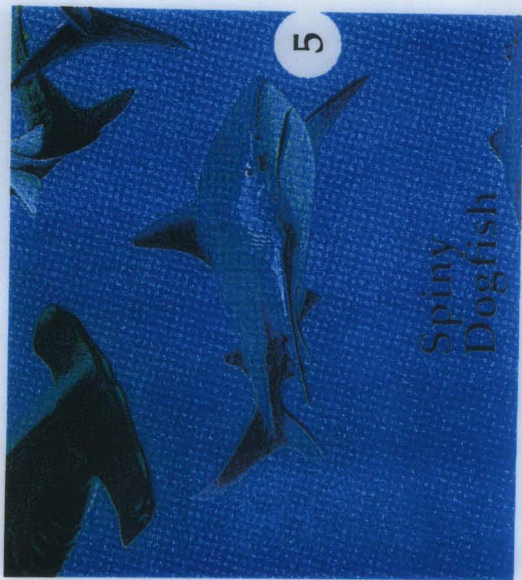


Spiny
Dogfish

5

BaH





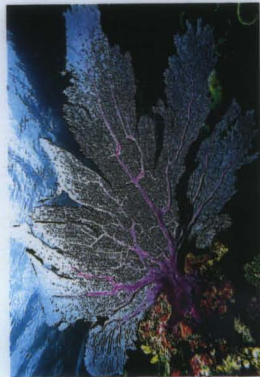




fisher finds that it takes all day to eat a small coral in a big housing development, small animals called polyps, on-the reef as predator, against the reef. It feeds on its neighbors. (Below, right) on its back up unsuspecting prey. (Above, left) would rather pes to an unobtrusive color for ay, the friendly glow of a rock within a few feet.



Christ of the Deep (right) presides over a coral sanctuary in the underwater park (above).



Stresses of people, boats, storms, silt, chemicals. Anything can push them over the edge.

PHOTO: ZACH HANNAKIEWICZ/NOAA



Agricultural runoff, garbage, sewage, and thousands of products that humans discard have seriously raised the level of

PHOTO: ZACH HANNAKIEWICZ/NOAA

ting to a nging Sea

This sample air flow is used to grow grasses in a facility north of the Florida Keys.

...investigating corals for clues about climate change. They'll also see how technology makes it possible for these scientists actually to live underwater for weeks at a time as they tour the National Undersea Research Center's underwater habitat, AQUARIUS. West of Key Largo in Florida Bay, students will explore mangrove islands and sea grass beds that offer refuge to a wide range of creatures, from snail farming, tarpon, and mahi mahi to seabirds and manatees. And they'll find out how fresh water management schemes in south Florida and the Everglades may affect the endangered American crocodile.

A scientist checks a young crocodile in a laboratory. This endangered species is adapting to the changing environment of south Florida.

THE CORAL REEF

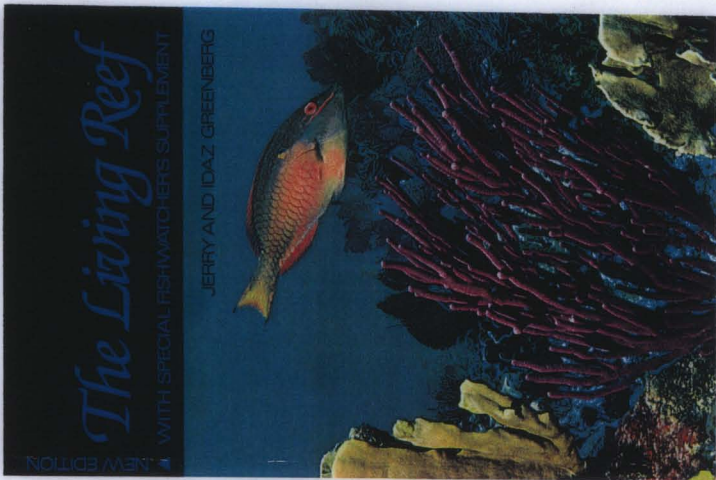
- Match the lighted clue to its picture, then press the picture's number.



9) French Angelfish



Butt



Parrotfish

An efficient recycling machine, the parrotfish turns coral and rock into sand. The parrotfish has a beak that is used to scrape algae from rocks. The parrotfish has a color pattern, but an occasional male will be larger size and more brilliant color and is called a terminal-phase male. The stoplight parrotfish (*Sparisoma viride*) below right, may be male or female, while its companion to the left is a terminal male of the same species. The parrotfish (*Sparisoma viride*) below left, is a smaller species, about ten inches in length.





4
 Yellow-edged
 Lyretail

6
 Moray Eel



Moray eels

The head of a moray eel is at the top of the image. The eel is greenish-brown with a bumpy texture. The eel is in a rocky crevice. The eel is looking towards the camera. The eel is in a rocky crevice. The eel is looking towards the camera. The eel is in a rocky crevice. The eel is looking towards the camera.

■ Jete each statement correctly.



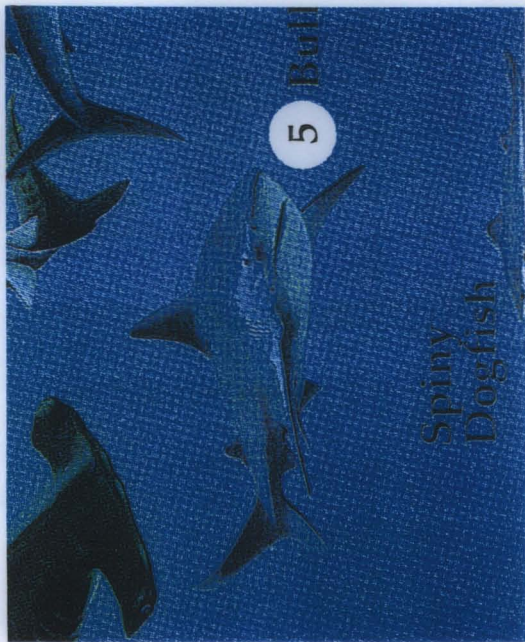
8



9

plete each statement correctly. ■



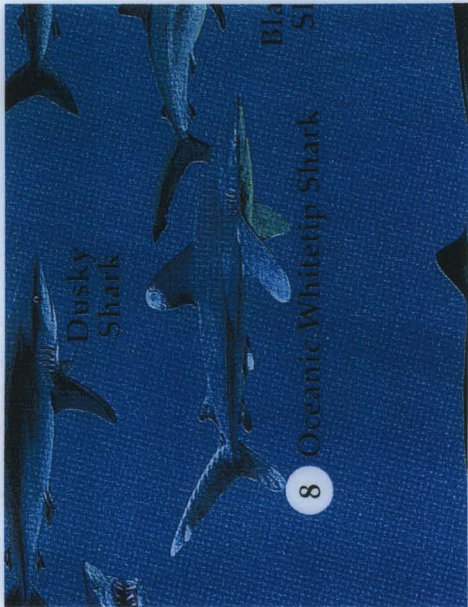




15



14



THE CORAL REEF

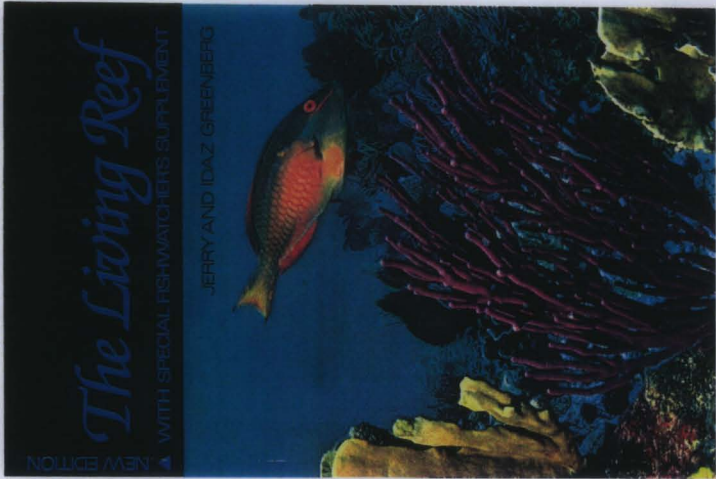
- Match the lighted clue to its picture. Then press the picture's number.



9 French Angelfish



Buti



Parrotfish

An efficient recycling machine, the parrotfish turns coral and other reef structures into sand. The female is larger than the male, and both often share a color pattern, but an occasional male attains a larger size and more brilliant color and is called a terminal-phase male. The stoplight parrotfish (*Sparisoma viride*) below right, may be male or female, while its companion to the left is a terminal-phase male. The smaller, more colorful fish to the left is a smaller species, about ten inches in length.





4
wims
its
es hid
Yellow-edged
Lyretail

Murray Eel 6



5

Murray eels

As members of the order, the eels have many things in common. They are all elongated, snake-like creatures with no legs. They all have a long, narrow body and a small head. They all have a long, thin tail. They all have a long, thin tail. They all have a long, thin tail. They all have a long, thin tail.



7

lete each statement correctly. ■



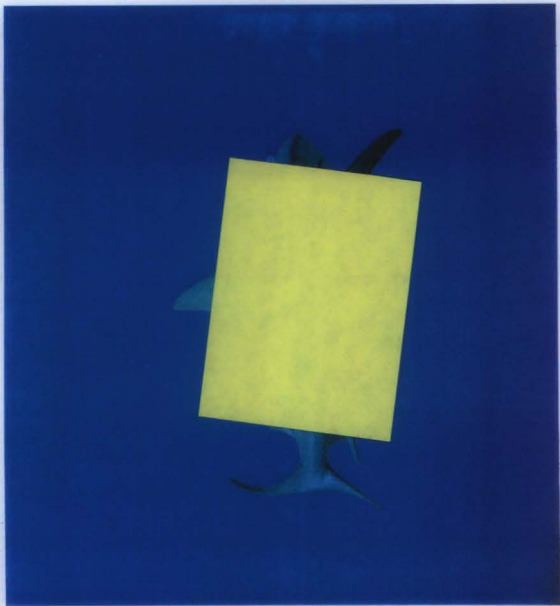
8



9

Complete each statement correctly. ■





13



No!

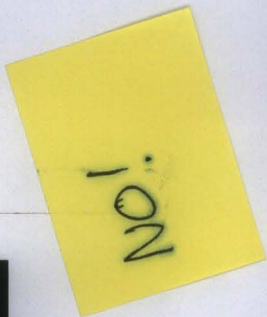
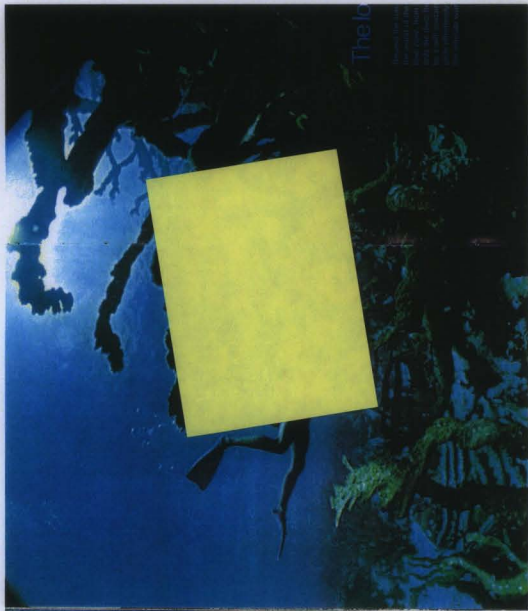
12



-Noi



ion





Over time, that it takes all
the calcium and magnesium in
the water to build the coral
skeleton and supports coral in
a but a housing development,
small animals called polyps,
on the reef. (right), stands on its
skeletons. (left) would rather
prey to an unobtrusive color for
the reef within a few feet.



Christ of the Deep (right) presides over a coral sanctuary in the underwater park (above).

No!

THE CORAL REEF

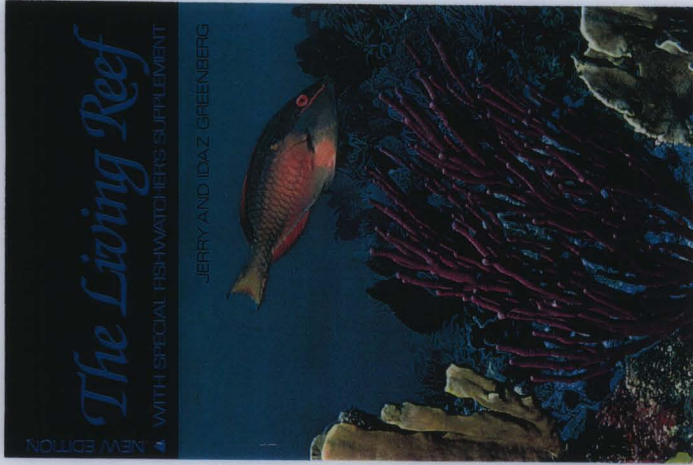
- Match the lighted clue to its picture, then press the picture's number.



9 French Angelfish



Buti



Parrotfish

An efficient recycling machine, the parrotfish turns coral and rock into fine sand in the process of grazing algae. Females are larger and more brightly colored than males. (See page 10 for more information.) The terminal male of the same species, reaching about 20 inches in length, is a smaller species, about ten inches in length.





■ Select each statement correctly.



8



9

Complete each statement correctly. ■





stresses of people, boats, storms, silt, chemicals. Anything can push them over the edge. That fatal "anything" can seriously raise the level of

ting to a nging Sea

The scientist and her team are trying to learn more about the effects of climate change on the world's oceans.

ogists investigating corals for clues about climate change. They'll also see how technology makes it possible for these scientists actually to live underwater for weeks at a time as they tour the Smithsonian's new research Center for Underwater Habitat, AQUARIUS. West of Key Largo in Florida Bay, students will explore mangrove islands and sea grass beds that offer refuge to a wide range of creatures, from baby sharks, tarpon, and dolphins to obolers and sea turtles. And they'll find out how fresh water management schemes in south Florida and the Everglades may affect the once-thriving American crocodile.

A tropical paradise is seen from space by the AquaSat satellite. The image shows the mangrove forest in the Everglades of south Florida.

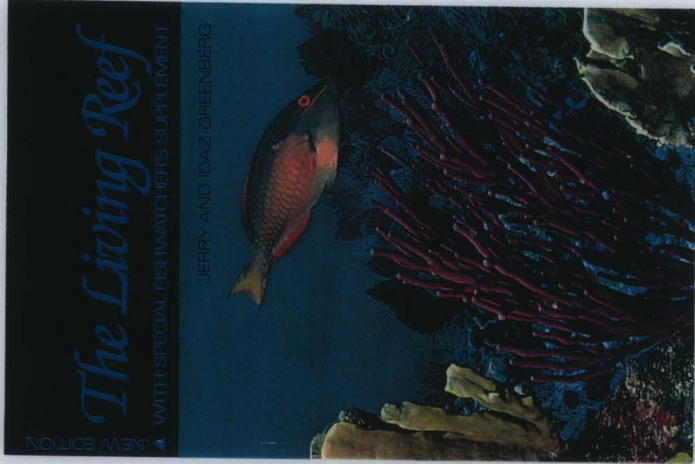
THE CORAL REEF

- Match the lighted clue to its picture, then press the picture's number.



9 French Angelfish

Butt



Parrotfish

An efficient recycling machine, the parrotfish turns coral and rock into fine sand in the process of grazing algae. Females at times often share a color pattern, but an occasional male still looks like a female. The male, however, has a more colorful phase male. The spotlight parrotfish (*Sparisoma viride*) below right, may be male or female, while its companion to the left is a terminal male of the same species, reaching about 20 inches. The terminal male redband parrotfish (*Sparisoma aurofrenatum* left) is a smaller species, about ten inches in length.

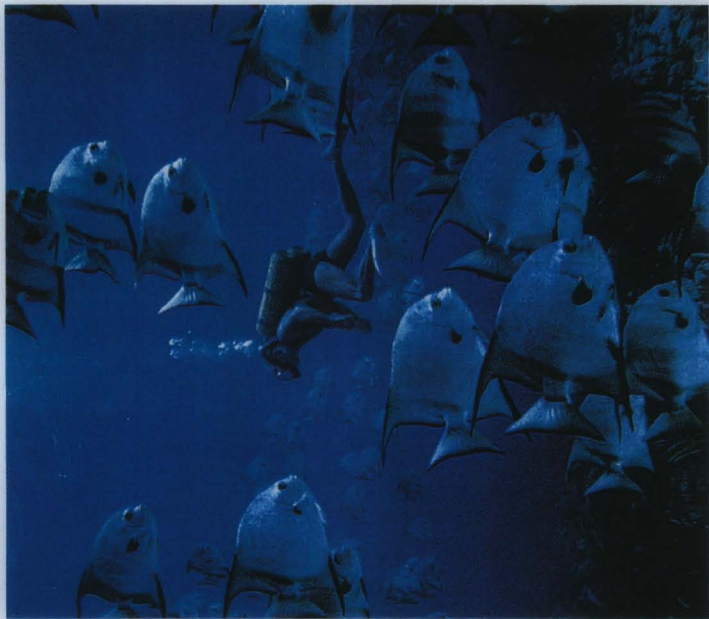




■ Select each statement correctly.



8



9

plete each statement correctly. ■



10



11



Agricultural runoff, garbage, sewage, and thousands of pollutants that humans discard have seriously raised the level of

stress on people, boats, storms, silt, chemicals. Anything can push them over the edge. That fatal "straw" can

ting to a nging Sea

The State of Florida is a coastal state, home to a healthy reef off the Florida Keys.

Jeff Gombosi

ologists, investigating corals for clues about climate change. They'll also see how technology makes it possible for these scientists actually to live underwater for weeks at a time. They'll visit the New Center for Undersea Research Center's underwater habitat, AQUARIUS, West of Key Largo in Florida Bay, students will explore mangrove islands and sea grass beds that offer refuge to a wide range of creatures, from baby sharks, tarpon, and dolphins to lobsters and sea turtles. And they'll find out how fresh water management practices in the Everglades and the Everglades may affect the endangered American crocodile.

A biology teacher is making a video to understand how the endangered species is adapting to the changing environment of South Florida.