

PAPUA NEW GUINEA EXPEDITION

Diving to Observe Poisonous Catfish

*Ichthyologist Eugenie Clark and underwater photographer Anne Doubilet took Wings WorldQuest Flag #10 on their diving expedition in the remote waters off New Britain Island in Papua New Guinea to locate and observe *Plotosus lineatus*, the poisonous catfish. During Dr. Clark's previous eight-year study (see her 2006 Flag Report), she noticed that convict juveniles throughout this region look just like *Plotosus*. Curious about this poisonous look-alike, Genie assembled a crew of 12 divers to work in shifts to look for and monitor schools of this little-known fish.*

WHY STUDY "CORAL" CATFISH?

Thousands of catfish species live in the inland or coastal waters of each continent (except Antarctica), but only two species live in salt water. Although catfish are among the most successful fish on Earth, no one had conducted comprehensive studies of them in the wild. These "coral" catfish have four pairs of barbels. The dorsal and pectoral fins each possess a highly venomous spine that can inflict a very painful sting. Their skin also contains toxins. Genie observed that harmless juvenile convict fish imitate the look of the extremely poisonous catfish – a phenomenon that scientists call "Batesian mimicry."



Eugenie Clark and Anne Doubilet with WWQ Flag #10 on board the MV FeBrina off Garove Island

BASE CAMP ON A SHIP IN THE BISMARCK SEA

Anne, Genie, and the team of twelve other divers lived onboard the MV FeBrina, a 72-foot dive boat based out of Walindi Plantation, Kimbe Bay off New Britain Island's northern coast. A crew of nine including world-renowned PNG dive guide and photographer, Bob Halstead and PNG Dive Master, Josie Waiwai, ran the boat, cooked delicious food, and guided the diving. At each dive site, Josie mapped out the area. From the dedicated camera/dive deck in the stern, diving took place around the clock.

Expedition Dive Sites:

Kimbe Bay, off New Britain Island
Carove Island in the Witu Islands
Bay of Veavea off Lolobau Island



Vicinity of dives in the Bismarck Sea in the South Pacific

OBSERVING LIFE ON A SOUTH PACIFIC CORAL REEF

The reefs of Kimbe Bay in the Bismarck Sea teemed with fish and pulsed with rich, healthy corals. Crackling and snapping sounds of the reef mingled with fish darting through waving sea fans and red whip corals. Batfish as big as dinner plates and large silvery sharks, photographed by Anne, swam by in the blue water currents. Against this rich palette, under smoking volcanoes, Genie, Anne, and the dive team found the poisonous catfish tucked in sandy back-reef lagoons off small villages.



Above: In the warm viscous waters of Veavea Bay, a school of Plotosus feeds in the grainy volcanic sand amid curly green seagrass

WHO

Anne L. Doubilet
and Eugenie Clark

WHAT

Observe the life cycle, feeding and cleaning behavior of the poisonous catfish

WHERE

In the Bismarck Sea off the north coast of New Britain Island, Papua New Guinea

WHY

To study the similarities of appearance and swarming behavior between juvenile convict fish and poisonous catfish

Below: A school of glittering batfish swims just under the surface of the sea over the reef at Norman's Knob



See Anne's photographs:

Go to www.annedoublet.com
 Click on GALLERIES to see more about PNG and
 her other explorations, both underwater and on land

**SCIENTIFIC EXPEDITION TECHNIQUE:
 PATIENCE AND TEAMWORK**

Collecting data on fish behavior required hours of patient underwater observation. Locating the tiny black-and-white striped fish was difficult for the team in the murky water. *Plotosus* blended in perfectly with the grainy black-and-white volcanic sand carpeting the bottom of the bays. A system of tag-team dives, each 30 minutes long, was set up so that whenever a catfish school was spotted, it could be observed continuously. Critical times for observing fish behavior were from 5:00 to 7:00 AM and 3:00 to 8:00 PM. The rhythm of daily life at sea—dive, eat, sleep, observe, record—became an important aspect of the team's underwater field research.

EXPEDITION FINDINGS

The divers saw tiny juveniles swarm in a dense ball-shaped school, feeding in a steamroller, row-over-row pattern while foraging in the sand for tiny crustaceans. One morning Anne documented the school chase a sand perch out of their feeding area. As evening approached and the light disappeared underwater, the team found that *Plotosus* goes to sleep for the night, settling into a small coral indentation or under a log. Underwater, it was almost impossible for divers to count the numbers of quickly darting tiny individuals. School sizes of thirty to fifty individuals were counted later on board ship by studying digital photographs on a computer screen.



The dive team aboard MV FeBrina with Wings WorldQuest and The Explorers Club expedition flags



A silvery white-tip shark hosting remoras on its underside slips past in the current at Kilibob's Knob near Fairway Reef



In the early morning light, a smoking volcano looms near Hoplo Reef in northeastern Kimbe Bay

Visit Genie's website:

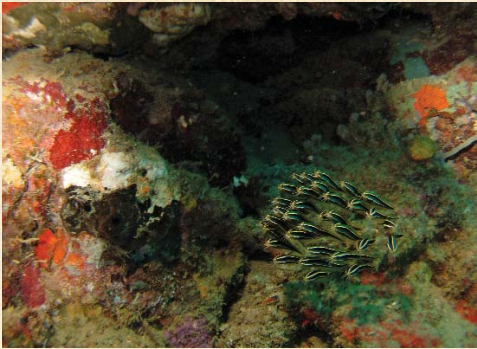
www.sharklady.com

Click on her June 2003 National Geographic link to read about her discoveries of convict fish

ABOUT EUGENIE CLARK AND ANNE L. DOUBILET

Eugenie Clark, who received the 2005 Wings WorldQuest Lifetime Achievement Award, is a famed ichthyologist known worldwide as the "Shark Lady". At age 86, Genie continues to lead diving/research expeditions. Anne and Genie have worked together over the past 40 years on almost a dozen stories for National Geographic Magazine in Papua New Guinea, the Red Sea, Japan, and Mexico. Genie's insatiable curiosity and refusal to take no for an answer have inspired Anne's whole life.

Anne L. Doubilet, an underwater photographer/writer/explorer, is a member of The Women Divers Hall of Fame; a Fellow and Board Member of The Explorers Club; and a Board Member of Wings WorldQuest.



A school of Plotosus retires for the night in a small coral crevice off Dicky's Place, Garove Island, Witu Islands



Villagers on outrigger canoes bring supplies of local fresh fruit and vegetables

EXPEDITION TEAM

Eugenie Clark
Anne Doubilet
Tak Konstantinou
Judith Rubin
Hanna Koch
Zen Kurokawa
John Pohle
Stephen Kogge
Mary Jane Stoll
Patty Sturdevant
Martha Kiser
Mopsey Lovejoy
Maya Moltzer
David Shen

EXPEDITION SPONSORS

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