

# Missing thumb found in fish A23 7 months later

SSB&A  
Associated Press 3/1/92

GREEN RIVER, Wyo. (AP) — Nearly seven months after Robert Lindsey lost his thumb in a boating accident, it turned up inside a fish.

"As soon as I saw it, I was pretty sure it was mine," said Lindsey, a welder from Green River. "I'll probably just put it on a shelf to show people."

A fisherman discovered the digit in a large lake trout caught Feb. 13 in the Flaming Gorge Reservoir in southwestern Wyoming.

Authorities were puzzled by the find, but linked it to Lindsey after he called the county coroner's office.

Coroner Mike Vase said the fish probably ate the thumb less than 24 hours before it was caught. He said the thumb was probably preserved in the water by a process called saponification, which occurs in moist, dark places and converts flesh to a chemical condition like that of soap.

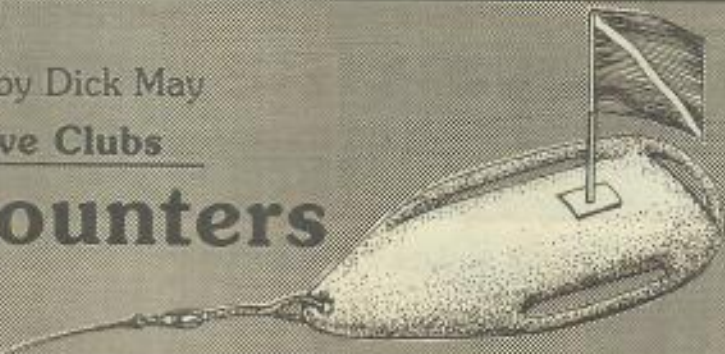
Lindsey lost two other fingers when he dove in front of his boat July 27 to rescue a friend's daughter.

# Aqualine

by Dick May

Hawaii Council of Dive Clubs

## Shark Encounters



■ We were taking a night dive at a Leeward coast location. Lobster season was closed, and we were looking for a few shells or a nice tako. I don't do a lot of spearfishing these days because I'm primarily a rod and reel fisherman, but that night I decided to take a few fish for the next day's dinner. No weke-ula came my way, but there were a few redfish around the ledges. Soon I had a couple of nice menpachi and a big 'aweoweo in my bag.

A little while later, a nice kala tempted me. The fish moved at the shot, however, and I hit it a little too far back. The kala lunged and came off the spear. Disoriented and shocked, it made a frantic circle and bounced off the bottom, and then started up in a second circle, swimming on its side. The kala slowed and then stopped and began to drift down.

As I moved toward the fish, a big dark shadow passed over my head. Into the circle of light, just over my head, slid the white belly of a shark!

Moving quickly, the predator made off with my kala and disappeared into the darkness. The shark looked to be 6 to 7 feet long and was not a whitetip or blacktip. It certainly wasn't a hammerhead and probably wasn't a tiger.

For the moment, though, I didn't care *what* it was; I wanted to know *where* it was! I got my buddy's

with an arched back and extended pectoral fins. If you plan to closely approach a shark acting this way, you might also enjoy petting strange rottweilers and pit bulls!

I suspect the very low risk of attack has increased a little for surface swimmers, body boarders and others in water with low visibility and a high turtle population. Once in a while, a large shark, most likely a tiger shark, might mistake someone for a turtle; and, whatever the outcome, the story sells newspapers.

I think the best precautions are to use the buddy system, dive in water with reasonable visibility, stay calm, and don't grab or poke sharks encountered in caves. Use a little extra caution if you're carrying fish. If you carry a powerhead or a bang stick, remember that they kill people as easily as sharks and you'll see a lot more people underwater.

I've enjoyed catching sharks on rod and reel and have found them good fighters and usually good eating. Lately, I've generally released them. (Most of my shark fishing was not in Hawai'i.) For such efficient predators, sharks are surprisingly delicate. If you plan to release one, don't gaff it, hang it up by a tail rope, release it and expect it to live happily ever after!

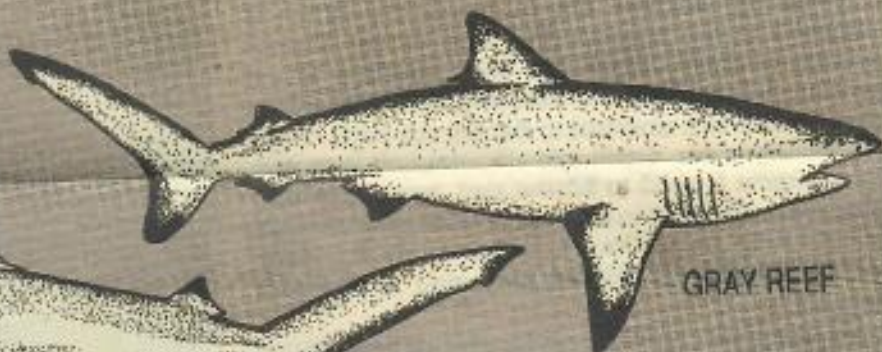


## REEF SHARKS OF HAWAII

BLACKTIP REEF



GRAY REEF



WHITETIP REEF



attention (naturally, he'd missed it all), and we probed the darkness with our lights. There was no shark, or any other fish, swimming about! We decided to take our fish and ourselves out of the area, and never saw the shark again. However, the incident made me think about sharks and divers.

It's a subject as old as the ancient Hawaiians who skillfully fished these shores. For centuries man has reacted to, and interacted with, sharks. He has called the shark a god, a brother, a blood thirsty killer, a competitor, a thrilling game fish and a tasty dinner. Most sharks react indifferently to people. We seldom view sharks with indifference. Tragedies involving shark attacks are fortunately rare in Hawai'i, but in the aftermath of an attack tremendous controversy arises about what should be done about shark control. I'm not an expert, but I'll offer a few observations and hope readers will share their views.

Sharks are not terribly common in Hawai'i. It seems to me I see fewer than I used to 20 years ago. Certainly, there are areas where you can reliably see a resident whitetip reef shark, and juvenile hammerheads (and some larger sharks) are common enough around Pearl Harbor to interest fishermen; but close shark encounters with divers aren't nearly as common in Hawai'i as in more remote Pacific locations.

Most sharks encountered are wary and move away if you approach. I haven't seen a reef shark display the territorial behavior of swimming jerkily

I'm personally in favor of selectively removing large tiger sharks or other potentially dangerous species if a conflict has occurred or is likely because of a concentration of swimmers. However, sharks in general are a useful and interesting part of our undersea world, and I enjoy seeing them—although not necessarily with a mouthful of "my" kala.

Tell us what you think! *Mahalo!*

... Dick



## State DLNR funds study of sharks

The state Department of Land and Natural Resources' Shark Task Force approved a \$20,000 grant for a sonar tracking research study conducted by Kim Holland of the University of Hawaii's Institute of Marine Biology.

At a meeting Aug. 26, the Shark Task Force decided to fund Holland's study using monies from a \$50,000 legislative appropriation designated for a "shark population control program."

The \$20,000 will be matched by about \$60,000 from the Sea Grant College Program. The National Marine Fisheries Service pledged use of a vessel to serve as a tracking platform. Holland will conduct a two-year study using 1x6-inch ultrasonic transmitters attached to tiger sharks.

The main objective is to obtain data on the movement patterns of tiger sharks around densely-populated Hawaiian coastlines. Other objectives are to determine whether tiger sharks show "site fidelity" to a finite home range and to analyze the data in terms of their implications for the design of shark control programs.

Scientists at the meeting also discussed reserving some funding for possible future spending on other shark research projects similar to those under way in other parts of the country.

For example, the Pacific Rim

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Shark Research Center in Tacoma, Washington is working with Sea Life Park to track shark movements by attaching color-coded "spaghetti" tags. This method allows easy "return" of data without harming the animals.

Another type of tagging system is used on the East Coast, where shark fishery has been halted due to declining populations of shark species. "Tagging tournaments" or derbies allow fishermen to catch sharks with rod and reel, attach tags to the animals, then release them alive.

This system gives fishermen an opportunity to practice their sport without reducing the shark population. These derbies also permit more animals to be tagged and tracked with little additional expense from the scientific community.

The Shark Task Force also discussed shark education projects and how to prevent shark attacks on humans. The group decided to gather more data by talking to fishermen, divers, surfers and others at selected locations before undertaking any control measures.



H O N O L U L U

Let Him  
Have It  
Page 7

# Weekly

Volume 2, Number 34, August 19, 1992

To many, they are fearsome horrors of the deep. To others, they are an awesome spectacle of nature. To some Hawaiians, they are revered ancestral gods. But one thing's for sure: Several shark attacks in the last year have got the

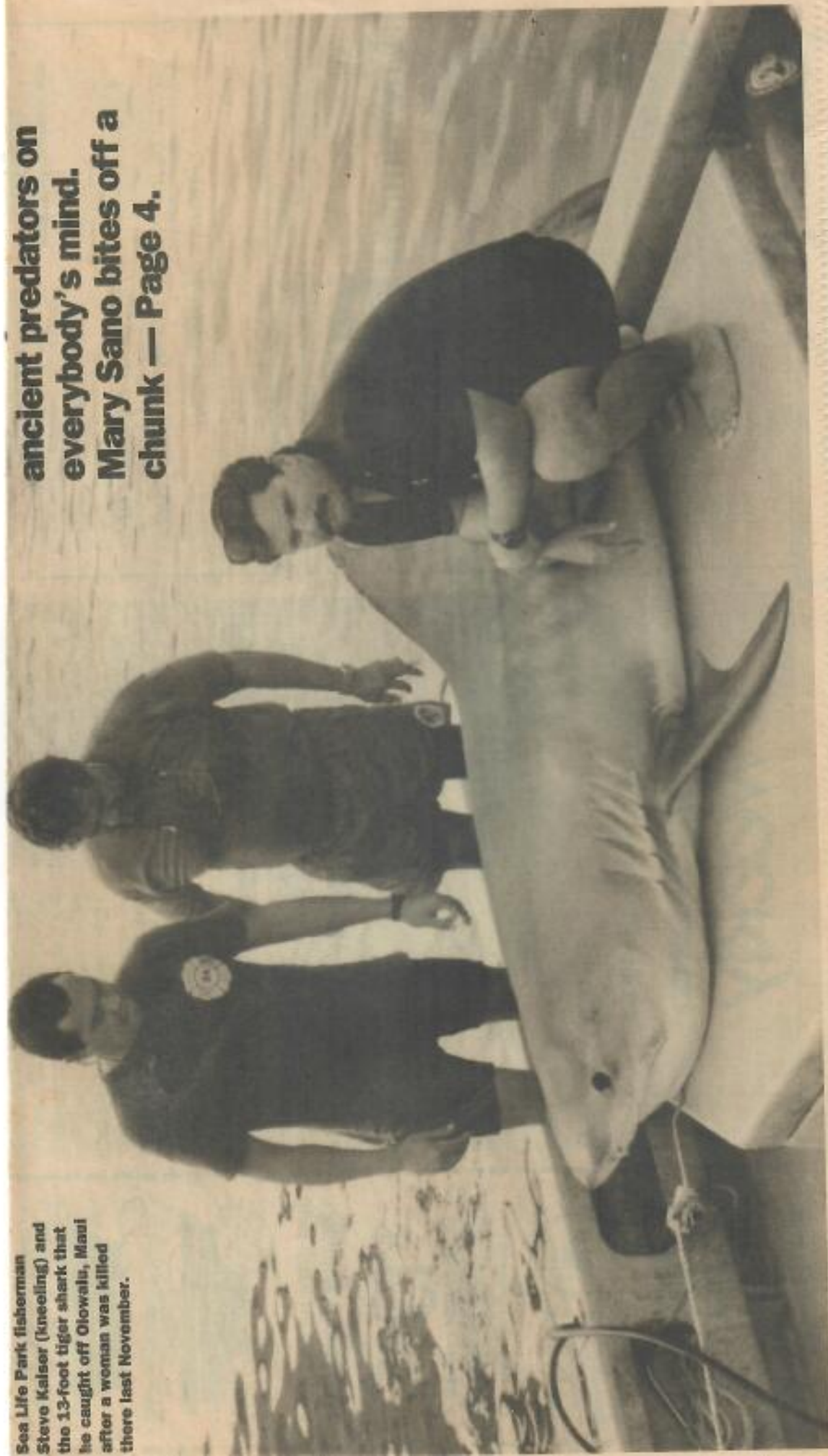
PHOTO: KATHI KAZAO / ELM

# SHARKS!



Sea Life Park fisherman Steve Kalsor (kneeling) and the 13-foot tiger shark that he caught off Olowalu, Maui after a woman was killed there last November.

ancient predators on everybody's mind. Mary Sano bites off a chunk — Page 4.



“Rick Reed’s Inner Self” hit

would



Another topic of concern addressed by the task force's original questionnaire is the possibility that fish feeding — a tourist attraction — might attract sharks into crowded recreation areas. The majority of task force members favored banning the feeding of fish at the state's Marine Life Conservation Districts (such as Hanauma Bay) and requesting the Atlantis Submarines underwater tour company discontinue its practice of feeding fish dog food at its artificial reef site off Waikiki.

McCreary says that the DLNR has taken no action to stop the M.L.C.D. feeding. Paty did, however, write a "strongly worded" letter to Atlantis asking them to stop feeding.

Atlantis' head of operations, Doug Fry, says that the company has continued feeding fish with dog food but has contacted the manufacturer and confirmed that the food does not contain elements that might attract sharks, such as blood products. What about the possibility that sharks could be attracted to the fish feeding on the dog food? "The fish are there," Fry says. "We just bring them closer to our submarines' ports."

Fry says that no one from Atlantis has ever seen a tiger shark in the area. There used to be three black tip sharks (a species that has never been implicated in an attack on a human) that the staff considered residents of the area, he says, but those sharks have disappeared. Fry says he has heard rumors that they were killed by people fishing in the area.



In the past, sharks in Hawaii were fished only for food. They were used in Japanese fish cake until the FDA stepped in and required labeling of ingredients. Since shark meat was not as trendy then as it is today, the public said "no" to shark in their *kanaboko*, and the fishing stopped.

The practice of controlling the shark population in Hawaiian waters through hunting started in the late '50s, after Punahou student Billy

\$15,000 in private donations and \$11,000 in public money.

In its one year of existence, the Billy Weaver program netted 697 sharks, including 87 tigers. Fishermen set hooks baited with porpoise meat in near-shore waters parallel to the shoreline. The hooks were set in the late evening and retrieved at dawn.

Throughout the '60s there were other control programs involving general eradication, each netting hundreds of sharks. But by 1971, shark control was costing the state \$200 per shark, a figure too high for the hunts to continue. The last eradication effort ended in 1976.

Some are arguing that there are more shark sightings these days because of the lapse of control efforts. In fact, it remains unclear whether or not there actually are more sharks in Hawaiian waters, one of the reasons so many of the task-force members are stressing the need for a study.



George Balazs, of the National Marine Fisheries Service, keeps the only record of shark attacks in Hawaii. His log dates back to 1779 and cites 96 attacks, 41 of them fatal.

The first attack on Balazs' record was on a man named Nu'u-annu-pa'ahu at Maitu on the Big Island. Balazs' entry reads, "Young male gashed on one side of buttocks after being pursued while surf boarding. Subsequently suffered 'great pain' and died at Pololu." Attack No. 96, the most recent, was on Chamberlain last March.

Not everyone agrees with the way Balazs keeps his records, however. "Balazs recorded as an attack someone who got washed off the rocks picking *opihiki* and was found in pieces a few days later," says Brad Wetherbee, a University of Hawaii Ph.D. candidate in shark biology. "Balazs would say they got attacked by a shark before coming to shore. But probably most of the time, they drowned first."

Wetherbee says "there has

ple about sharks. They are awesome predators, whose perfection as carnivores has been fine-tuned over millions of years.

"There is a very real and extraordinary fear people have for this type of injury or death," Balazs says. "Being 'eaten alive,' or knowing that an unconscious person or drowning victim has been devoured by a shark, is a very repugnant thought."

Luckily, the chances of being attacked by a shark are small. Marine biologist Rick Martini figured out the probability of being attacked in Hawaii: In this state, he says, there is an average of one fatal shark attack every 20 months. In the same period, there are 200 suicides.

"If you look at it that way," he jokes, "you are 200 times more likely to kill yourself than to get attacked by a shark."



If the more than two dozen types of sharks that inhabit Hawaii's waters, one species is believed to be responsible for the majority of attacks on humans — the tiger (see illustration).

Human knowledge about tiger sharks is limited. Scientists know that their development, like that of other sharks, can be traced to the Paleozoic Era about 400 million years ago, and they know something about their biology — that they have very small brains, for example. But the ins and outs of tigers' behavior remain largely a mystery, and much of the shark lore that people take for granted is, in fact, only speculation.

To wit: tigers (or any other sharks, for that matter) are not capable of the many anthropomorphic feats of vengeance carried out by the fishy stars of the four *Jaws* movies (which were, in fact, great whites or mechanical approximations thereof). A shark has never been known to chow down on an entire fishing vessel, nor to take revenge on a particular person. It is also untrue that once a shark tastes human blood, it will come back looking for more.

Another myth: sharks are territorial and will

ritory.

Arnold Suzumoto, collections manager at the ichthyology (study of fish) department of the Bishop Museum, warns against a "kill the suckers" attitude and is in favor of a sonar-tagging program. Like others who study fish, he says we need to know more about sharks. "If there's a known shark in a particular area," Suzumoto says, "target that one for a research project. Don't kill it. You don't necessarily learn anything by doing that."

"In general," Suzumoto says, "sharks don't like people. They give you wide berth. If there are a lot of people using the water, you rarely see sharks. For instance, we haven't had an incident (involving injury) off Waikiki — at least not one that anyone can remember."

For beachgoers, the prime question remains, "Am I more at risk now?" Unfortunately, the jury is still out on that one. One thing is sure: A shark attack is guaranteed to unnerve a whole community. Shark attacks involve something humans don't deal with too well: unpredictability.

Perhaps the general populace should follow the lead of the many surfers who, despite logging more ocean time than just about anyone else, voice passionate opposition to shark hunting.

"I think the shark is important to the ecosystem, the king of the sea, the top of the food chain," says Seth McKinney, a North Shore lifeguard. "The people who are more paranoid are the people who frequent the water less."

"Sharks shouldn't be hunted," says Keo Hamamoto, 19. "They've been around since the dinosaur age." His surfing buddy, 17-year-old Jason Theus agrees: "It would take a lifetime of killing to get all the big sharks out of the water."

Mark Spencer, who has been surfing for 10 years, says, "I think it makes surfing more of a challenge, if a shark came on land, that would be a different story. But we're entering their domain."

As for Jude Chamberlain, she still surfs all the time. She can no longer claim that she doesn't have a "shark mentality," though she



weaver, was killed by a 15-foot tiger shark while surfing near the Moku Lau islands off Lanikai. In a scene straight out of the movie *Jaws*, the public rallied around the notion of killing the beast who had invaded Oahu's waters — in memory of Billy Weaver. The hunt was even named the "Billy Weaver Shark Research and Control Program." It was funded by

not been a fatal shark attack between Billy Weaver in 1958 and Martha Morrell last year. That's less than one in 30 years." Balazs' records show 18. Wetherbee says that Balazs' data, as presented, "misleads the public and leads to shark phobia."

But then it doesn't take much to scare peo-

does have mixed feelings about shark hunting. "First one thing gets out of balance, then we try to fix it by putting something else out of balance," she says. "I get spooked at that same spot at Cannons if I'm out there by myself, but I don't know if it's right to kill a bunch of sharks because of it."

defend their territory against trespassers. Sharks, like most creatures, probably do have particular spots where they like to hang out. But, while it might be a good idea to keep an eye on a shark that is often sighted in the same area, that shark should not automatically be thought of as a violent defender of its own ter-

PHOTO: WALTER KEHARA



PHOTO: KIMHO KIMHO / SUPER IMAGE



the DLNR, called for a healing ceremony. Paly, Maxwell and other leaders of the Hawaiian community went out on a boat, held hands, honored the spirit of the dead Maui woman and paid homage to the shark as an ancestral spirit.

Then the hunt continued. Although a 12-foot tiger shark — the suspected killer — was caught, there were no human body parts found inside its stomach.

Maxwell suggests that some shark attacks are occurring today because people are not in tune with the environment. He says

Hawaiians of years gone by would have known when it was dangerous to enter the water. "Anyone who lives in or visits Hawaii has to understand the messages that nature gives us," Maxwell says. "The majority aren't reading the messages right."

Kamo'eleihiwa says that perhaps the Maui attack was a case of mistaken identity: "Maybe the shark was looking for someone who works for golf courses or hotels." — M.S.

## How not to become lunch

Shark attacks are entirely unpredictable. But that doesn't mean that some generalities about shark behavior can't be drawn. Experts offer some advice on ways to reduce your chances of becoming a shark's snack:

- Avoid swimming or surfing after a storm when the water is murky. Also avoid areas where a fresh water outlet might be dumping shark treats into the sea.

- Don't surf or swim alone. It's important you have somebody to help you get out of the water as soon as possible if you are attacked and are bleeding.

- Don't swim after dark. Some people think sharks are more active at dawn or dusk when there are fewer people around.

- Be extra careful if you are spearfishing. Sharks may be attracted to struggling, bleeding fish. If you are bleeding, get out of the water.

- Don't wear excessively bright clothing or flashy jewelry.

- Don't bother sharks. Most of the time, a shark won't bother you.
- If you see a shark, go directly to shore as quickly and calmly as possible.

- Be alert. There are sharks in Hawaii, and there probably always will be. Pay attention to the environment around you. Watch for signs — wildlife may be spooked, other surfers or swimmers might see something you don't. — M.S.

For more information on sharks in Hawaii, look for the booklet *Sharks Hawaii* by Arnold Suzumoto, published by Bishop Museum Press. ■





**D**awn patrol, 6:30 on a clear, cool Kauai morning last March. Jude Chamberlain and a friend, Mike

Cox, were looking forward to a good day of surfing at a break called Cannons on the north side of the island. Not a single cloud sat on the mountains. The water was pristine. "It looked like a classic Cannons day," Chamberlain says. After surfing one wave and paddling back out, she felt something lift her board out of the water. "Stupid turtle," she thought. Chamberlain says that in her 15 years of surfing, she'd "never, ever" thought about sharks in the water. She just didn't have the "shark mentality."

"When I saw this huge gray thing come toward my legs," she says, "I still was thinking it was a big fish or a turtle." But it wasn't. The shark bit down on one her of board's fins, and Cox says he saw Chamberlain's foot inside the creature's mouth. Now the realization hit her. "I wasn't terrified because everything was happening so fast."

Chamberlain says. "I was in a survival mode."

Her foot rolled out of the shark's mouth as the animal dove underwater, dragging her board down with it. "This is when I realized the shark was big," Chamberlain remembers. "It started swimming away with my board still in its mouth — but I was attached to the board with my leash, so I was being pulled behind it. I couldn't move. I didn't want to move."

Then the cord went slack and Chamberlain's board popped out of the water a few feet away. The shark had bitten through her leash. She grabbed her board and started to paddle, not wanting to look back. "It got worse as I was paddling away," she says. "I was feeling more and more fear — I didn't know if it was going to come after me or what. I wanted to make like I didn't exist. When we got to shore, I was shaking from head to toe. I couldn't speak. It was weird; I opened my mouth and this little noise came out."

Luckily, her injuries were minor — a small



**C**hamberlain's experience is the latest in what seems to be a wave of close encounters of the toothy kind in Hawaii's waters.

The current bout of shark hysteria in the Islands began last November, when Martha Morrell was killed while snorkeling 100 yards from her house at Olowalu, Maui. Soon sharks were the main topic on front pages and radio talk shows around the state. The state Department of Land and Natural Resources hired a fisherman to try to catch the guilty creature, but before the hunt for Morrell's attacker could begin, the Hawaiian community cried foul, arguing the shark is sacred (see sidebar). The hired gun received a number of threats, and the hunt was called off.

But after a dialogue between the DLNR and Hawaiian critics of the state's plan, Sea Life Park employee Steve Kaiser was hired to fish for large tiger sharks in the Olowalu area.

Eventually, he caught a 13-foot tiger (through an analysis of the creature's stomach contents

provided no proof that it was the shark that had killed Morrell).

In February, Hawaii residents were again thrown into a shark panic when Bryan Adona was reported missing after he went body-boarding on Oahu's North Shore. Other surfers say they saw a large shark in the area that day. The next morning, Adona's board was found with a large chunk taken out of it. No conclusive evidence about what actually happened has ever been found, and Adona's body has not been recovered.

In response to Morrell's death and Adona's disappearance, state Rep. Joe Souki introduced a bill calling for "shark eradication." But the term was deemed a little too harsh for this age of environmental sensitivity, and the aim of the bill was amended to "shark control."



**N**one of the strongest proponents of the shark-control bill

## Sharks in Hawaii:

# TO KILL OR NOT TO KILL?

making front page news in every newspaper in the United States and Japan."

Souki's bill didn't pass, but the Legislature did budget \$150,000 for shark control. To help DLNR Chairman Bill Paty decide how to use the money, a "shark task force" consisting of scientists, fishermen, Hawaiian community leaders, representatives from the Hawaii Visitors Bureau and recreational ocean users was put together. In April, task force members completed questionnaires to establish a consensus on the danger posed by sharks and the best way to address it. The majority of the task force favored researching shark behavior over embarking on a general eradication program (as had been done in the past).

John Naughton, a biologist at the National Marine Fisheries Service, is one key task-force player who favors research. Naughton says shark behavior is, in general, poorly understood. But Naughton is in favor of taking the guilty shark after an attack. The problem, he

studied pretty well," he says. "Sharks are still a mystery."

On Aug. 3, the task force met again. This time, only DLNR officials and a few scientists were present. Henry Sakuda, head of the DLNR's Division of Aquatic Resources, reported that the state budget cuts had reduced the \$150,000 appropriation to \$50,000, which must be spent by June 30, 1993. The task force did not reach any decision on how the money would be spent, but it looked at a number of ideas.

Kaiser — noting that the rate of confirmed attacks has remained steady over the years despite the increase in beach users — said that the public's current perception of shark danger is worse than the reality. Education, he said, is a necessity. The group discussed educating lifeguards about sharks.

DLNR spokeswoman Linda McCreery says that a hunt would almost certainly occur in the event of an attack. "If there's a direct attack," she says, "then, yes, of course, we're



puncture wound in her foot and some scratches. The teeth marks on her board indicated the culprit was probably a 10-foot tiger shark.

**U** was Lynn Britton, president of the Maui Hotel Association. "The two recent attacks ... both happened to residents," she said in her testimony. "Had they happened to visitors, it would be

going to go out and kill a shark." McCreery says, however, that the DLNR has no plans to undertake a general shark eradication. "At the most, we're talking about removal of a few large individuals from specific areas," she says.

says, is finding the right one. "Very often, sharks dump their stomach contents if they're fighting the line," he says.

Shark hunter Kaiser, too, doesn't think enough is known about sharks to begin a general hunting program. "Humans have been

**From left to right:**

**Too close for comfort: A tiger shark in shallow water**

**Ala Moana chase**

**To the victor go the spoils: the booty of a recent shark hunt.**

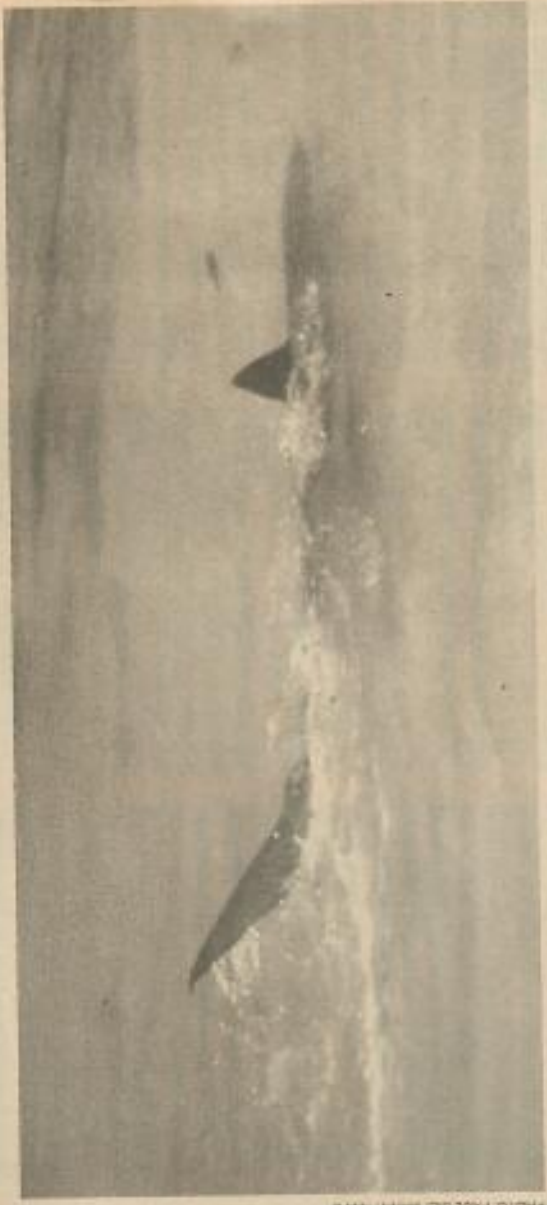


PHOTO: PAUL GERMAN / AP/WIDE

There are good sharks and there are bad sharks, according to Hawaiian legend. One good one, a shark goddess named Ka'ahupahua, used to live in Pearl Harbor and protect the people of Ewa. In fact, her brother would warn people of strange and unfriendly sharks by nudging people or striking them with his tail. If a nudge was felt, people would know to leave the water.

Sharks appear often in Hawaiian legend and history, suggesting they were an important part of life in pre-contact Hawaii. Historian Samuel Kamakau wrote of

seeing people riding on sharks' backs "like cowboys ride horses." He even noted that to turn the sharks, a little pressure was applied just behind the eyes.

More significantly, the shark is an aumakua, or family god, to some Hawaiians. It plays an important role of protector and ancestor. When a family has a shark as their aumakua, they believe they were born from the sharks. The families have the responsibility of caring for the patron shark by feeding it and even caressing it.

So it follows that last November, when the state

attempted to hunt down sharks in Maui waters after a woman was killed, there was an outcry from the Hawaiian community. The fisherman who was hired by the state to kill the sharks, James Stagnallier, received threats the first night he and his partner set their hooks, causing him to give up the job.

"There's strong opposition, heavy opposition from the Hawaiian community regarding this effort," Stagnallier told a Honolulu daily. "I am no longer involved in this project."

Charles Maxwell Sr., vice chairman of the advisory

committee to the U.S. Civil Rights Commission, was the first to speak up in defense of the sharks. He called for a halt to the shark hunt on the premise that some Hawaiians hold sharks as sacred.

Maxwell, who is also a Maui radio disc jockey, said, "To blatantly eliminate big sharks is wrong. Why do I have to make excuses for our culture?"

Professor Likiala Kame'olehiwa, of the University of Hawaii's Center for Hawaiian Studies, agreed, saying that even though some Hawaiians ate shark meat and used shark skin for

dram heads and shark teeth for weapons and tools, families who had a shark as their aumakua were not allowed to do so.

Sharks were considered good luck, according to Kame'olehiwa. "If you got lost at sea (sharks) came to you and showed you the way home," she says. "If you got into trouble and were drowning, they might come and lift you back to shore."

But the state Department of Land and Natural Resources was facing pressure from people who thought a hunt was necessary. Bill Pety, chairman of

# One man's monster is another man's god



PERSONAL FOR DR. SOURISSEAU



U.S. DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
Southwest Fisheries Science Center Honolulu Laboratory  
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29 March 1992

Dr. Louise A. Sourisseau  
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Vancouver, B.C. Canada

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Dear Dr. Sourisseau:

I work for the Honolulu Laboratory of the National Marine Fisheries Service. A small part of my research activities involves the documentation of shark attacks in the Hawaiian Islands. Since 1979 I have been recording such cases, both historically and as they occur during modern times. At present, there are 94 cases on my list. The earliest one dates back to 1779. Prior to my effort to document such cases there were no lists of this sort maintained for Hawaii. If you would like to have a copy of the list, I will of course make one available to you.

I have obtained your name and address from the Maui County Police Department report that was prepared on the tragic death of Mrs. Martha Morrell. I was able to obtain a copy of this report, as well as the autopsy report, with the permission of Mr. Morrell, whom I contacted several times through the pastor of his church (Mr. Kekapa Lee). It is my goal to record all of the factual information relevant to this case so there will exist an accurate account for future generations. I am therefore taking this opportunity to contact you to request your assistance in answering several questions. My questions are not of a medical nature, because the autopsy report appears to be very exact on those points. Nevertheless, I realize that this entire topic of what happened will still be very upsetting to you, and I hope that receiving this letter will not cause you any additional sorrow. I have placed my questions in a separate envelope enclosed with this letter. Your efforts to provide answers will be greatly appreciated.

If you would prefer to speak to me by telephone, I would be pleased to call you at your convenience. Let me know what time of the day would be best for you, and whether I should call you at your home or your office.

Thank you in advance for your consideration of this request for information.

Sincerely,

George H. Balazs  
Zoologist





Questions for Dr. Louise Sourisseau submitted by George H. Balazs

HONOLULU LABORATORY  
Southwest Fisheries Center  
2570 Dole Street  
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- 1) The Maui County Police Report states that Mrs. Morrell had been wearing "a pair of glass goggles and a pair of fins, one black in color and one white in color, along with her snorkle."  
Were the goggles the type that only covered the eyes? Or did the officer mean the regular full face mask that covers the eyes and nose?
- 2) What color swim suit was Mrs. Morrell wearing? Was it a one-piece or a two-piece suit? Was Mrs. Morrell wearing any jewelry? Was she wearing a wrist watch? If so, was the watch an electronic digital?
- 3) What color swim suit were you wearing? Was it one or two piece? What type of jewelry and watch were you wearing, if any? Were you also wearing a mask, snorkel and swim fins? What color were your swim fins?
- 4) The Police Report states that the shark "brushed against" your right leg. What injuries resulted from this physical contact? Were you bruised? Or abraded and bleeding?
- 5) The Police Report states "...Mrs. Morrell must have immediately known what sort of fish it was because she must have panicked a bit. Said there was a small piece of drift wood floating close to her and she had reached out for it. Said she had then began to flare away at the fish with the piece of wood."  
Could you please clarify the part about flare away at the shark with the piece of wood. Did this happen while the shark was still at a distance? Or was the shark up very close, possibly starting to attack Mrs. Morrell, when she set about hitting it, or trying to hit it, with the piece of wood? Did the shark show any interest in Mrs. Morrell prior to her flaring away at it with wood?
- 6) When the shark was first seen, was it located in a seaward direction or was it present toward land from the position where the two of you were situated? How would you describe the visibility of the the water? Excellent? Good? Fair? Poor?
- 7) Are there any other significant points that you would like to share with me regarding course of events that happened that morning?



LOUISE

- Any MARINE ANIMALS SEEN;  
Such AS LARGE numbers of Fish, Turtle or turtles,
- Any DEAD OF THE ABOVE? <sup>whales or porpoise?</sup>
- Pointed NOSE or blunt/Broad?
- White vs grey?

blood in the uterus

- Size of shark?
- fish feeding?

MARIA - DAUGHTER

- Jewelry
- WATCH - digital?  
which wrist?



SOURISSEAU  
8-1546 W. 14th Ave  
Vancouver B.C.  
V6J 2H9

Apr. 7/92

Dear Mr. Balazs,

I received your letter today requesting further information on the shark attack on Marti Marvell. I'm happy to be able to answer questions to the best of my knowledge. I don't find it upsetting so if the answers aren't clear or if you think of other questions I don't mind you writing or calling. I'm sorry to hand write this but I don't want to ask my secretary to type it.

I'll try to answer your questions in point form as best I can & then will do a narrative on the attack. You'll noticed its hedged around with my hesitations and phrases like "I think" & "it was my impression". This is because even immediately after the attack I realized it wasn't easy to be exact about the timing or order of certain aspects of the attack. Things happened very quickly & in such a situation its hard to know the difference between 1-3-5 minutes. I did write a brief account for myself a few days later and I'll look at that to try & be as accurate as I can.

1+2 Marti was wearing swimmers goggles (not a face mask) covering eyes only. She had on a bright orange bathing cap (in case motor boats came by) <sup>to be noticed</sup>. I think she had on a 2 piece swim suit, not brightly colored. I am not sure. Her daughter Malia might know which suit was missing. I don't recall any jewellery except maybe a watch, maybe black (again I bet the family knows) Also I didn't think she had a snorkle but I guess I could be wrong

3. I believe I had on my navy & red speedo suit (one piece) - navy <sup>bottom</sup> with red top. My only other suit is one piece floral (pastel). I'm about 95% certain I had on my navy suit. I had a face mask, no snorkle, & fins. I think black but can't remember. I swam back in with them. I recall they were the one's Marti usually wore. The family would probably know <sup>for</sup> sure. That was why she'd put on the odd colored pair. I had no jewellery or watch on.



4. The shark brushed my right calf upper portion. It left a superficial abrasion approximately 6-7cm. in diameter. I don't recall it bleeding at all. It felt like brushing against a pig. Wasn't painful & there was no bruising. It wasn't til sometime later that day that I realized it had left a mark.
5. ~~When~~ <sup>When</sup> Marti began to flail the shark was right beside her. It may even have already attacked her. What I said to the officer (who seemed more upset than I was & wasn't actually ~~openly~~ listening very well!) was that initially I had thought Marti must have found a piece of wood & was waving that, but as I watched more carefully & tried to figure out what was going on & what to do, I became quite sure it was actually her arm with blood running down it (therefore looking dark) - probably it had bit her hand. It's hard to be clear because with the initial attack she moved further away from me in trying to escape the attack, & it was harder to see.
6. The shark was seaward to us. I would have said the water visibility was quite good (but I would be comparing to BC waters). I do remember Marti saying a few minutes earlier that it wasn't as clear as sometimes & she didn't think it was that great for snorkeling.

It was a bright sunny day about 0900 when we went in. We swam out side by side til we were over the shallow part of the reef then stopped to chat a bit. We then began to swim front crawl again together towards the sea.




What I'm trying to show in the diagram is that the shark seemed to swim by me & directly toward Marti & I was left with the impression it was making a circuit.

I think that I must have stopped to adjust my face mask or to look at the water or because the shark swam by me. I saw a large grey & white animal swim by, looked up & called to Marti who was still swimming and therefore had ended up ~5 metres ahead of me. It swam right in front of me about 1 foot under the surface & kept going toward Marti. It was less than 2 feet from me.



she had not seen it at that point. I do not know if she stopped swimming because I called to her or because the shark was right there. It seemed almost simultaneous. I was calling to her because I wasn't sure what I'd seen, not knowing which mammals were found in those waters. I only realized for sure as she began to scream that it must be a shark. It was right beside and around her as she waved her arms + screamed - Help help me. During the attack she was moved further seaward + ~~towards the~~ in the direction of the bulkhead initially + then back closer towards me. I don't know if this was the result of the seal waves, her or the shark. As I mentioned before, I thought at first she had a stick but then felt it was <sup>her</sup> ~~the~~ bleeding <sup>(R)</sup> arm.

I didn't see details of that part of the attack but had gotten closer to her when the final fatal blow occurred. I think she was bitten in the mid section - the body seemed to rise in the air + the fall on to her back. A large pool of dark blood could be seen from about the waist area, I can't be sure if at that point her lower legs were gone - I could see her thighs but her knees were either bit or stumps.   
+ lower legs below water

It was at that point, when I had tried to get closer to see if I could get her or help in any way, when the shark brushed me. I think I was swimming towards the body using a very slow breast stroke or dog paddle, not seeing the shark, when I became aware of it + it brushed my calf.

I must have stopped + lay still on my back as that's when it swam under my leg brushed my calf + kept going. It seemed to be making a circuit. Both with my initial sighting and again this time the shark didn't seem to interested in me but circled back to the body. I then continued to back away for a short while, then turned + swam in as fast as I could until I could touch + call for help.

By the time the housecleaner came out + got a paddle board + we went back out the shark



was just "playing" with the body. I don't think the man had actually believed me about what had happened because from shore I guess he couldn't tell. When we'd swum back close enough to see what was happening & that there was nothing he could do we turned & swam back in.

The shark continued to play with the body, at one point it seemed to flip it in the air.

That's what happened to the best of my recollection. Sorry I can't be more certain about some details.

I would be interested in your list of attacks in Hawaii and any summary or review type article you might have on attacks.

Sincerely

Louise Jourisear

If you do want to call my home # (604) 738-7884 work 278-6838. If you called at work I'd likely want to call you back when I was free. I'm not in my office on Tues, Sat or Sunday. Or, of course, you can write again.



May 5/92

Dear Mr. Balazs

Thank you for the Smithsonian article - unfortunately you sent only every 2<sup>nd</sup> page. ie p134, 136, 138, 140 are missing. Maybe you could send the rest? Thanks

In answer to your questions

- We didn't have any food at all with us, we weren't trying to attract fish.
- I didn't see any fish, turtles, sealife of any sort prior to the attack.
- The only comment I could make about the "grey and white" was that the grey was above + the white below in the mid section which was all I really saw well close up. They seemed in about equal proportion. The grey seemed your basic grey as seen in most pictures of sharks or porpoises and not the yellowish color I've seen in some pictures of tiger sharks. I didn't notice the shark nose shape.
- My guess as to the shark's length ~~was~~ is that it was probably ~8-11 ft. When the men who'd been in the boat said 15 ft I didn't really comment but later I got a tape measure out + I was amazed at how big that would have been. It didn't seem that big to me although I never saw ~~it~~ all at once as they would have.



I wasn't menstruating at the time.

You asked about contacting the Marrell's. I think they are in a fairly reasonable state of mind. I saw Dave Marrell last week and mentioned you'd been in touch with me. If you haven't been in touch with him before I think it would probably be most appropriate to write him much as you did me initially. You could just ask if either he or his daughter would know what articles of clothing would have been worn & maybe why it's important. I think it's easier to get a letter because you can a) decide if + when you want to open & read it (it's obvious what it's about)

b) if + when you want to answer it. I think you should only approach Malia if her dad gives permission.

eg you might just say you'd been in touch with me to try & answer some questions and understand what factors might contribute to an attack or help in prevention and that I was unable to be sure of clothing & watches and were they aware of what she might have been wearing.

Hope this helps

Louise Loursseau



Soukisslay

8-1546 W. 14th Ave

Vancouver BC

CANADA V6J 2H5



COLUMBIA TRIANGLE TO GO  
BUSINESS D1

CG

11

**CLASSIFIED,  
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WHOLE PICTURE.**



# The Vancouver Sun

BRITISH COLUMBIA'S NEWSPAPER

TUESDAY, DECEMBER 3, 1991

50 CENTS MINIMUM OUTSIDE LOWER MAINLAND

**HAWAII**

## Vancouver doctor tried to fight off shark before it killed friend

MARY LYNN YOUNG  
Vancouver Sun

A Vancouver doctor who was swimming with a friend while on vacation in Hawaii says she tried to fight off a 4.5-metre Pacific tiger shark with a piece of driftwood minutes before her friend was attacked and killed.

MauI County police Sgt. Waldo Fujie said Dr. Louise Sourisseau, of West 14th Avenue, and her friend were swimming near Lahaina one morning last week when they noticed a shark they said was the size of a car swim by.

Sourisseau froze and was brushed by the shark. But her friend Martha Morrell, 41, of

Lahaina, was attacked and killed after she panicked and started thrashing around in the water, police said.

"When you splash in the water with any wild animal or predator, they could attack," Fujie said.

He added that Sourisseau hit the shark with a piece of driftwood that she saw floating in the water but was eventually forced to swim to safety while it was attacking Morrell.

The two women had been swimming in front of the Morrells' beach-front home. A maid saw the attack and made the initial call to the emergency line.

Hawaiian police said it was the first witnessed shark attack resulting in death in the last 33 years.

"This is rare for this to happen. You could get into a car accident quicker than a shark attack," said Fujie.

May Sourisseau said Monday her daughter is still in Hawaii with friends, trying to recover from the incident.

"It's been very upsetting for her."

Sourisseau said her daughter, who didn't want to be interviewed, said she initially thought the shark was a dolphin.

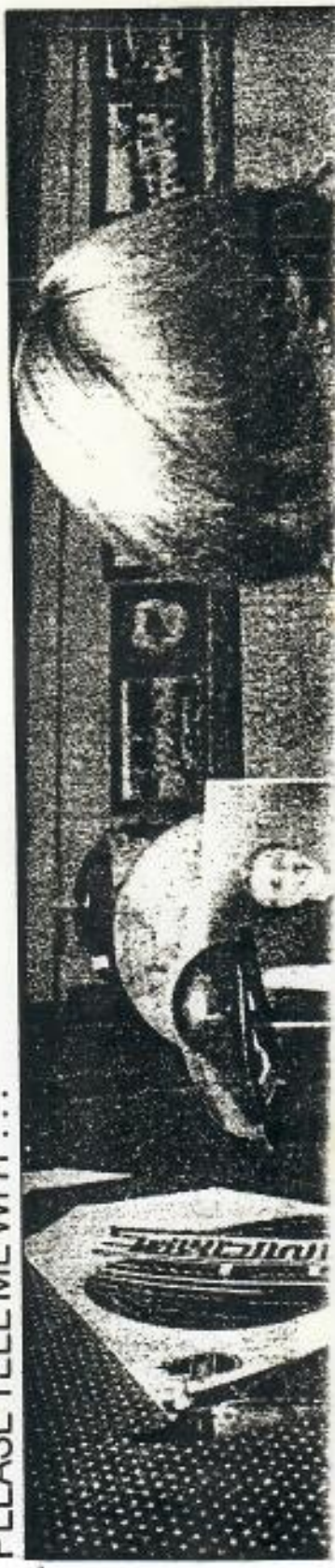
**BRAZILIAN KIDNAP**

# Sente triple B.C.

Families of pair to look at alleg

KIM BOLAN  
Vancouver Sun

The case of two British Columbia prisoners whose Brazilian prison sentences were tripled to 28 years Monday will be reviewed by...



PLEASE TELL ME WHY...



# Opinion

## Letters to the editor

### Shark expert listed his personal views

Editor:

This is in reference to the article by James Gonser entitled "Recent shark attacks rouse fear of predators" in the April 2-8, 1992 edition in which I was quoted. My intentions were to make it clear that the opinions I voiced were strictly mine, based on earlier shark research I have been involved with, and not the position of my present employer, the National Marine Fisheries Service (NMFS).

We do not know for a fact that the tiger shark population is increasing in Hawaiian waters. Rather, it is my opinion that this is occurring based on at least four attacks/incidents since November 1991, recent daytime sightings of tiger sharks, and the fact that no directed fishing for nearshore sharks has been undertaken since 1976. We know that inshore shark populations, including tiger sharks, are very susceptible to fishing pressure and can be reduced substantially in a relatively short period of time.

The estimate of approximately 1.8 tiger sharks per mile of coastline was derived from a study conducted following the 1967-1969 University of Hawaii research and control fishing program, and not by NMFS. The numbers are based on a statistical model using the reduction of catch per unit fishing effort and are strictly ballpark estimates.

At the present time, the local research community is seriously considering conducting further

research to define the existing population of nearshore sharks and, in particular, the tiger shark.

**JOHN J. NAUGHTON**  
*Fishery biologist*

### Salvation Army thanks Foodland, shoppers

Editor:

Foodland Super Markets, through its "Share a Holiday Feast" program, has provided over 14,000 needy families with a holiday dinner since its inception four years ago.

This year, Foodland offered its customers a choice of turkey or ham when they purchased a "Share a Holiday Feast" gift certificate, and Foodland donated the fixings for a complete holiday meal.

These certificates are given to The Salvation Army for distribution. This year, almost 5,000 certificates were purchased and distributed to needy families, shelters for the homeless, Catholic Charities, and other social service agencies.

The Salvation Army would like to take this opportunity to express its sincere appreciation to Maurice Sullivan, president of Foodland Super Market Ltd., for this innovative program that offers Foodland shoppers an opportunity to make a significant donation to those less fortunate.

**MAJ. JOE NOLAND**  
*Commander, Hawaiian Islands  
Division*



HAWAII CLIPPING SERVICE  
P.O. Box 10242  
Honolulu, Hawaii 96816  
PHONE: 734-8124  
Victoria Custer Elaine Stroup

LAHAINA NEWS

## LETTERS TO THE EDITOR

### Humans vs. sharks

Dear Editor:

How many people are going to have to die as a result of shark attacks before something is done?

These cry baby environmentalist experts like Cousteau make their living by touting the banner for endangered species.

He doesn't live in Hawaii, and consequently spends only a fraction of his time in the water here. My family and friends spend a lot of time in the water here, everyday, and many of us derive our income associated with taking people down to the sea. He is no expert in my opinion. What is the value of a human life, Mr. Cousteau?

I suppose I should peacefully co-exist with the cockroaches and centipedes that invade my home from time to time? Do you want to string mesh nets along our coastlines? Why don't you just pass out free condoms to the sharks?

Fish or cut bait.

NAME WITHHELD BY REQUEST



A LOOK AT THIS MORNING'S TOP STORIES

# IN THE NEWS



AP photo

## Speed shake

French speed skier Philippe Goitschel, right, is congratulated by American John Mueller of Breckenridge, Colo., at the finish area shortly after Goitschel blazed down the speed course to be the fastest skier in yesterday's runs in Les Arch, France, during the Winter Olympics. Mueller was seventh fastest overall and both men advance to today's finals of the demonstration event.

### ■ FEDERAL PRISONERS

## State, feds near prison deal

State and federal officials may be nearing agreement on a \$10 million addition to Halawa Correctional Facility to house federal prisoners. Meanwhile, former U.S. marshal Faith Evans says the

### ■ LEBANON

## Israeli border area under fire

Katyusha rockets spray a village on Israel's northern frontier, hours after the Israelis pulled back from a raid into southern Lebanon.

Page C1

# Surfers

## Maybe it 'was

By Walter Wright  
Advertiser Staff Writer

North Shore surfer Danny Titilah may have been the last person to see missing body boarder Bryan Adona alive — and Titilah said he saw a large shark in the water moments after he and Adona paddled out toward separate breaks at Leftovers late Wednesday afternoon.

"I seen him leaving his truck, I was going to say hi to him but he didn't look at me," Titilah, a 19-year old landscape worker from Pupukea, said.

"He went way outside to the left," perhaps 500 feet off shore.

Titilah and surfing buddy Lamona Kamae stayed closer in, riding "a barrel" or tube formed by waves on the inside of the area, he said.

Suddenly, about 200 feet from shore, Titilah said, a huge shape broke the surface of the waves.

"I thought it was a walrus, and I told my friend and he said don't mess around, like if it was a seal you wouldn't want to get near it if there was a baby seal there," Titilah said.

It was the "brownish beige" color and no sign of a dorsal fin that made Titilah think walrus, but that didn't seem right, he said.

He caught a wave in toward shore and then a few minutes later saw the same huge back break the waves, this time only 50 feet off shore, between



# saw Adona, and shark scoping us out and then went for him'



**Bryan Adona**  
Missing since Wednesday

Titilah and the beach.

"I see it come up and come down, like that shark at Universal Studios, a boil and then a lot of water pouring off the back."

Titilah said he had last seen Adona about 500 feet out, and didn't think of him again until he heard news of the missing surfer the next day.

Titilah said that when he came out of the surf after sunset Wednesday evening, surfing friends in a house across the highway told him they had seen a large shark in the area earlier.

Yesterday, Titilah said he wished he had remembered Adona and warned him to come in.

"I feel kind of bummed out because usually when I go surfing I usually watch out for

everybody and this time. . . Maybe if I could have told that guy, even when I saw something no matter what it was, I should have said something. Maybe the shark was scoping us out and then went for him."

"Now I am tripping out; I am not going to surf Leftovers for a while."

Kamae, a 17-year-old Lelua High School student, said he turned around the second time Titilah spotted the animal "and I saw something go down, it looked like a whale, a small one." He said the two came in and watched others surf, and "Danny noticed a guy still far out, and I think that was the guy that is missing."

Arnold Suzumoto, collections manager for the zoology department at Bishop Museum, said what the two surfers saw could well have been a tiger shark.

Sharks normally are darker on their backs, and the dark color can range from gray through tan and brown to black.

"A tiger shark is not inconsistent with what they say they saw, nor is any of the information that has come in so far," said Suzumoto.

"And a tiger shark is the first likely suspect in a case like this," he added.

Suzumoto said he would endorse a "controlled" program to hunt large sharks, but said the key is to gain more research about sharks in general.

At the police department, ho-

micide Lt. Gary Dias said forensic experts in the police lab yesterday said they found no evidence of blood or tissue on Adona's damaged body board, where it might have been forced into the foam plastic by a shark's teeth.

Police said shark hunting expert Steve Kaiser examined the board and said he believed the hole was made by a tiger shark bite.

But officials said it was possible that Adona was not on the board at the time it was bitten through.

Kaiser suggested that the presence of a surfer on the board would have somehow "cushioned" the blow against the board so that the bite mark would not have been symmetrical.

But National Marine Fisheries zoologist George Balazs said yesterday the bite appears almost identical to that inflicted on a board being ridden by Kauai surfer Joe Thompson when he was attacked by a shark in November, 1985.

The shark took Thompson's hand and right forearm and cleanly cut through the board, Balazs said. Thompson managed to get to shore and survived the attack.

Adona's disappearance comes within months of the confirmed fatal tiger shark attack on a Maui woman in November — Hawaii's first documented fatal attack since 1958. Since 1779 there have been 84 recorded attacks, 37 of them fatal.



Weather details, A4



TODAY'S OUTLOOK:  
Mostly sunny;  
high in the lower 80s

NEWS SUMMARY  
ON PAGE A2

# Students prote

SPORTS:

## Stanford clobbers Rainbows

—Page B1



WORL

## Emb arts resid

# The Honolulu

**Aloha!** Saturday, Feb. 22, 1992

## Expert urges measured

**By Walter Wright**  
Advertiser Staff Writer

Amid mounting circumstantial evidence that a shark killed missing surfer Bryan Adona Wednesday, a leading expert on shark attacks in Hawaii yesterday called for a measured program to "cull" large tiger sharks from popular beach areas around the state.

North Shore surfers yesterday told The Advertiser they spotted a shark three feet wide churning through the waters at Leftovers surf break at about the time Adona, 29, paddled out on his body board late Wednes-

day afternoon. (See story on Page A2.)

Adona's body board was found the next day at Waimea Bay with a crescent-shaped hole in it that most experts believe was made by a large shark.

As the search for Adona continued yesterday, shark attack expert George Balazs said he believes "the tiger shark population has increased in numbers and in the maximum size of individuals in that population" to the point where giant predators roam the near-shore waters unchallenged by any foe.

Balazs, who has assembled a de-



st dorm hikes — Page A3

bled  
chief

Page A12



MONEY:

United  
warns of  
cutbacks

—Page A7



# Advertiser

Final Edition On Oahu 35¢

## hunt for tiger sharks

ailed history of recorded shark at-  
tacks in the state, said he based his  
belief on the fact that no control or  
culling programs have been conduct-  
ed on the tiger shark population for  
the last 15 years.

Balazs, who stressed he was ex-  
pressing his personal opinion and not  
the view of the National Marine  
Fisheries, where he is employed as a  
zoologist, took a position contrasting  
with that of Jean-Michel Cousteau,  
scion of the famed ocean exploration  
family.

In an interview before Adona's dis-  
appearance, Cousteau said he would  
adamantly oppose shark hunts to cut

down on the shark population in Ha-  
waiian waters.

Cousteau said past shark-hunting  
programs didn't affect the number of  
shark attacks.

But Balazs said "It is my personal  
professional opinion that a selected  
culling program at high-usage beach  
sites around the state is a perfectly  
reasonable thing to do and will in no  
way endanger the shark population.

"I am not saying kill every dang  
shark, but selectively fish for the re-  
ally big tigers at the main sites" to  
reduce the number of unopposed  
"apex predators" and coincidentally  
obtain some research information on

the sharks and their habits.

Linda McCrerey, state Department  
of Land and Natural Resources  
spokeswoman, said the agency had  
not decided yesterday what, if any-  
thing, to do in response to the Adona  
case.

"There is no evidence yet that the  
missing person died from a shark at-  
tack," she said. And she said some  
experts at shark hunting are not con-  
vinced that reducing the population  
will reduce attacks.

McCrerey said there is a real dan-  
ger that a shark-hunting program  
would give the public a false sense of  
security.



### Cousteau is a troublemaker

We're sick and tired of the Cousteau outfit traveling around the world causing problems. They come into an area, shoot off their big mouths, make a documentary and lots of money then walk away condemning people for their way of life, leaving them fighting among themselves.

It's very easy to prattle about saving the whales, dolphins and sharks on a full belly, but when you live in a starving, underdeveloped country you may take a very different view of things. And besides, in their movie "The Silent World," Cousteau shows his friend Frederic Dumas harpooning a dolphin so they could get film footage of the sharks eating it! So who is he to complain about the citizens of Maui wanting to rid their waters of dangerous sharks!

The people of Maui don't want to wipe them out, they merely want to get their numbers down to the point where it isn't dangerous to go swimming and enjoy all of the water sports Maui has to offer. After all, both residents and tourists deserve those rights. Is that unreasonable?

Also, who is he to complain about Kihei School and what does that have to do with sharks? Does he for a fact have children in Kihei School? He is neither a resident of our state nor for that matter is he a citizen of our country.

We aren't perfect. So what! Neither is anyone else in this world! We think he should go back to France. We're sure he would find plenty to complain about there! Maybe, he could even do some good at home. After all charity begins at home, doesn't it?

Karen and Marc Rosati  
Kihei

*Maui News 3-18-72*



# Hope for miracle still alive

THE SUNDAY STAR-BULLETIN & Advertiser  
40-day vigil for Adona to end next Sunday

By Walter Wright  
Advertiser Staff Writer

3/22/92 A4

Family and friends of missing surfer Bryan Adona will hold a memorial service for him Saturday in preparation for the ending of their 40-day vigil on the North Shore beach where he disappeared Feb. 19.

Adona, 29, an Aloha Airlines aircraft mechanic, disappeared while bodyboarding late in the afternoon at Leftovers, a popular surf break. His board was found the following morning at nearby Waimea Bay, with a huge chunk torn out of it by what experts believe was a large tiger shark.

Adona's mother, Betty, said the service will be at 10 a.m. at Our Lady of Good Counsel church in Pearl City, with Father Francis Leong presiding.

"We promised to keep our vigil for him for 40 days, and Sunday the 29th will be the 40th day," the mother said.

"We have been out there every day, we are still searching, we still have hope, hope for a miracle."

She said their hopes were buoyed by the discovery about two weeks ago of a swim fin identical to those worn by Bryan.

But there has been no other trace found since, she said.

"My husband and I will continue to go down whenever we can, and we will all be back there on Sunday, the 40th day, but I think we also have to begin to let go," Mrs. Adona said.

She said the service will be open to the public, and especially to the hundreds of people who have shown their support for Bryan and the family by joining the vigil on the beach at Leftovers, bringing food, making financial contributions and joining in searches on and under the sea.

The family now is exploring ways to help Adona's fiancée, Dayna Kuboi, keep the new

townhouse in Ewa the couple had just purchased in preparation for their wedding this year.

Adona would have been 30 on May 11, "and that's when they were going to announce a date for the wedding," Mrs. Adona said.

Bryan's disappearance has taken a heavy toll on Kuboi, his sweetheart since high school days, Mrs. Adona said. Kuboi has had some medical problems, and may be developing ulcers, since Bryan's disappearance.

"She has been holding up, but she has suffered a lot of stress, and she goes into Pali Momi Hospital on Monday for some tests. It's been very traumatic for her.



Adona

Aloha Airlines are also taking up a collection. Kuboi's employer has also offered to assist in fund-raising, she said.

The mother said she hasn't given much thought to the controversy raised by her son's disappearance, over whether authorities should launch a program to kill large sharks near popular surfing and swimming areas.

"I'm angry that it happened, but I haven't thought much about it beyond that," she said.

"She has also been very worried about the house, and she had to go into her savings to make the March payment. I told her we would help her come April, and I have made an appointment with a lawyer to see if we can take guardianship of his affairs," Mrs. Adona said.

Mrs. Adona said she understands co-workers of one of Bryan's brothers at Pearl Harbor have donated some funds, and that Bryan's own co-workers at

## Shark attack raises queries in past case

□ A man was swept out to sea days before the Morrell incident

By David Oshiro  
and Lila Fujimoto  
Star-Bulletin

12-13-91 A1  
STAR-BULLETIN

A week before Martha "Marti" Morrell was attacked and killed by a shark off Olowalu on Maui, another resident was attacked on the other side of the island.

But apparently, it was only after the attack on Morrell on Nov. 26 that state and federal officials found that the earlier incident involved a shark. They add that the incidents were probably unrelated and caused by two different sharks.

And, officials say, they doubt that a tragedy like Morrell's death could have been averted even if a shark-hunting campaign had been launched after the first attack.

On Nov. 19, Suk Kyu "Steve" Park, 48, of Wailuku was swept into the ocean at about 4:30 p.m. while fishing with his son off Maliko Point.

Unable to swim to shore through the rough surf, Park waved his son off to get help. Rescuers returned 30 minutes later, but found no trace of the elder Park.

Park reportedly was a strong swimmer in good physical condition, who was treading water when last seen. His son suffered scrapes after a wave threw him against rocks, and officials say Park might likewise have suffered similar bleeding cuts or injuries.

Searchers the next day found some of Park's

See BITES, Page A-9



Fish -  
Why not  
Makiko?  
Tourist?

FROM PAGE ONE...

# BITES: Wailuku man's clothes show evidence of shark attack

Continued from Page A-1

clothing, and sent it to the National Marine Fisheries Service in Honolulu for examination.

John Naughton, a Fisheries Service biologist, said the scientists studied teeth marks on pieces of the shirt and shorts and concluded that Park had been attacked by a shark — probably a 12-foot-long tiger, the same type that reportedly killed Morrell.

George Balazs, a Fisheries Service zoologist, said sharks can't bite and make shear marks like the ones found in Park's clothing unless there is something solid in the clothes.

"The presumption is that there was something solid behind it," he said. Balazs, a sea turtle biologist who also keeps records on shark attacks, recorded Park's disappearance as the 88th reported attack in Hawaii since 1779.

Morrell's death, not compiled in Balazs' list yet, would be the 89th attack and the first fatality directly attributable to a shark since December 1958.

Naughton said there is no way to tell if Park was alive when the predator struck, or if he drowned and then was bitten.

William Paty, chairman of the state Department of Land and Natural Resources, said yesterday that

“  
My gut feeling is  
that it wasn't the  
same shark.  
”

John Naughton  
Biologist,  
National Marine Fisheries Service

he thinks the two attacks were "totally unrelated."

Asked if tougher shark-control measures are needed, Paty said, "All we can do is keep a close watch on the whole situation."

"If it becomes apparent that this thing is larger than we assume, or the risk is larger than we presently believe, then we're going to have to look at measures," he said.

Paty said he doesn't recall if he heard about the Park case before or after Morrell was killed.

It was after the Morrell incident that someone pointed out the shark connection in both cases, Paty said. By then, Paty was wrapped in a furor that erupted in Maui over a shark hunt organized after Morrell's death.

Both Paty and Naughton say

they don't think a single creature swam halfway around Maui in a week to strike both victims.

"My gut feeling is that it wasn't the same shark involved in this," Naughton said.

But, Balazs said: "It's cause for concern, when someone's in the water and these things show up just like that. One wonders just how many there are around."

Paty said he doesn't think Morrell's death could have been prevented. "We'd like to think it was a singular situation."

Meanwhile, Park's wife, Dong Park, said she believes people should be made aware of the danger posed by the predators.

"Everybody tells me they have tiger sharks there," she said. "I want them to find the shark, then maybe someday find my husband's body."

Dong Park said police told her that almost half of the left side of the T-shirt was gone and a similar part of his underwear was missing. Police also said they were almost 95 percent certain that he had been attacked by a shark that took his left arm and hip, she said.

Park said other people told her that they had seen tiger sharks in the area on other occasions.

She said her husband was a good swimmer. But, as the owner of a tourist business, he had little time for recreation, she said.

He had taken off for a couple of hours to go fishing with his son, who was visiting from New York, she said.



**Substitute teacher recounts horrors of high school education here. See p.2**

**Commission to exclude public from discussion on Kahoolawe. See p.3**

**Program for troubled teens finally in place after permit delays resolved. See p.5**

# SOUTH MAUI TIMES

A Weekly Community Newspaper Mailed Direct to Maalaea, Kihei, Maui Meadows, Wailea and Makena

VOLUME 4/NUMBER 29

MARCH 11, 1992

## Rare turtle discovered at Maalaea

by Jerome Kaiser


The rare and exotic Hawksbill turtle was discovered in Maalaea last year, the first time the critically endangered species has ever been found on Maui.

Last summer, Mary Valley was walking the beach along Maalaea when her two-year-old daughter Cianna, who was riding on Valley's shoulders, spotted three half-dollar-sized sea turtle hatchlings on the sand.

"They were just three little baby turtles trying to get into the water, and then the waves would wash them back up," Cianna recalled. "So we stayed there and made sure they got into the water."







**CHOMP!** - Jean-Michel Cousteau animates his discussion on the subject of his new movie, *The Great White Shark - Lonely Lord of the Sea*, during a cruise with reporters.

## Cousteau curiosity insatiable, contagious

by Jerome Kaiser

Jean-Michel Cousteau was enjoying lunch in the calm, cobalt-blue waters between the islands of Maui, Lanai and Kahoolawe on an exquisitely beautiful day when he cut off bits of chicken and tossed them overboard, to see what they might attract.

The vignette was a telling glimpse of Cousteau, who has spent so much of his life at sea - exploring, experiment-

ing and then educating the rest of the world as to the findings. His curiosity is insatiable, his mind like a sponge.

Cousteau's informal test took place on Maui Classic Charters' schooner *Lavengro* recently, on a cruise sponsored by the Maui Marine Art Expo and Stouffers Wailea Beach Resort, whose kitchen supplied the meal.

The sea and surroundings that day were at their best for the renowned

She reported the sighting to Brooks Tamaye of the Department of Land and Natural Resources, Division of Aquatic Resources (DLNR, DAR), who confirmed the nest site, and See **TURTLE** on p.8

man of the sea, and the media which accompanied him.

Though he had never been on the *Lavengro* before, he had picked up knowledge of the nearly-70-year-old boat, and knew a brief history of the schooner which, like himself, has sailed many of the earth's oceans.

Jean-Michel Cousteau is constantly learning, continually educating. He can raise peoples' consciousness about the ocean and earth, just by being with them for a few hours over the course of a day or two, which was what the cruise was about, and the next day's shoreline/reef cleanup he led off Kamaole III.

The world is his classroom, the people of the planet his students. And like the best of teachers, he is always learning himself.

His message is an on-going discussion, an educational give-and-take, an unending flow of information. The goal of the message is to educate, and get people to act to protect our environments, both ocean and land. He minces no words about Maui.

"I haven't been coming to Maui for many years, but the changes I've seen here are not about improving the quality of life here," he said at the premier of his latest film after the cruise (see sidebar). "We're in the process of destroying what we have come to love."

As an example, he said that 50 percent of the bird species in Hawaii See **COUSTEAU** on p.6



# Rare Hawksbill sea turtle discovered at Maalaea

TURTLE from page 1

consulted with turtle specialist George Balazs on Oahu. The two agreed that the nest should be excavated, before humans or animals (especially dogs or mongoose) might disturb the site.

Later, Tamaye and two other DAR staffers dug into the nest site, recovering 11 live hatchlings which were successfully released. Another nine hatchlings were found out of their shells, but dead; eight others had died while emerging out of their shells. In all 181 eggs had been deposited, of which 64 apparently hatched successfully.

"I couldn't believe it," said Valley of their discovery, adding she had seen a number of turtles here before on boats or snorkeling, but never hatchlings.

Turtle specialist Balazs, who works for the National Marine Fisheries Service on Oahu, was sent specimens and confirmed them as Hawksbill turtles, the first ever discovered on Maui.

He said the Hawksbill is a "critically endangered species," and mostly nests in Hawaii on the east end of the Big Island, and some on the east end of Molokai.

He explained that the Hawksbills' exotic shell markings and the thickness of its shell has been its downfall, as it is prized in Japan and other Asian countries as tortoise-shell. Items like beautiful hair-combs that sell for as much as \$800 to \$1,000 were fashioned in Japan from the Hawksbill shells.

He said Japan recently had agreed to give up trading in tortoise-shell, and Balazs himself was traveling to Japan this week to take part in a symposium to discuss what that country might do to learn of the turtles' biology.

Adding to the turtles' exotic appearance are serrated edges along the side and back of the shell, which are very pronounced on juveniles, and less so on adults.

Balazs said he did not think it was likely that we would see great numbers of Hawksbill nesting here in our lifetime, but he said that he, like the Valleys, was delighted and surprised by the discovery of the nest.

He said it was unfortunate that there appeared to be only one nest, as turtles will almost never lay a single clutch of eggs, and usually lay two or three.

Sea turtles' usual nesting cycle is two years or more, Balazs said, so it is unlikely that the same turtle which laid the nest...

summer.

Balazs, who is the foremost authority of sea turtles in Hawaii, said he was becoming more and more an advocate of what he called "sea turtles," the role the sea creatures play in thrilling and delighting tourists and others here.

"I'm all for it. It's a non-consumptive use of the the turtles, so they're there for the next people," he said. Mary Valley and her sharp-eyed daughter Cianna agree.

"It was wonderful," Valley said of their close encounter with the exotic hatchlings, "we were really excited. Cianna still talks about it all the time."

## Junkers-for-cash working

The county reports that 130 vehicles have been turned in as a result of its Vehicle Buy-Back Program in the past 2-1/2 months.

At \$50 a vehicle, citizens have collected \$6,500, reports Finance Director Travis Thompson.

The county would like to remind anyone who plans to turn in a vehicle that they must be the registered owner and must provide identification.

The Vehicle Buy-Back Program is a pilot project which was initiated this past January in an effort to curb the number of vehicles being...



From: Honolulu Star Bulletin  
 10-5-90 (A-6)

# Islanders bait tourists with shark-feeding expedition

Not only macho types go for the thrill — and fear

By Gwendolyn L. Iyechod  
 Star-Bulletin

BORA, BORA, French Polynesia — In the lagoon that surrounds this stunning island made famous by novelist James Michener, tourists pay good money to get within five feet of very serious trouble.

These aren't crazy macho adventuresome types who scale cliffs and jump out of planes. They're folks like your mom or your uncle or your big sister. Someone like me.

When I first decided that dropping in on a school of sharks was the thing to do, I had placed a lot of faith in an acquaintance's guarantee: In the 12 years since Bora Bora's shark-feeding exper-

ditions began, no human had become the main course. But to me it seemed only a matter of time. You don't throw raw meat at sharks and expect them to be on their best behavior just because a human audience is floating a few feet away.

As our outrigger filled with 14 tourists and a Polynesian guide headed toward the reef, I could tell I wasn't the only skeptic.

The men especially exhibited very strange behavior. They barely noticed when we passed a boat whose sole occupant was a woman sunbathing, topsless, on the bow. They seemed preoccupied. I know I was.

I was thinking about how I had cut myself that morning, and about what a Bahamian friend once told me just before we dived to look for conch shells.

"If you have a cut that's bleeding, be sure and tell my dad. He'll watch out for the sharks."

As I looked at the cut, I grasped



Visitors watch nervously as guides throw raw meat to sharks off Bora Bora. Local children often piggy-back on the outrigger canoes used for the popular shark-feeding expeditions.

pled with a dilemma: Do I warn our guide and risk looking like a wimp? Or do I keep quiet and impress him with my bravery?

Pride won over brains. Then I had another thought.

Years ago, in the Western Pacific, a very cruel man told me just before we were to jump over a reef that sharks and barracudas liked white meat. He glanced at my pearly white legs, then at

his brown frame, and laughed. A quick survey of the 13 other foreigners turned up only one whose legs were whiter than mine. I was relieved until I heard her tell her husband, "There's no way I'm going in with sharks."

As the boat approached the reef where the sharks congregated, we saw two other outriggers loaded with Tahitian kids. This shark-feeding tourist attraction was odd enough to appeal to the islanders, but what had they really come to see?

At the appointed moment, our guide jumped in and ordered us to swim to a rope anchored under the water. The 30 Tahitian kids were in like a flash. Only half of my boatmates obeyed. I was one of them.

Angled fish flattered around our guide as he began pulling bloody meat out of the bucket. Suddenly, a gigantic shark appeared, circling. As it grabbed some of the meat, another mon-

ster swam by. Both acted mean and awfully grumpy, and they seemed to bare their teeth a bit when they circled closest to us. But as the sharks focused their attention on what was in the bucket, we got braver. And those of us who had paid more than \$35 for the show began to resent the kids who were getting their thrills for free.

The water turned turbulent as tourists and kids jostled for the best viewing spot. It probably was the only fringed underwater activity within miles.

Fed and bored, the contented sharks eventually swam away. "You should have seen them," bragged a woman to her husband, who had elected to stay topside. "They were gigantic."

Our guide listened with a smug grin. "They were really only about four or five feet," he said. "But don't tell them."



## Tiger sharks like turtles

George Balazs (Letters, 1/13) is a very dedicated scientist with the National Marine Fisheries Service. However, his field of expertise is not sharks. Dr. Balazs studies turtles, which are the No. 1 food source for tiger sharks.

Turtles have increased tremendously over the years since they have been protected. If they are left uncontrolled, more and more sharks will continue to come to the near-shore waters to feed. You have got to find a balance, and a balance doesn't mean kill all the sharks.

Since turtles were a prime food source for native Hawaiians, maybe it's time to have a controlled season on turtles. This would be socially and culturally acceptable for the Hawaiian people and healthy for the environment as well.

Dr. Balazs would hate to see his turtles eaten by a shark, therefore I think his emotions and personal opinions should not qualify him as a "shark expert" as your headlines indicate.

BOB ENDRESON

President

Hawaii Fishermen's Foundation

3/3/92 A13

## Sharks are a necessity *THA*

No matter how many sharks are caught and killed, people will still have the same fear toward sharks if they are not educated.

The state spent \$48,000 at a cost of \$175 a shark killed in 1971. In the more recent shark

hunt, \$500 a day was spent. I say, let's take that money and use it to educate people.

Show videos, put pamphlets on airplanes that come to these beautiful islands. Tell people about the beauty and mystique and legends of the sharks.

Let people know that out of hundreds of species, only 10 percent attack humans, and even they prefer to eat fish, eels, and lobsters. Sharks are scavengers that eat dead, dying and sickly animals and are a necessity for maintaining the health of their environment.

The risk of a fatal car accident while touring the islands is greater than the chance of being attacked by sharks.

NATALIE D. WALLACE

Pearl City

## Hawaiians hurt by division

As a senior at Kamehameha, I have been exposed to many different opinions concerning Hawaiians and Hawaiian values. Protect our land. Build for our people. Why is it that there are so many different, contradictory opinions?

Everyone is entitled to his own opinion, but if we want results, we need a foundation. Many organizations claim to be representing Hawaiians, yet a lot of us complain about these groups. Continuing like this will get us nowhere. The same thing happened to Mainland Native Americans and it took them years to get together because there were so many different tribes. We're Hawaiians: There's nothing separating us. Why can't we stand together?

If there is one thing that I've learned at Kamehameha, it's that you only get things when you work for them. Fellow Hawaiians, it's time we took control of our future. Let's start with good leaders, strong ideas and hope in the future.

KAHOKU SOON

Waikane



# HAWAII

Saturday, February 22, 1992 ■ Star-Bulletin

- Man shot downtown, condition critical **A-8**
- Suspect in Waikiki killing hears voices **A-8**
- Nightclubs are on the wane in Waikiki **A-5**

## Expert: Tiger shark population increasing

□ There are fears that one attacked a surfer

By Phil Mayer  
Star-Bulletin

The number of fearsome tiger sharks in waters off Oahu is probably increasing, says a Bishop Museum shark authority.

While a hunt for a single deadly tiger shark might be useful, a wholesale hunt of sharks would not likely make coastal waters safer, said Richard Pyle, collections technician in the museum's Department of Ichthyology.

Bryan Adona, 29, who has been missing since he went bodyboarding Wednesday at a North Shore surfing site known as "Leftovers," may have been attacked by a shark.

Searchers today continued to comb the shoreline stretching from Waimea Bay to Haleiwa for Adona, Sunset

Beach fire Capt. Jacob Ocampo said. A decision was made later today on whether to continue the search tomorrow.

Several experts who examined Adona's bodyboard said it was probably bitten by a shark. But police experts said no evidence of blood or tissue was found on the board, which had a 16-inch crescent-shaped chunk missing from it.

William Pyle, director of the state Department of Land and Natural Resources, said yesterday he needed more information before deciding whether to launch a shark hunt.

Pyle said the tiger-shark population is probably increasing. "But there is no agreement on whether or not that is because the number of turtles off Oahu is also increasing," he said.

Turtles are a favorite prey of the ferocious sharks.

"It might be a good idea to hunt for a shark big enough to be the one that

attacked Adona," he said, "because sharks do 'patrol' territories."

Pyle added that concerns of Hawaiians — who consider some sharks as family gods — should be addressed before any hunt is undertaken.

He said a shark warning should be posted on the beaches near Leftovers "for a couple of days."

"But I doubt that any wholesale shark hunt would accomplish much or make things much safer," Pyle said a person on a bodyboard is more likely to be mistaken for a turtle by a shark than someone on a full-size surfboard. The size of the bodyboard, accompanied by four human limbs hanging over the sides, might mislead a shark.

Adona, an Aloha Airlines' mechanic, was to be married to Dawn Kubol, Kubol's father, Harry Kubol, called Adona "a fine young man."

Star-Bulletin reporters Gregg K. Kake-sako and David Oshiro contributed to this report.

### Shark attacks

It can be difficult to tell if a shark killed someone or merely attacked the body of someone already drowned. These are figures on shark attacks in Hawaii:

- 1950s: 14 shark attacks reported and seven bodies found that had been attacked by sharks.
- 1960s: Nine shark attacks reported and four bodies.
- 1970s: 11 attacks reported and three bodies.
- 1980s: 24 attacks reported and nine bodies.
- 1990s: Seven attacks reported and two bodies (does not include Adona case).

Source: George Balazs, Federal Marine Fisheries Service



# Tiger sharks: Experts argue ways to control Isles' ocean predators

By Jan TenBruggencate

Advertiser Kauai Bureau

They're out there: huge gray beasts, forever cruising, feeding.

They're tiger sharks, the top predators in Hawaiian waters. And sometimes, a human gets in their path.

Some researchers say the tiger shark population today is as high as it's ever been. Surfers report seeing big sharks close to shore where they seldom used to. In recent months there have been several attacks or possible attacks, causing at least one and possibly more fatalities.

Interviews with many of the state's premier scientists in the field suggest that we know desperately little about these animals. The experts differ

over whether we know enough to go out and do something about the sharks. People seem to fall into three camps:

■ Some say tiger sharks are a natural part of ocean life, they belong there and we should leave them alone.

■ Others argue that we should respond only to known shark attacks. In each case, the government should immediately go to the specific area and set hooks to try to catch the shark or sharks involved, then quit fishing. This position has broad support.

■ The other end of the spectrum holds the opinion that we know enough about tiger sharks to know that their population is too high, and

that there's a danger. These folks say we should actively fish the tiger shark population to reduce its size, particularly in areas of high human use.

One thing everybody agrees on is this: We need to know more.

"There have been five shark control programs here, and all were supposed to include research, but the research was very secondary to the control aspect. That's why we're still faced with this dilemma today. We still don't know very much at all," said Brad Wetherbee, a University of Hawaii doctorate candidate studying shark ecology.

Bill Paty, director of the state De-

See Sharks, Page A6



Advertiser file photo

Waikiki Aquarium director Bruce Carlson in 1982 examines an 8½-foot tiger shark caught off Barbers Point.



# Sharks: How to handle Isles' ocean

## FROM PAGE ONE

partment of Land and Natural Resources, said his department has developed a new shark attack policy. The department will, based on a case-by-case assessment, try to immediately respond and have a contractor hunt for the shark involved in human attacks. It may also seek to fish for very large sharks that frequent populated areas or appear aggressive in those areas.

As for hunting sharks more aggressively, Paty said he hopes to assemble a broad-based panel, including biologists with a range of views, native Hawaiians with a cultural stake in the treatment of sharks, and others, to advise the state.

That is a position supported by the state House of Representatives' Committee on Ocean and Marine Resources.

"I don't support doing nothing, and I don't support fishing out the population. We need in the longer term to do research. In the meantime, I think we need an ad hoc group to pull together a position," Paty said.

Even those people who have been directly involved in shark attacks differ.



Advertiser file photo



Joe Thomason, who lost a hand to a shark while body boarding off Princeville in 1965, would prefer not to hunt down tiger sharks unless there is clear scientific evidence to support such a move.

"I would just hate to see large-scale executions. But over time, if research shows that shark populations are on the rise, then something should be done about it," he said.

In 1958, Mike Oakland was surfing with young Billy Weaver off the Mokulua islands off Lanikai. A shark attacked and killed Weaver. His death set off a statewide shark hunt that dramatically cut shark populations in Hawaii.

"I'm a biased individual. I was there. I'm watching what's going on right now and I'm not real comfortable. Something substantial has to be done with regards to the risk to the Ha-

waiian people," Oakland said.

He said the bounty program after Weaver's death, and state-sponsored shark hunts in the late 1960s and mid-'70s, helped keep populations down.

In recent years, without regular fishing or hunting of the animals, the population has climbed, Oakland said. He's seen more sharks in his own surfing and kayaking experience, he said.

"These things are just plain predators. Some kind of measured hunt is a must at the very minimum," he said.

Thomson, who still lives on Kauai's North Shore and still goes body boarding, said his own observation and discussions with fishermen suggest shark populations have increased off North Kauai.

George Balazs, a National Marine Fisheries Service zoolo-

gist who has studied shark attacks in Hawaii, told state lawmakers recently that it's been 15 years since the last major shark hunt, and it takes 15 years for a tiger shark to grow to 10 feet and 1,000 pounds.

With the population growing uncontrolled during that time, the sharks are likely near maximum size today, he said.

"At that size, they have no natural enemies, except for sharks that are even larger. The presence of maximum predators of apex flesh-eating predators of this sort is simply inconsistent with type of coastal marine use by humans occurring in Hawaii in the 1980s," he said.

Balazs said a "reasonable and prudent proposition" is the prudent of the population of tiger sharks of 10 feet or more in length in those areas where people are found.

A colleague at the National Marine Fisheries Service, John Naughton, said he agrees that numbers appear to be near maximum levels. He does not, however, back a broad attempt to reduce statewide tiger shark populations.

Naughton backs fishing immediately after any attack on living or dead humans, fishing for sharks where big ones are repeatedly seen in daylight hours, and fishing specific near-shore waters with heavy recreational use, like Waikiki, Sandy Beach and Makapuu.

Fisheries biologist Don Hear-

cock, of Kauai, said trying to catch the big shark involved in an attack on a human would appear to have little ecological impact, and could help make the waters temporarily safer for humans.

"I don't see any short-term or long-term ecological harm in an attempt to catch that particular shark, if it was caught right away.

"If you can catch that one single animal and take it out of the water, at least you're removing a top predator that's of large size in the food chain. If you remove that animal from the near-shore habitat, that animal is a natural resource, it's renewable," Hearcock said.

Wetherbee downplayed the risk of shark attacks and recommended against shark hunts, even limited ones.

"It's farfetched to believe that a shark will repeatedly feed on different humans. That's never been documented except in one case in 1916 in New Jersey, and that was a great white" and not a tiger shark, he said.

Wetherbee said hunting for a specific shark after an attack probably has no biological basis, but might be useful in making people feel safer and attempting to recover human remains for burial.

Christopher G. Lowe, another University of Hawaii Ph.D. candidate studying shark biology, said despite perceptions by others, his study suggests that



# predators debated

## More study urged as lawmakers weigh shark-control bill

By Jan TenBruggencate  
Advertiser Kauai Bureau

A \$200,000 bill to fund a shark hunt is working its way through the Legislature, but it calls for scientific data that many scientists say can't be obtained.

The House Committee on Ocean and Marine Resources, headed by Rep. David Stegmaier, calls for the continued hunting of three species of sharks, tigers, galapagos and gray reef sharks, to just short of the point at which their populations would be in danger.

A survey of several marine biologists familiar with sharks suggests that's an impossible task.

"At some point, you have to say, 'How are we going to evaluate whether it's having an effect?' What kind of data are we going to collect?" said Bruce Carlson, director of Waikiki Aquarium and a specialist in reef fishes.

The problem is that there isn't a lot of good information on tiger sharks, the most common of the large sharks in Hawaiian waters and the ones responsible for most attacks on humans.

In some parts of the world, they travel constantly, although there is some evidence that Hawaii tigers may be somewhat territorial. Experts say we need to know their normal feeding behavior and their normal movement patterns so we can identify sharks behaving abnormally.

"If study shows that they have very small ranges, then it might be appropriate to conduct hunts in small areas

of high use by swimmers and surfers. I wouldn't be opposed to it if we determined sharks have very small territories," said Richard Pyle, an avid diver who studies reef fishes and manages collections at the Bishop Museum.

Such a study has been proposed by Kim Holland, associate researcher at the University of Hawaii's Hawaii Institute of Marine Biology. During the past several years Holland has actively used ultrasonic sensors to track fish in Hawaiian waters, from small reef fishes to *ulua*, tuna and marlin.

He has proposed to the University of Hawaii, the National Marine Fisheries Service and the state Department of Land and Natural Resources a two-year intensive tracking study of big tiger sharks.

He would hook the sharks, attach a small transmitter to their backs, and release them. Then, using a boat, he and associates would track them. He proposes 72 hours of continuous tracking, and if a home pattern develops, the team would return for one day a week, and later one day a month, to assess the sharks' continuing behavior.

"We know from anecdotal information that there are some individuals that are very site specific," Holland said.

The proposal would produce just the kind of data that many researchers say is badly needed before the state undertakes any major shark control program.

"We need to get some answers," Carlson said.

— By Jan TenBruggencate

the late 1960s was that the number of smaller sharks increased as their main predators were removed from the waters. And, coincidentally, many anglers complained that sharks were commonly taking their catches, he said.

Bob Endreson, president of the Hawaii Fishermen's Foundation, said he opposes any government attempt to dramatically reduce overall tiger shark populations, but he said he supports catching big ones that are near populated coastal areas.

shark-control efforts have not had a serious impact on the number of shark attacks. He said there might be a bigger, unknown danger if populations of tiger sharks were reduced dramatically.

"The thing that scares me the most is we don't know what's going to happen if you go out and kill sharks. There will definitely be ecological ramifications.

"Man tends to intervene too often," Lowe said. Naughton said one impact of the shark control program of





By Fred Asmus, Special to the Star-Bulletin

Waimea lifeguard Kerry Atwood yesterday holds the bodyboard belonging to still-missing surfer Bryan Adona. Ocean experts believe a shark at least 8 feet long could have taken the bite out of Adona's bodyboard.

## Shark may have taken lost surfer

□ His bodyboard is found at Waimea with a large bite missing from it

From staff and wire reports

Rescue officials were to resume the search this morning for a missing surfer whose bodyboard was found more than a mile from where he went surfing Wednesday, missing a chunk that had apparently been bitten from it by a shark.

Searchers yesterday scoured the area on the Haleiwa side of Waimea Bay near Leftovers, the surfing spot where Bryan Adona apparently went surfing after work Wednesday and never returned to shore, said David Mortensen, acting captain of the Fire Department's Rescue Two unit.

Mortensen said no sharks were

spotted, but a lot of sea turtles — a favorite food of sharks — were seen in the area.

The board was found yesterday along Oahu's North Shore at the entrance to the Waimea River by a lifeguard at Waimea Bay Beach Park.

The family of Adona, 29, reported him missing at 10:35 p.m. Wednesday when he failed to return home from a late-afternoon surf session.

Searchers focused on the area surrounding Leftovers, a surfing spot 1 mile west of Waimea Bay, because it was Adona's favorite spot on the North Shore and because his truck was found near that beach. The truck's keys were found attached to the board's leash.

Although the board still must undergo police forensic tests, lifeguard supervisor Pat Kelly said it looked like the bite mark was left by a shark.

"It was a definite bite mark taken out of the upper left-hand corner of the board," Kelly said. "It's going

to be examined for further evidence by the experts. But at first sight, anybody would say "That's a shark bite."

The 16-inch-wide bite would indicate a shark measuring at least 8 feet in length, a shark authority said.

Adona's mother, Betty, said she often worried about sharks when her son went bodyboarding, but he always said her fears were groundless. "Bryan is an avid sportsman. He loves the water. And when he's bored, that's where he goes. He heads for the beach.

"Bryan is a very brave individual. He bars nothing. He does everything. And I worry about him. I've always worried about him."

When it came to the possible threat of sharks, Mrs. Adona said, "He never talked about the danger, but I did. When he used to go out to Diamond Head side and I used to tell him about the sharks out there, and he used to tell me that my fears were unbased."



“

Honolulu  
Star-Bulletin

A3

2/21/92

*He never talked about the danger, but I did.  
When he used to go out to Diamond Head side and I used to  
tell him about the sharks out there, and he used to tell me that  
my fears were unbased.*

”

**Betty Adona**  
Missing man's mother



## MOP Hospitality Japanese Students of Maritime Studies



MOP student guides and the JMMTS group aboard the Kaiwo Maro, docked at Pier 8.

Photo by Sherwood Maynard

Seven students from the Japan Marine Technical Training School (JMTTS) were led on a whirlwind tour of marine facilities on O'ahu by MOP Director Sherwood Maynard. MOP students Patrick Burns, Travis Gulnac, Susie Johnsen and Mary Roney and (thank goodness) a translator from the Center for Japanese Studies accompanied the group.

The day began at the Hawaii Institute of Marine Biology (HIMB) on Coconut Island with Cindy Hunter serving as guide. Hunter explained that Coconut Island was originally the high areas in the middle of the island only, and that the low coastal regions were man-made with a dredge from Kaneohe Bay. The group toured the research facility to observe various projects in operation. Translating the technical, and scientific terms was difficult, but the students were intrigued by the fact that a pet elephant and chimpanzee used to live on the island.

The next stop was a tour of the *RVTownsend Cromwell*, led by the ship's captain, Cmdr. Richard E. Marriner. The *Cromwell* is a NOAA fisheries research vessel that docks at the UH Marine Center.

The students were impressed by the *Cromwell's* fishing capabilities; 10,000 long-line fishing hooks on ten miles of line. While at the UH Marine Center the group also visited the Hawaii Undersea Research Laboratory (HURL) facility where Kevin Kelly introduced *SNOOPY*, a Remotely Operated Vehicle (ROV).

The assemblage stopped at Hawaii Maritime Center for lunch and tours of the museum and the Falls of Clyde. There was less of a language barrier during this tour because much marine terminology is international. Lunch consisted of Bento boxes for everyone and for the Mainland haoles in the group, lessons in the proper use of chopsticks.

The highlight of the trip for the MOP students was the tour of the *Kaiwo Maru*, the JMTTS training vessel. The *Kaiwo Maru* is a four-masted, 110.09-meter sailing vessel that holds 199 crew members. The ship was christened in 1988. The JMMTS students explained that their routine included a 6:00 a.m. wake-up call and two daily scrubs of the spotless wooden deck with coconut shells.

When asked about the sea conditions during their sail from Tokyo to Honolulu, the students described a storm they encountered in the North Pacific Ocean where the ship sailed at a 40+ degree angle and one of the guard rails was washed away.

The group continued on to the Hyperbaric Treatment Center and Look Ocean Engineering Lab for tours arranged by Lab Director Hans Krock. Final destination for the travelers was the UHM study center for a small reception.

During the day MOPers learned that JMMTS students enjoy baseball. In their honor MOP student coordinator, Mary Roney, arranged a trip to the UH Rainbows vs UCLA game at the UH stadium. The group enjoyed getting to know each other in a relaxed setting, though no translator was on this part of the tour. Their English improved with their consumption of beer. After the game, the JMMTS students headed to Waikiki to buy Mickey Mouse T-shirts and UH baseball caps.

Instead of braving the high seas at the end of their stay in Honolulu, the group gratefully returned to Japan by plane.

☉ - Mary Roney

## MOP Mail Bag

Dear Editor:

Let me take this opportunity to strongly differ with your editorial opinion in the article entitled "Local Incident Sparks Controversy." (Seawords, January 1992). Enclosed is an article I wrote to the Honolulu Advertiser, publicly stating my opinion. Please consider printing it as a counterpoint to your view.

Why wait for a tragedy to strike again before doing something? Why not do some controlled remedial fishing now, at selected sites, like those heavily used for snorkeling, swimming and tourism, such as Olowalu? Why not take reasonable and prudent steps beforehand to lessen the risks? The key word here is control, not eradication.

The last shark control program in Hawaii was conducted in the mid-70s, about 15 years ago. According to a study done at the University of Hawaii, it takes approximately 15 years for a tiger shark to grow to 10 feet in length and weigh 1,000 lbs. At that size they have no natural enemies, except other large sharks.

The late Dr. Alber Tester of the University of Hawaii conducted a successful two-year shark research and control program in our coastal waters from 1967-69. At the completion of this program, Dr. Tester stressed that if fishing was not continued, the shark concentration would automatically rise again. I'm afraid we're seeing that happen right now.

- George Balazs,  
1/13/92 Hawaii Kai

*In a hand-written aside Balazs also note noted:* Large numbers of 10-foot-long predators are simply inconsistent with marine recreation and tourism in nearshore waters at many sites in Hawaii. However, the Northwestern Hawaiian Islands' nearshore waters don't host tourism and are a place where tiger sharks are left to flourish. 1/30/92





# Japan hit by shark scare

## Diver killed; many recent sightings

By Jan TenBruggencate  
Advertiser Staff Writer

Japan is in the throes of a shark scare after a shark killed a shell diver and an unusual number of sharks have been spotted within Japan's Setouchi inland sea.

Reporter Keiko Tamai said divers are afraid to enter the water after the attack, and Japan's people want revenge. Tamai is a freelance writer with Japan's weekly magazine Asahi, a part of the giant Asahi Shimbun publishing firm.

Concern grew further after heavy fishing gear set to catch sharks was broken and carried away, apparently by a very large shark.

Kazuta Harada, 41, a professional diver, was attacked and killed by a shark March 8 while diving in Japan's inland sea.

He and his partner were operating out of Matsuyama on Shikoku Island, and dove in the area of the inland sea between Shikoku, Kyushu,

and the main island of Honshu. Tamai said the two were diving for *tairagi*, a shellfish that is eaten in Japan. They used heavy diving suits with metal helmets and air lines to the surface.

The partner watched as the shark attacked Harada, Tamai said. The English language Japan Times reported that Harada had asked to be pulled to the surface, but that by the time co-workers began pulling, his body was gone.

The newspaper displayed a photograph of Harada's diving suit. The entire bottom section was torn off. The metal diving helmet was punctured, Tamai said.

The Japan Times reported that officials attribute the presence of sharks in the inland sea to an unusually warm current that flows up from the south of Japan. There had not been a recorded shark attack in the area in 40 years, Tamai said. Since early this year, there have been several sightings.

A shark had attacked another diver in February, but left after attempting to bite his helmet.

After the Harada attack, Japanese divers are worried, Tamai said.

"The people want revenge," she said. "They stopped diving and were trying to hunt the shark," she said. "They set out hooks on wire cable with large floats. They used pig heads, chickens and pieces of tuna for bait. After a few weeks, something took a hook and broke the cable."

Tamai said researchers in Japan believe Harada was killed by a great white, a shark with a fierce reputation. It was the model for the shark in the movie "Jaws."

Tamai was placing calls to Hawaii this week to learn more about sharks.

Most Hawaii shark attacks involve tiger sharks, but great white sharks are not unknown. One is implicated in an attack on a surfer off Makaha in 1969.



# Bryan: Body boarder

## FROM PAGE ONE

Wednesday to call Dayna — an artist for a local design firm — and say he was going to his favorite surfing spot, a little break called "Leftovers," about a mile and a half Haleiwa side of Waimea Bay.

He went alone.

Sometime after he paddled out through the choppy 3- to 5-foot waves that evening, officials now suspect, a shark at least eight feet long mistook Bryan's spread-eagled form on the body board for that of a turtle, and attacked.

City Water Safety Division officials declined to post shark warnings or close the area beaches yesterday lest they create a false scare; and state Land Board chief Bill Paty held off on any shark hunt pending more investigation.

At least one relative was critical.

"I can see why they don't want to create a shark scare," Bryan's brother-in-law, Ken Pichay, said yesterday, "but there is public safety involved in this. I'd hate to see any more families go through what we are going through."

When Bryan didn't come home Wednesday night, Dayna began calling friends and family. Bryan's best friend and surfing buddy, Derrick Dumlao, went out to Leftovers.

Dumlao found Bryan's truck, locked up tight, just at the entry to the beach.

All night, friends and family scoured the North Shore coastline and scanned waves, lit by a waning moon. Police and fire units, including the fire helicopter Air One, kept up the search until 2 a.m. yesterday, and then resumed at dawn.

At about 9 a.m., city lifeguard Kerry Atwood was setting out signs on the beach at Waimea Bay when he spotted a body board on the shore of Waimea River, just inland from the sandbar separating the stream from the sea.

Chopped out of the upper left-hand corner of the black-topped board was a gaping, curving hole, 16 inches across.

"I'm not an expert, but it looked like a shark bite to me,"



**Bryan Adona**  
Missing since Wednesday

Atwood said. Several other veteran water experts and rescuers agreed yesterday.

Fellow lifeguard John Hoogsteden took one look and linked the board up with the radio report he'd just heard, about a surfer missing since the night before.

There had been kona winds, strong enough to push the board from Leftovers to Waimea, where waves could easily have carried it across the sand and into the stream.

At the search command post at Leftovers, Dumlao and Pichay positively identified the board as Bryan's. The clincher was the key to Bryan's truck, still secured by a metal ring and strap to the spot where the leash was attached to the board.

When they told Dayna, she let out a cry and collapsed on the beach.

After being treated for shock by paramedics, Dayna was taken back to Ewa to wait in their new home.

Other family members, including Bryan's step-brother, Dennis Luat, and his son, Derrick, took up the vigil on the beach, joined by fire rescue crews ashore, Water Safety jet rescue craft in the water and Air One overhead.

Derrick Luat, who worked with his Uncle Bryan at Aloha, said he was a good surfer. "He knows the breaks and the currents," Luat said, scanning the water with his binoculars.

Nothing was found yester-



# missing; attack feared



Advertiser photo by Bruce Asato

Dennis Luat and his son, Derek, scan the "Leftovers" surfing spot.

day; officials said they would continue to search for at least two or three more days.

Bryan's parents, Ben and Betty Adona of Pearl City, flew in from their Las Vegas vacation home to wait in agony.

"He loves the beach," Betty Adona said yesterday. "He is a very brave individual. He fears nothing; he braves everything." She had always warned him not to go out alone, even when he used to surf in Waikiki, but he always told her not to worry, she said.

One of Bryan's five sisters, Rendi Pichay, said she had pretty much accepted the situation by yesterday afternoon. "I've lost my baby, my baby brother," the youngest of the seven children, she said.

"He always looked after me, he was always giving, always thinking of his friends," she said.

"It was not his time to go," she said. "He's gone through so much, got his life together after the accident, which was horrible, gone through physical therapy, bought the truck, the house, and they were going to set a date. Things were going so great.

"It's not his time to go," she said again, her eyes filling with tears. "He's got everything go-

ing for him. . . ."

Dayna brought out a picture of Bryan, and stood quietly by, still in shock, hardly speaking.

She was wearing white. Dayna said they had been sweet hearts for 10 years, and that Bryan would never let her cut her hair.

When Dayna turned to go into their house, you could see her hair was almost down to her heels.



Associated Press

A year ago in the Gulf War:  
**Day 36, Thursday, Feb. 21**

Seven U.S. soldiers are killed when an Army medical evacuation helicopter crashes in Saudi Arabia. Two Americans are killed in the crash of an Army OH-58 scout helicopter returning from combat operations on the border. Two other U.S. aircraft also go down. Twenty-three U.S. and nine other allied aircraft have been lost thus far. The Kremlin says Iraq and the Soviet Union have agreed on steps that could lead to a Kuwait withdrawal.





JOHN ARAKI photo

Skip Keathley and Theresa Parsons pose on the 24-foot Wowle Maul

# White with fear



# Fishers spend terrifying time with what might have been great white

By **TIMOTHY HURLEY**  
Staff Writer

**W**AILUKU — Theresa Parsons still shivers from the memory.

It was three weeks ago in a darkened ocean off Maui that the Ulupalakua woman and her fishing partner, Skip Keathley, were cornered by a huge ocean predator for 15 minutes of terror.

The two huddled frozen inside the cabin of Keathley's 24-foot fishing vessel, the Wowie Maui, while the ominous sea creature slowly circled the boat, bumping and slapping it like a toy, rocking it back and forth.

Only later did Parsons and Keathley realize that, based on its 18- to 21-foot size and the shape of its tail, the animal could only have been a great white shark, the creature vilified in the movie "Jaws" and a rare but known visitor to Hawaiian waters.

"It really was a monster," recalled Parsons, 42. "You can see where all these old sea stories come from. It's terrifying. I've had my share of traumas in my life, but nothing like that."

The drama occurred May 16 between 9:15 and 9:30 p.m., 8 miles

due southwest of Maalea and 4½ miles south of Olowalu, the location of October's fatal shark attack on a swimmer.

The two were bottom-fishing, anchored in 60 fathoms (360 feet) of calm water and using bloody chum in a full moon's light soft-

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**'It really was a monster. You can see where all these old sea stories come from. It's terrifying. I've had my share of traumas in my life, but nothing like that.'**

— Theresa Parsons

ened by a layer of high cirrus clouds.

Parsons had just hooked a 10-pound opakapaka and was taking the hook out of its mouth when she heard her partner call her to the other side of the boat with "quiet urgency." She went to the side and noticed that the ocean water had turned calm where the big fish

had disappeared under the boat.

The anglers dropped everything and moved swiftly to the small three-sided cabin at the center of the boat. Staring back at the stern, they got their first good look at it. A whopping dorsal fin stood out of the water 30 to 35 inches. The tail fin was 10 feet behind that.

"At first we wondered if there was a school of sharks," she recalled. "It almost looked as big as a whale. But then we realized a whale doesn't have an upright tail."

They could see a huge eerie white glow just below the water, the creature turning to show its white underside as if craning to see what was happening on board.

"It was pretty scary," Parsons said. "It sent shivers down my spine."

Parsons, a former tour boat operator, and Keathley, a veteran part-time commercial fisherman, confirmed the length of the fish by comparing the side of the boat to the length of the glow.

"I think we needed a bigger boat," she said. "I felt way over-matched."

For 15 minutes the shark slowly circled the boat, banging into it ev-

**See WHITE WITH FEAR**  
on the last page of this section



## White with fear: Fishers spend terrifying minutes with shark

Continued from Page A1

ery so often and knocking it back and forth.

"He was checking us out closely and continuously," she said. "I definitely felt harassed."

The shark evidently was trying to figure out what was going on and perhaps trying to knock something edible into the water.

Meanwhile, they were thinking any second the shark would lurch out of the water and swamp the boat. Some large sharks are known to do that, and the Wowie Maui sits relatively low on the water.

"The boat smelled like squid and anchovies. He probably thought it was pretty tasty," she said.

Because the propeller was tied up, the anglers couldn't just start the engine and leave. Finally, however, they realized the shark wasn't going away, so Keathley crawled to the back of the boat, put down the propeller, started the engine and took off.

The pair didn't look back.

"We were wide-eyed and in shock," she remembered. "I kept revolving in my mind what had happened."

"It was a gut-wrenching experience. He was in his element, having no mercy, no reason. We were just part of the food chain.

"He easily could have jumped out of the water and onto the boat if he smelled the opakapaka I had caught."

Keathley caught a 14-foot tiger shark in 1988, and he knows from that struggle how much fight these fierce animals have in them.

"This one made (the 14-footer) look like junior," he said.

John Naughton, a National Marine Fisheries Service biologist, said the incident as described to him included "very characteristic behavior" of a great white shark.

There are reports of great whites being attracted to fishing boats, especially when they are chumming, he said, and in one incident off the Big Island, a boat was sunk by a shark and the fishermen spent a terrifying night in the water.

"I think it was a very good idea for them to get out of area," he said.

The great white shark is normally found in cooler waters occupied by seals and other pinnipeds, a main source of their diet. But they

are found in Hawaiian waters on occasion, Naughton said.

Naughton said beachgoers should feel no cause for alarm because this incident occurred in the kind of deep water great whites sharks would normally be found.

For Parsons, she still harbors bad memories of the nighttime encounter.

"I was out fishing yesterday, and the waves were hitting the sides of the boat, it was broad daylight but it still evoked feelings that put a fist on my heart."

Parsons said she has resolved to change the way she fishes. For example, she will never again lean over the side of the boat to wash her hands in the ocean. She will instead use a bucket.

"If Skip hadn't have called me to the other side of the boat, who knows if it could have grabbed on to my hands?"

She also will never again go swimming off a boat she's been fishing on.

"I've always had a tremendous respect for the ocean. I know how dangerous it can be. But after this I certainly have an increased respect for the ocean's inhabitants."





A10

## Editorials

Saturday, October 24, 1992



# Death stirs new stance on sharks

By Peter Wagner  
Star-Bulletin

**E**VEN the best of watermen on Waianae's sandy coast say it's time to rethink the rights of sharks.

"Sharks in the area have been getting really aggressive lately," said city lifeguard Mel Puu, a 43-year-old surfer. "I don't know why it's happening but it should raise concern."

Like others who grew up in the area, Puu feels a close tie to the ocean and its creatures. But yesterday's fatal attack in the clear, inviting water just 50 feet off Keeau Beach left him searching his feelings.

"I just feel sorry for the family, and for the kid whose life got taken away," he said.

According to friends of the victim, 18-year-old Aaron Romento was waiting for his last body-board ride of the day when a large shark took a chunk out of his leg. A major artery was cut and Romento died of blood loss shortly after struggling to the beach.

Dr. Robert Bonham, attending physician at the Waianae Coast Comprehensive Health Center, described Romento's wound as about 12 inches wide and 3 inches deep, across the back of the thigh and calf. A puncture wound also was found on the front of his leg.

Witnesses camping on the beach nearby said a 12-foot shark was seen in the area four days earlier, not particularly noteworthy considering the frequency of shark sightings along the Waianae coast. But turtles, a favorite food of sharks, were also reported seen yesterday in the vicinity of the attack.

Marine biologists speculate that body boarders may be in particular danger because, with arms and legs dangling over the sides of the small boards, they resemble turtles from below.

Robert Quartero was among those who later turned up to ponder the tragedy at the scene — an idyllic crescent of sand often crowded with beach-goers on weekends.

"Sharks are like everything else, they have a right to live," said the 24-year-old Maili resident. "But when they're interfering with people, it's either us or them."

Quartero feels dangerous sharks should somehow be kept away from highly used recreational beaches, but left alone in the deep blue sea.

"We have to do something about this," he said. "It's getting out of hand."

Ryan Gabato of Ewa Beach was fishing from a rocky ledge not far from the beach several hours after the attack. He recalled a time 20 years ago when a bounty was put on shark heads and new delicacies turned up in fish markets.

"We never had this problem then," he said. "What ever happened to those fish cakes they used to make?"

Gabato said sharks are important as predators in the ocean. He doesn't want to see a massive hunt, such as was carried out after the death of 15-year-old William "Billie" Weaver in a 1958 shark attack off Lanikai.

But a limited bounty program aimed at the largest man-eaters might ease concerns, he said.

Brian Keaulana, head lifeguard in the Waianae area, wouldn't comment directly on the matter. The rights of sharks vs. people is a sensitive one among Hawaiians, environmentalists and others alarmed by increasing shark sightings and attacks in recent years.

"They're out there," he said. "It's their environment."



Brian Keaulana



## SHARK: State plans hot line for sightings

Continued from Page A-1

to discuss the possibility of some controlled hunting off popular surfing sites, or locations of frequent shark sightings, Naughton said.

It was just two weeks ago that the task force did a similar hunting effort.

Fishermen set lines of Laniakea on the North Shore after a tiger shark took a large bite out of a surfer's board. Three tiger sharks were caught in the one-night effort.

People who have had a brush with a shark or have consistently seen large creatures in certain locations will soon have a central hot line where they can make reports. The Shark Task Force is about to offer that service, Naughton said. It will be a data-gathering tool which may aid in the decision to cull creatures from specific locations.

"There is no evidence that one shark will go out and attack a human again," said Christopher Lowe, who has undertaken research in shark biology in working for a doctorate at the University of Hawaii. "There is no scientific evi-

population, but they still have attacks, which tends to show that they are random events."

Lowe said Florida, even with the possible effect of bad publicity on its tourist-based economy, "has never even considered massive shark control."

There is a spiritual consideration about sharks in Hawaii that Florida doesn't share, and it was reflected in the presence of Hawaiian community leader Frenchy DeSoto aboard the fishing boat last night.

Sharks have been the aumakua or guardian spirit of some Hawaiian families for centuries. Sensitivity about potential shark slaughter set off a furor in the Hawaiian community on Maui last year. Some worries were about how the hunting was done at the site off Olowalu, where Martha Morrell was killed by a shark Nov. 26.

"Our aumakua take care of us. But when there is a predator, if it injures someone, it must be gotten rid of," DeSoto said.

She said the fishing crew and members of the Hawaiian community prayed together before the fishing boat left to set the lines last night.

"The protocol is important," DeSoto said. "We consulted with Hawaiian kupunas (elders) in Waianae and the Edith Kanakaole Foundation... we collectively discussed how to proceed with knowledge and spirituality."

"There is also this community's

deep pain of aloha and sorrow for what happened to (Romento's) family. We all are praying because we can imagine what kind of pain they have," DeSoto said. "We send them our aloha."

Romento's mother arrived at Waianae Coast Comprehensive Health Center yesterday after her son's body was brought there by ambulance. She and friends later went to Keahu Beach Park to talk with lifeguards and other witnesses.

"Some of us were saying that if it happened to a tourist, there would be eradication," said Rell Sunn, world-famous woman surfer. "Since it happened to a local kid, there won't be."

"I think there should be eradication where there are repeat offenders. Not go out and kill everything, but hunt in an area where there are a lot of people to protect."

"I've talked about it (with Hawaiian surfers), and they say an aumakua is a spirit, it isn't something that eats," she said.

Sunn, also a Leeward coast lifeguard, said she has seen more sharks in the past two years than ever before. She dives for fish, often going far offshore alone.

"A sign that the surfers know there's danger is when you pass Maui Point on a perfect day and no one is in the water."

"Surfers don't want to be the first one in the water anymore."

Star-Bulletin reporter Peter Wagner contributed to this report.



By Dean Sennel, Star-Bulletin

After the shark attack, the city closed Leeward beaches, posting signs like this one at Mōkaha.

dence to support that there is a pattern of attacks, that there might be a 'rogue shark.'

"Ecologically, a selective hunting is better than a full-scale control program."

"It is hard to argue with logic because there is a fatality involved — you're dealing with human emotions."

Lowe said scientists have looked for patterns in Florida, where 15 to 20 shark attacks are reported each year. "They have decreased the



# Honolulu Star

FRIDAY, NOVEMBER 6, 1992

THE PULSE OF

## Shark attacks



Recent attacks in Hawaii waters since 1991:

- 1** Nov. 5, 1992: Aaron Romento, 18, of Pearl City is fatally mauled while bodyboarding with friends in front of Keaau beach Park in Leeward Oahu.
- 2** Oct. 22, 1992: Rick Gruzinsky of Hawaii Kai received minor cuts from shark who flipped and bit his surfboard off Laniakea Beach north of Haleiwa.
- 3** March 28, 1993: Jude Chamberlain of Hanalei, Kauai, received minor cuts to left foot from shark who bit back part of her surfboard at Cannons off Haena, Kauai.
- 4** Feb. 19, 1992: Bryan Adona never returns to shore from surf session at Leftovers on Oahu's North Shore. Bodyboard with shark bite washes ashore at Waimea Bay.
- 5** Nov. 26, 1991: Marti Morrell of Olowalu, Maui, fatally attacked by shark off Olowalu, Maui.
- 6** May 26, 1991: Scott Betz, 24, of the North Shore, bitten on right leg while surfing Maui Point.
- 7** April 3, 1991: Man bitten on leg while sitting on his surfboard off Oneula Beach, Ewa.



By Dean Sensul, Star-Bulletin

No swimming signs yesterday warn beachgoers at Makaha Beach Park.



## Killer shark hunt hooks four off Leeward coast

□ The task force hopes to learn whether one is the Keeau attacker

By Mary Adamski  
Star-Bulletin

The state Shark Task Force this morning caught four tiger sharks, including an 11-footer and 13-footer, in the search for the shark that killed a surfer yesterday off the Leeward coast.

They set 12 hooks baited with ahi last night at a depth of about 40 feet, directly off the site of the attack.

The victim, Aaron Romento, 18, of Pearl City was bitten in the thigh while bodyboarding about 20 yards off Keeau Beach Park just before 10 a.m. He paddled to shore but died of massive bleeding.

Bill Paty, director of the Department of Land and Natural Resources, said the

11-footer was a male and the 13-footer was a female. The two other sharks were small ones and only their heads were left on the hooks, Paty said. The large sharks will be dissected to try to determine whether one of them was responsible for the attack.

From the descriptions of sightings in the area of yesterday's attack, John Naughton of the Shark Task Force said he is "95 percent sure that it was a tiger shark."

"They appear to have a home range," he said, "so the idea is to go out as soon as possible and set gear immediately off the site. If you fish the area of the attack, chances are good that you will catch it."

"I'm afraid after this attack, there will be pressure to mount a large-scale control program. I would recommend against that," said Naughton, a biologist with the National Marine Fisheries Service.

An increase in the number of encounters has already led the Shark Task Force

See SHARK, Page A-9

### Inside:

■ Waianae ocean users say it's time to rethink the rights of sharks.  
Page A-9

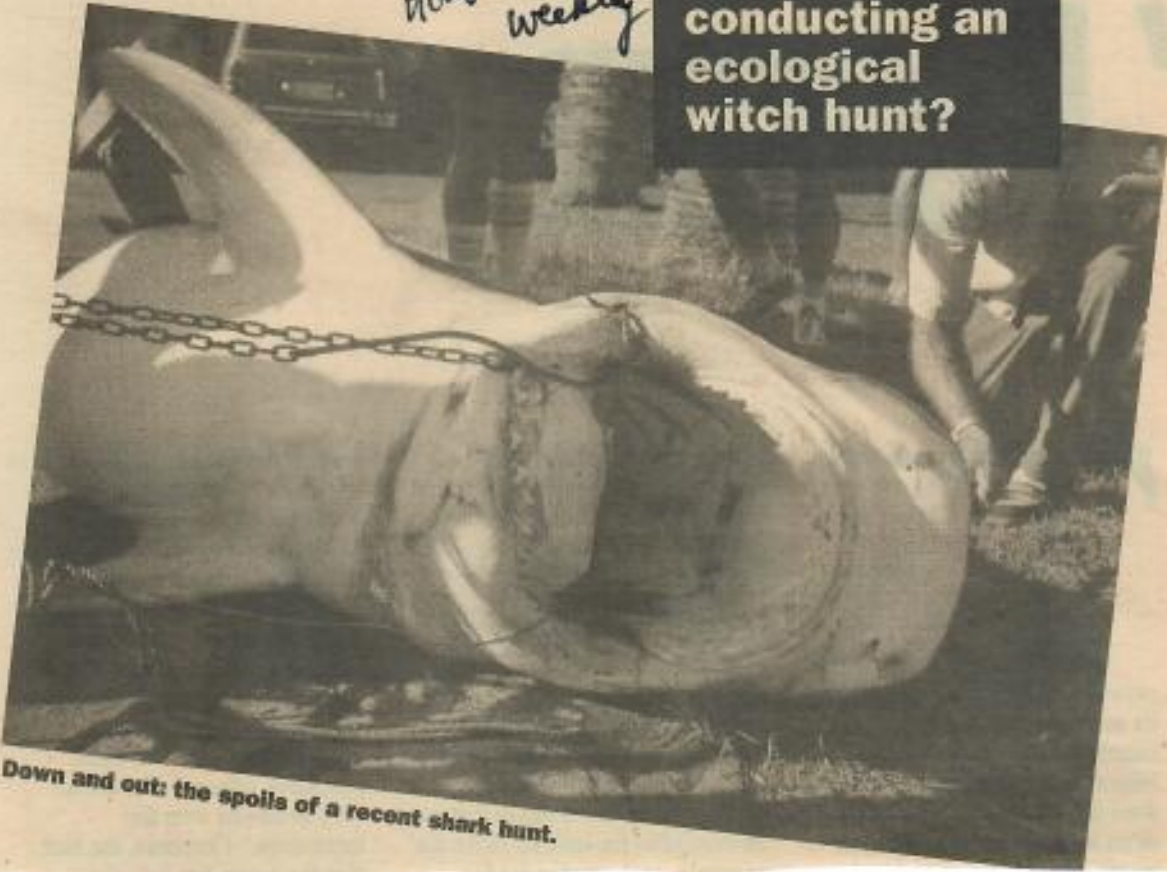


**Mauka to Makai**

12/9/92  
Honolulu  
weekly

p.3

**Is the state  
conducting an  
ecological  
witch hunt?**



**Down and out: the spoils of a recent shark hunt.**



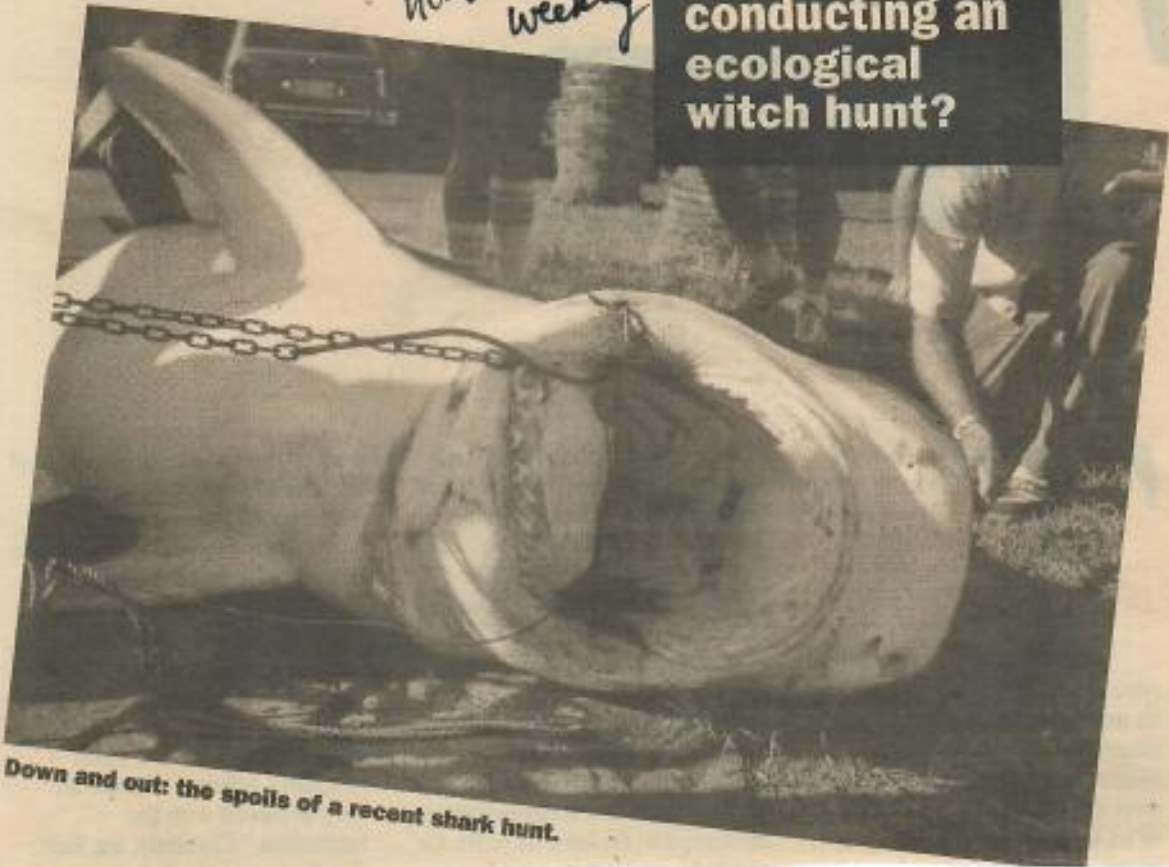
**Mauka to Makai**

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**Is the state  
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**Down and out: the spoils of a recent shark hunt.**



# The Attack on Sharks

**T**he state's recent decision to hunt and kill tiger sharks is an act of environmental terrorism that characterizes the ignorance, ineptitude and sheer lack of respect for life found in modern-day industrial society. In the wake of two recent incidents — a North Shore attack on the board of a surfer and a Waianae Coast fatality in which an 18-year-old Boogie Boarder was attacked near shore in shallow water — the state Department of Land and Natural Resources has undertaken an effort to reduce the population of larger tiger sharks by systematically fishing them from selected Oahu areas.

On Nov. 29, the DLNR reported killing two large tiger sharks at two selected Oahu hunting areas, Maili Point and Makaha; in addition to the deaths of the targeted species, the Nov. 29 effort resulted in the "incidental" deaths of five sandbar sharks. A total of eight tiger sharks were caught and killed off Oahu in November. The state plans to conduct four or five more hunts on the North Shore and on the windward coast of Oahu, as well as at Waikiki and Kewalo Basin.

Motivated by the fear of losing the all-important tourist dollar, the state is disregarding a very simple fact — life is full of dangers, and risk is an inescapable part of life. We all engage in risk reduction on a daily basis. When we wait for the light to change before crossing the street, or fasten our seat belts when we get in our cars, we improve our chance of not being killed. In Hawaii in 1990, for example, the chances of being killed by a moving car was 173 times greater than the chance of being attacked by a shark. But no one is suggesting that we stop going out into traffic because we may be killed. The idea that we are capable of eradicating or reducing an age-old risk to those who venture into the sea by killing other creatures is ill-formed and smacks of

the same type of exploitative attitude that has brought us to the brink of ecological disaster.

Because of the terrifying nature of death by shark attack, the public will condone drastic measures in exchange for a false sense of security. But as marine scientists are quick to point out, the ocean is a big place, and, in spite of considerable research, very little is known about sharks, especially pelagic (open water) species like tiger sharks. Furthermore, when a specific shark is hunted, such as after a fatal attack on Maui in 1991, finding the actual animal that committed the assault is virtually impossible.

## DALE GILMARTIN

Large-scale shark hunting has been undertaken in the Hawaiian Islands in the past: According to National Marine Fisheries Service data, 4,551 sharks were killed in four separate eradication efforts from 1959 to 1976 in the name of making Hawaii a safer place for aquatic activities. Those in favor of shark hunting efforts often cite the nearly three-fold increase in the number of shark attacks in Hawaii since the hunts ceased — up from an average of less than one a year in the 1960s and '70s to 2.75 per year from 1980 to 1992. Often overlooked is the fact that, in the same time period, the number of visitors to the state increased four-fold and Hawaii's resident population increased by 45 percent. The increased incidence of attacks may simply reflect the larger number of people in the water.

As a SCUBA instructor, underwater researcher and recreational diver, I have logged over 600 hours below the ocean's surface. I sometimes dive towing a bag with speared fish, at night, during sunset, and often with only one other person — all factors that predispose me to shark attack.

I have seen dozens of sharks in

my time underwater, which probably means dozens more have seen me. I have a very real and healthy respect for the predators' capacity to munch me, but this doesn't keep me out of the water. When I dive, I enter the *sharks'* world and accept the risk inherent in that fact. I do not believe it is the state's responsibility to make the waters of Oahu a safer place for me. It is my responsibility to weigh the risks involved and to act accordingly.

The death of Aaron Romero, who was attacked in Waianae last month, was a tragedy, and I feel for the anguish that his family must be in. If he were my brother, I would be furious at the injustice of his death. But avenging his demise by killing sharks is not the solution. The primitive concept of "an eye for an eye" will not work, particularly with a creature that is simply exhibiting the behavior eons of evolution have led it to perform.

As one of the older organisms living in the sea, sharks have played an integral part in the creation and maintenance of the ecosystems that comprise our marine environment. The sub-tropical oceans surrounding Hawaii are a complex and beautiful network of interconnected life forms ranging from microscopic phytoplankton to top predators, such as sharks. To arrogantly assume that we as humans have the right to remove a vital part of that system in the dubious name of "public safety" is ill-informed at best and foolhardy at worst.

Native American leader Chief Seattle said, over 100 years ago, "The earth does not belong to man, man belongs to the earth." The deaths of those few who meet their demise in the jaws of a shark are a solemn reminder of that fact. ■

*Mauka to Makai offers members of Hawaii's community an opportunity to express their views.*



# , shark hunts

exist symbiotically with all living creatures? Shouldn't we be caretaker of this earth, instead of conqueror/destroyer?

Sadly enough, the bottom line in this case, I believe, is money - specifically tourist money. If I'm right, we've truly sunk to new depths.

LYNN McDOWELL

## Sharks are simply hungry

Why are we now seeing so many large sharks in shallow water in Hawaii? To have a shark attack a person in only five feet of water is extraordinary and tragic. I do not believe that the presence of a few more turtles in the water is a plausible explanation.

I think there is a more logical explanation. I suspect that sharks have found a significant decline of fish and other marine life in deep water and come near shore because they are simply hungry. The reason for the decline could be A) the proliferation of long-line fishermen, but especially B) the widespread use of the lethal method of fishing called drift nets, which are often many miles long. The use of these curtains of death is genocidal. They are to the ocean what strip-mining is to the earth and clear-cutting is to the rain forests. They put short-term profit above intelligent use of resources.

A19 THA 2/2/92 JON OLSEN

## Scientists altered behavior

The reason we are having so many shark attacks is because of all the scientific studies being conducted. It seems the more scientists study shark attacks, the more attacks occur.

Sharks usually feed between dusk and dawn. But in order to see the sharks better, scientists are feeding them in the middle of the day. When wild animals are fed regularly for even a few days they start to associate humans with food. These sharks will start to associate humans and daylight with food, hence, if these sharks see human activity in the water, they will investigate, looking for something to eat. This is why that body boarder was attacked in the middle of the day. That is not normal shark behavior.

Night divers are not being attacked as much as surfers and body boarders, which doesn't jibe with scientific facts. With all the attacks we are getting during the day, night divers should all be bitten because of all the fish they drag around in the water.

Scientists will deny this because it will mean their funding will be cut off, but it's true.

LEE N. KANESHIRO

## We destroyed their habitat 12/2/92

I think killing the tiger sharks is not a permanent solution to the problem. The sharks are obviously hungry and wouldn't bother eating people if they had enough turtles and fish to eat. What is happening to all the sea turtles and fish? Our sea turtles are diseased from pollution and the fishing industry is killing off the fish.

Our ecology is very fragile and there can be great ramifications when it is altered by human beings. I strongly believe that every person needs to have respect for the land and natural wildlife. If we had not destroyed their natural habitat we would not be having this problem.

JANIE TANAKA

## We've sunk to a new low

This whole business of shark hunting just exemplifies the pervasive and highly egocentric attitude we have toward non-human inhabitants of this earth. We feel we have the right to control, manipulate or kill for our convenience, pleasure or revenge. A shark is no more evil or malicious than a rattlesnake or a badger. It is purely a creature of instinct, reflex and habit.

I have the greatest sympathy for the families of shark attack victims and share their horror and grief. But we must remember that the sea is the shark's home, not ours!

We cannot just wildly begin an extermination campaign without considering the potential consequences - damage to the entire ecosystem of the Pacific Rim, for example.

But what really bothers me about this entire issue is more philosophical than scientific. Exactly what is wrong with us that we cannot





The carcass of the 13-foot shark is unloaded from the Kahanuola at Waianae Small Boat Harbor at 9:16 a.m. Advertiser photo by T. Umeda

## Guard to patrol sniper-riddled r

By Phil Long  
Knight-Ridder Service

TALLAHASSEE, Fla. — Gov. Lawton Chiles yesterday ordered the National Guard to patrol Interstate 295 — by Humvee and helicopter — as national attention focused on repeated attacks on motorists in the Jacksonville area.

The move comes on the eve of the state's busiest tourist season and a day after three major television net-

works told their nationwide audiences about increasing concern over the attacks, which have killed one motorist and left another partly paralyzed.

The highway, which carries tourists from the East Coast, is considered the busiest tourist gateway into Florida and carries about 80,000 cars a day.

Humvees filled with soldiers began patrolling a 10-mile stretch of the road last night. Helicopters with heat-seeking night scopes will soon

follow. Local police — extra — and a special squad of Florida Highway Patrol officers — will join

"We are going to be very out there," said Jim McMillan, of Duval County. "We want to sure that people in this com feel they're safe and the peop are visiting to our state feel li are safe."

The patrols will guard 10 m tersections, including seven ov es west of downtown.

### What's Inside

4 sections, 34 pages •

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## State sweetens fu

Will loan over \$200,000 to cov

By Kit Smith  
Advertiser Financial Writer

The state Labor Department has agreed to advance more than \$200,000 to cover workers' compensation benefits owed by Hamakua Sugar Co. to some 250 employees

down its precarious journey t reorganization under federal ruptcy Court protection.

Announced yesterday to Bar cy Judge Lloyd King, the i paves the way for closing the three parcels of former Ha Sugar land for \$215,000.



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Advertiser Capit  
By Kevin D

# Hundreds gather to see dead sharks and mourn victim

By Walter Wright  
Advertiser Staff Writer

Small children in bare feet pranced dangerously close to the grimacing, rubbery dead-white mouth of the 13-foot tiger shark.

Next to the carcass, a smaller 10-foot tiger shark twitched on the boat ramp despite the two bleeding .45-caliber bullet holes in its head.

Underneath the gray skin, rough like an old man's razored beard or a tiger's tongue, nerves sent signals. The dorsal fin flexed slowly back and forth.

The second dead shark, its eyes staring sideways and down as it lay on the dry land, was still trying to swim.

...

The sharks were at the center of an epic tableau that galvanized the Waianae community yesterday in the wake of Thursday's fatal shark attack on an 18-year-old body-boarder.

Viola Ramaila, mother of Aaron Ro-

mento, the Pearl City man killed in the attack, watched yesterday morning as Shark Task Force members hauled the largest two of four tiger sharks hooked overnight up the Waianae Boat Harbor launching ramp in the midst of a crowd of hundreds.

"Oh, my God," gasped one onlooker when the largest shark was dragged out of the boat's stern and flopped into the water.

"I wanted to go there and just kick it," Ramaila said, quiet and composed behind her dark glasses. "I just hated it, but I didn't want to make a spectacle. Oh, God, I just don't believe this. The anger, the hurt - I can't believe the death of my son. Something has to be done, more warning signs, shark warnings - not only signs about rubbish and dangerous surf.

"I can't believe it," she said, staring at the two carcasses, which had been gutted at sea, their pinkish white bellies

See Sharks, Page A2

## main highway in Florida

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There have been 36 verified reports of attacks on motorists - sniper fire or objects thrown at windshields - since mid-February, McMillan said.

No one has been charged in any of the attacks and police say they have little to go on.

The latest blow to the state's image came this week when the 33 million-member American Automobile Association began refusing to route people along the highway. That's only hap-

pened twice before, AAA officials said Friday - during a labor dispute in Canada and during a confrontation between authorities and a group in upstate New York.

AAA says it will now route visitors through Jacksonville along heavily congested I-95. The AAA's move could have serious impact on businesses along the bypass - more than 1.3 million AAA members got the club's Triptik map strip for I-295 in 1991.

## ending to Hamakua

### er firm's workers' comp benefits

strongly that bankruptcy law calls for all Hamakua land-sale proceeds to be applied to pay down their debt.

The state already is a major creditor of Hamakua Sugar. The Agriculture Department in 1988 loaned \$10

1984 by veteran sugar executive Francis Morgan from Theo. H. Davies & Co., for whom he had worked until that time. This year's crisis stemmed, the company said, from a combina-

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# Shark attacks the talk of Waikiki

**By Stephen Tsai**  
Advertiser Staff Writer

Beachgoers on Oahu's South Shore yesterday weren't deterred by Thursday's fatal shark attack in Leeward Oahu. But they were keeping a sharp eye peeled yesterday.

Waikiki beach — and the waters offshore — looked as crowded as any other day. But city Water Safety Division Capt. Ivan Harada said the city Water Safety Division office received many concerned telephone calls following Thursday's attack on Aaron Romento while he was bodyboarding at Keaau Beach. On Oct. 22, a large tiger shark took a huge bite out of a surfer's board at Laniakua on the North Shore.

Harada, who was patrolling at Queen's Surf Beach yesterday afternoon, said, "Many people are asking us about the shark problem. Since there was one (case) on the North Shore and one on the west side (Thursday), people are asking, 'What's happening with the south and east side?'"

was under the impression there aren't any shark attacks in this area — but I don't even know.

"I know about the North Shore, about surfboards getting eaten. I wouldn't surf here, I'd be afraid," Talianian said.

John Shedlock, 23, born and raised in Ewa Beach, said he was surprised and shocked that a "local kid" was attacked.

"You gotta watch out more now. I was going to go to the North Shore today, but I guess it (the attack) made me think twice," said Shedlock, who opted to bodysurf off Queen's.

Ernest Rowe, a Pearl Harbor sailor who started bodyboarding in January, said, "I won't go any farther out unless there's a lot of people — if there's more than one bait, I feel safe."

Since Thursday's attack, he said, "I look around a lot more."

Waikiki lifeguard John Urbanczyk said, "There were two (tourists) who said they wouldn't go beyond the cement wall (along Queen's). It's on everybody's mind."

## Makaha shark sighting quickly empties water

**By Bunky Bakutis**  
Advertiser Staff Writer

were careful to keep their legs out of the water as much as possible while waiting for waves.

They were later joined by a few body-boarders. But about 3:15 p.m. someone saw a shark in the channel at Makaha. City lifeguard Dennis Gouvicia and one of his colleagues used their jet-propelled rescue craft to shoo the shark away and shepherd the surfers ashore.

Despite what one surfer described as "absolutely gorgeous" surf, there was no one out catching waves at Makaha later yesterday.

Harada, who's in charge of lifeguards in the Ala Moana-Waikiki area, said he didn't know of any recent tiger shark attacks off Waikiki Beach, but he did say various kinds of

sharks are reported in the area on occasion.

At Queen's Surf, Lynne Talanian, 32, vacationing from Massachusetts, said, "I know someone got killed yesterday. I



Weather details, A4



**TODAY'S OUTLOOK:**  
Sunshine with  
passing showers

**NEWS SUMMARY  
ON PAGE A2**

# Kauai gearing up for c

**LIVING:**

**He's the  
king of  
interviews**

—Page C1



**FOOD:**

**It's time  
to talk  
turkey**

—Page E1

# The Honolulu Adv

**Aloha!** Wednesday, Nov. 18, 1992

# State to launch tiger

**By Stu Glauberman**  
Advertiser Staff Writer

The state's Shark Task Force has decided to go after big tiger sharks before they bite instead of trying to find them after they have attacked.

Members of the panel advising the state on shark hunting yesterday announced plans for an aggressive but secretive hunting campaign targeted at tiger sharks 8 feet and longer.

Hoping to patrol with minimum publicity, the task force did not say when the shark hunts would begin, except to say "soon."

Task force members must first come up with specific plans for several sites on Oahu, including Mailli, Makaha, Windward and North Shore areas, Kewalo and Waikiki.

"We cannot justify limiting our actions to an after-the-fact approach, given the recent attacks and the strong public concern about safety," said William Paty, the state Department of Land Natural Resources director who heads the task force.

Paty said the department had received "hundreds of phone calls" and many letters urging aggressive action.

## Whom to call if you spot a shark

Oahu ocean users who spot a shark will be able to notify the state Shark Task Force by calling 58-SHARK starting Friday. The number will be connected to a voice-message system. Marine scientists will transcribe the messages and return calls to get more information.

Surfers, swimmers and divers are among those who want the state to cull the large tiger sharks from near-shore waters, he said.

Several other callers urged the state to leave sharks alone in their ocean domain where humans are intruders.

"We appreciate that viewpoint, but we cannot sit around and twiddle our thumbs, because the evidence is clear that we have a public safety problem," Paty said.

Paty pledged to respect the beliefs of those native Hawaiians who re-

vere sharks, but said the need to take preventive action must prevail.

He said the program was not intended to eradicate tiger sharks, merely to cull predators from popular recreational sites.

The task force also will launch a new shark phone line (see box), which it described as another tool in its attempt to locate sharks and track their movements.

The state last week experimented with using helicopters to detect tiger sharks from the air. The task force will enlist the aid of military helicopter crews in the aerial search for sharks.

Two shark hunts were mounted on Oahu in the wake of recent attacks.

An 18-year-old Pearl City man was fatally attacked Nov. 5 while body boarding with friends off Keeau Beach.

On Oct. 22, a Hawaii Kai man escaped injury while surfing at Laniakea on the North Shore, where a tiger shark bit a chunk out of his surfboard.

Task force members hauled in several big tiger sharks in overnight fishing after each of the attacks.



# Day tours — Page B3



**WORLD:**

**Nixon may get millions from tapes**

—Page A14



# Advertiser

**Final Edition** On Oahu 35¢

# r shark hunt

The hunt is on



"Large sharks have been reported at these areas moving in close to surfers and swimmers"

— William Paty

Advertiser graphic by Greg Taylor

# aring placed residents



Advertiser graphic by Brian Saunders

executive director of the new City Office of Waikiki Development, the agency in charge of implementing Honolulu's Waikiki Master plan.

# SS on

using overhead projectors to allow the public to follow the complicated budget hearings.

"The point we're all trying to make is that the budget ought not be a mystery," Apo said. "I can tell you that every session the budget is a mystery to 90 percent of the members involved."

The Apo group, nine Democrats who were on the wrong side of the power struggle, also proposed other reforms, including a stricter travel policy and a code of ethics.



# Honolulu Star-Bulletin

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## Sharks and people

**T**HE big front page picture in yesterday's Star-Bulletin of three dead tiger sharks was a chilling alert to those who were considering a leisurely swim along the North Shore.

But it also was a reminder of last November's cultural controversy over the degree to which public safety requires the hunting and killing of sharks. In that case the death of a woman swimming off Olowalu, Maui, led to a pursuit of culprit sharks in the area. Some native Hawaiian activists took exception to the prospect of indiscriminate killings of creatures for which many shared kindred spiritual feelings.

Sensitive handling by state officials avoided deeper conflict in that situation, catching one 13-foot tiger shark in the area, and curtailing any chance of a shark-eradication spree.

Oahu's prevailing view of sharks may differ from those of the neighbor islands, especially with the disappearance of a surfer last February and an attack on another Thursday at Laniakea, near Haleiwa, in which a 16-inch wide chunk was bitten from a fiberglass surfboard. Baited hooks set off Laniakea overnight caught the sharks that were photographed at the Haleiwa Harbor boat ramp yesterday and three smaller ones.

Many who have spent their lives in Hawaii's waters would rather coexist with sharks than kill them as predators. Disagreement continues over the dangers of sharks and also whether they are sacred creatures in all instances. Still, tiger sharks are showing up in greater numbers and doing violence to more humans. Fishermen are not killing as many of them as they used to. Another theory suggests the return of the once-scarce monk seals is luring more sharks here.

If the threat is increasing, action by the state Department of Land and Natural Resources and other agencies is necessary to protect the public. Selective shark-trapping and more warning signs on beaches are in order. It seems like a good time to upgrade public education on shark behavior. If sharks are finding Hawaii more to their liking because of what else is in the water here, we ought to have a better idea of what it is.

As of last Thursday, a task force has killed 10 tiger sharks, and free-lance hunters have killed at least 22. Some native Hawaiians oppose the killings.

WARREN BOLSTER / For The Times





... amendments and Maui residents' anger over the proposed City Charter Drug Abuse Warning Network, also showed significant increases in the number of hospital visits related to heroin and other drugs.

The report, compiled from a nationwide sample of hospitals, is consid-

... the election for Office of Health Services. The report, however, reignited political debate over who was responsible for the problem.

Pell and his boss, White House drug director Bob Martinez, laid the blame on Congress and what Martinez called its "shortsighted failure" to

... the bad news, Martinez said yesterday that "preliminary results" from an upcoming nationwide household survey show "dramatic" declines in cocaine use, especially among teen-agers and young adults.

But HHS spokesman Jim Helsing

year, jumping quarter of 1994

This figure gains and exceeds last year's

The report

If you read one, please

comment about the news, please call (539-8517).

10/23/92

A1, A2 THE Honolulu Advertiser

# Shark hunt ends after six caught

By Walter Wright and Chris Neil  
Advertiser Staff Writers

Surfer Rick Gruzinsky watched biologists jam the bitten-off chunk of his surfboard into the mouth of a 14-foot rogue tiger shark when it was hauled ashore at Haleiwa Harbor yesterday.

"It was a perfect match, like a perfect piece of the puzzle," he said.

Gruzinsky, 26, whose surfboard was chomped during a shark attack at Laniakea on the North Shore Thursday, couldn't bring himself to touch the carcass.

"I just got an eerie feeling like the thing was still alive and it was





kind of like a horror movie and it was going to jump up at me," said Gruzinsky.

"I wouldn't put my hands near the mouth. I yanked on it with a big hook. It was a sad thing to see, an animal like that dead, as big as it was.

"And it was scary to realize that we are sharing the ocean with things this big. There has to be some way we can both enjoy the ocean."

The state called off its shark hunt yesterday after catching the nearly 14-foot female and two smaller tiger sharks 10 and 11 feet long, plus a 5-foot black tipped shark and two small sand bar sharks.

Gruzinsky, who was flipped off his board at the Laniakea surf break by a shark that tore a gaping bite out of his board at 7:50 a.m. Wednesday, reflected the ambivalence about the hunt that many felt.

At one extreme, said Linda McCrerey, spokeswoman for the state Department of Land and Natural Resources, "a few don't want us to take sharks under any circumstances" for Hawaiian cultural or ecological reasons, or both.

"Others think we should go on and take all big sharks," she said.



Photo by Warren Bolster

Three tiger sharks, including a 14-footer (foreground), are displayed at Haleiwa Harbor.

"We are striving for a balanced approach, and we think taking one large predator after an attack is a restrained approach."

Land Board Chairman Bill Paty justified the hunt as one for "a rogue animal" to be killed like a rogue elephant or bad bear, and said that "the risk is substantially less" with the capture.

But Paty said that the remaining risk, though small, is still there. He warned the risk appears higher in early-morning or late-afternoon hours when the big tiger sharks are heading to and from their near-

shore nighttime feeding areas. "There is always a risk out there," said Paty, who routinely swims a half mile along the North Shore from Leftovers to Chun's Reef, about a quarter mile off shore.

"You are out there in their country," Paty said. And swimming in the shark's country alone, under dim light conditions or in murky waters, he said, is like "putting your hand in the hole where the eel is — you are liable to get it bitten."

Marine biologist John Naughton

of the state's shark task force said it is impossible to say if the 14-footer is the same shark that took a huge bite out of the bodyboard of surfer Bryan Adona last Feb. 19.

But from the size and shape of the bite and the fact that Adona was at the nearby Leftovers surfing spot when he disappeared, the same shark may have been involved, Naughton said.

The sharks were caught on a baited hook on lines set out for the state the night before by fisher-

See Shark, Page A2



# Shark: Hunt is ended after six

## FROM PAGE ONE

man Steve Kaiser. He was accompanied by John Rupp, a member of the Pacific Rim Shark Study Center, located at the Point Defiance Aquarium in Tacoma, Wash.

Kaiser said he caught the sharks in about 35 feet of water at Laniakea beach, close to where Gruzinsky was attacked.

The largest shark, a female tiger, was 13 feet 10 inches long. The sand bar sharks had been eaten by what Rupp said were probably other sharks. Only their heads remained. Kaiser said the black-tip shark was released unharmed "because it didn't pose a threat to anybody."

The largest tiger was dead when Rupp and Kaiser arrived to check their lines at dawn. The other two tigers were killed with a bang stick: a hollow tube with a .44 Magnum shell inserted at one end.

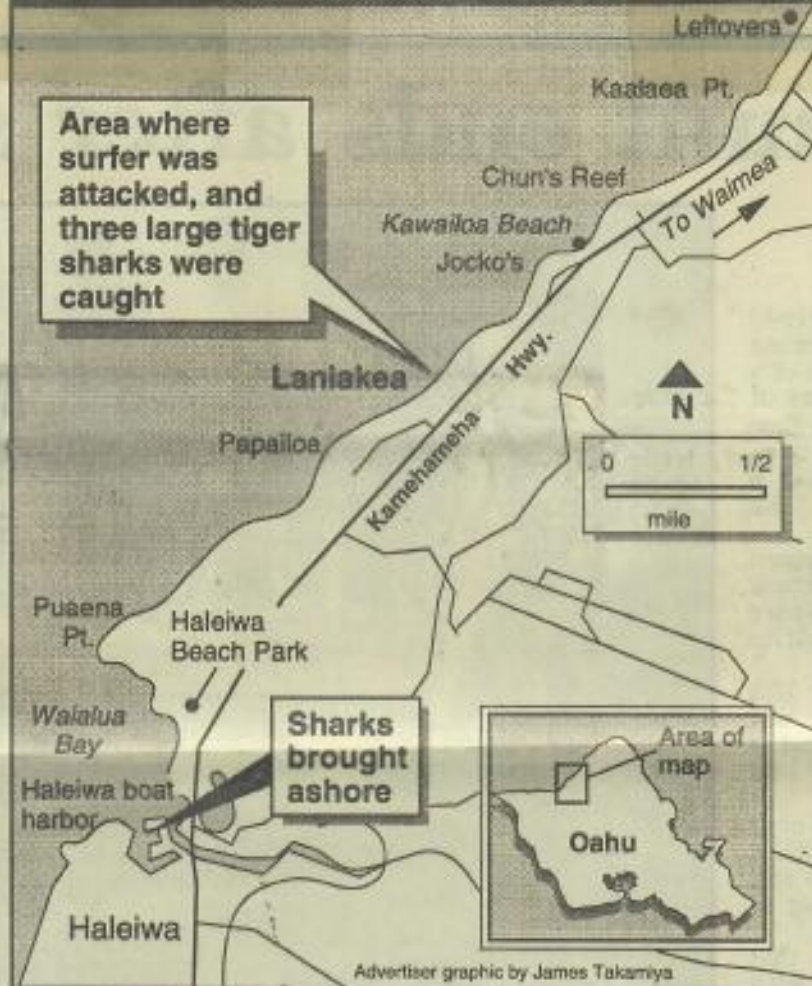
Yesterday's events brought together the shark, surfer Gruzinsky, and the section the shark bit from his surfboard.

The piece was found miles to the west at 4:30 p.m. Thursday by Waialua carpenter Russell Pereira, 33, near his Crozier Drive home in Moleleia.

Pereira said he was diving to set fishing nets when he saw the fragment of the board floating along the shoreline. "I picked it up and kind of laughed and said, 'This might be the piece that is missing,' and set it up on the seawall. "But when I looked at the newspaper and saw the hole in the board, I went and got it and brought it to the (Haleiwa) harbor because I wanted the owner of the board to have it because I figured it would be pretty neat to have that piece."

Gruzinsky said he is also hoping to get some of the teeth from the big shark as a souve-

## Shark hunt successful



Advertiser graphic by James Takamiya

nir.

Kaiser said the jaws and belly skin were saved for native Hawaiian groups to use the teeth in traditional weapons and the skin for pahu or drums.

"We also took samples of organs and some blood for study by researchers" at Waikiki aquarium.

The rest of the carcasses were disposed of at sea after their stomachs were opened; there were no significant contents, Naughton said. The largest shark had several chunks of what appeared to be whale

meat in it.

It was Kaiser who caught a 13-foot tiger shark off Olowalu, Maui, two weeks after Martha Morrell, 41, was killed there Nov. 26.

The Morrell death led to the creation of the shark task force, and an ongoing debate as to how much shark hunting should be done.

It also led to a \$20,000 state research project to tag and track sharks by sonar signals to learn more about their home feeding areas.

Kaiser said people should know "sharks usually feed at



## are taken

night and they don't normally attack people. I'll be honest with you: I don't like taking big animals. They are magnificent and they play an important role in the ecosystem. But we have to consider the public safety too."

At the same time, Kaiser said there were definite arguments in favor of trying to catch a shark once it attacks a human. "Sharks are smart," he said. "They learn quickly that fishermen's nets contain food. Usually a shark is frightened of people. But once a shark learns that they (humans) can be eaten ..."

Kaiser said ancient Hawaiians would also try to catch sharks that preyed on humans. "Modern-day Hawaiians have to, too," he said. "The important thing is not to let it get out of hand. Yeah, I take sharks. But I don't do it all the time and I don't like doing it."

Rupp deplored hysteria surrounding shark attacks.

Research indicates that the number of shark attacks has remained constant since the 1950s, even though the number of people swimming in the ocean has risen exponentially, he said.

Sharks may mistake humans for seals and sea lions in the Pacific Northwest and sea turtles in Hawaii, he said.

The human reasons for hunting down a killer shark go beyond logic, Rupp said.

"It's more of a psychological and sociological catharsis. People need to come down and see these heads. We don't want a situation where people are slaughtering sharks indiscriminately and maybe shooting themselves in the process. It's not really logical but it serves a psychological purpose to go out after a shark attack. It reassures swimmers and it demonstrates to tourists that the state cares about their safety."



- Big Isle police deny covering up case A-4
- Crowds expected at overthrow events A-5
- Robert Nakasone, new representative A-22

## Task force plans limited shark hunts

□ A Hawaiian activist quits in protest before the state's decision

By Gregg K. Kakesako  
Star-Bulletin

The state will continue limited hunting of tiger sharks along Oahu's North Shore in an attempt to ease the fears of swimmers and surfers.

That was the decision of the state's Shark Task Force after a nearly two-hour meeting yesterday, according to state Land Board Chairman William Paty.

The 25-member task force, made up of state aquaculture and marine scientists and water safety experts, rejected the options of doing nothing or responding only when a shark attack occurs.

Paty acknowledged the decision won't please everyone and that the resignation of Hawaiian radio personality and local activist Charles Maxwell will upset members of the Hawaiian community.

Maxwell quit the task force minutes before yesterday's meeting, citing what he called "the indiscriminate eradication of sharks" that the state seemed to condone. He said Paty is "encouraging the creation of instant great white hunters who laughingly pose with their prize of 14- and 15-foot sharks."

Maxwell said he was specifically referring to the two large tiger sharks that were caught off Haleiwa by commercial fishermen on New Year's Eve.

"Charlie was valuable to me," Paty said. "I will miss him. I am sorry he resigned."



Resigned from the state's Shark Task Force over a decision to continue shark hunting

“All who live here should respect the wishes of the host culture and whatever is culturally important to the Hawaiians.”

### Shark studies

Data from tiger sharks will be used in four research projects to yield information on shark biology, migration patterns and behavior:

- **Acoustic telemetry:** Sonic tags are attached to tiger sharks and their movements followed to determine distribution patterns, home range and site fidelity.
- **Dart tags:** Sharks of several species are tagged to examine population movements and growth patterns.
- **Reproductive biology:** Samples provide data on sex ratio, reproductive condition, spawning season, gestation period and size at maturity.
- **Genetic population:** Tiger sharks are sampled to determine population boundaries to see if genetic interchange occurs between sharks of Oahu and the Northwest Hawaiian Islands.

should not be killed just because they have been sighted. . . . All who live here should respect the wishes of the host culture and whatever is culturally important to the Hawaiians. This is Hawaii and not Maine. We have a culture and it should be respected."

Paty emphasized that there are no guarantees that hunting efforts will make the ocean absolutely safe for swimmers and surfers.

"The ocean is the sharks' territory, and people must use common sense," he said.

Paty said that if the state didn't resume its limited shark control hunting program it would face "a firestorm of concern" from North Shore residents.

He said that only \$15,000 remains of \$50,000 appropriated for the shark control program. That should cover the costs of resuming limited operations for the rest of the month, Paty said, and he will seek more funds from the Legislature this session.

Maxwell believes state fishermen should respond only when a shark attack occurs. "We can't eliminate all the sharks from the ocean," he said. "It's their territory."

He said the "happy medium" would be to learn how to mingle with the sharks because he believes "every shark attack is accidental."

Maxwell added: "There are many Hawaiians who feel, as I do, that some sharks are respected as *sumakua* and



# Book unveils fierce fondness for isles' sharks

□ Leighton Taylor shares his expertise on the species

*Honolulu Star-Bulletin*

■ Proulx's art persuades

B-3

By Greg Ambrose  
Star-Bulletin

5/14/94

Marine zoologist Leighton Taylor has spent years hanging out with a rough bunch of locals. The fruit of that labor is "Sharks of Hawai'i — Their Biology and Cultural Significance."

To his everlasting regret, Taylor no longer lives in Hawaii.

But in his new book, he shows that he still has a profound aloha for the people and ocean creatures of his former home.

Trained at the University of Hawaii and Scripps Institute in La Jolla, Calif., to cherish all marine wildlife, Taylor has developed a special fondness for sharks. His work in the Northwest Hawaiian Islands and across the Pacific observing sharks up close armed only with a mask and snorkel gives him impeccable credentials to write a book about sharks.

"Sharks have been an interest of mine for some time, and continue to be. They are a complex topic," he said in a telephone interview from his California office. "On the one hand, I'm scared to death when I'm in the water with them. Other times, I feel really comfortable there."

These days Taylor spends too much time ashore as a consultant, and designing aquariums, zoos and museums. But a pending research trip to Indonesia shows he does manage to escape the office.

Taylor is above all else a scientist, and this book starts off seriously with carefully worded, detailed descriptions of the physical, feeding and reproductive features of the variety of sharks found in Hawaii waters.

"Hawaii as a place offers special insight about marine life and how humans interact with marine life," Taylor said. "So many other cultures live here together, we have a unique blend of attitudes on how we deal with the sea."

Throughout the book, Taylor slips in statements that reveal him to be a spokesman for the responsible treatment of sharks as an important species in the ocean ecosystem.

Taylor let a host of fellow shark scientists as well as Hawaiiana experts study his manuscript to ensure accuracy. Such a review also keeps Taylor's personal and unsubstantiated opinions from compromising the book's science.

## Shark talk

- **What:** Leighton Taylor, book signing and discussion
- **When:** Wednesday
- **Where:** Waikiki Aquarium
- **Tickets:** 6 p.m.
- **Call:** 923-9741

But this book also makes for fun reading. In one of the most fascinating chapters, Taylor describes the importance sharks played in ancient Hawaiian culture, as providers of tools, materials and spiritual inspiration.

He strongly explains the respect and admiration Hawaiians had for these powerful yet graceful hunters of the sea.

Taylor mixes historical accounts with contemporary scientific observations to cautiously speculate and provocatively ruminate on the complexity of the relationship between Hawaiians and sharks.

"We don't know enough about ancient history," Taylor said. He is looking for someone who reads and understands Hawaiian to research old literature and talk story with old-timers to find out in greater detail how the Hawaiians and sharks interacted.

The extravagant use color photographs and paintings enhances the scientific elements of the text. Other photos amply illustrate the fearsome aspects of Taylor's beloved beasts.

People who work and play in Hawaii's waters will benefit from the section describing each of Hawaii's shark species, with line drawings to help identify individual shark types.

Taylor increases the entertainment value of the book immensely with accounts of his interaction with sharks, and augments these with compelling tales from recent Hawaii history.

The author provides a thoughtful introduction to help make meaningful George Balazs' exhaustively researched list and description of shark attacks in Hawaii, which make for grim but compelling reading. But when you consider that millions of people make multiple visits to the ocean each year without mishap, sharks rightly take their place as interesting rather than demonic parts of the experience.

"It will kill me if someone I know is hurt by a shark," Taylor said. "But I hate the idea of people hunting them. If your feelings about sharks are simple, it's bad. It's OK to be complex."

## REVIEW

**Sharks of Hawai'i — Their Biology and Cultural Significance:** Leighton Taylor, 126 pages, University of Hawaii Press, \$19.95

## SHARKS OF HAWAII

THEIR BIOLOGY AND CULTURAL SIGNIFICANCE



LEIGHTON TAYLOR



# Hammerhead shark meat an ancient Hawaii treat

**H**AMMERHEAD shark. Those two words conjure up a vivid image. Add to that a beached female hammerhead giving birth in the sand, as happened recently in Ewa Beach, and the picture is even more striking.

Hammerheads are not your average fish. Besides that weird-shaped head, members of this shark family have a sophisticated method of reproduction not seen in most fish.

This method, called viviparity, involves giving birth to live young that were nourished inside the mother via an umbilical cord.

Sound familiar? Humans are viviparous too, as are nearly all other mammals, many reptiles and several other fish.

The big difference between mammals and other viviparous animals is the feeding of milk to the young after birth.

The resemblance of hammerheads to mammals stops with the umbilical cord and birthing.

Neither these sharks, nor any others, feed their young after birth.

But hammerheads do give their babies, up to 30 per litter, a bit of a head start by delivering them in the protection of shallow bays and inlets.

Kaneohe Bay is such a place. Female hammerheads come into the bay each spring and summer to have their pups.

The youngsters, about 2 feet long, live the early part of their lives in schools in the turbid shallows of the bay where they forage along the bottom, mostly at night. As they grow, they migrate to deeper waters of the outer reef.

**H**AMMERHEADS mostly eat live fish, occasionally dining on members of their own kind. They also eat invertebrates such as crabs, shrimp and octopus.

And what's the deal with that weird head? The fish bear one eye and one nostril on each side of



## OCEAN WATCH

By Susan  
Scott

9/5/94

their mallet-shaped heads.

Researchers believe the widely separate eyes increase depth perception; the separate nostrils are probably useful in locating diluted smells.

Also, small pits on the underside of the head are sensitive to electric fields. This helps the shark find living creatures, such as rays, hidden in the sand.

Still another theory holds that the flat head shape provides some lift as the fish swims forward.

Hammerhead sharks live in all warm waters of the world, preferring water 75 degrees Fahrenheit and above.

Two kinds of hammerheads are found here: the scalloped hammerhead and the common, or smooth, hammerhead.

Both names describe the front edge of the head, and both are known as *mano kihikihi* (angular shark) in Hawaiian.

**I**N ancient Hawaii, people commonly ate hammerhead sharks. Since Hawaiians did not eat sharks that attacked humans, hammerheads apparently were not considered a threat.

Not everyone in old Hawaii ate hammerheads, as they were forbidden people whose *aumakua*, or family god, was that species.

To those who could eat them, the catching of a hammerhead was a joyous occasion.

After skinning the fish, the meat was dried, then broiled or cooked. No one in ancient Hawaii ate shark meat raw.

Although ancient Hawaiians didn't consider hammerheads vicious, there have been occasional incidents in modern times. At least three nonfatal attacks on swimmers in Hawaii have been blamed on hammerheads over the years.

In the French Pacific, local spear fishermen stop spearing, but remain in the water, when hammerheads are in the vicinity. After the sharks have passed they resume fishing.

Susan Scott is a marine science writer and author of three books about Hawaii's environment. Her Ocean Watch column appears Monday in the Star-Bulletin.



Scalloped hammerhead sharks, or *mano kihikihi*, grow to over 12 feet long.



1/23/93 HSB A1

### **Tiger shark attacks diver off Bellows**

The state Shark Task Force was assessing whether a hunt is needed after a veteran diver and fisherman lost his 50-pound catch of fish and lobsters to a shark yesterday off Bellows Beach.

But Randy Ganhinhin managed to flee unhurt after pushing the tiger shark away with the butt of his spear gun, he told KGMB-TV.

"He was right in front of me," Ganhinhin said. "He looked at the string of fish first and then he turned around and came after me."

After fending off the shark with his spear gun, Ganhinhin said he was able to slowly move to the safety of his boat, about 200 yards away.

"With a tiger shark, you cannot show excitement," he said. "It picks up your heartbeat."

"It picks up vibration. It knows fear. It hears fear. I think it can smell fear."



# Shark Attacks On Swimmers Rare In Waters Of Big Isle

Clevis Aka of Hilo, who was bitten by a shark last Wednesday while surfing behind the Keaukaha Hawaiian Village, was the second swimmer to be bitten in waters off the Big Island since the 1880's and the third 15-year-old to be attacked by sharks in the Hawaiian Islands.

Clevis said he was surfing with some friends at about 2 p.m. Wednesday when a 12-foot shark slashed his leg.

He suffered five gashes in his left leg and foot but managed to remain on his surfboard and make it safely to shore.

One of the boy's friends, Iose Ua, 17, said he saw the shark before it made its attack, but at first he thought it was a turtle.

Ua said he saw the shark head for one of the other boys who were surfing, but it flipped over and headed for Aka. Ua said it was then he knew it was a shark, and yelled.

The shark bit into Aka's leg just as he was turning to catch another wave and failed to get a good hold, the boy said.

He caught a wave just as the shark was turning to make another pass and managed to reach a small rock island a few

Island's Hamakua Coast were thrown into the sea by heavy surf and washed out a short distance.

One was bitten by a shark, while the other just disappeared, according to records. It has never been determined whether the second woman was pulled under by sharks or drowned.

Besides the shark attack on Aka, and one on a woman in Hilo Bay in 1922, which was not fatal, only one other swimmer has been reported attacked by a shark.

Billy Weaver, a 15-year-old Lanikai, Oahu youth, was killed by a giant shark, estimated at from 15 to 25 feet long, while he was body surfing with friends on Dec. 13, 1958 in Kailua Bay on Oahu.

At that time three different schools of sharks were sighted around Oahu, and residents armed with rifles opened war on the sharks but apparently weren't too successful, according to reports.

Most of the other victims killed by the marauder have been fishermen.

\* \* \*

The first definite shark-bite occurred on August 2, 1902

A fisherman was killed while fishing from his sampan Dec. 5, 1952 and a 15-year-old youth, Harold Souza of Malle, was killed while spear-fishing.

Besides these deaths and the other cases mentioned, there have been 11 other attacks, all non-fatal. They were:

Sept. 28, 1901—Maul fisherman bitten while diving for fish caught in his net off Kalenolo polo.

Sept. 28, 1922—Territorial surveyor bitten while inspecting Kaunakakai wharf, Molokai.

June 14, 1931—Pearl Harbor fisherman bitten while fishing in the harbor.

Oct. 4, 1939—Spear-fisherman bitten off Makapuu, Oahu by a shark attracted by bleeding ulua the man had just speared.

July 1, 1941—Fisherman bitten while hauling in a shark he had caught on a line.

June 27, 1947—Fisherman bitten off Waianac, Oahu.

Sept. 19, 1948—Fisherman bitten off Makapuu point.

June 25, 1951—The body of a Hilo woman partly eaten by sharks after she drowned.

Feb. 18, 1953—Fisherman off Barbers Point, Oahu bitten while cutting a shark free from



Aka is the son of Mr. and Mrs. Albert A. Aka of 1120 Kalamiana'ole Ave.

The Big Island was the scene of the first recorded death believed caused by a shark attack in Hawaiian waters. It occurred in 1886, about 77 years ago.

Since then, four other persons, possibly five, have died as a result of shark bites in waters around the Island chain.

On June 2, 1886, which is as far back as reliable medical and accident records go, two women who were fishing off the Big

when a boy was pulled under a net water and both arms bitten off while he and other youths were crabbing off Kalihi, Oahu.

On Jan. 17, 1908, another death was recorded when a fisherman was killed while dynamiting fish off Kauai. The shark was apparently attracted by the dead fish. The shark pulled the man under while he was in the water throwing the fish on shore.

Two more deaths occurred in recent years, both of them off Maile, Oahu and about a year apart of each other.

July 4, 1933—Kauai fisherman bitten while fishing from a sampan.

April, 1955—Kanematsu Oshiro of Hilo, a fisherman serving on the commercial fishing vessel, Kalmamala, had his right hand and fingers bitten. He later sued the owner of the fishing boat for \$15,000 in damages.

The National Geographic Society has estimated that there are about 300 varieties of sharks around the world, ranging from 2 to 60 feet in length.

About a dozen are considered particularly dangerous. The "maneater" white shark has been known to upset small boats, maiming or killing occupants. Among other sharks of ill repute are the tiger, hammerhead, mackerel and grey nurse.

One of nature's most sinister prowlers, the shark is equipped with a powerful jaw and mouth, studded with rows of sharp, pointed teeth. It will eat anything. Found in shark's stomachs have been such assorted tidbits as tin cans, bricks, a fur coat, sack of coal, an alarm clock, and a full-grown dog still wearing a collar.

Most sharks favor warm and temperate oceans, but some roam far north. A few inhabit tropical fresh-water lakes and rivers.

Sharks seem to strike as often in clear as well as in cloudy weather, although warm, murky, or night waters apparently present more danger. The color of clothing or skin may be unimportant; yet bright objects do invite shark attention.



Reprinted from "H30 Hawaiian Surfing Magazine" March 1993.

### Sharks and Turtles

by

George H. Balazs

Deputy Chairman

Marine Turtle Specialist Group

International Union for the Conservation of Nature

My compliments to your environmental writer, Mindy Foster, for reporting factual instead of fantasy information regarding sea turtles and tiger sharks ("The Shark Factor" 2/93). Few people in the news media seem to be doing so these days. Mindy rightfully pointed out that "There is no hard evidence that the increased turtle population is the cause of increased (shark) sightings and attacks". I agree. There is no evidence whatsoever, beyond idle speculation. And, strangely enough, in some cases the speculators are persons interested in "solving" the shark problem by hunting and killing sea turtles.

In the first place, while more turtles are indeed being seen now, compared to say 15 years ago, the increase is not anywhere near as great as some would like us to believe. In addition, such sightings need to be viewed in their proper perspective. That is, turtles are highly visible creatures that must come to the surface every so often to breathe. Once there, they are easy to spot, even when you're not looking for them. A dozen turtles in an area, breathing once every 5 to 15 minutes, can give the deceptive impression of abundance well beyond the numbers actually present. In contrast, a dozen fish, crabs, or octopus spread out over the same area won't even be noticed unless you're intentionally searching underwater for them. You don't have to search hard to spot a sea turtle, even if there are only a few in the area where you're surfing.

Some people have also gotten the flawed impression that turtles are the overwhelming, if not exclusive, food item in the tiger shark's diet. But that's simply not the case. It is a biological fact that tiger sharks eat a wide variety of prey, more so than any other species of shark. For example, in a 2-year study conducted by the University of Hawaii, tiger sharks in Hawaiian waters were found to prey upon the following items (in descending order of percent sharks containing these items): fish; crabs and lobsters; garbage (often floating garbage); birds; sharks and rays; squid and octopus; turtles; porpoise and whales; and humans.

Even though the tiger shark preys on numerous items, turtles are nevertheless frequently overestimated in their diet by people (even some scientists) cutting them open to see what they eat. This happens because the tiger shark's digestive tract functions in such a way that only mushy material-- that is, the broken-down



remains of prey items subjected to strong stomach acid-- can pass out of the stomach into the intestines. Objects of any size that can't be decomposed in the stomach are retained there for an unknown but likely long period of time before being regurgitated. The outer surfaces of a sea turtle, especially the plates of the shell, are made of a tough keratin-like substance that is totally resistant to decomposition in the stomach. Consequently these large and clearly recognizable items from a turtle are held in the stomach, while the rest of the animal including meat, bones and all else is digested. The protective plates and scales covering the turtle also lengthen the total amount of time needed to digest the rest of the body, since turtles up to 50 lbs can be swallowed whole. In sharp contrast, soft bodied prey items, with far fewer and smaller indigestible parts, digest faster and can be easily overlooked and underestimated in stomach contents. These factor working together give an erroneous and biased picture of the dietary makeup of the tiger shark when viewed by persons who are unaware of the biological facts I have just described. Yes, of course, turtles are a part of the tiger shark's diet. But a very complex situation exists whereby many sorts of things are eaten under varying feeding rates, and then digested over different periods of time. No one really knows how often tiger shark's feed, how long it takes to digest each of their prey items, and how often they regurgitate items like turtle parts that can't be digested.

Some people have also speculated that attacks on surfers by tiger sharks are the result of "mistaken identity" for sea turtles. Again, there is no credible information to support such an idea. The theory by some scientists that great white sharks mistake surfers for seals off California simply can't be logically transposed to tiger sharks and turtles in Hawaii. In California a surfer is suppose to look like a seal floating at the surface. Copying that same theme, in Hawaii a surfer is purported by the news media to look like a turtle floating at the surface. Obviously both cases can't be correct, since a sea turtle bears no resemblance to a seal. Does a surfer on a 6-to-8 foot long narrow surfboard look like your average 2-foot oval sea turtle? Of course not. But maybe this is like looking at an inkblot. If you stare at it long enough you can start to see all sorts of things. And maybe that's what some people are doing when they make such faulty comparisons.

The fact is that tiger sharks don't have to "mistake" anything floating at the surface in order to strike, bite, or eat it. Taking things at the surface is a natural part of the tiger shark's known feeding strategy. Jean-Michel Cousteau summarized this situation correctly when interviewed a year ago, following the death of a swimmer attacked and devoured by a large shark off Olowalu on Maui. Cousteau said, "Tiger sharks are particularly dangerous to swimmers. Some sharks are more fussy than others about what they eat. Tiger sharks are known to eat almost anything and everything, and ..are more likely to attack anything



on the surface whether it's a piece of wood, a surfboard, a boat, or a bird".

Recent attacks in Hawaii on surfers have taken place during daylight hours in reasonably clean, clear water. It's hard to imagine that the sharks involved mistook their victims for anything else than an object at the surface that was potentially edible. A few months ago there was even an eye-witness account (with photos) of a 2000 lb bull swimming in waters off Maui being attacked by tiger sharks (see Hawaii Fishing News, 12/92). Did the sharks "mistake" this bull for a sea turtle? Perhaps, but only if they had been staring at inkblots for too long!

Interestingly, the "mistaken identity" idea fits quite comfortably with those people who, due to their sincere convictions, for one reason or another are opposed to fishing for tiger sharks in Hawaiian waters. The logic would be as follows: If a shark really didn't mean to bite a human, -- that is, it was "just a big mistake", -- then the news media and public at large might be more inclined to have greater understanding and tolerance of attacks in Hawaii.

It is my responsibility, as a member of the IUCN Marine Turtle Specialist Group, to make sure that turtles don't get a bum rap as the result of groundless speculation, intentional bias, or flawed scientific reasoning. I've spent 20 years in the Hawaiian Islands dedicated to studying Hawaiian sea turtles. There's a lot known, but still much to be learned. Factual information, not emotions, must prevail. Some people are very emotional over the issue of fishing for sharks. Others may be overly concerned with the risk of shark attack in Hawaii. One thing for certain is that the current status of sharks here in Hawaii is very different from the east coast of the United States, where some populations are seriously depleted from commercial fishing.

Hawaii's sea turtles have long been considered the surfer's friend--rugged and skilled ocean animals that eat marine vegetation and pose no threat to humans. Tiger sharks, not turtles, have been attacking surfers. Recently an authority on Hawaiian sharks was quoted in Surfing Magazine saying, "In the sixties and seventies the state (of Hawaii) had a shark eradication program to control the population of potentially dangerous sharks. But there's been nothing done in the last twenty years, so the tiger population right now should really be at a peak". This statement certainly makes sense, considering that tiger sharks are apex predators that have no natural enemies of their own, except for other larger sharks. As a nearshore species roaming the reef edge in search of food, it would seem perfectly reasonable to expect a "peak" in the tiger shark population after 20 years of virtually no fishing. And that would even hold true for places where there are no turtles at all for tiger sharks to include in their diet.



Yes, sea turtles can still be considered the surfer's friend. Because if the turtles weren't out there now making themselves available as a food item, that "peak" population of sharks would simply turn to something else to eat. And that "something else" might be greater numbers of "someone else" out there surfing or swimming.

### Sherman's Lagoon







*A distinctively-patterned tiger shark.*

### **THE CURIOUS EATING HABITS OF TIGER SHARKS**

The tiger shark is one of three species most frequently named as being responsible for attacks on humans. Voracious eaters, they will swallow almost anything they encounter in the sea. At various times the stomachs of captured specimens have been found to contain an astonishing variety of objects including: a coil of copper wire, nuts, bolts, lumps of coal, boat cushions, clothing, a tom-tom, an unopened can of salmon, driftwood, birds, other sharks, seals and the head of a crocodile.

Sharks can regurgitate the contents of their stomachs at will, and some can apparently store food undigested. Sir Edward Hallstrom, honorary director of Sydney's Taronga Park Zoo, once observed this phenomenon in a tiger shark that lived for a month at the zoo in 1950. On two occasions during its captivity the shark was fed on horse meat which it regurgitated. After it died the shark's stomach was cut open and was found to contain two undigested dolphins, eaten before its capture.



## Letters

### Deadly digestion

May I provide some clarification to statements made in a recent letter ("The fisherman's point of view," *HW* 12/23) on sharks and shark attacks in Hawaii. The letter stated that "...in some fisheries in the Pacific, 60 to 70 percent of the tiger sharks examined are found to have turtle remains in their stomach contents." Readers might easily get the flawed impression that turtles are the overwhelming component of the tiger shark's diet. That's simply not the case. Numbers don't always tell the whole story. In this instance some basic knowledge of tiger shark and sea turtle biology is required.

The digestive tract of tiger sharks functions in such a way that only paste-like material — the broken-down remains of prey — can pass out of the stomach into the intestines. Objects that can't be broken down in the stomach are retained there for an unknown and likely extended period of time. The outer surface of sea turtles is made of a tough keratin-like substance that is completely resistant to decomposition in the stomach. Consequently, these large and clearly recognizable items are held in the stomach, while the rest of the turtle, including the meat, bones and all else, is digested. These factors over-represent turtles in tiger sharks' stomachs, and give a biased picture to persons cutting open the animals to see what they eat. It is a biological fact that tiger sharks eat a wide variety of items. In a two year study conducted by the University of Hawaii, tiger sharks in Hawaiian waters were found to prey upon the

following items (in descending order): fish, crabs and lobsters, garbage, birds, sharks and rays, squid and octopus, turtles, porpoises or whales, and humans. Jean-Michel Cousteau summarized the situation correctly following the tragic death of Mrs. Morrell on Maui. Cousteau said, "Tiger sharks are particularly dangerous to swimmers. Some sharks are more fussy than others about what they eat. Tiger sharks are known to eat almost anything and everything, and... are more likely to attack anything on the surface whether it's a piece of wood, a surfboard, a boat or a bird."

George Balazs  
Deputy Chairman  
IUCN Marine Turtle Specialist  
Group



# State, feds plan bird colony to help growing population

By ELOISE AGUIAR  
News Editor

EAST OAHU — State and federal officials are planning to establish a seabird colony off Makapuu Point to accommodate the influx of Laysan albatrosses to the islands.

"The albatross population has been expanding (for many years) in the northwestern Hawaiian Islands," U.S. Fish and Wildlife refuge manager Ken McDermond said Dec. 7. "What's happening now is the birds are trying to recolonize the main Hawaiian Islands. They've already done so on Kauai at Kilauea Point National Wildlife Refuge and Barking Sands military base."

The albatross has been nesting for several years on Oahu at Kaena Point, Mokuleia's Dillingham Field and Kaneohe Marine Corps Air Station, he said.

The problems with these locations, he said, are that birds aren't safe from predators and they create hazards for airplanes.

Dogs, cats and mongooses attack and kill the birds, and humans shoot them, McDermond said. Albatrosses, which are about the size of turkeys, favor nesting on airplane runways. The largest known albatross colony lives on Midway

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***"What's happening now is the birds are trying to recolonize the main Hawaiian Islands."***

— Ken McDermond,  
U.S. Fish and Wildlife  
refuge manager

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Island airfield, he said.

McDermond speculated that the birds like open fields, but he couldn't say for sure why they are attracted to runways. They do need a running start before taking flight, he explained "but they don't need an airfield."

The plan to create a Laysan albatross colony on Kaohikaipu Island — Black Rock — will be discussed during the Hawaii Audubon Society's public meeting at 7:30 tonight in the Paki Conference Room at Bishop Museum. Volunteers are also being sought to monitor the island for albatross response.

The island off Makapuu is a safe environment, McDermond said, and the colony could be used for educational purposes. Sea Life Park is cooperating on the project and plans to pro-

vide a lookout point with educational material at the park.

At the meeting, Cornell University seabird experts Stephen Kress and Richard Podolsky will review successful attempts to develop bird colonies on the East Coast and in the Galapagos Islands. Podolsky wrote a master's thesis on the work he did to attract albatrosses to Kilauea Point, Kauai, McDermond said.

Kress and Podolsky have demonstrated that "social attraction" can work as a powerful aid to help seabirds recolonize areas, he said. "Using decoys, artificial eggs and recorded colony sounds, they are pioneers of the promising field they call seabird restoration."

McDermond, who obtained a grant for the project, said he isn't sure why albatrosses sought new nesting grounds, but speculated that overcrowding was a factor in the birds' search for new colonies.

The project is a cooperative effort of the Hawaii and National Audubon Societies, the U.S. Fish and Wildlife Service's Hawaii Biodiversity Joint Venture Program, U.S.D.A. Animal Damage Control, University of Hawaii seabird researcher Causey Whittow, the state Division of Forestry and Wildlife, and Sea Life Park.



# books

Maui News — Feb. 20, 1994

## The voice of experience on sharks

By HARRY EAGAR  
Staff Writer

**SHARKS OF HAWAII: Their Biology and Cultural Significance,** by Leighton Taylor. 126 pages, illustrated. Hawaii, \$19.95.

**I**F YOU READ much at all about sharks, you encounter so many contradictions that it's obvious some authors are talking through their hats. It's fair to say that Dr. Leighton Taylor wears his — former director of the Waikiki Aquarium, taxonomist who was called to write the species description of the Megamouth shark when it was discovered, veteran of many research efforts in the North Pacific.

A man who knows enough to know which questions are best left open.

The sharks of Hawaii are political animals. The natural history, while it still contains many mysteries, is the easy part.

Here Taylor is admirable, if brief. "Sharks of Hawaii" has three kinds of illustrations — color photographs, outline drawings and 10 paintings by Michael Cole. Cole paints plausible versions of natural events never ob-

attacked a live human in the water, in Hawaii at least.

Of the hundred or so known cases of sharks biting people, some of whom were probably already dead from other causes (like drowning), only two species are pretty surely implicated in our waters: the tiger and perhaps the great white sharks.

So there is still much to be learned about our sharks, and not just for the pure pleasure of knowing.

Taylor is commendably frank about pointing out where the areas of ignorance lie. "Terms such as 'the shark' and 'sharks' are general to the point of vagueness. Careless use of such indefinite terms can be misleading . . . It is careless, inaccurate, and perhaps even irresponsible for modern commentators to make such imprecise statements as 'sharks are sacred to Hawaiians' and 'Hawaiians did not kill sharks' or 'sharks were important food for Hawaiians.'

"Such statements are true for some species, but we are by no means certain which species match which Hawaiian names.

"Sharks of Hawaii" is a nicely balanced book: respectful, well-informed, well illustrated and political-ly incorrect.

'Terms such as  
"the shark" and  
"sharks" are  
general to the point  
of vagueness.  
Careless use of  
such indefinite  
terms can be  
misleading.'

— Leighton Taylor  
Author



the rather flabby, small-finned and obviously slow cookiecutter manages to get close enough to fast moving prey such as ali to get a meal.

"Freshly caught specimens glow a ghostly green," writes Taylor. "Perhaps the cookiecutter attracts prey with the green glow and then ambushes the would-be predator."

The little nightmare is widely distributed but not known to have ever

served by anybody.

So, for example, this book takes a thorough look at the cookiecutter shark, one of the mysteries of the deep. It was only recently that this little shark's mode of life was deduced.

It nips a bite out of bigger fish with its specially adapted teeth. Researchers still don't understand how



# SURFER'S GUIDE TO HAWAII

**HAWAII  
GETS ALL THE  
BREAKS!**



By Greg Ambrose  
Graphics: Kevin Hand  
Cover photo: Pipeline, by Warren Bolster

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## DEADLY CREATURES

### The bad boys

The fiercest predators you will ever encounter in Hawaiian waters are the surfers. Something amazing happens when you take the greediest, most aggressive surfers from the mainland, Brazil, Japan and Australia and plop them into Hawaii's waves. The intensity level escalates unbearably until it seems the surrounding molecules will spontaneously combust.

It appears that everyone is driven insane by the thought that the surf photographers are going to make them famous if only they can prove themselves by out-surfling the top pros.

Many surfers are grappling with inner demons that taunt them by questioning whether they can perform in Hawaii's surf, and the waves churn with frenzied activity as they seek to prove themselves.

These hyper-amped surfers are much more of a threat to your safety than any of God's sea creatures.

### Things that bite



Yes, sharks regularly patrol Hawaiian waters, but you're slightly less likely to be kidnapped by extraterrestrial slavers than attacked by a shark while surfing. Of the millions of people who dip a toe in the ocean here each year, only one or two are ever molested by sharks, and deaths are even more rare.

White- and black-tipped reef sharks snuffle around the shallows looking for small fish and other tasty tidbits. While you can spot these guys easily, they are less likely to attack than your neighbor's yapping lap dog, and mercifully the sharks aren't as noisy.

The serious ocean carnivores are the tiger, mako and hammerhead sharks, but it is your good fortune that these beasts are deep-water predators who aren't keen to bob in the wave zone for surfers.

Hawaii doesn't have a large enough seal population to tempt the great whites to migrate here from Northern California, Australia and South Africa, where they mistakenly attack so many surfers in their haste to grab a tasty seal meal.

About the worst you can expect is to have your dawn patrol or late afternoon session interrupted by a sea turtle surfacing beside you. An unexpected exhalation from one of these gentle reptiles will make your heart lurch into an impromptu drum solo while every cell in your body screams red alert at this false alarm.

I used to be comforted by the presence of sea turtles in the lineup until a marine biologist friend casually mentioned that they are the favorite treat of tiger sharks. Whatever you do, don't dress or move like a sea turtle.

### Slithery varmint

Central American sea snakes occasionally take a free trip to Hawaii, carried by open ocean currents, but they are as rare as an empty wave.

You can identify them by their sleek black body and yellow belly. If you see one, be careful who you tell. Most people will either think you deranged or a liar, although the occasional marine biologist might listen to your tale with interest.

Hawaii's reefs are fairly swarming with eels, but unless you stick your feet or hands in their hidey-holes and stress them, these toothsome critters won't bother you.

However, they are tenacious when provoked, and if one gets ahold of you the best escape tactic is to relax until the eel lets loose to get a better grip. That's your opening to either grab it behind the head, or set the water afire as you blaze away from your tormentor.

Their rather vicious set of teeth curve inward, so if you panic and try to pull one off you'll be in for the same futile, nasty struggle as if you tried to yank a determined pit bull off your arm.





## Pointy things

The local sea life you will have the greatest chance of interacting with, to your everlasting detriment, are sea urchins. There are many varieties of these bottom dwellers, and in places the reef is lousy with their sharp spines. Although some types will cause you more misery than others, they are all to be avoided.

Fortunately, that's easy to do. Just resist the impulse to walk on the reef, and you'll never meet these guys.

If you do tread on them, don't try to remove the spines that remain embedded in your skin. They are brittle and have barbs that make them impossible to extract. Keep the wound clean with isopropyl alcohol and hydrogen peroxide, and time will dissolve the spines. If the wound becomes infected, it's time to see a doctor before it gets out of control.

Coral is everywhere, and luckily so, for without coral we wouldn't have many rideable waves. But much of the coral is sharp and alive. Even if you master the art of the shallow-penetration dive during a wipeout, you are certain to get scraped eventually.

Just make sure you extract all the coral particles from your wound, and keep it clean with the same steadfast duo of isopropyl alcohol and hydrogen peroxide. If you don't keep on it, the streptococcus bacteria so common here will turn your wound into an angry red volcano erupting molten pus.



## Stinging blobs

Hawaii's waters are regularly visited by flotillas of jellyblobs whose stings, while not fatal, can painfully earn your undivided attention. One severe sting can cause you to sullenly meditate on the mystery of what possible benefit they could provide that would earn them their miserable place in the grand scheme of things.

Surely a benevolent creator wouldn't devise a creature that existed solely to torment surfers? No shore is safe from the irksome Portuguese man-o-war, though surfers on the windward side of each island are afflicted most often because these jellyfish blow with the breeze.

An air-filled, clear bladder pulls a dangerous line of tentacles on a ride through the ocean wherever the wind takes it. Only surfers trying to find some fun in waves where the wind is blowing offshore or onshore will be afflicted by man-o-wars.

Although incredibly painful, man-o-war stings aren't fatal, though the thought of stinging tentacles lashing your eyes as you push through a wave is ghastly to contemplate.

The translucent, bobbing blue bubble is innocent-looking and easy to spot, but it trails long tentacles that can wrap around your body and deliver a sting painful enough to make you forget your girlfriend's name. If these blue lassos of misery rope you, quickly pull off the stinging tentacles and paddle to the beach to scrub off any remaining tentacles with sand.

Meat tenderizer will help neutralize the remaining toxin, and if none is available, urine will do the trick. People who are hypersensitive to the toxin should be quickly taken to an emergency room.

Eventually the wind and waves dump these little devils on the shore, and the bubble makes a most satisfying pop as you vengefully stomp the man-o-wars helplessly stranded on the beach.

A more villainous blob that is impossible to spot is the box jellyfish, the less lethal cousin to the dreaded and frequently fatal sea wasp that haunts Australia's tropical waters.

Hawaii's box jellyfish delivers an agonizing sting that in many cases deserves quick medical attention from lifeguards or other emergency medical personnel. A usually effective home remedy is to treat the sting with a paste made of vinegar and meat tenderizer, one that contains papaya enzymes.

These translucent pests slink underwater through the lineup disguised so cleverly that they are as impossible to spot as fist-sized chunks of ice in the waves. They are most common on the south and west shores of Oahu, but because they travel just under the surface they can show up on any beach in the state to wash in and out with the tides in a vast undulating blanket of stinging blobs. Whether you paddle in when the surfers around you start getting zapped depends on how good the waves are.





When the waves wash them ashore, the box jellyfish are stripped of their cloak of invisibility by the sand that clings to their clear bodies, making them easy to spot. A quick stroll along the beach will let you know whether the fleet is in, and help you decide just how good the waves really are.

## THE OCEAN IN MOTION

### Having a swell time

If you surf in Hawaii often enough during the winter you will eventually be treated to one of the most exquisitely terrifying events in all of surfing: the arrival of a new swell.

While many new swells sneak ashore under the cover of darkness, others come muscling ashore in the full light of day, with dangerous results.

You will be out enjoying a harmless little 3- to 5-foot day at your favorite spot when you are stupefied to spot a giant set looming on the horizon. After paddling frantically to escape these rogue monsters, if you're lucky you'll be left sitting far from shore watching the lineup disappear under a maelstrom of white water.

After your heart stops pounding and nothing else shows up for 15 minutes, you'll begin to feel slightly ridiculous sitting out so far in such deep water and wonder whether you've been duped by a hallucination.

After paddling cautiously in and riding a few more fun 5-footers, your furtive seaward glances will spot another, larger rogue set and your race for the horizon will begin again.

Eventually these scout waves will be reinforced by the main army of the swell.

Don't worry; until you are overwhelmed by the full wave invasion you can take delight in the thrill of paddling for your life, secure in the knowledge that when you decide it's time to go in, the waves will be happy to quickly escort you to the beach.



### Seasons blowing in the wind

Although most people think of Hawaii as being pleasantly trapped in an eternal spring, that's not true. Surfers are especially aware of the subtle physical differences that mark the changing seasons in Hawaii because the wave and wind patterns provide the most obvious seasonal clues.

Even though Hawaii's surf is a slave to predictable storm systems that bring huge northwest winter swells to the north shores and fun summer south swells to the south shores, there are unseasonal swells that you can pounce on for uncrowded waves.

The North Pacific storms that batter the north shores all winter continue through the summer, though with much less vigor. Similarly, the Southern Hemisphere storms can crank out unexpected south swells during the winter months and let some good waves slip past Hawaii's usually vigilant wave watchers.

By staying alert and constantly checking all shores for waves, you can frequently snatch some empty waves, a trick that is as exciting as stealing treasure from under the dragon's snout.

You can pretty much assume that if you come to Hawaii, there will be waves. But keeping a sharp eye on conditions around you will make the difference between scoring good waves and being tormented by surfers telling you about the good waves when you show up a day late and a dollar short.

It's difficult to comprehend how something so invisible can have such a dramatic effect on your life, but the wind determines whether the waves are visions of delight or delusions of despair. Hawaii's wind patterns are simple and predictable, and by understanding them you can be on top of the wave conditions.

Trade winds blow 70 percent of the time in the Hawaiian Islands, which can be good or bad, depending on which shore you want to surf. "Trade winds" is a slippery term that describes a wide variety of winds from the north-northeast--great if you're surfing on the south shores--all the way to straight easterly winds, prime for the north shores.

The rest of the year the wind blows 10 percent each from the southeast, southwest and northwest quadrants, which makes alert surfers smile as they contemplate riding clean waves at spots usually shredded by the trades, such as the windward and northwest shores of all islands.





performance. Use this newfound energy to help the current as it carries you toward the channel, and keep paddling parallel to the rocks, toward the channel and slightly out to sea.

The other peak swings wide and jacks up closer to the channel, and is a steep draw followed by the hollow bowl section. If the wave wallops you here, the resulting explosion will blast you past the rocks and toward the channel.

The few parking spots along Kamehameha Highway fill up quickly when there is surf, and it's a miracle that more surfers aren't killed as they divert their attention from the hazards of the highway to gape at the waves.

Getting out to the lineup is simple, as the channel between Jocko's and Chun's is wide and deep. If the channel disappears underneath a river of churning white water, that is a serious clue that the waves are grumpy that day and don't want to be disturbed.

The absolute best way to get to the beach is to ride a wave to the channel and then stroke with conviction against the current. If that doesn't work, you can paddle across to Chun's for a wave to either straighten out on or ride to the beach. The waves will probably decide which option you employ.

With increasing numbers of surfers becoming completely deranged by visions of fame and glory at the sight of all the cameras at Pipeline, more surfers have begun to opt for the more private pleasures of Jocko's. This is where local residents and wily international pros slip away for a less stressful but equally tube-filled session.

However, there still are elements that help guard Jocko's against being saturated by surfers. Being blasted toward the rocks while clinging helplessly to your board or being dragged backward by your leash is a memory that will haunt you for a lifetime.

## Chun's Reef

**Location:** Off Kamehameha Highway between Laniakea and Wainea Bay

**Activities:** Shortboard surfing, longboard surfing, bodyboarding

**Wave:** Fun performance right, shorter left

**Difficulty:** Beginning to expert surfers

**Prime time:** September through April

**Wave range:** West-northwest, north-west, north, northeast swells, 2-8 feet, northwest is best

**Amenities:** Beachfront parking, shower

Tired of being trounced by snarling peaks, ripped by ravenous reefs and menaced by monstrous waves? Do yourself a favor and head for Chun's Reef. If you can't look good while surfing Chun's, it's time to take up another sport.

The biggest danger in surfing the easy, ripplable waves at Chun's is tripping over your newly inflated ego. Fortunately, the other surf spots on the North Shore specialize in humbling surfers. When a northwest swell up to 6 feet combines with easterly trade winds to pay a visit to Chun's Reef, the waves are eager to help any surfer believe he is the hottest rider that ever sizzled the seas.

Chun's has it all: a long wall custom-made for multiple lip bashes, floaters or endless nose rides; a hollow section for the occasional tube ride; a nice safe channel for an easy return to the fun zone; and sporadic lefts to lighten the load of the crowded right.

The worst part is that this wave doesn't have the decency to make even a feeble attempt to shield itself from public view, but rather flaunts its delights to anyone driving by on Kamehameha Highway.

With such an ego-gratifying fun wave so easily visible, you can be sure you'll never have to worry about surfing Chun's alone. Every part of every wave is utilized with maximum efficiency, and nothing goes to waste.

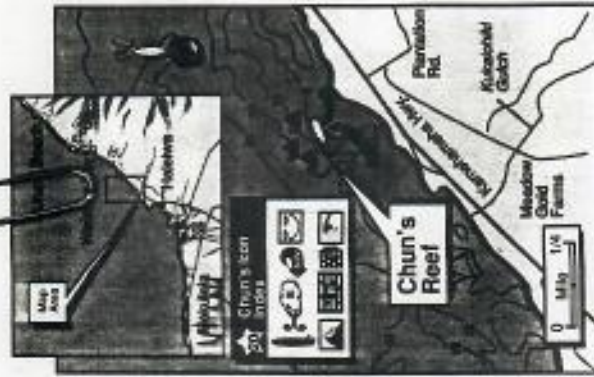
On a good day, you will take off on a wave only to have a longboarder stall you out with a fade turn while a bodyboarder drops into your lap and two paddlers taking a shortcut through the lineup stroke frantically in front of you. But there are a few tricks you can employ to ensure that you get your share of solo waves.

Chun's is actually four different peaks that change with each subtle shift in swell direction. The first peak is the bowl, which leaps up on the edge of the channel and is a thrilling takeoff that quickly dissipates, though at times it can wind into the inside hollow section.

The next peak is the middle section, which is where the main crowd hangs out to snag the delicious walls that peel for a hundred yards all the way into the inside section.

Then there are the long shots that jump up 30 yards beyond the middle peak and either offer a speed run to the channel, or close out near the bowl after an exciting ride.

As an added bonus, the middle peak and bowl often feature a left off the backdoor that helps spread out the crowd. While the lefts can offer a fast wall





and fun alternative to the packed rights, the paddle back out is hampered by the rest of the set and keeps the lefts from being exploited by very many surfers.

The trick to vacuuming up your quota of waves is to keep a sharp lookout, time the sets and paddle either toward the bowl or the far peak just before each particular set arrives. It takes equal parts cunning, alertness and luck, but if you keep your wits about you the crowd will watch with envy as you always magically seem to be in the right spot for each set.

Chun's will break on a variety of swells, from west-northwest through northeast, but northwest is prime time. It also looks fine on a full spectrum of wind conditions, including early morning and evening glass, most trade winds, and southeast, south, and southwest breezes. But you won't have to even see the waves to know whether they are working, as Kamehameha Highway near Chun's will resemble the world's largest used-car lot of disreputable autos.

Most people sprint straight out through the channel to get to the waves, while a crafty few walk up the beach a hundred yards and paddle toward the lineup, letting the waves and the current shunt them toward the channel, thus saving a few hundred strokes.

The best way back to the beach is to ride a wave until you have drained the absolute last gasp of energy, then paddle away from the parking area up the beach toward the dry river bed. Not only will this keep you from battling the dip in the channel, but it will put you ashore close to the shower, provided by the generosity of Rick Ralston of Crazy Shirts.

There is something sensually delightful about showering off in fresh water after a good session while watching surfers carving up the waves that exhaustion recently forced you to abandon.

About the only people who never admit to surfing Chun's are the serious big-wave warriors, who probably sneak out into the hairless waves for a fun session when no one's looking.

## Waimea Bay

**Location:** Waimea Bay Park

**Activities:** Shortboard surfing, bodyboarding, bodysurfing, big-wave board surfing

**Wave:** Giant right point wave, pounding shorebreak

**Difficulty:** Advanced to expert surfers

**Prime time:** October through March

**Wave range:** West-northwest, northwest, north, northeast swells, 6-30 feet, northwest is best

**Amenities:** Parking, showers, restrooms, lifeguards, picnic area

When winter's biggest waves come wrapping into the bay at Waimea, everyone pauses to admire one of nature's great muscle shows. It's a display of power that people remember forever.

A handful of brave souls challenges that power, and while the number of challengers increases every year, it's still a small, select group that actually rides the waves at Waimea. The rest just head out and get underfoot as they paddle desperately to escape a beating from the waves.

There is no magic aura that protects Waimea from surfing's greatest menace: crowds. At most breaks crowds are a problem. At Waimea they are life-threatening, and make a dangerous situation positively insane.

The serious Bay boys reckon there are two kinds of surf at Waimea, fun stuff under 25 feet, and anything bigger, which they deem exciting.

Actually, there is a third type of surf at Waimea. When the swell is too small for the point to break, the waves hug the rocks on the inside at a spot named Pinballs. Although Pinballs in no way resembles the harrowing peak at Waimea Point, it does possess a very juicy takeoff and workable wall. If you're keen to tell your friends back home you surfed Waimea, you can have a fun session at Pinballs and technically qualify as a Bay rider.

The hopelessly hooked Waimea Bay addicts don't even glance at the waves when Pinballs is breaking. They live only for those few times each winter when unimaginably powerful swells come blasting into Waimea. These waves march into the Bay in tight formation, and leap into the air when they hit the reef at the point, providing the most terrifyingly pleasing few seconds in all of surfing.

With traffic on Kamehameha Highway at a stunned standstill, people in stalled cars and those standing and sitting on the beach and surrounding cliffs focus their attention on the knot of surfers clustered near the point. The combined energy of the crowd is almost visible, as people cheer late takeoffs and groan at the terrible wipeouts.

When a surfer is ripped from his board by the wave, he's lucky if the wave doesn't smack him with it. He's also lucky if the rest of the set doesn't drag him so deep his eardrums rupture. And he's very lucky if the waves





merely drag him to the beach and dump him on the sand, an exhausted, sodden lump. The unlucky surfer is battered and beaten and given a free tour of the Bay by the current, until lifeguards or the Fire Department's rescue helicopter can pull him out.

When surfing Waimea it is essential to have the proper crazed attitude that implies a certain reckless disregard for personal safety. If you paddle out thinking you are going to get hurt, you will. If you think you can't make the drop, you won't, and if you begin to wonder what in the world you're doing out among those menacing waves it's time to be thankful you're still alive and head for the beach.

But a positive attitude is useless without the physical ability to help you survive a meaningful encounter in the lineup. If your body isn't conditioned by rigorous training to withstand dreadful punishment from giant waves, being dragged rapidly to painful depths and enduring prolonged periods without blessed air, your Waimea experience is likely to be short, nasty and brutish. If you are in excellent physical shape, your Waimea adventure is still likely to be short, nasty and brutish, but your chances of surviving are much better.

Getting into the lineup at Waimea sounds much simpler than the grim reality. Most Waimea vets gather across the river mouth on the right side of the Bay, waiting until the last wave of a set breaks. They then charge the shorebreak and hit the water paddling full blast, pushing through the waves and letting the current carry them to the middle of the Bay.



The view from above gives Waimea Bay a deceptively innocent look. Seen from the impact zone, a wave at Waimea about to unload is one of the most terrifying sights in surfing. Even under these glassy conditions there is only a handful of surfers in the world that charge Waimea's peaks with eager enthusiasm. Most surfers spend their time in the lineup vigorously avoiding the waves. Photo: Erik Aeder

The trick is to keep away from the white water near the rocks, and yet miss the ligament-wrenching lefts that grind through the middle of the Bay. Then it's a matter of heading for the lineup and finding someone who looks like he's having a good time out there. Attach yourself to him like a remora, and hope he really knows what he's doing and is not just another genial lunatic.

Presuming everything goes well and that you are still in control of your faculties and that your board is in one piece when you decide you have had enough, the route to the beach is simple: ride the white water in as far as you can, and stick close to the rocks. If you drift into the middle of the Bay, the lefts will do their best to test the limits of your limbs by stretching every ligament, tendon and joint seemingly to the breaking point.

If you and your board part company, resist the urge to flail madly toward the beach. Just help the rip carry you on the Bay tour, ducking under the sets when possible, until you can head for the rocks on the point. Then let the white water carry you in. If that seems like too rugged an endeavor, then head for deep water outside the breaking waves and tread water until the rescue helicopter can come scoop you out. While you wait you can try to delude yourself into believing things could always be worse. They could, but not much.

Each year the Bay is visited by groups of people who challenge the neck-wrenching shorebreak. Although it might appear to be less dangerous than an assault on 20-foot waves at the point, the shorebreak has compiled an impressive tally of maimed and drowned bodyboarders and body surfers. More people run into trouble 20 yards from shore than farther out in bigger waves at the point. I have always thought that if it was your fate to die while surfing, there would be few superior times and places than at Waimea during a classic 25-foot swell. What better way to go than with hundreds of people watching your final ride, movie and still cameras capturing your ultimate glory, and the comforting presence of rescue helicopters and lifeguards on jet skis just in case it wasn't your time to die?

But if you want to live, it's a good idea to check with the lifeguards and really be honest with yourself as you watch the waves and decide whether your first session out at Waimea might not end up as your last surfing experience.



If the action in the waves is too frenzied for your taste, you can always kick back on the beach and enjoy the performance in the lineup and the scenery on the sand. Parking is available along Kamehameha Highway and Ke Nui Road. One public right of way across the street from a giant wood carving of a Hawaiian with a rock perched atop his head (no kidding) gives the best view of the rights. Another right of way about 200 yards toward Sunset Beach offers access to the lefts.

Don't keep anything in your car that you are emotionally attached to, as it will quickly become the cherished possession of the fast-fingered set.

There is a channel off a sandy cove that makes paddling out to the lefts simple and painless, and allows you the luxury of pausing to admire other surfers' rides before powering out to perform your own heroics.

Surfers hoping to work their magic on the rights are in for a more difficult entry. While you can paddle out through the channel on the lefts and head down to the rights, that long route becomes wearisome after a few long strokes. Wade out on the shallow reef flat and time the set; then start paddling when the biggest set is breaking, and don't stop for anything. Most surfers on the rights kick out on the fly and hit the water paddling to avoid getting smacked by the rest of the set. If you wipe out or straighten out on a closeout, your path back to the waves will involve running the gauntlet of battering waves.

Remember that it will all be worth it when you get back out: one of the many surf photographers infesting the beach and water is bound to mistake you for someone famous and confer limited celluloid immortality upon you.

## Backyards

**Location:** Around the corner from

Sunset Beach

**Activities:** Shortboard surfing, sail-boarding

**Wave:** Stunningly fast right, powerful left

**Difficulty:** Advanced to expert surfers

**Prime time:** September through April  
**Wave range:** West-northwest, north-west, north swells, 5-10 feet, north-west is best

**Amenities:** Parking, amazing wind-surfing action



Just when you think the waves couldn't possibly get any more crowded, another planeload of surfers arrives and inspires you to contemplate giving up surfing for a less frustrating endeavor.

Other surfers deal with the crowds by abandoning the prime-time surf spots for seldom-surfed locations. Usually, however, those spots are seldom surfed because they aren't very good, or are much more dangerous than the prime spots. Such is the case with Backyards. This is a brutal surf spot for rugged surfers.

Ever so seldom, when the wind and the tide and the swell and the moon and the planets and the stars are in harmony, you can actually have some fun surfing Backyards. Usually, however, Backyards provides the kind of adventure that leaves you gratefully marvelling that you escaped with so few serious injuries. These surly waves devote their brief lives to bashing surfers. (Windsurfers are agile enough to escape the full fury of the waves, which only goads the waves into venting their frustration on the slower surfers.)

There are those surfers who crave the kind of painful excitement to be found while surfing Backyards, and it is a bonus that they will never have to battle crowds to satisfy their cravings.

The reef is a dreaded guardian at Backyards, and has compiled a gruesome collection of surfer skin over the years. The reef is black with sea urchins, which only help the coral inflict pain on human trespassers. No matter that you only want to take some pleasure from the ocean during your surf session, the reef will make you pay for your fun.

The wave explodes on the shallow reef, and the many peaks that comprise the lineup at Backyards are erratic. It will be a supreme test of your paddling and wave judgment to find the sweet spot in the lineup as the waves shift and peak up tauntingly just beyond your reach.



The wave at Backyards expects no mercy and gives none, but it will jump-start your heart and get your adrenaline flowing. Photo: Warren Bolster



If you opt to ride the lefts, you at least have a rudimentary if shallow and narrow channel to help you get back to the lineup. But the rights break more often than the lefts, and since there is no channel to provide safe passage, the paddle back out for another wave can punish you far beyond anything that your possible past misdeeds might have earned you.

Getting caught inside on the rights is as paralyzing as being trapped in a nerve gas factory explosion. But after a session at Sunset where every superstar, hotshot and stooge in the world is either ripping you off or bumbling around in the way, the empty peaks at Backyards seem worth any possible pounding that hollow waves and shallow reef can dish out.

Backyards is best on an easterly wind, southeasterly wind or no wind at all. With a solid northwest swell, the rights can line up for a speed run that asks no quarter and gives none, but just might provide a thrill a minute. While the lefts don't begin to match Pipeline's perfect barrels, they do make up for it by providing long, ripplable sections and hidden hollow treats with none of Pipeline's maddening crowds.

To get to Backyards, turn down Oopuola Street off Kamehameha Highway just east of Sunset Beach, and look for parking on one of the side streets. The beach parking lot is for a local sailboard club, which vigilantly maintains its parking exclusivity at the lot.

An alternative is to park at Sunset Beach and make the long walk around the point, which is enlivened by giving you a closeup view of the action at Sunset while you trudge to Backyards.

The best way to reach the lineup is to paddle through the channel straight off the windsurfers' parking lot, and head down to the rights. When you are caught inside by the ceaseless set from Hell that won't let you claw back out through the waves, you can either paddle over to the channel at the lefts, or make the long paddle to Sunset and back around the point. Both options can drain your energy reserves pretty quickly, but are usually preferable to getting worked over by Mother Ocean's bodyguards.

Windsurfers have swooped down on Backyards and taken it over, deeming it the island's most thrilling wave-jumping location. Although the wind helps sailboarders out of situations that would trounce a surfer, the ordeal of being pumkined by waves while trying to save your mast, boom, sail and board puts the lie to the saying "No brains, no headaches."

Backyards has plenty of headaches for everyone, brainless or otherwise. If you are surfing on a marginal day when the windsurfers descend, or are beached by

howling winds and giant waves, it might be worth your while to stick around at Backyards and enjoy the show. These wave-jumping fools that call themselves the Yardsbirds will put on a demonstration of athletic ability and disregard for danger that will leave you stupefied.



## Velzyland

**Location:** Last spot on North Shore, Kahuku from Sunset Point

**Activities:** Shortboard surfing, bodyboarding, sailboarding on outside reef

**Wave:** Ultra-hollow right and long left

**Difficulty:** Intermediate and advanced surfers

**Prime time:** September through April

**Wave range:** West-northwest, northwest, north, northeast swells 3-7 feet, best on northwest

**Amenities:** None

You could dedicate your life to a worldwide search, but you wouldn't find a more thrilling small-wave surf spot than Velzyland. After one tube at V-Land, most surfers are in love for life. Velzyland is a wave factory that churns out the thrills all winter long. Even when the big swells come sweeping in, if you look closely you can usually find a small group of wily veterans out riding the re-formed inside section.

Because of a lucky arrangement of the mountains and canyons, the wind will blow offshore at Velzyland while other North Shore spots are in tatters. It's a good bet to check V-Land on any swell before making the rounds of the other spots, as you will seldom be disappointed.

This wave can make all your surf dreams come true. The outside peak jacks up for an insane drop, followed by a flat section that lets you gather your wits and plan your assault on the inside bowl. It's an amazing phenomenon of physics that permits the inside reef to transform a 3-foot wave into a tube hollow enough to accommodate a 300-pound bruddah, but that's what V-Land is all about: gaping barrels.

Even a mushy peak will be magically altered into a hollow Oh!!! of exclamation when it encounters the shallow inside section, turning an average wave into another portal to the tubular realm.





that makes you wonder whether your appendages will be of any use to you when the wave has finished its painful therapy.

Waves come charging out of deep water and arch and pitch when they hit the shallow reef. The resulting left will help give you a graphic image for the vague ideas you might have about power.

You can save yourself a world of misery if you find some dependable landmarks on the beach to line up with to keep the sets from ambushing you out of position. Each wave starts as an ill-defined lump of energy that is rapidly transformed into a liquid cliff, so every takeoff is an exercise in free flight.

You have to plan your moves with laser speed, as the wave zips along and rewards indecision with a solid thumping. Each wave is fiercely independent, and asserts its right to break on a whim. While the first wave of a set might be a fiberglass-melting speed-run tube from start to finish, the next few waves could feature surprise caverns and slow sections perfect for fancy carving maneuvers.

With easterly elements to the swell, the rights will seduce you with a steep peak and fast, well-formed wall. The ride will be so enjoyable that you might momentarily forget that there is no channel for a safe return trip to the pleasure zone. The rest of the set will offer a painful reminder.

Many times it's a good plan to ride the white water over to the channel off the lefts and paddle back around to the rights. Unfortunately, prolonged contact with the reef does nothing to diminish the power of these waves, and the white water can kidnap you for a runaway ride to the inside shelf. Just relax and enjoy it, and try to angle over to the channel.

Although the channel is deep enough to provide a safe entrance to and exit from the surf zone, a wipeout can leave you far from the safety of the beach in an area of shallow reef surging with strong rip currents. The best plan is to relax and help the currents carry you toward the channel so you can catch your breath as you plan a new assault on the waves.

Luckily, if the unthinkable happens, Kahuku Hospital is only minutes away and physicians there have vast experience in reassembling surfers.

As you pass through Kahuku town, turn onto Puuauana Street across from Kahuku High. At a fork in the road a left turn will take you to the Kahuku Golf Course clubhouse. Follow the road until you find a parking area with a view of the waves. The peak at 7th Hole will be to your extreme right, and a walk up the beach a few hundred yards will take you to the channel.

If you continue along Kamehameha Highway, turn left across the street from the Catholic church. Park near the south end of the fairways and slip across the greens and you will find yourself atop a sand dune with one of the great views in all of surfing. The peak and channel will be spread out at your feet, making it easy to fantasize yourself on the waves.

Just remember as you cross the golf course that you are trespassing, and some golfers might enjoy the challenge of hitting a moving target.

South Golf Course Road will also get you into the parking area, as will Adams Road, which will take you to the back side of the football fields, another good place to park.

The best path to the lineup is across a short but shallow limestone shelf and into a deeper lagoon that leads to the channel. With any luck the rip will haul you out to the waves. The rest is up to you.

Unless you foolishly try to battle the channel to the beach, the waves will give you a welcome burst of speed to shore. The last few yards are shallow and the coral sharp, so move with care.

If you're looking for fame and fortune, you'll never find it at 7th Hole. The photos are too busy infesting the Pipeline to wander into this rough wilderness, and the only things you'll find at 7th Hole are adventure and splendid, solitary surfing.

## Goat Island

**Location:** Off Malakakaha State Park

**Activities:** Shortboard surfing, bodyboarding, sailboarding

**Wave:** Long series of left peaks with hollow sections

**Difficulty:** Beginning to advanced surfers

**Prime time:** Best September through April, breaks all year

**Wave range:** North, northeast, east-northeast, east, and giant northwest swells, 3-7 feet

**Amenities:** Parking, showers, restrooms





The sleepy little town of Laie is the site of Oahu's North Shore surfer refuge off Goat Island.

Even though galls continue to visit the North Shore during the long, hot summer months, they aren't frequent or ferocious enough to satisfy the voracious appetites of the North Shore's resident surfers. Some surfers sat their ravenous wave cravings by adventuring to foreign shores, but not everyone can afford such an indulgence. So to ease their surf hunger, the island-bound wave hunters frequently forage off Goat Island, where the constant trade winds produce waves all year.

You won't find any goats on Goat Island, since the herds that the Mormon settlers of Laie banished to Mokuauia Island because of their destructive behavior ashore died out years ago.

The island is still witness to some aberrant behavior as surfers whack the tops off of waves and generally create mayhem on these juicy walls. Although the waves off Goat Island can get your attention with an abrupt saltwater head slap and the coral can leave painful tattoos on your carcass, this usually is a nonthreatening surf zone.

A reef stretches from the east side of Goat Island and angles off to deep water, creating a series of pitching peaks that can connect on northeasterly swells. If you snare one of these endless sidewinders, you will have a glimpse of insight into why so many people are so fond of Goat Island.

This is not a wave for unimaginative surfers who demand boringly predictable sections. These lefts will test your creativity and ability to instantly improvise. If your surfing style calls to mind Beethoven's 5th rather than Joe Satriani's riffs, you will be maddened by Goat Island's stifling peaks and ambushing hollow sections. But if your technique makes people hear the late great Stevie Ray Vaughan as they watch you in action, you'll be able to create some truly wild tracks on the walls here.

The waves come sweeping out of cobalt blue deep water and hit the reef in a sky-scraping leap that makes the drop an adventure in aerodynamics. The wall will either open up and swallow you, or hold back long enough to let you lay down some good lines, then swallow you on the inside section.

As you paddle out, decide which peak is calling your name, and stick with it through the session. Otherwise you can graze through the whole lineup and grab whichever wave is closest, sampling the delights of each section.

The wind is a major factor here, as the same trades that kick up the waves also make them ugly. But if the trades aren't too brisk, the waves are very rideable. When kona winds are blowing, the waves are downright defecable, as the walls become smoother and the tubes deeper and more accommodating. The waves are also delicious during glassy land-breeze mornings and evening glass-offs.

There is plenty of parking for Goat Island, but getting a parking spot can

be a problem on those rewarding dawn patrols. Access is through Malackahana State Park, which doesn't open until 7 a.m. When the gate does open, park in the first lot and scramble down to the beach to check the waves.

If you're ready to rip before the gate is open, you can always park at nearby Hukilau Beach Park and walk up the shore until you get to Goat Island, a walk that may be tedious but is much better than going crazy waiting for Malackahana's gates to be opened.

The two best methods to reach the waves are completely different. The easiest way is to paddle the short distance between the park and the island, and walk along the island's shore to a good jumping spot. Then time the sets and launch into the waves, and stroke like mad. This technique allows you to tow out a cooler full of food and drinks to stash on the island to help recharge your batteries between sessions.

The other route is to paddle from the beach closer to Laie and skirt the reef, then make the long stroke in deeper water. The advantage here is that you can plot your attack on the waves as you paddle out, and even snag a few stragglers.

The island is a bird refuge, and site of some wanton cruelty where the nesting wedge-tailed shearwaters have been slaughtered. Although the state places the island off limits after each batch of killings, it cautiously reopens it eventually. Treat these animals with consideration and you'll help keep the island open to visitors.

About the only menacing aspect of Goat Island is an occasional invasion of Portuguese man-of-wars. While not as deadly as a trip over the falls at Pipeline, these little blue devils can significantly alter your enjoyment level in the waves. As you walk along the beach before paddling out, check to see if the fleet is in town. If there are no blue bodies covering the shore, paddle out and have fun. Otherwise, count the corpses, check the waves and decide whether it's worth the risk.

## PCC (Polynesian Cultural Center)

**Location:** Across from the Polynesian Cultural Center in Laie

**Activities:** Shortboard surfing, bodyboarding

**Wave:** Fast, long lefts, often hollow; short rights

**Difficulty:** Intermediate to advanced surfers

**Prime time:** Best September through April, break is all year

**Wave range:** North, northeast, east-northeast, east, and giant northwest swells, 3-8 feet

**Amenities:** Parking along Kamehameha Highway, no crowds







the resulting waves will beckon to you with open barrels and long, smooth right and left walls. This is a special treat on the Big Island, as beaches and especially beachbreaks are as rare as an original thought.

Although the discharge from the Waipio Stream makes the water murky, sharks are not a problem. However, there are usually so few people in the water that it will be impossible to keep your thoughts from straying to vivid images of the last *National Geographic* special you saw featuring Great Whites devouring bloody seal carcasses.

Waipio Valley is guarded by a steep, narrow road that only 4-wheel-drive vehicles are allowed to tackle. To reach the Waipio lookout, follow Highway 19 (Hawaii Belt Road) until it intersects Highway 240, then cruise through Honokaa to the lookout.

If you lack a suitable vehicle for the trip into the valley but are keen to surf the waves, you can usually charm someone into giving you a ride down in their rig. Failing that, you can walk, which has the advantage of allowing you to enjoy the view at a leisurely pace.

The ultimate way to savor the surf at Waipio is to plan to camp in the valley for a few days, to experience what life in Hawaii must have been like before modern life made everything so hectic.

And as you paddle in from a fun session in the beachbreak, the thought may haunt you too: how did Eric Roberts get so good?

## Honolii

**Location:** A few miles north of Hilo

**Activities:** Shortboard surfing, long-board surfing, bodyboarding

**Wave:** Fast performance left, often hollow, short fun rights

**Difficulty:** Beginning to expert surfers

**Prime time:** Breaks all year

**Wave range:** North, northeast, east, east-southeast swells, 2-12 feet, northeast is best

**Amenities:** Parking, showers, restrooms, paved path to beach, interesting beach, great scenery

The cool waters of the Honolii Stream faithfully carry a precious cargo of sediment and rocks to Honolii Bay. It's almost a game, with the raging winter swells stripping the beach and the stream replenishing the sediment.

No one would ever pay attention to this ages-old contest if it weren't for the waves. Without the stream's cargo of movable material, the beach and shoals would disappear, and the waves would have won the final game. Except that the tidal waves would also disappear, and Hilo's surfers would lose their most productive wave playground.

When a development company tried to create a hydroelectric power plant upstream with a catchment basin that would have halted the downstream flow of sediment and rocks, the area's surfers and environmentalists quickly perceived the peril. They clamored so loudly and effectively that the state stepped in and mixed the power plant. Because of that vigilance, you will have a chance to surf one of the Big Island's favored waves.

During the summer the trade winds blow up constant swells, supplemented by the rare hurricane and east-southeast groundswells from Southern Hemisphere storms. When kona winds or smooth conditions greet these swells the resulting waves are sexy enough to star in your midnight dreams.

When winter arrives, surfing at Honolii becomes hectic as strong north, northeast and east swells bull their way into the bay and make every session an adventure in survival. Winter usually has a gratifying number of glassy mornings and evenings that will hide the waves' bestial nature under a mask of silky smooth water.

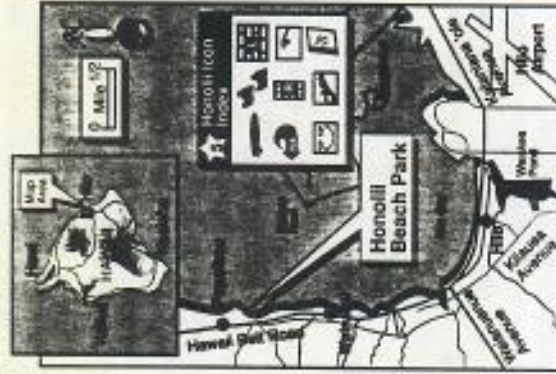
As the main surf playground of the populous Hilo area, Honolii is usually crowded. But even at its worst, a Big Island crowd is much more mellow and friendly than any crowd on Oahu.

Honolii Stream creates a horrendous bowl on the north side of the bay where it deposits its load of sediment into a shoal. After you make a steep drop on the left peak outside the point and jam across the long wall, the sight of the looming bowl will inspire you to turn on the afterburners. Your choices when you reach the bowl are slam or be slammed, and your response will tell you heaps about your surfing philosophy. Some incredible specimens of surfers grin maniacally as they launch into a floater or tuck into a seemingly impossible tube, while others make a feeble attempt at some ill-advised maneuver and brace for the beating.

At 6 feet and under these waves are playful little creatures that are eager to show you a good time, despite the menace of the closeout in the shorebreak and the rock-lined shore. The wave starts outside the north end of the bay with a steep drop and long, peeling wall that tapers as it heads to the shorebreak and offers plenty of opportunity to bail out.

If you're alert you can snag a few good rights, but don't forget to pull out before you reach the rocks on the point.

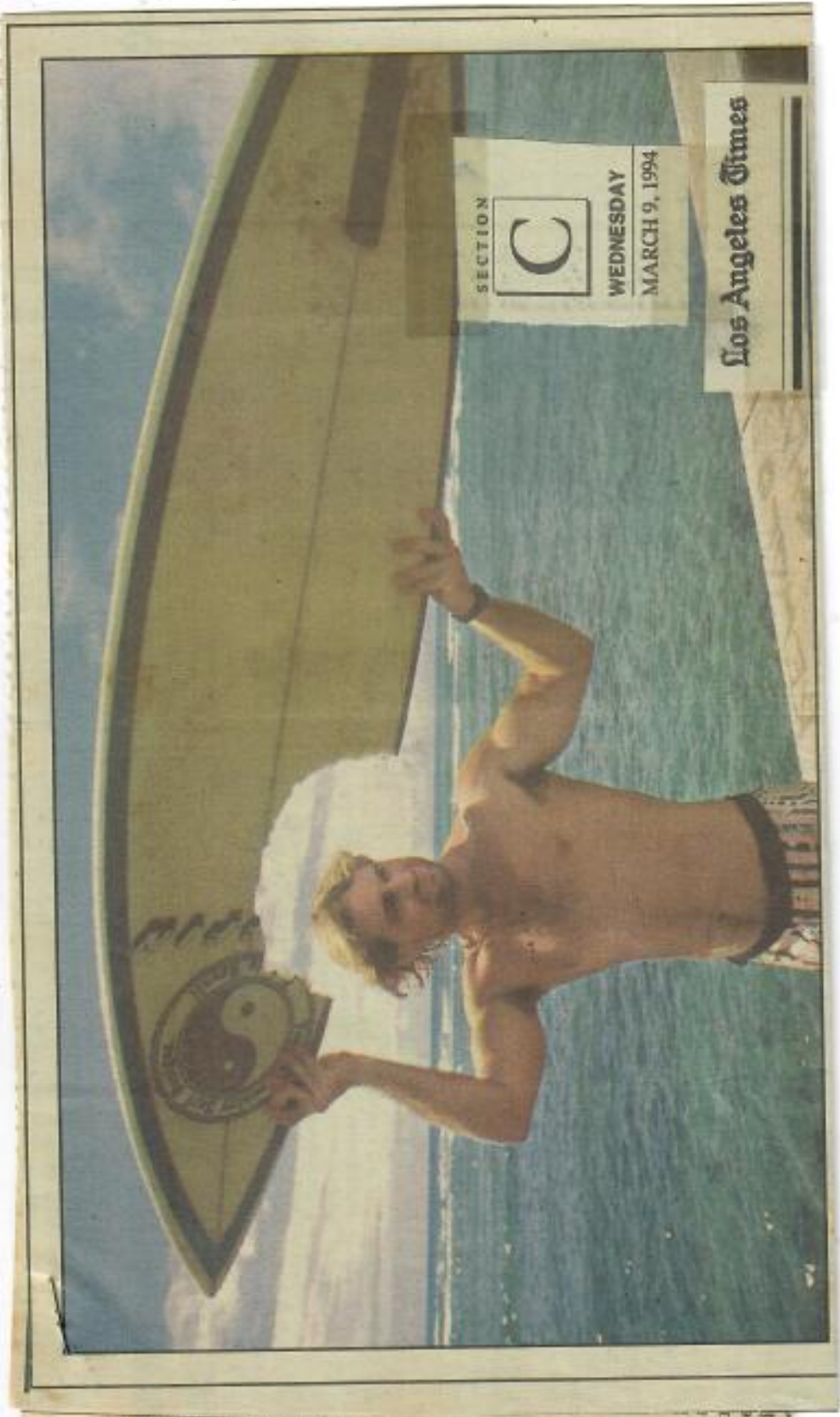
As the waves get bigger, the crowd becomes smaller as the waves beat the enthusiasm out of them. The right wave will line up all down the beach, while the wrong wave will permit only a few quick turns before it closes out.











SECTION

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WEDNESDAY

MARCH 9, 1994

Los Angeles Times



Rick Gruzinsky says he uses better judgment since a 14-foot tiger shark took this chunk off Oahu's North Shore.

WARREN BOUTWELL / For The Times

A YEAR LATER...

# Bite Taken Out of Fear for Surfers

## Hawaii's Shark Hunt Kills 58, but Caution Isn't Being Thrown to the Wind Quite Yet

By PETE THOMAS  
TIMES STAFF WRITER

It was a little more than a year ago when Rick Gruzinsky, a construction worker from suburban Honolulu, was sitting on his surfboard at dawn at an offshore reef near Lanikea on Oahu's North Shore. His friend had caught a small wave in. Gruzinsky was alone.

Or so he thought.

Lurking nearby in the blue-green sea was a 14-foot tiger shark. It swirled beneath Gruzinsky, then crashed the surface and clamped down on the front of his surfboard, shaking its head and snapping off a large chunk. Gruzinsky vividly remembers seeing the chunk stuck in the shark's open mouth as the startled surfer climbed back onto his broken board and raced back to shore.

Reached the other day at his home in Hawaii Kai, Gruzinsky, 28, said he has not quit surfing, but he can't shake the memory of that attack on Oct. 22, 1992.

Nor can anyone else in and even beyond the surfing community on Oahu.

Gruzinsky's was only the first of three

**Please see SHARKS, C11**



JOHN KAUFHOFER / National Marine Fisheries

This 16-foot tiger shark was killed last summer off Kaneohe, Oahu. It was one of 58 eliminated in a widespread hunt.



# SHARKS

Continued from C1

confirmed attacks within a period of two months, including the fatal attack at Keauau Beach Park on bodyboarder Aaron Romero, who bled to death after being bitten on the leg shortly after reaching shore screaming for help. And then there was Gary Chun, who like Gruzinsky saw his board snatched and bitten by a large shark while Chun was waiting for a wave near Laniakea. He escaped with minor injuries.

Subsequent sightings and alleged sightings were reported by the dozens last winter as the situation bordered on hysteria, prompting a shark scare of unprecedented proportions, and the first comprehensive shark hunts since the early 1970s.

State shark experts, whose policy is to hunt sharks only after an attack or if it is determined that a genuine threat exists, were not the only ones involved. Surfers, fishermen, divers and even prominent businessmen concerned about the welfare of their children went to sea to catch and kill as many sharks as they could get their hooks into. The shark fishing effort continued into the summer.

"According to my records, 58 large tiger sharks were taken around Oahu, so I think we may have made a substantial dent in the population," said John Naughton, a National Marine Fisheries Service biologist and prominent member of the recently disbanded state shark task force. "Obviously there are still some around . . . but one thing, it seems to have really reduced the number of attacks around Oahu."

Indeed, a relative calm has prevailed this winter as the only "shredding" on the North Shore of Oahu is being done by surfers,

who travel to the island from all over the world each winter to ride the large waves generated by Arctic storms. There has not been a single confirmed attack.

But shark experts, none of whom knows how many tiger sharks there are or whether they migrate from island to island, are quick to point out that this might only be a coincidence. They are certain of only one thing: At least 58 tiger sharks eight feet or longer were removed from the shores of Oahu.

"We don't know if they were 58 out of a population of 59 or 58 out of a population of 58,000," said Dr. Kim Holland, a shark expert with Hawaii's Department of Land and Natural Resources.

Some, such as Holland, believe that surfers—the primary victims of shark attacks because they surf well offshore and often at dusk and dawn, when tiger sharks are beginning and ending their nighttime feed at the reefs—might have actually been lulled into a false sense of security because of the hunts.

But they will agree that some good has come of the attacks and subsequent scare. Surfers are more aware of their surroundings and for the most part are using better judgment, not paddling out near the mouths of rivers, where runoff carries dead animals and other debris that sharks feed on, and by not paddling out alone at dusk and dawn, particularly in murky waters, where tiger sharks prefer to hunt.

A surfer suffered serious leg wounds after being attacked by a tiger shark last October off Kauai while surfing in murky water near the mouth of the Wailua River.

"The attacks are still in the minds of people," said George Downing, 63, a Honolulu surf shop owner who became legendary in surfing circles in the 1950s and '60s for his big-wave

riding on the North Shore. "One of the concerns now is to stop certain things from taking place, and I think more attention is being given to such areas by the lifeguard service. There's more awareness."

Said Gruzinsky: "People are a lot more aware. They even talk about it on the [telephonic] surf report. The other day after a lot of rain and runoff, it was the first I'd ever heard, on the surf line they said, 'Watch out for the guys in the gray suits because of the muddy water.'"

In large part because of the attacks and the attention they received, the state—which was urged by surfers after each attack to do more hunting and by conservationists after each hunt to leave the sharks alone—decided to make a serious attempt to learn more about "the guys in the gray suits," which were patrolling Hawaii's offshore reefs long before anyone thought of riding the waves that break over them.

"Our goal is to determine what are typical ranges and movements of tiger sharks around heavily populated coastlines," said Holland, who directs a new tagging program in which sonic devices are used to track the creatures' movements. "The idea being that if you know more about what the animal is doing, then you can more rationally evaluate management options."

This approach seems to be keeping attacks to a minimum while at the same time saving the tiger shark from random hunts. Such hunts could adversely affect Hawaii's coastal marine ecosystem, in which tiger sharks play a vital role by keeping the number of smaller reef sharks and other animals in check.

The state's tagging program has been slow to develop, however.

Since last fall, only three tiger sharks have been tracked, and

merely for short periods of time. The results were somewhat surprising in that all three sharks traveled across the channel from Oahu to Molokai. The popular belief was that tiger sharks are predominantly coastal animals that prefer fairly shallow water.

"They traveled about 29 miles from where they were released, but that to me is not surprising," Holland said. "What surprises me is that it wasn't along the shore. It was straight out to sea and hang left. And that brought them up along a shallow area off the coast of Molokai."

The first two sharks—a 7-foot immature male and a 12-foot mature female—were tracked late last fall for 24 and 30 hours, respectively. One of the sharks dived 1,000 feet and was still far from the bottom, which was also surprising because tiger sharks in coastal areas generally stay close to the bottom.

Unfortunately, both transmitters failed, and the knowledge gained from such a small sample is basically useless. Stress, too, may have been a factor in the sharks' behavior immediately after being tagged. A longer tracking period would have been more helpful.

A third shark was tagged and tracked recently, but for only about six hours before the transmitter's battery failed. Then the engine on the boat used to track the animals failed.

Holland acknowledges that the results of the program thus far are "not very conclusive," but he said money has been raised to fix the boat and that the DLNR remains optimistic that many of the mysteries of the tiger shark can be solved, given time.

Surfers, meanwhile, still are watching the horizon for more than the next set of waves, but are more comfortable knowing there are fewer sharks.



# Nothing New Under Sun—or Water

## Hawaii Has Had Shark Attacks as Long as Surfers Have Braved the Waves

Shark attacks are nothing new in Hawaii. Tiger sharks have been tangling with wave riders for as long as anyone can recall.

George Balazs, a National Marine Fisheries Service biologist and sea turtle expert, using several sources, has compiled a list of more than 100 attacks—most of them on surfers—dating to 1779, when a young male was gashed on the buttocks after being pursued while surfing. He later suffered "great pain" and died.

In 1828, "A man out riding surf [off Maui] was killed by a shark which bit off his limbs and left his body floating." The attack was reportedly witnessed by several Hawaiian chiefs.

In 1904, partial remains of a swimmer who had disappeared off Diamond Head were found inside a "monstrous shark." The body "was complete from the waist down with the exception of one leg."

Also found in the stomach were ducks, tin cans and

wood.

In 1931, a Lt. Williamson had harpooned a 10-foot tiger shark off Pearl Harbor, and while he was using a gaff to bring it aboard, the shark bit off the tips of his fingers and chewed the two-inch oak pole of the gaff in half. In the shark's stomach were "the hind leg of a mule, two bathing suits nearly digested, a soldier's belt buckle, a pint of buttons, two horse shoes, the corner of a wooden soap box, an anchor chain, two small anchors and assorted bolts, nails and copper fittings."

In 1960, Harold Riley was swept to sea while net fishing off Maile Point, Oahu. A 20-foot shark was observed attacking the victim.

In 1976, Danson Nakima apparently passed out while diving for coral at 180 feet. About 30 large sharks were observed attacking the victim.

In 1980, Mark Skidgel was lying on his bodyboard off Lahaina, Maui, when a 14-foot tiger shark bit him on the left

side of his body. The wound required 52 stitches.

The list goes on. And chances are, it will continue to grow. The average is up to about four attacks a year, due more to an increase in the human population than to an increase in sharks, some experts say.

But it is an alarming statistic nonetheless for those who paddle out to the offshore reefs on almost a daily basis.

Also alarming, some might think, is a recent increase in green sea turtles around the Hawaiian islands. The turtles, which feed on algae in and slightly beyond the surf zone, were protected as a federally "threatened" species in 1976.

"It may be that [the sharks] are learning now, with more turtles here, to concentrate their feeding on turtles, which would put them into close proximity to surfers," said John Naughton, a NMF's biologist based in Honolulu.

"I can't say that is the case, but in the 1960s there was roughly a 20% occurrence of

turtles in the stomach contents [of tiger sharks], and now we're seeing a 42% occurrence, which would make sense because turtles are more abundant than they were in the '60s."

Surfers have voiced a concern that tiger sharks might be mistaking them for turtles, which would help explain the rash of attacks—three confirmed—and sightings last winter at the North Shore.

Balazs discounted that theory, claiming there is "no credible evidence" to support it. But there is no disputing that turtles often swim near the surface, and tiger sharks often attack floating objects.

Said Naughton: "I don't think they mistake people for turtles. I think they just happen to be in there looking for turtles and they see something moving up there and they just whack it. They don't care what it is. They'll eat anything."

—PETE THOMAS

3/9/94 C11 LA TIMES



# Shark killing irks some Hawaiians

3-11-94

□ The 12-foot beast was slain for a movie being filmed on Maui

By Gary T. Kubota  
Maui correspondent

HSB A1

WAILUKU — Maui County officials are trying to mediate a dispute arising from the killing of a 12-foot tiger shark for the filming of a movie at Lahaina Harbor.

Some native Hawaiians have objected to the killing of the shark, which was done as background for the film. In Hawaiian culture, certain sharks are regarded as aumakua or guardian gods for families living near the ocean.

Donald Bellisario, who helped create the TV programs "Magnum P.I.," "Airwolf" and "Quantum Leap," is producing the television movie "Crowfoot" on Maui. The movie is about a police detective who is part American Indian and has mystical visions to solve crimes.

"Crowfoot" is expected to air on

CBS as a two-hour movie of the week, and Bellisario hopes the network will pick up the Paramount Television show as a television series.

Charles Maxwell Sr., a native Hawaiian, said he had received a few telephone calls criticizing the killing of the shark.

“  
I feel it's sacrilegious to kill a shark just to put it in a film.  
”

Charles Maxwell Sr.  
Native Hawaiian activist

“I feel it's sacrilegious to kill a shark just to put it in a film,” Maxwell said. “This is another example of the total disregard of people toward Hawaiian culture.”

Maui County Film Commissioner Georja Skinner planned to meet with Maxwell and film representatives today to try to resolve the conflict.

Maxwell was on a state task force created to oversee efforts to hunt for a shark that killed Martha Morrell as she swam off her Olowalu home in November 1991. Maxwell resigned from the shark task force because he felt he was a “token Hawaiian.”

Maxwell said the teeth and skin of the shark should be donated to crafts people, and the remaining carcass returned to the sea.

Yesterday afternoon, the shark was hanging at the harbor, covered by a blue tarp.

The county said the budget for the movie, to be filmed through March and part of April, is several million dollars.



# Killing shark a mistake, say film producers

□ They make amends  
with native Hawaiians  
over the beast's death

By Gary T. Kubota  
Maui correspondent

HSB A3  
3/12/94

WAILUKU — Native Hawaiians and producers of the film "Crowfoot" say talks yesterday helped resolve a conflict over the killing of a 12-foot tiger shark for use in the movie.

Some native Hawaiians, noting some sharks are *aumakua* or guardian gods to some Hawaiian families, protested the killing. It was done for a part of the background for the filming of the made-for-TV movie.

The two groups met for about 45 minutes in a park near Lahaina Harbor, where the crew was filming a segment of the movie.

Harker Wade, the film's line producer, said those producing the film killed the shark out of ignorance and he apologized for the killing.

"We made some mistakes," he said yesterday. "I know I've learned a great deal from it."

Charles Maxwell Sr., leading the talks on behalf of native Hawaiians, said he felt good that the film's producers admitted they made a mistake.

"They were really cooperative. They knew they made a big boo-boo," Maxwell said.

Maui Film Commissioner Georja Skinner said the discussions have helped the producers to learn more about Hawaiian culture.

"I think that's a positive step," he said. "It's nice to see cultures meeting and making amends. From here on out there will be more sensitivity."

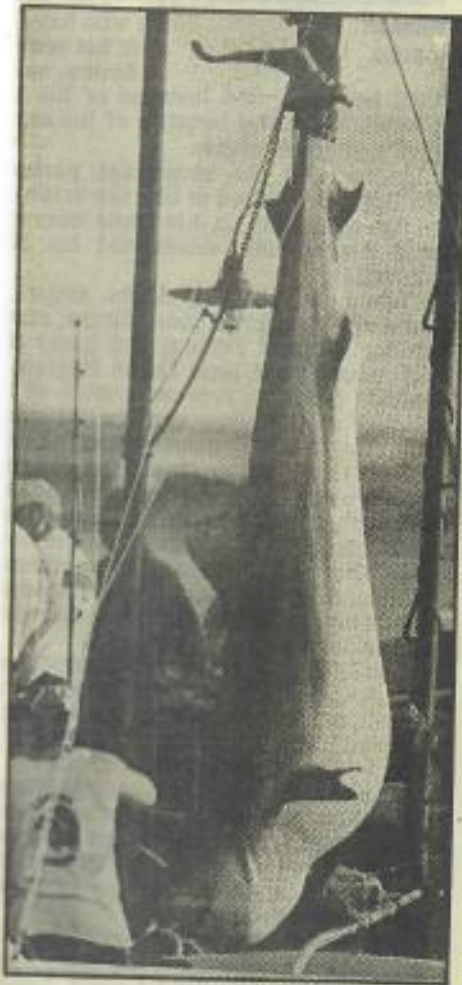
Maxwell said he planned to consult with other native Hawaiians before recommending the proper way to dispose of the shark, based on native Hawaiian customs.

The producers of "Crowfoot" used the shark in the background at Lahaina Harbor where they have been filming this week.

"Crowfoot" is being produced as a two-hour television movie to be aired on CBS. Executive producer Don Bellasario, who has produced "Magnum P.I." and "Quantum Leap," hopes the network will turn the movie into a television series.

"Crowfoot" is about a Maui police detective who draws upon the mystical side of his American Indian culture to solve crimes.

The budget for the movie, to be filmed through this month and part of April, is several million dollars.



By Donnell A. Tate, Special to the Star-Bulletin

The 12-foot tiger shark was used as a backdrop for "Crowfoot," a made-for-television movie being filmed on Maui.



# Kauai surfer by 12-foot tiger Fish releases grip after punct

By Jan TenBruggencate  
Advertiser Kauai Bureau

LIHUE, Kauai — David Silva was paddling his surfboard when he felt something grab his leg.

He turned and looked a 12-foot tiger shark in the eye.

He punched it, and it let go.

Last night, after surgery to close two large wounds in his lower left leg, Silva said he won't surf again.

The attack occurred shortly after 11 a.m. yesterday off the north end of Wailua Beach. Kauai parks officials ordered swimmers out of the water from Nukoli to Waipouli following the incident.

Silva, 31, a groundskeeper from Kapaa, was in fair condition at Wilcox Hospital last night after a medical team repaired two open wounds 14 inches apart on his left lower leg. The two wounds were the result of a single bite.

Police reported the shark left a semi-circular imprint of its bite on the bottom of Silva's board that was 14½ inches wide at the board's edge.

Silva was part of a group of surfers at a break called Horners at the Kapaa end of Wailua Beach.

During a telephone interview from his hospital bed last night, he said he was paddling to shore when he felt something on the back of his board.

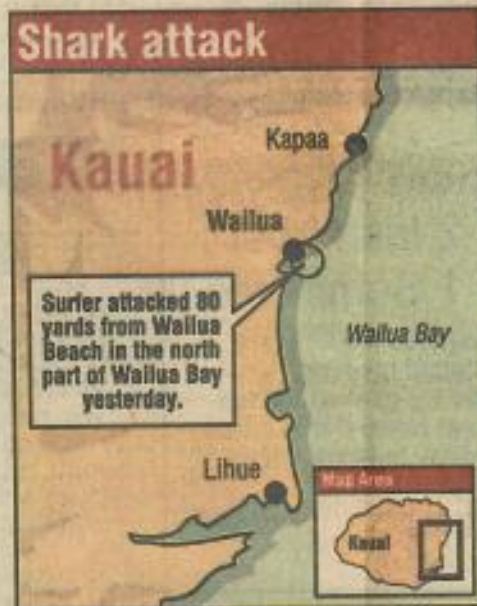
There was no pain at first. He twisted around, and saw what he described as a 12-foot tiger shark with his leg and the end of his yellow surfboard in its mouth.

The shark's eye was looking at him, Silva said.

"I punched him in the nose," and the shark let go, he said.

It did not strike again.

He said he paddled the 80 yards to



shore on his own. Then others came and helped.

Silva said he has seen sharks in the water before, but had not seen the big tiger before it attacked.

The waters of Wailua have been dirty and debris-filled following heavy rains earlier in the week. There was muddy water yesterday at the south end of the bay near the mouth of Wailua River, but much of the bay appeared clear.

Silva said he did not see any sea turtles in the area, but police said they spotted turtles near the area of the attack during their investigation of the incident. Tiger sharks prey on sea turtles.

Asked if he would ever surf again, Silva said no. "Pau surf," he added.

The county Division of Parks and Recreation posted "no swimming" signs at beaches from the Coconut



# attacked shark

n to snout

## Shark attacks

Recent shark attacks in Hawaii include:

**Nov. 26, 1991**—Martha Morrell, 34, of Olowalu, Maui, is fatally attacked while swimming near her home.

**Feb. 19, 1992**—Bryan Adona, 29, of Ewa, disappears while bodyboarding at "Leftovers" on Oahu's North Shore. His board is found with what appears to be a shark bite.

**Oct. 23, 1992**—Rick Gruzinsky, 26, of Hawaii Kai, escapes injury when a shark bites his surfboard at Lanikaea on Oahu's North Shore.

**Nov. 5, 1992**—Aaron Romento, 18, of Pearl City, is fatally attacked while bodyboarding at Keaau on Oahu's Leeward Coast.

**Dec. 23, 1992**—Gary M. Chun, 30, of Kaneohe, suffers minor cuts when a shark bites his surfboard at Chun's Reef on Oahu's North Shore.

**March 14, 1993**—Roddy Lewis, 35, of Kuau, Maui, is bitten on the legs while surfing near Keanae.

**June 10, 1993**—Jonathan Mozo, 22, of Laie is bitten on the feet while surfing near Malaekahana Park.

Plantation area south to Nukoli.

Wailua Bay and the east side of Kauai have no extensive history of shark attacks.

In 1989 a man was washed out to sea from Wailua Beach in strong currents, and parts of his body were found six days later showing evidence of shark feeding. In the same year, a surfer was bitten on the ankle off Anahola, about 10 miles north of Wailua.

Honolulu Advertiser

AT  
Saturday,  
Nov. 13, 1993



Honolulu Star-Bulletin  
11/6/93 B1

## BOOKS

# 'Tigers of the Sea' gives readers facts to chew on

Author understands dog's life

B-2

By Greg Ambrose  
Star-Bulletin

SCIENCE writer Jim Borg has done a favor for everyone who has watched or read with horrible fascination the news media's accounts of Hawaii's recent tiger shark attacks. Through exhaustive interviews and research, Borg has taken what have appeared as isolated incidents and given them a context that places the attacks in the continuum of human/animal interactions.

Skillfully weaving victims' accounts with marine biologists' perceptions and the diverse perspectives of the Hawaiian community, Borg has created a gripping yet thought-provoking text in "Tigers of the Sea: Hawaii's Deadly Sharks."

It is a testament to Borg's journalistic objectivity that it is impossible to determine how he feels about this emotional subject, which has deranged many a

## TIGERS OF THE SEA HAWAII'S DEADLY SHARKS



JIM BORG

normally rational person.

Whether you feel the state has hunted too many sharks or too few, Borg dispassionately shows why the decisions were made and how the state's policy has altered to accommodate a variety of views.

Borg also rounded up a wealth of data and research on tiger sharks, including such seemingly unrelated subjects as genetic biology, ocean currents and hurricanes, and doles out that information throughout the book in palatable portions

## REVIEW

**Tigers of the Sea: Hawaii's Deadly Sharks:** By Jim Borg, 88 pages, Mutual Publishing, \$12.95

while showing its relevance.

Provocative color photos of all the principals of this saga, both predator and prey, will haunt many readers' dreams.

Almost as fascinating as the text is the annotated list of shark attacks at the end of the book. Among the nuggets of information is the alarming statistic that between 1779 and 1993 the majority of attacks by far have occurred in April, including a six-year period with an attack every April.

Although Borg didn't find any shark expert willing to speculate on why April is such a good time to bump into a shark, I'm scheduling my off-island travels for that statistically deadly month.

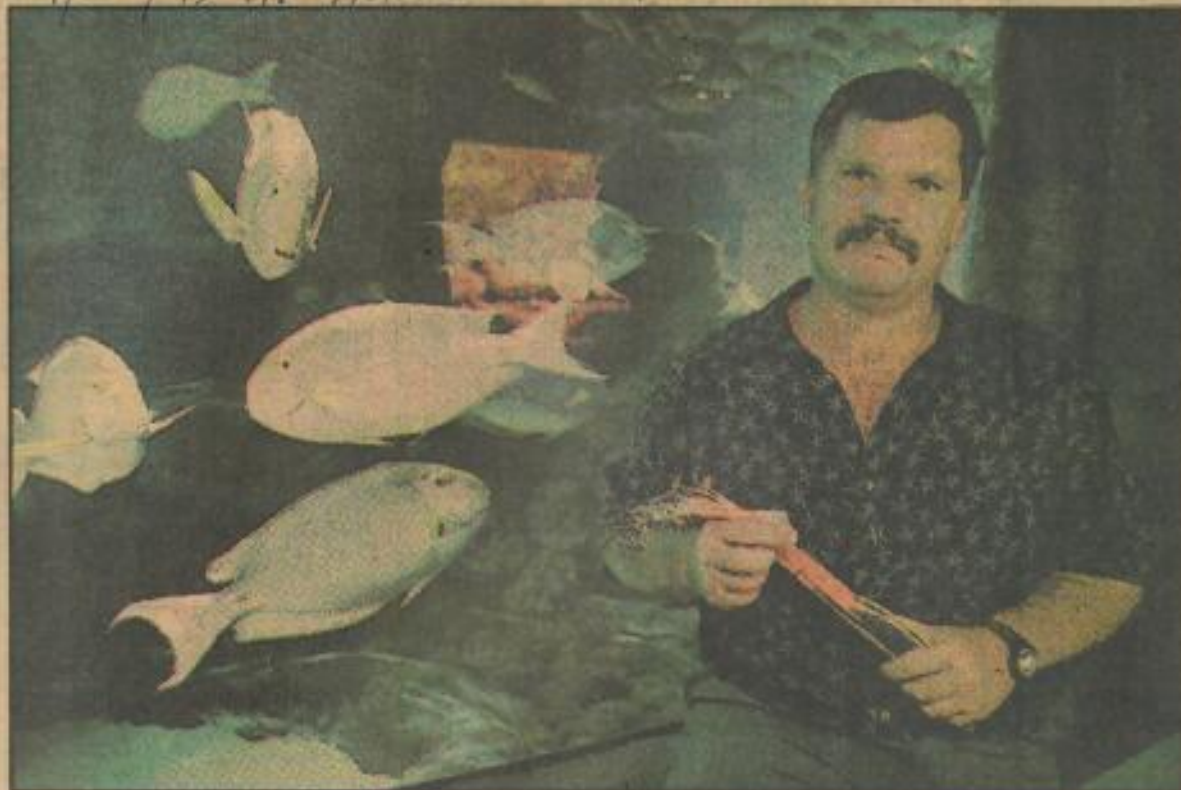
The only complaint I have with this book is that someone decided to use the cost-saving technique of grouping the photos together, which dilutes the dramatic impact they would have provided if packaged beside pertinent portions of the text.

It's a small quibble, and the shortcoming only slightly detracts from this provocative book.

While well-researched, "Tigers of the Sea" captures a slice of time that events outpace every time a tiger shark bites a baited hook or molests a human.

Borg has provided ample food for thought for everyone who dips a toe in the ocean here. After reading this book it will be impossible for anyone on a solo surf session or a lonely dive to avoid contemplating that they are in the tiger shark's living room, bedroom and, yes, kitchen.





By Kathryn Bender, Star-Bulletin

Steve Kaiser of Sea Life Park holds tags which will be used to keep track of sharks.

## Experts plunge into tiger shark data

□ Little is known about the scary predators that enjoy isle waters

By Gregg Ambrose  
Star-Bulletin

**W**HEN marine biologist Kim Holland and his crew sail the research boat Kaahaleale out of Snug Harbor, they go fishing for answers to one of Hawaii's most enduring enigmas: tiger sharks.

When the University of Hawaii researchers return to shore, they share their "catch" of data with other shark experts envious of the state and



### Inside

- Keeping track of sharks with transmitters.
- Pondering the mysteries of tiger shark behavior.

Page A-6

federal money that makes such research voyages possible.

After decades of relative inactivity, in 1991 tiger sharks began attacking people with mystifying regularity, prompting the 1992 state Legislature to set aside \$50,000 for a program to hunt sharks.

Of that money, the State Shark Task Force gave Holland \$20,000 to fill in some of the many gaps in knowledge about tiger sharks. The federal government matched that \$20,000 and added another \$20,000 to allow Holland to ultrasonically track them.

Although tiger sharks have always attacked people, this time it was different. People were being killed, with at least two deaths nearly a year apart.

See SHARK, Page A-6



**SUNDAY**

**TODAY'S WEATHER**  
Mostly sunny. High near 90. Trades 10-20 mph — Page A4



**S. Carolina new Miss America**

— Page A20



**Battling 'chore wars'**

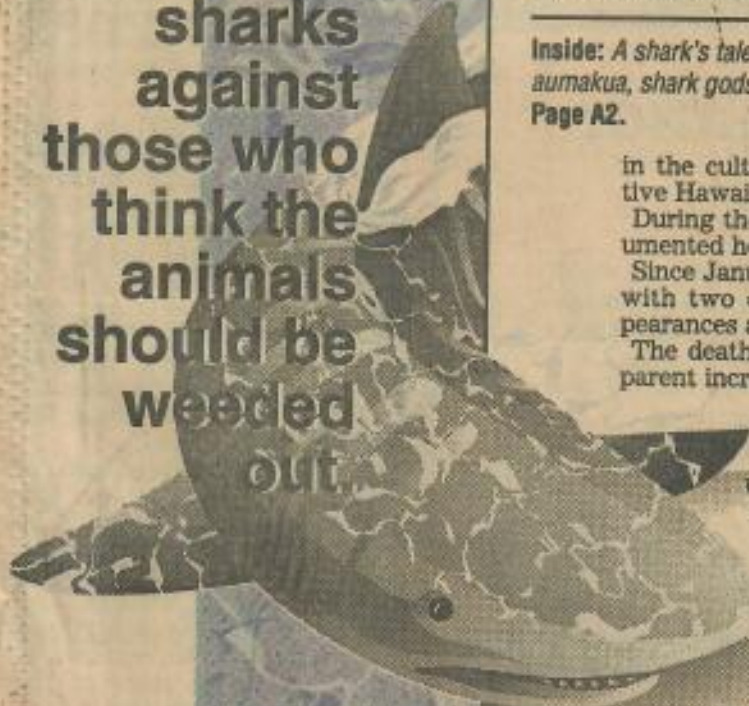
— P

# The Honolulu

Final Edition

A Gan

**A wave of shark attacks pits Hawaiians who revere sharks against those who think the animals should be weeded out.**



Rob Dudley, The Advertiser

## SHARK

**T**he world can expect about 37 shark attacks in the coming year — and about six deaths from shark attacks. And the world still isn't sure how to respond.

In the South Pacific, islanders have been known to kill and eat rogue sharks. Mainland coastal states mostly prohibit shark hunting, even after shark attacks, because the animals are considered endangered.

**By Tino Ramirez**  
Advertiser Staff Writer

**Inside: A shark's tale and aumakua, shark gods.**  
Page A2.

Here in Hawaii, a widely publicized series of shark attacks in the past few years has provoked a unique controversy — unique because sharks have a special place

in the cultural and religious landscape of native Hawaiians.

During the 1980s, 24 shark attacks were documented here.

Since January 1990, 18 attacks were reported with two certain fatalities and three disappearances attributed to sharks.

The deaths (the first since 1959) and the apparent increase in attacks have alarmed ocean users as well as the tourist industry.

Some say the ocean, intensely used here for recreation and commerce, must be kept safe, and that the state should hunt and kill sharks.

Others — including native Hawaiians who revere sharks as gods, and others who say hunting sharks is fruitless — say leave the sharks alone.

In March 1992, the state formed a Shark Task Force to decide how to deal with shark attacks. Four months before, a woman

**See Sharks, Page A2**





Sports:

# Rainbows clobber Kent State

— Page C1



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HAWAII, WORLD

# Advertiser

Sunday, Sept. 19, 1993

nett Newspaper

On Oahu \$1.50

## What's Inside

7 sections, 286 pages

were to appear before a federal grand jury on charges of racketeering and drug trafficking. Shedd, the former DEA agent, was arrested in May 1991. According to Shedd, the pair left the Bahamas on Aug. 1, 1991, aboard a U.S. Army Black Hawk helicopter. A DEA videotape shows the pair's hatch opening and cocaine being dumped out of the plane.

The operation represented the first time the United States and Cuba have cooperated openly in such a case, suggesting that the Clinton administration may be ready to widen its contacts with the Castro government, a Washington expert on U.S.-Cuban relations said. Although the State Department sought to play down the significance of the cooperation between the two countries, Robert Bonner, head of the Drug Enforcement Administration, said the case was "an important step forward in our bilateral counter-narcotics relationship."

WASHINGTON — In a step that may signal a significant change in U.S. relations with the government of Fidel Castro, U.S. drug agents flew to Cuba yesterday and took custody of two suspected cocaine smugglers who had been held for more than a month by Cuban authorities. The pair, both U.S. residents, were flown to Miami to face drug charges.

# Pair's bust in cocaine operation indicates thaw in U.S.-Cuba ties

Under the Clinton plan, Hawaii's landmark health insurance system would feel only "subtle" changes under the federal health care mandates to be proposed by the Clinton administration this week, Island experts say. While the rest of the nation sweats out the potential impact of the Clinton plan, two of its key components — mandatory insurance for full-time workers and government-subsidized coverage for part-timers and the self-employed — are already in place in Hawaii.

deriving framework in place, according to state Health Director John Lewin. However, the changes could affect the pocketbooks of many Island workers covered by the state's 19-year-old health insurance law — as well as part-time employees who can fall through the cracks in that law. Here's how:

- **Minimum benefits.** Island workers with minimum health coverage could get a better package under age could get a better package under

Hawaii residents are likely to feel ripples from the national effort as the Clinton plan imposes new rules on the system here, but leaves the un-

# Clinton's plan won't alter Isle health system

See Insurance, Page A4

INSIDE:

- Impact on one store here Page A4
- Nursing home insurance is likely in plan Page A21

By Kevin Dayton  
Advertiser Capitol Bureau



## FROM PAGE ONE

had been fatally attacked on Maui. In February, a surfer disappeared near Waimea Bay and his bodyboard turned up with a crescent-shaped bite taken out of it. Both stories were front-page news.

The Shark Task Force's task was tough. Besides balancing public safety against environmental concerns, they had to respond to the Hawaiian community.

After the fatal attack on Maui, several Hawaiians threatened a fisherman hired by the state to catch the shark. They agreed to the hunt after Bill Paty, chairman of the Department of Land and Natural Resources and eventual head of the task force, participated in a ceremony honoring the shark. Shortly after, a 13-foot tiger was taken.

This month, the task force disbanded. During the group's 19-month tenure, Hawaii saw one fatal attack and seven injuries. Shark hunts caught 11 large tiger sharks off Oahu, while independent fishermen caught about 50 others.

The policy developed by the task force emphasizes public education and safety, shark research, and in the case of attacks or frequent sightings, limited control fishing — but only after consulting Hawaiians in the affected area.

## Is there a tiger shark problem?

Steve Kaiser, who caught many of the tiger sharks brought in by the task force, is not convinced the sharks are truly a problem. For one thing, tigers are relatively rare in Hawaiian waters.

Kaiser, a shark researcher and task force member, has been surfing, fishing and diving in Hawaii since childhood, and has seen other species of sharks in the water, but never a tiger. There is also no data supporting claims that the tiger population has exploded, he says.



The reason for the increase of shark sightings and encounters is simple, Kaiser says: More people are spending more time in the ocean.

"One of the problems people have is the sense that the state has got to make the water safer," Kaiser says. "Like we can really go out and manipulate the environment to the point where no one is going to get eaten by a shark and no one is going to get stung by a jellyfish, or we're never going to close a beach because of high surf?"

The real problem underlying the shark controversy is a lack of solid information. It's thought that tigers are territorial, staying in deep water during the day, then coming near shore to feed at night. Beyond that, even experts know little about sharks' reproductive cycles, how often they eat, where they go to spawn, why they attack people, or why some of them suddenly become aggressive.

"The way you cure something, you really need to study the disease, and not the symptom. You just can't go out there and randomly decimate a whole population of animals because you think they might give you a problem," said Kaiser.

On the other side of the fence from Kaiser is Al Lagunti.

Like Kaiser, Lagunti grew up on Oahu, learning to fish and dive on the North Shore's reefs. He lives in Pupukea, spearfishes several times a week, and as president of the North Shore Spearfishers and a writer for Hawaii Fishing News, has contact with dozens of divers.

"If you don't think there's a serious shark problem, something's wrong with your brain," he says. He says divers who never before saw a shark in the water are now coming across big grays and hammerheads every time they go in.

Divers are changing their habits to cope with sharks. Instead of stringing fish half-dead on lines, they're killing them immediately. "Bang sticks," or

underwater guns, are now standard equipment for many divers, says Lagunti.

While tiger sharks are getting the publicity, Lagunti has had more encounters with gray reef sharks. During a spearfishing contest in March, an 8-foot gray followed Lagunti for a mile and a half, then went after his catch.

It was an awesome sight, Lagunti remembers, the shark thrashing at the bag, twisting and turning at incredible speed, only 40 or 50 feet away.

"After I saw that shark go after my bag, I understood that the ocean is their terrain. They got their trip wired, put it that way."

To reduce the risk of shark attacks, Lagunti would like to see the state catch specific animals, both tigers and grays, instead of fishing only, after an attack is reported.

And there should be research: "When commercial fishermen go into an area and take out all the reef fish, ones that don't migrate in and out of a place like pelagic fish, are we making ourselves shark bait? Everything we do out there has a repercussion."

## Should we hunt?

If the community at large is split on the subject of hunting tiger sharks, so are the ocean experts.

Richard Grigg, a professor of oceanography at the University of Hawaii-Manoa, thinks a fishing program could restore eco-

logical balance to the oceans and prevent more attacks.

Nearshore fishing, long-line fishing, a larger shark population and more people in the water may all be factors contributing to the shark problem, Grigg says.

He doesn't believe fishing sharks would harm the environment: during the '60s and '70s, the state paid bounty hunters to keep the shark population down, without repercussions, he said.

Grigg believes the state should:

- Generously fund shark research.

- Initiate shark control programs on the Neighbor Islands.

In contrast to Grigg, John Naughton of the National Marine Fisheries thinks a control program may impact the ocean ecosystem, as well as the land economy.

"My fear is that by fishing tiger sharks out, the smaller sharks will increase," says Naughton. He says there's evidence that, after the fishing program of the late '60s, smaller sharks increased — and these are the ones that damage fishermen's gear and catches.

## Not just killing machines

Al Lagunti doesn't think scientists give sharks enough credit for intelligence. Take the sharks who have befriended a crabber he knows.

"There's two tigers, 24 feet



## *Aumakua* can take the form of the shark

Although many of the rituals associated with *aumakua* worship have been lost, says UH professor Lilikala Kame'elehwa, some Hawaiians still honor and practice that aspect of the old religion.

As family elders, *aumakua* are concerned with the welfare of their offspring and work in the immaterial realm to aid, influence and admonish their living relatives.

When necessary, *aumakua* could take *ikino lau*, or body forms — animal, plant,

or mineral, including sharks.

According to the 19th-century Hawaiian historian Samuel Kamakau, shark *aumakua* might be gods, or they might be created by a family, using prayer and ceremony to transfigure an ancestor or recently deceased relative into a shark.

Kame'elehwa says the shark *aumakua* in Hawaiian myths, like *Ka'ehu'iki-mano* in the story on this page, are born of human mothers, either as sharks or as human beings who later become *aumakua*.

Those born as sharks usually love and protect people, while those born as humans have an uncontrollable desire for human flesh.

Like other *aumakua* during traditional times, sharks were actively worshipped and cared for by families. By calling the shark's name, chanting, or praying, the *aumakua* was summoned to the shore, or a spot in the ocean, then given food, and sometimes *'ava* (an intoxicating drink).

## Sharks: An ocean dilemma





## Ka-ehu-'iki-mano, a shark's tale

Ka-ehu-'iki-mano — "the little reddish shark" — was born in Panau, Puna, on Hawaii island, to human parents. His father, Kapukapu, was an awa farmer. His mother's name was Holei. They named Ka-ehu-'iki-mano after Kaahupahau, the blond shark goddess of Puuloa (Pearl Harbor), who protected Oahu from man-eating sharks.

After feeding awa diluted with breast milk to their shark son for ten days, Kapukapu and Holei take him from the uplands to the sea. After feeding their son at his sea-cave for ten more days, the couple is satisfied that he can care for himself, and they return mauka.

Several days later, Ka-ehu-'iki-mano comes to his parents in a dream to ask if he can take a tour of the Hawaiian Islands. With their permission and blessing, Ka-ehu-'iki-mano departs, but only after winning the support and company of Hawaii island's shark kings.

Ka-ehu-'iki-mano impresses the shark kings because he is well-mannered, respectful and humble. And though the youngster is only four-and-a-half feet long, he is fierce in battle and cannot tolerate evil.

On Ka-ehu-'iki-mano's tour of the Islands, he wins the support and friendship of Hawaii's great sharks.

Kaahupahau gives her namesake a whale's tooth — a sign of *ahi* — to ensure

Kamohoali'i, the shark brother of Pele, holds a ceremony that imparts to Ka-ehu-'iki-mano the power to change into a hundred forms.

Ka-ehu-'iki-mano and his friends then tour the South Pacific, from the Marquesas in the east, to Australia and Indonesia in the west. They visit many of their relatives before returning to Hawaii.

In Waikiki again, the party encounters Pehu, a Maui shark who is there to satisfy his desire for human flesh. The surf was big in the area now known as Castles, with many surfers out. Pehu tells Ka-ehu-'iki-mano that he wants to pluck a man from his board as he rides a wave. Ka-ehu-'iki-mano and his friends agree to help.

When two surfers catch a large wave together, the sharks ride in beneath them. Instead of letting Pehu snatch a surfer, though, Ka-ehu-'iki-mano and his friends drive him into the shallow reef near shore. Pehu dies, his head wedged in the coral and his tail high in the air.

When the frightened people cut Pehu open, they find human hair and wrist bones, evidence of his evil nature. They then burn the shark's body near Kakaako.

— Based on William Uaua's story, serialized on the front page of a Hawaiian-language newspaper.

and 16 feet, where he sets his traps and he pets them," says Lagunti. "The thing is, whenever someone comes out to take videos or something, they won't come close. It's like they can sense the cameras and they don't want to be filmed."

"It's like they can feel the vibes we put out when we're hunting them. They're a lot smarter than we think."

If Lagunti's story seems far-fetched, that may be because we have so little contact with the natural environment. For the Hawaiians of old — and many contemporary Hawaiians — the natural world is sentient and filled with consciousness. If you perceive, as they do, that the entire creation is one family, communication between humans and nature becomes a reality.

Lilikala Kame'eleihiwa, a historian who teaches Hawaiian mythology at the University of



Hawaii-Manoa, says the Kumu-lipo, one of Hawaii's 15 or so surviving cosmogonic genealogies, traces human descent from plants and animals.

Thus, sharks are elder siblings to humans, and should be treated with respect, Kame'eleihiwa says.

In contrast to Western mythology, in Hawaiian mythology, sharks can be villains or heroes, as in the story of Ka-ehu-'iki-mano (see this page). They can also be *aumakua*, or ancestral spirits (see story this page).





## Ka-ehu-'iki-mano, a shark's tale

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— Based on William Uaua's story, serialized on the front page of a Hawaiian-language newspaper from November 1870 to January 1871.

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Hawaii-Manoa, says the Kumulipo, one of Hawaii's 15 or so surviving cosmogonic genealogies, traces human descent from plants and animals.



## Are the *aumakua* still among us?

There's a story Steve Kaiser tells about a tiger shark that frequented the reefs of Diamond Head. The shark was well-known to local surfers and fishermen, and when it got stuck on the reef at low tide, they lifted it up, put it back in the water and pushed it out — a sort of modern-day *aumakua* story.

Still, he says, "I don't think we should let the *aumakua* issue override people's safety. I mean, they're not sacred animals. Basically, tigers are not *aumakua* sharks. And I've been told by others, too, that you can't catch an *aumakua*; it's impossible."

Kaiser points out that pre-contact Hawaiians did kill sharks that harassed people and that they used shark products for many things.

Charles Maxwell, a Hawaiian cultural expert from Maui, was a member of the task force until he resigned in January.

He charges that the task force killed sharks to create a false sense of safety, and encouraged those who fished privately for them.



Maxwell

Maxwell strongly opposed fishing for sharks after the fatal attack on Maui in 1991.

Although he is a Christian himself, Maxwell believes he must protect

the sharks of Olowalu and Maa-laea on Maui because his ancestors worshipped them. "My grandmother used to *malama* (care for) these sharks. I just want to protect some remnants of our past. Killing these sharks is an insult to our culture."

Butch Heleman, a wood carver who practices the Hawaiian religion, seeks shark hunting an act of religious genocide.

Hawaiians are often told that their culture is dead or has little resemblance to how it was practiced before contact with the West, says Heleman, and that is false.

"A few months ago four North Shore children caught a huge shark and let it go. When asked why, they said, 'Because it's our *aumakua*.' That's a classic example of the perpetuation of the Hawaiian beliefs."

"In Hawaii, it's really a matter of religious beliefs, of religious freedom."



# HAWAII

Thursday, September 30, 1993 ■ Star-Bulletin ●

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■ Symph

## UH team listens in and tails tiger shark

□ Scientists trace  
its trip from Ewa  
to Penguin Bank

Star-Bulletin staff

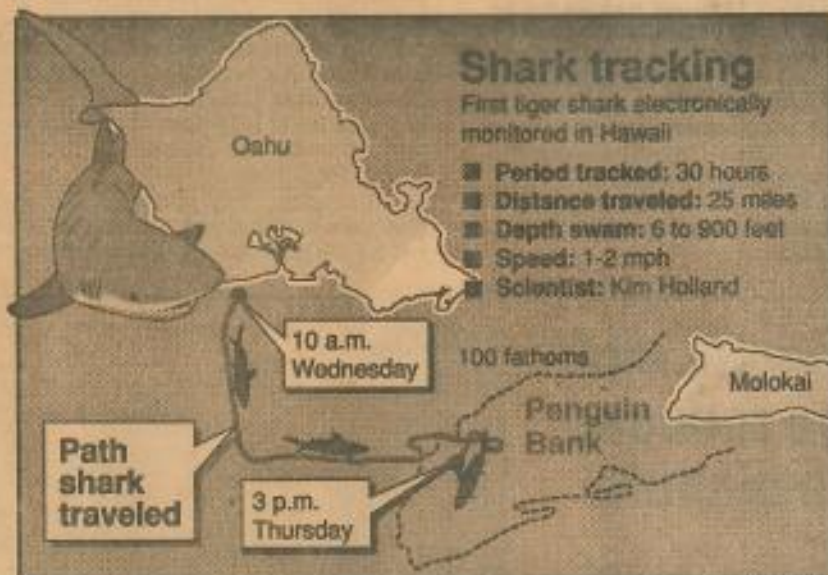
The first tiger shark tagged electronically in Hawaiian waters zigged when researchers expected it to zag.

On the fifth day of a fishing expedition, a University of Hawaii research team finally hooked a 7-foot male shark at 10 a.m. Sept. 22 in 120 feet of water about 1 1/4 miles off Ewa Beach.

Scientists, led by Kim Holland of the UH School of Ocean and Earth Sciences and Technology, harpooned a sonic transmitter into the shark's back. Working from a tracking vessel on loan from the National Marine Fisheries Service, the team followed the shark continuously for 30 hours.

"The movements of this shark surprised us," Holland said.

"Most people believe that these are predominantly coastal sharks which live at varying depths around our coastline." Instead, the shark moved offshore almost as soon as it was released. Twenty hours later, it had crossed the deep waters of the Molokai Channel and was moving in Penguin Bank, some



Star-Bulletin

25 miles from where it was freed.

Penguin Bank is a shallow area similar to an underwater mesa with steep sides and a flat top, and is known to local fishermen as a prime fishing area, Holland said.

The shark swam between 6 and 900 feet below the surface in waters up to 1,500 feet deep during the track, which researchers broke off due to threatening weather.

"Good science requires that you repeat experiments many times before you draw conclusions about what is normal or typical," Holland said. "Nevertheless, even though this is only our first track, it showed us that our techniques work and what these sharks are capable of doing.

"I think this will really give people something to think about."

This is the first track of a two-year project funded jointly by the state Division of Aquatic Resources and the UH Sea Grant program.

One of the main objectives of the

study is to obtain information with which to assess the feasibility of various possible shark control strategies.

"As usual, when you actually see animals in their natural environments you can't help but be impressed by them," Holland said.

"The direct path the shark took from Ewa Beach to the Penguin Bank is highly suggestive that the shark knew where it wanted to be and how to get there. This in turn suggests that Ewa Beach and the Penguin Bank are both a part of this animal's normal movement patterns."

Future tracks will use transmitters with a life span of several months, which will produce a more-complete picture of tiger shark movements. Holland hopes to compile the world's most advanced data base on shark movements to assist fisheries agencies worldwide to make better decisions about shark management.



## Morongo Basin

By DAVE MILLER  
H-Desert Star Staff Writer

**PIONEERTOWN** — With an eye toward two recent run-ins in the Big Bear Lake area where young campers were attacked by marauding black bears, local residents say there's a "bear" in these here parts. A 13-year-old boy was severely bitten in one attack near Big Bear Lake, and a 12-year-old Boy Scout was the victim of a second attack. The incidents took place within two miles of each other along state Highway 38. In both cases, the bears were killed.

California Department of Forestry and Fire Protection Capt. Rod Delgado says he has heard of the Pioneertown bear.

Paul Godwin, a member of the Pioneertown firefighting force, says she, too, has been told of the bear. Her daughter, Jennifer, soon to be 16, agrees with her mom about the likelihood there's at least one bear which visits the local area.

Pati Godwin said Pipes Canyon Road residents John and Finn Aleba

told her they heard what they believe was the thus far elusive bear outside their home. Then they departed for Mexico.

A number of Burns Canyon residents claim to have seen the bear, Godwin said.

And Acting Pioneertown Postmaster Michelle Feagle says postal customers have told her of the bear's existence.

Delgado, Godwin and Feagle agree on one point: they haven't seen the bear personally.

But it's a fact: hungry California black bears are coming out of the woods to raid homes and campgrounds in search of food. California Department of Fish and Game offices are receiving numerous requests from local residents to have the offending bears removed. The department's bear experts advise that relocating these bears does not solve the problem.

According to Bob Stafford, the department's statewide black bear coordinator, "Once bears have a

taste for human food and garbage, they will be a problem anywhere in the state."

The department's goal for managing bears is to keep them healthy and wild. This requires eliminating the kinds of attractive nuisances that get bears into trouble.

According to Stafford, "In almost every instance where we have a bear problem, food or garbage was an easy target. By keeping food and garbage away from hungry bears, people can avoid problems with them."

There has been an unusually high number of negative encounters between bears and humans this year for two reasons:

1) More bears: there are more bears in California this year than ever recorded — between 17,000 and 24,000.

2) Natural food shortage: The cool, wet weather at the beginning of the summer has delayed the ripening of wild berries, usually a main food source for bears this time of year. "When you combine those situa-

tions, you end up with lots of hungry bears," Stafford said. "Nature will solve the problem within a few weeks when the berries begin to ripen. Until then, people need to be careful not to teach bears bad habits that can't be broken."

Once a bear begins to treat a home or campsite like a fast food restaurant, the result is property damage and frightened residents who want the bear trapped and removed.

Stafford said, "Relocation was attempted and studied by the National Park Service and by wildlife agencies in the eastern United States.

The studies showed that relocated bears would either return to the original location, die in their new surroundings, or become a problem in the new location."

The Department of Fish and Game's policy regarding black bears seeks to avoid the need to trap bears by encouraging people in bear habitat to follow a few guidelines:

Never feed a bear — Once a bear obtains food from a human, it will associate all humans with food.

# Bear reported in Pioneertown

When a black bear loses its natural fear of people it may become increasingly aggressive toward them.

Don't leave bear attractants outside — Bear attractants include garbage, pet food, and basically anything smelly or edible. Bears are also attracted to bee hives, orchards, gardens, and even livestock.

Keep campsites clean — Don't leave uncleaned cooking utensils or garbage in your camp. Even the clothes you cooked in should be put away.

Store food and toiletries safely — While camping, store your food and toiletries in a vehicle trunk or suspend them from a tree. If a tree is used, store items at least 10 feet from the ground, at least four feet from the trunk. Use a branch that is less than four inches in diameter.

Dispose of garbage properly — Use bear-proof garbage cans whenever possible or store garbage in a secure location with your food. Garbage should be packed out if no trash receptacles are available.

Encourage your neighbors to follow the guidelines — All of your persistence will be for nothing if

your neighbors do not also participate.



SUN 8/3/93 Vol. 11, No. 31



THE SHARK took the wood and steel power boat in a single, crunching gulp as three horrified fishermen watched from less than 300 feet away

# JAWS OF DEATH

Stephen Pendergast.

"We offered to give them a ride back to civilization, but they all turned us down.

"They want to die on the island that has been their home for much of their lives. Apparently, the French government forgot all about this penal colony once World War II

tour days of fighting.

"There were only 63 of us left alive and we decided it was time to call a truce," says 93-year-old Henri Vandette, who helped bring the two sides together.

"We buried the hatchet and a noticeable change came over this place. We all began to work together to

*trayed by Steve McQueen and Dustin Hoffman in Papillon*



grow crops, pick fruit, raise chickens and catch fish.

"The French had provided us with the basics to keep us alive. It was

up to us to fend for ourselves or die." There were numerous attempts over the years to escape the previously unnamed Island of the Damned that



A WHALE OF a shark swallowed a 45-foot yacht and the six men aboard it, claim stunned eyewitnesses. The 140-foot shark took the wood and steel power boat in a single, crunching gulp as three horrified fishermen watched from less than 300 feet away.

"It came out of the water like a railroad locomotive," says Clint Chan-ning, who was with two other friends aboard a 32-foot fishing boat less than a mile off the Florida coast in early July.

### Sickening crunch

"One moment, the boat was there and the next it was gone. It struck so fast that the six men aboard had no time to cry out. I don't think they even knew what happened.

"There was only a sick-

by MIKE JONES

ening crunch as the shark chomped its jaws down on the boat."

The wave the awesome beast made when it surfaced and then submerged almost swamped the fishing boat, although it was more than the length of a football field away. The floating debris was the only evidence of what happened.

"We thought we were goners," says Barry Turner, one of the other fish-



**CLINT WITNESSED the gruesome shark attack** ermen. "I never prayed so hard in my life."

The three shocked witnesses told Coast Guard investigators they first thought the fish was a whale, but are now cer-

# 140-foot shark swallows boat with 6 aboard!

tain it was a shark. "It made that fake shark in Jaws look like a minnow," explains Burt Sandow, the third member of the fishing party.

"It was a devil fish — the dorsal fin was at least 30-feet high. They had noticed the fin cleaving the water but had ignored it because it looked like a large sail.

### Power launch

"We didn't pay it much mind because sailboats are pretty common in this area," says Clint.

Coast Guard officials, however, believe the sea monster was probably a huge whale, although a spokesman admits a 45-foot power launch has been reported missing.

"A whale is the only reasonable explanation," says Ian Praline, a marine biologist. "No one has ever

heard of, much less seen a shark that is 140-foot long."

But Al Hudson, whose family has fished the waters off Florida for five generations, is not so sure.

"There are legends of a giant shark that go back to the Indians, before Columbus came here," he says.

"In the 1700s, a British and French ship claimed to have been attacked by a huge shark. The French ship escaped, but the British vessel was badly damaged and sank with half the crew."

### Exaggerated

Impossible or not, the three fishermen swear, they saw what they saw and they know it was no whale. "What we saw was definitely a shark — too big to be imagined or exaggerated," says Clint.

## Horning in on the act

### BRAVE MATADOR

Oscar Higuera holds the horn of a bull to prevent from being gored in Madrid's Las Ventas bullring. Higuera was not seriously injured in the nail-biting incident.





Vol. 11 - No. 31 August 3, 1993

**SUN**

**Banned: Aftershave that  
makes women attack men**

# 140FT SHARK EATS BOAT AND 6 PEOPLE





THE HONOLULU ADVERTISER  
8/3/93 AS

# A shark swims in Enchanted Lake?

Associated Press

A Kailua resident says he saw what looked to be a shark swimming in Enchanted Lake.

Scott Sawicki has a videotape of the creature, which can be seen with its dorsal fin above the water.

Sawicki and some out-of-town guests were recently boating on the freshwater lake shooting video when they noticed something moving quick-

ly through the water.

"All of a sudden we noticed it was getting larger and cutting across the water opposite the wind," said Sawicki. "We just panned over and tried to get a shot of it, and it looked like a dorsal fin. I don't know what it was, but I knew it had a dorsal fin on it."

Marine biologist John Naughton, a member of the state's Shark Task Force, said it's not unusual for a shark or other

types of ocean fish to end up in the lake, since Kaelepulu Stream is often allowed to run into the ocean, letting sharks and other fish to swim in.

"When the stream's opened up, a number of fish will go up into the pond," said Naughton, who guessed that it likely was a hammerhead shark. "I don't think people need to be overly concerned. It will probably make its way back out of the pond."



# Big tiger shark is hooked off Waialua

Advertiser Staff  
and News Services

Fisherman Bradley Hara caught a 13-foot tiger shark yesterday off a North Shore beach, but the head of the state's Shark Task Force said he isn't concerned.

"This guy is a regular fisherman and from time to time he catches a shark," said Bill Paty, chairman of the Shark Task Force. "He goes pretty far out, maybe a half-mile.

"(The catch) really doesn't concern me like it would in Waikiki," Paty said.

Hara caught the big fish off Awcwoe Beach Park in Waialua.

He said he checks his shark hooks twice a day on his paddle body board, and found the 13-footer alive on the line. Hara said he had to shoot the shark with a bang stick and then spear it to kill it.

Hara paddled back to shore with the shark in tow.

An official from the National Marine Fisheries Service was sent to the area to examine the shark, which was to be cut up to see if it's been involved in any recent attacks.

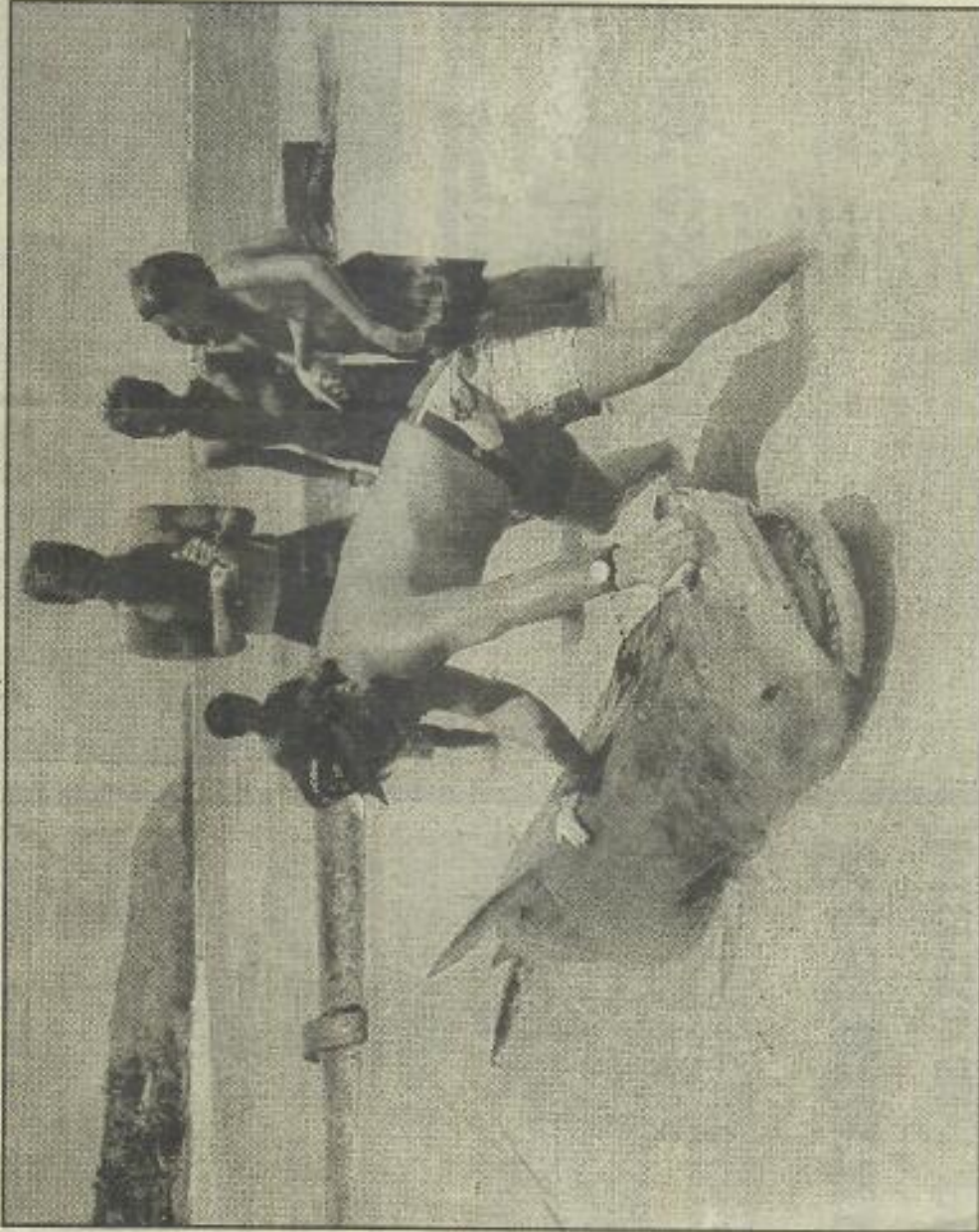


Photo by Scott Hartvigsen  
Jim Kirk checks out the 13-foot shark that friend Bradley Hara caught off Waialua yesterday.



# EXCLUSIVE

## AN INTERVIEW WITH JON MOZO, SURVIVOR OF GOAT ISLAND SHARK ATTACK!

By Bernie Baker

When Jonathan Mozo of Laie became the latest victim of an Oahu shark attack, this time off Goat Island reef, the word went out internationally through the news wire services and CNN. For Jon, a student at BYUH and father to his seven month son Makana, there's no comfort or feeling of celebrity from the notoriety.

The tops of both feet were literally shredded when he felt the shark's jaw clamping down on his ankles and instantly (and instinctively) yanked them out. The teeth ripped through the flesh, nerves and tendons along the tops and sides, only leaving the bottom pads untouched.

Surfers Jeff Johnston, Ned McMann, Chris Gardiner and Jon's friend Nathan Nakasone (who was in the water with Jon and initially felt the shark "bump" him first) got Jon first to Kahuku Hospital, only minutes away, and then later that day he was transferred to Queens for further surgery. He's back home in Laie now with both feet slowly healing through the swelling and stitches. He won't be walking for weeks at this point, and

without adequate medical coverage, life is a financial nightmare to be dealt with for the 21-year-old part time photographer/surfer and his wife Niki.

Jon had ridden an inside wave at Goats and was paddling back out through the channel, duck diving through a couple of waves and was working his way with his bodyboarding friend Nathan to the outside lineup. For them and the other surfers there, it was a past dawn patrol surf that Jon had done countless times before. For the shark, it was obviously still morning feeding time and Jon's feet could have represented small fish, but we'll never really know. What we do know is that Jon still has both feet attached to his ankles, he will walk again and hopefully the worst of it is that he may not have any feeling in the three smallest toes on each foot. And he's without medical insurance.

We at H30 asked Jon if he felt like expressing any thoughts on his experience with our readers. He's a humble, gracious person and was happy to accommodate our wish. The following was written by him only days after he had left the hospital for his long healing process.

If there is one thing I could say to other watermen/women it would be to maintain a constant respect and a degree of fear for the ocean. In the great ocean, we are a guest in an environment that our body must adapt to. Obviously, we are not sea creatures, we have legs that are designed for land and we constantly need air to breathe.

In addition, I would like to add that when we enter the ocean, we take risks against things like drownings or shark attacks. When we step into a car or airplane we take risks against things like head-on collision or malfunctioning tail flaps or landing gears. Taking risks is a part of life. It is how we progress."



Photo: Nakasone



Photo: Chris Mozo



Nathan Nakasone photo

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Jon Mozo  
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Nathan 09/26/2000  
Chris 09/26/2000  
Jeff 09/26/2000

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-Jonathan W. Mozo  
June 11, 1993

Photo: Chris Mozo



Photo: Ryan Bell



# 16-foot tiger shark caught off Kaneohe

By Christopher Neil  
Advertiser Staff Writer

Three local fishermen caught a 16-foot, 3-inch tiger shark off a popular surfing and diving spot outside Kaneohe Bay yesterday — a shark longer than most cars.

"It's definitely the biggest tiger we've seen in the past two years," National Marine Fisheries biologist and state Shark Task Force member John Naughton said.

"Sixteen feet, three inches: that's a real big animal."

Naughton estimated the shark, a female, weighed about 2,000 pounds.

The largest recorded tiger shark ever landed was an 18-footer caught off Cuba, he said.

The massive predator hauled in yesterday was captured by three men in a 17-foot boat who set out "flag lines" baited with scrap ahi and aku Friday night.

The trio, all of whom requested anonymity, said they caught the shark half a mile out off Kaneohe Marine Corps Air Station's Pyramid Rock, a popular surfing, bodyboarding and diving spot.

One said he and his companions planned to use every portion of their catch.



Advertiser graphic by Brian Saunders

They planned to save some of the meat for their own use, sell the rest and donate the shark's skin to a hula halau for use as drum heads.

Naughton said that as a Shark Task Force member, he is concerned over the number of large tiger sharks taken from coastal waters in the past two years.

Over that period, at least two people were killed and many others reported being attacked in Island waters. The surge in attacks prompted the state to form the Shark Task Force.

Yesterday's catch brings to 50 the number of large tigers removed from the offshore ecosystem in that period, Naughton said.

"We aren't discouraging fishermen from catching sharks entirely, we just want to make sure that they aren't going out and killing them unless they plan to use all the meat and skin and so on — either for their own use or commercially," he said.

Naughton said large tiger sharks are the natural predators of other near-shore shark species and that, if tigers were eliminated, the numbers of other shark species could increase dramatically.

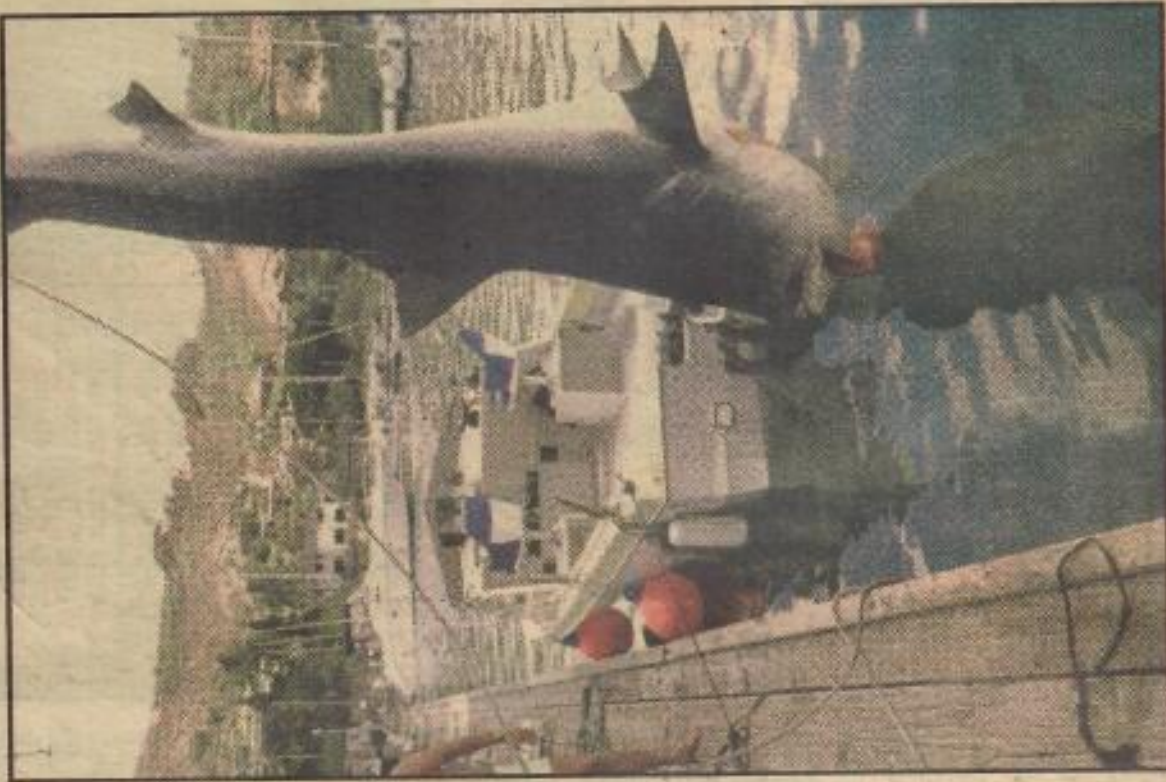


Photo by John Naughton/National Marine Fisheries

The 16-foot, 3-inch tiger shark hangs from a hoist at Kaneohe Yacht Club yesterday.



ALOHA!

**SUNDAY**

TODAY'S WEATHER  
Mostly sunny;  
a few mauka  
showers — Page A4



Nation:

**July 4th  
events,  
quiz**

— Pages A3, F1



Money:

**The cost  
of fee  
conversion**

— Page D1



Magazin

'The R  
author  
on hir  
— US

# The Honolulu Advertiser

Final Edition

A Gannett Newspaper

## 16-foot tiger shark caught off Kaneohe

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Advertiser Staff Writer

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Shark caught



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# LETTERS

## Pissed to the Max

A what rote you guys about a mont ago fo' tell you how much I really like the mag and movie. I don't like to write, I seen the sticka thing thought what the beep I figga you guys going send some but I neva get 'em. So what man, no get me wrong I like damn mags and bad movies but no say write for stickas kuz you guys no sen 'em unless I going get 'em next year.

still waiting 4 stickas,  
Darrell K. Mantlapit  
Nanakuli, HI

Pub.- A Darrell, what, we stay sorry fo' not sending stickas, but we neva had fo' little while. Now we stay get some, yours in da mail if you neva get 'em already.

## Read THIS or die

Dear H30,

I want to respond to the "Read This Or Die" section of the article written by Mindy Foster in your February '93 issue. My name is Rick Doyle, I'm a San Diego based photographer. I've been traveling to the North Shore since the late '70's to shoot surf photos and have always enjoyed the clean ocean and aloha spirit of the islands and the people. I feel that

and now it's too late.

Rick Doyle  
San Diego, CA

Pub.- Thanks a million for your letter Rick. We often take our ocean environment for granted here in Hawaii, but maybe a powerful warning like yours will open everyone's eyes to what may happen.

## Sharks and Turtles

H30,

My compliments to your environmental writer, Mindy Foster, for reporting factual instead of fantasy information regarding sea turtles and tiger sharks ("The Shark Factor" Feb. '93). Few people in the news media seem to be doing so these days. Mindy rightfully pointed out that "there is no hard evidence that the increased sea turtle population is the cause of increased (shark) sightings and attacks." I agree. There is no evidence whatsoever, beyond idle speculation. And, strangely enough, in some cases the speculators are persons interested in solving the shark problem by hunting and killing sea turtles.

In the first place, while more turtles are indeed being seen now, compared to say 15 years ago, the increase is not anywhere near as great as some would like us to believe. In addition, such sightings need to be

preys on numerous items, turtles are nevertheless overestimated in their diet by people, even some scientists, cutting them open to see what they eat. This happens because the tiger shark's digestive tract functions in such a way that only mushy material - that is, the broken-down remains of prey items subjected to strong stomach acid - can pass out of the stomach into the intestines. Objects of any size that can't be decomposed in the stomach are retained there for an unknown but likely long period of time before being regurgitated. The outer surfaces of a sea turtle, especially the plates of the shell, are made of a tough keratin-like substance that is totally resistant to decomposition in the stomach. Consequently these large and clearly recognizable items from a turtle are held in the stomach, while the rest of the animal including meat, bones and all else are digested. The protective plates and scales covering the turtle also lengthen the total amount of time needed to digest the rest of the body, since turtles up to 50 lbs. can be swallowed hole. In sharp contrast, soft bodied prey items, with far fewer and smaller indigestible parts, digest faster and can be easily overlocked and under-estimated in stomach contents. These factors working together give an erroneous and biased picture of the dietary makeup of the tiger shark when viewed by persons who are unaware of the biological facts I have just described. Yes, of course turtles are a part of the tiger shark's diet. But a very complex situation exists whereby many sorts of things are eaten under varying feeding rates, and then digested over different periods of time. No one really knows how often a tiger shark's feed, how long it takes to digest each of their prey items, and how often they regurgitate items like turtle parts that can't be digested.

Some people have also speculated that attacks on surfers by tiger sharks are the result of mistaken identity for sea turtles. Again, there is no credible information to support an idea. The theory by some scientists that great white sharks mistake surfers for seals

surfboard, boat or bird."

Recent attacks in Hawaii on surfers have taken place during daylight hours in reasonably clean, clear water. It's hard to imagine that the sharks involved mistook their victims for anything else than an object at the surface that was potentially edible. A few months ago there was even an eyewitness account, with photos, of a 2,000 lb. bull swimming in waters off Maui being attacked by tiger sharks (see Hawaii Fishing News, 12/82). Did the sharks mistake this bull for a sea turtle? Perhaps, but only if they had been staring at inkblots for too long.

Interestingly, the mistaken identity idea fits quite comfortably with those people who, due to their sincere convictions, for one reason or another are opposed to fishing for tiger sharks in Hawaiian waters. The logic would be as follows: If a shark really didn't mean to bite a human, that is it was just a big mistake, then the news media and public at large might be more inclined to have greater understanding and tolerance of attacks in Hawaii.

It is my responsibility to make sure that turtles don't get a bum rap as the result of groundless speculation, intentional bias or flawed scientific reasoning. I've spent 20 years in the Hawaiian Islands dedicated to studying Hawaiian sea turtles. There's a lot known, but still much to be learned. Factual information, not emotions, must prevail. Some people are very emotional over the issue of fishing for sharks. Others may be overly concerned with the risk of shark attacks. One thing for certain is that the current status of sharks here in Hawaii is very different from the east coast of the U.S. where some populations are seriously depleted from commercial fishing.

Hawaii's sea turtles have long been considered the surfer's friend. Rugged and skilled ocean animals that eat marine vegetation and pose no threat to humans. Tiger sharks, not turtles, have been attacking surfers. Recently an authority on Hawaiian sharks was quoted in Surfing Magazine saying, "In the '60s and '70s the state



# our ocean is dead...

100% right about the Obayashi project and its potentially devastating

environmental effects. San Diego doesn't have a big shark problem, however, we have finless browns. A creature that destroys everything in its path with no life form being spared. San Diego, and California in general is a good example of what too many build-ings and too many people will do to the ocean environment. I grew up in California and have witnessed our pris-tine coastline turn into a garbage dump. The recent heavy rains we've had in California have put most of the ocean off limits from Santa Cruz well down into Baja. The day before I left for the North Shore this winter on Nov. 30, I was shooting water shots at Baja Malibu just below the Mexican border 30 minutes south of San Diego and the water literally smelled like raw sewage. Needless to say, since it started raining here in late December and through January, all the rivers have been pump-ing billions of gallons of crap into the ocean and the sewage treatment plants have opened the flood gates. Our ocean is dead. We haven't surfed for six weeks. Fight for your ocean like your life depends on it. Because in fact it does. It's the only one you have and once it's gone, it's gone forever. Protect your ocean environment like you protect your secret spots. Your health, lifestyle and well-being are at stake. We waited too long in California

viewed in their proper perspective. That is, turtles are highly visible crea-tures that must come to the surface every so often to breathe. Once there, they are easy to spot, even when you're not looking for them. A dozen turtles in an area, breathing once every 5 to 15 minutes, can give the deceptive impres-sion of abundance well beyond the numbers actually present. In contrast, a dozen fish, crabs or octopus spread out over the same area won't even be noticed unless you're intentionally searching underwater for them. You don't have to search hard to spot a sea turtle, even if there are only a few in the area where you're surfing.

Some people have also gotten the flawed impression that turtles are the overwhelming, if not exclusive, food item in the tiger shark's diet. But that's simply not the case. It is a biological fact that tiger sharks eat a variety of prey, more so than any other species of shark. For example, in a two-year study conducted by the University of Hawaii, tiger sharks in Hawaiian waters were found to prey upon the following items, in descending order of percent sharks containing these items: fish, crabs and lobsters, garbage (often float-ing garbage), birds, sharks and rays, squid and octopus, turtles, porpoises and whales, and humans.

Even though the tiger shark

off California simply can't be logically transposed to tiger sharks and turtles in Hawaii. In California a surfer is sup-posed to look like a seal floating at the surface. Copying that same theme, in Hawaii a surfer is purported by the news media to look like a turtle floating at the surface. Obviously both bases can't be correct since a sea turtle bears no resemblance to a seal. Does a surfer on a six- to eight-foot long narrow surfboard look like your average two-foot oval sea turtle? Of course not. But maybe this is like looking at an inkblot. If you stare at it long enough you can start to see all sorts of things. And maybe that's what some people are doing when they make such faulty com-parisons.

The fact is that tiger sharks don't have to mistake anything floating at the surface in a natural part of the tiger shark's known feeding strategy. Jean-Michel Cousteau summarized this situation correctly when interviewed a year ago, following the death of a swim-mer attacked and devoured by a large shark off Olowalu, Maui. Cousteau said: "Tiger sharks are particularly dan-gerous to swimmers. Some sharks are more fussy than others about what they eat. Tiger sharks are known to eat almost anything and everything, and ... are more likely to attack anything on the surface whether it's a piece of wood, a

(of Hawaii) had a shark eradication pro-gram to control the population of poten-tially dangerous sharks. But there's been nothing done in the last 20 years, so the tiger population right now should really be at a peak." This statement certainly makes sense, considering that tiger sharks are apex predators that have no natural enemies of their own, except for other large sharks. As a nearshore species roaming the reef edge in search of food, it would seem perfectly reasonable to expect a peak in the tiger shark population after 20 years of virtually no fishing. And that would even hold true for places where there are no turtles at all for tiger sharks to include in their diet.

Yes, sea turtles can still be considered the surfer's friend. Because if the turtles weren't out there now mak-ing themselves available as a food item, that peak population of sharks would simply turn to something else to eat. And that something else might be greater numbers of someone else out there surfing or swimming.

George H. Belazs  
Deputy Chairman  
Marine Turtle Specialist Group of  
The International Union for the  
Conservation of Nature



## Review of the Biology of the Tiger Shark (*Galeocerdo cuvier*)

John E. Randall

Bernice P. Bishop Museum, Box 19000-A, Honolulu, Hawaii 96817, USA.

### Systematics

The tiger shark was described by Peron and Lesueur in Lesueur (1822) from a specimen taken off the north-western coast of Australia. They named it *Squalus cuvier*. There is no type specimen. Müller and Henle (1837) proposed the genus *Galeocerdo* for the tiger shark, designating *Squalus arcticus* Faber as the type species, now known to be a junior synonym of *cuvier*. Compagno (1984) listed eight other synonyms of *G. cuvier*, among them *G. rayneri* McDonald and Barron, which some recent authors have treated as a valid species. Compagno is followed in regarding *Galeocerdo* as monotypic. The genus is one of 11 genera of the large family Carcharhinidae. It is clearly distinct from the other members of the family and deserving of subfamily status: Galeocerlinae Whitley (1934). After analysis of its morphological characters and in consideration of its ovoviviparity, Compagno (1988) concluded that the tiger shark is the most primitive of living carcharhinids. He regarded it as a transitional form between the hemigaleids and the Carcharhinidae.

*Galeocerdo cuvier* is one of the most distinctive of all sharks and not apt to be confused with any other species. It has a robust head and anterior body, but posterior to the abdomen the body becomes progressively more slender (Fig. 1); there is a low lateral keel on each side of the slender caudal peduncle; the upper lobe of the caudal fin is slender and pointed, with a subterminal notch but without a well developed terminal lobe; the snout is short and broadly rounded; the lateral labial furrows are very long; the spiracle is a narrow slit about one-fourth to one-third of the eye diameter; the mouth is large; the teeth are most characteristic (Fig. 2), being very strongly serrate, with the anteromedial edge convex and the posterolateral edge deeply notched; the largest serrae on the basal side of the notch are themselves secondarily serrate; there are 10 or 11 teeth on each side of the jaws that decrease greatly in size toward the corners of the mouth; there are 216-233 vertebrae, of which 100-112 are precaudal; the colour is grey, shading to white ventrally, the upper part of the body having dark grey bars or vertical rows of spots (faint or absent on large adults). The slender young are strikingly marked (Fig. 3).

### Distribution

The tiger shark has a circumglobal distribution in tropical and warm temperate seas. In the western Atlantic it ranges from Cape Cod to Uruguay, including the Gulf of Mexico, Bermuda, and islands of the Caribbean; in the eastern Atlantic it is found on the West African coast from Morocco to Angola; it remains unknown from the Mediterranean Sea, but there are reports from Iceland and the United Kingdom (these were probably based on vagrants transported there during a warm year by the Gulf Stream) (Compagno 1984).



It occurs throughout the Indo-Pacific region from the northern Red Sea to South Africa and east throughout the islands of Oceania and northern New Zealand (though not yet reported from Easter Island); in the eastern Pacific it ranges from southern California to Peru, including the Galápagos and Revillagigedo Islands.

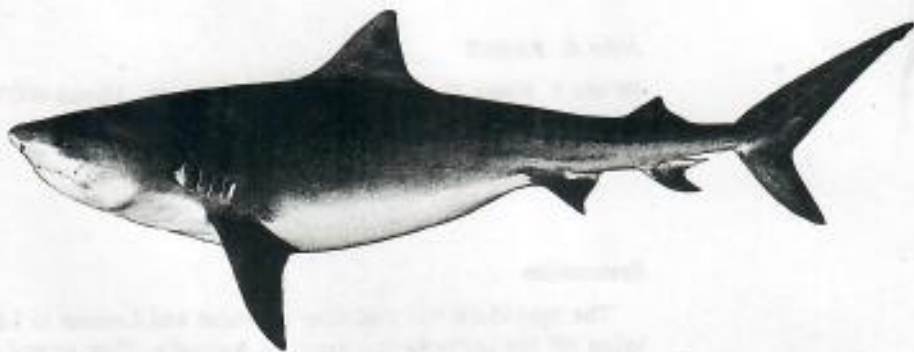


Fig. 1. *Galeocerdo cuvier*, precaudal length 241 cm, total length 305.5 cm, weight 175 kg, collected at Enewetak, Marshall Islands.



Fig. 2. Jaws of the *Galeocerdo cuvier* adult shown in Fig. 1.

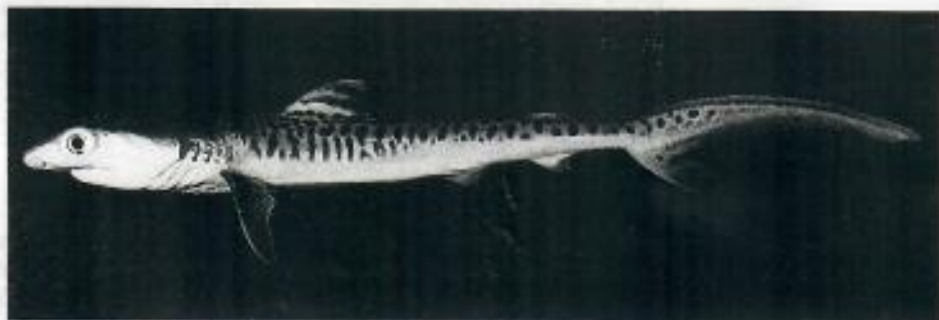


Fig. 3. Embryo of *Galeocerdo cuvier*, 52.7 cm total length, from a 360-cm female collected in the Marshall Islands.



Springer, in Gilbert (1963), wrote that the tiger shark is exceptional in many ways. From the records of the shark fishery in Florida he found no evidence of schooling, no disparity in the numbers of males and females, and no indication of absence of any size group within the population. This shark has been observed to be associated in groups of two to six or more, but such association may be transitory or merely groups assembling because of the presence of food. It is abundant in the northern Gulf of Mexico in the warm months but absent in winter. Records from the Gulf do not show segregation by size or sex, and the species does not seem to have any specific nursery area. Springer added, 'I know of no other species with such a homogeneous distribution in the shore waters of southern Florida nor of any other bottom-dwelling species so little restricted by bottom type.'

### Movements

It is well known that tiger sharks may migrate into higher latitudes from tropic seas during warm months. Bigelow and Schroeder (1948), for example, stated that the species is only a summer visitor along the eastern coast of the United States north of Florida. On the basis of shark catches by sport fishers off New South Wales in Australia, Stevens (1984) found that tiger sharks were caught from September to May but were most abundant from December to April. Recent tagging studies have given us more information on tiger shark movements.

As part of a general survey of the sharks of the La Parguera region of south-western Puerto Rico in 1967, 61 sharks were tagged, of which six were tiger sharks. Incredibly, two of the tagged tiger sharks were recovered: one 4 months later within 5 km of the point of release, and the other after 5 months near Chimana Island ( $10^{\circ}17'N, 64^{\circ}45'W$ ), Venezuela, 890 km (480 nautical miles) to the south (Rivera-López 1970).

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Table 1. Recoveries of tagged tiger sharks having travelled minimum distances of more than 100 n. miles

Data are from the US National Marine Fisheries Service Cooperative Shark Tagging Program, 1977-89

Year	Tagging locality	Recapture locality	Months at liberty	Minimum n. miles travelled
1978	Fort Pierce, FL	Dominican Republic	2.5	800
1979	Jacksonville, FL	Belmar, NJ	3	708
	Dauphin I., AL	Matanilla Buoy, Bahamas	12	757
1980	Off Mississippi River	Dauphin I., AL	7	222
	Cape Hatteras, NC	Fort Pierce, FL	11	590
	Morgan City, LA	Bravo, Mexico	5	268
1981	Jones Inlet, NY	Miami Beach, FL	39	945
1982	Charlotte Harbor, FL	Cayo Coco, Cuba	8	428
	Oregon Inlet, NC	Martinique	15	1556
	Bimini Is, Bahamas	Fort Pierce, FL	7	122
1983	San Juan, PR	La Parguera, PR	25	145
	Fire Island, NY	Limón, Costa Rica	6	1853
	Marathon, FL	Isla Mujeres, Mexico	27	378
	Manasquan, NJ	Cape Hatteras, NC	1	300
1984	Barnegat Inlet, NJ	Charleston, SC	5	494
	Barnegat Inlet, NJ	Beaufort, NC	19	362
	Barnegat Inlet, NJ	Beaufort, NC	31	389
	Manasquan, NJ	Morehead City, NC	4	388
	Rudee Inlet, VA	Beaufort, NC	2	161
	Ocean City, MD	Cape Hatteras, NC	7	176
	Dauphin I., AL	Matanzas, Cuba	65	629
	Dry Tortugas, FL	New Pass, FL	37	152
	Rudee Inlet, VA	Montauk, NY	56	293
	Chincoteague, VA	Montauk, NY	3	203
1985	Block I., RI	Ocracoke, NC	5	419
	Cape May, NJ	Ponce Inlet, FL	10	637
	Cape Charles, VA	Barnegat Inlet, NJ	13	177
	Isla de la Muertos, PR	Dominican Republic	18	159
1986	Ocean City, MD	Cape Fear, NC	5	332
	Virginia Beach, VA	Fire Island Inlet, NY	1	240
	Ponce Inlet, FL	Dzilam de Bravo, Mexico	2	777
	Bimini Is, Bahamas	Flagler Beach, FL	3	242
	Montauk, NY	Ponce Inlet, FL	48	805
	Bimini Is, Bahamas	Eleuthera I., Bahamas	22	187
1987	Ponce Inlet, FL	Charleston, SC	4	197
	Stuart, FL	Shinnecock Inlet, NY	66	852
	Montauk, NY	Faro Paredon Grande, Cuba	42	1126
	Rudee Inlet, VA	Cape May, NJ	58	120
	Barnegat Inlet, NJ	Daytona Beach, FL	63	714
	Fire Island, NY	Ponce Inlet, FL	1	723
1988	Eleuthera I., Bahamas	Cape Canaveral, FL	?	322
	Ponce Inlet, FL	Cape Lookout, NC	1	352
	Point Judith, RI	Saint Augustine, FL	31	825
	Ponce Inlet, FL	Cape Point, NC	3	451
	Manasquan Inlet, NJ	Cape Hatteras, NC	48	303
	Mobile, AL	Galveston, TX	7	199
	Rudee Inlet, VA	Morehead City, NC	38	131
1989	Manasquan Inlet, NJ	Ocracoke, NC	16	331
	Indian River Inlet, DE	Cape Hatteras, NC	34	223
	Indian River Inlet, DE	Cape Hatteras, NC	19	219
	Rudee Inlet, VA	Barnegat Inlet, NJ	27	216
	Cabo San Antonio, Cuba	Trinidad, Cuba	58	335
	Ponce Inlet, FL	Sanibel I., FL	< 1	564
	SE Puerto Rico	Key Largo, FL	73	862
	Norfolk, VA	Ponce Inlet, FL	16	518
	Manasquan Inlet, NJ	Andros I., Bahamas	26	1039
	Rudee Inlet, VA	Cape Lookout, NC	24	146



Springer, in Gilbert (1963), wrote that the tiger shark is exceptional in many ways. From the records of the shark fishery in Florida he found no evidence of schooling, no disparity in the numbers of males and females, and no indication of absence of any size group within the population. This shark has been observed to be associated in groups of two to six or more, but such association may be transitory or merely groups assembling because of the presence of food. It is abundant in the northern Gulf of Mexico in the warm months but absent in winter. Records from the Gulf do not show segregation by size or sex, and the species does not seem to have any specific nursery area. Springer added, 'I know of no other species with such a homogeneous distribution in the shore waters of southern Florida nor of any other bottom-dwelling species so little restricted by bottom type.'

### Movements

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record times at liberty of 7.0 and 8.0 years. Many of the recaptures showed local movements off the Florida coast with some tiger sharks moving very short distances in long periods of time (e.g., 16 miles in 1.1 years, 17 miles in 1.4 years). Overall, 19 travelled more than 100 miles from their tagging location and only 8 more than 300 miles. The farthest distance travelled was by a tiger shark tagged off New Jersey and recaptured northeast of San Juan, Puerto Rico, a distance of 1228 miles.'

A number of authors have reported that tiger sharks are rarely seen in shallow water during the day but are readily caught inshore at night. In an effort to document the diel movements of a tiger shark, Tricas *et al.* (1981) tagged a 400-cm female with a telemetric device at French Frigate Shoals in the north-western Hawaiian Islands and tracked it for two 24-h periods. The shark ranged over an area of about 100 km<sup>2</sup>, travelling a horizontal distance of about 82 km day<sup>-1</sup> at a rate varying from 0.4 to 11.0 km h<sup>-1</sup>. The rate at night was slightly slower than that by day, and more distance was covered by day. During the day, 68% of the shark's activity was spent deeper than the reef drop-off at 40 m (to at least 140 m, the limit of the depth sensor), whereas 83% of the shark's nocturnal activity was in depths shallower than the drop-off.

On 22 July 1981, a 3-m male tiger shark was caught in 30 m of water near Burrows Cay at the south-eastern end of Grand Bahama Island by Samuel H. Gruber and associates. A telemetric tag was attached to the shark's back between the dorsal fins. The shark's position was determined every 15 min. The shark remained within a mile of the capture locality for 4 h; then it headed west over deep water, covering 5 nautical miles (9.1 km) during the first half hour. Thereafter, the greatest movement between any two fixes was 3.5 n. miles (6.4 km), but most consecutive fixes were less than a mile apart. Few series of three fixes remained on the same bearing, and most of the 15-min movements were on distinctly different headings from the preceding ones. At the end of the tracking period of 51 h and 15 min, the shark was 22 n. miles (40.2 km) WNW of the capture locality in water about 600 m deep (Gruber, unpublished data). Unfortunately, there was no depth-sounding device on the tag, so the depths for the various fixes remain unknown. However, the trackers suspected that the shark was in relatively deep water when it was offshore.

Clark and Kristof (1990, fig. 15) illustrated a female tiger shark about 250 cm in total length from a photograph taken from a submersible in 350 m of water off Grand Cayman. The shark circled the submersible's bait cage when daylight was barely visible but left when the lights were turned on.

### Food Habits

Numerous papers have been written recording the food of tiger sharks, examples being Norman and Fraser (1937), Springer (1938), Whitley (1940), Bigelow and Schroeder (1948), Gudger (1948a, 1948b, 1949), Kauffman (1950), Ikehara (1960), Springer in Gilbert (1963), Gohar and Mazhar (1964), Clark and von Schmidt (1965), Randall (1967, 1980), Tester (1969), Fujimoto and Sakuda (1972), Bass *et al.* (1975), De Crosta *et al.* (1984), and Stevens (1984). Randall (1986) summarized the food habits of the species as follows: 'The Tiger Shark eats a greater variety of animals than any other shark: numerous species of bony fishes, sharks (including its own species when hooked), rays, sea turtles, sea birds, seals, dolphins, cephalopods, spiny lobsters, crabs, horseshoe crabs, gastropods, and jellyfishes. Feeds readily on carrion. Many different terrestrial animals have been found in its stomach, mostly a result of disposal in the sea by man; in addition, an incredible variety of refuse and garbage, including indigestible plastic, metal, and other items of human origin.' The ability of tiger sharks to consume large prey animals such as sea turtles, marine mammals, sharks, and rays is due to their large size and the coarse serrae of their sharp teeth, which function like a saw. Once the jaws are engaged in the prey, the rapid side-to-side twisting of the massive head and body results in swift cutting, even of seemingly indestructible tissues such as the bony carapace of a large sea turtle.



The food habits of the tiger shark vary greatly with the availability of food. Tiger sharks taken in harbours or near sites where refuse is dumped often contain a high percentage of material of human origin. Previously unreported are the stomach contents of a 300-cm female from Eilat at the northern end of the Gulf of Aqaba, Red Sea: two empty cans, one plastic bottle, two burlap sacks, one squid, and a 20-cm fish. In another 300-cm individual caught by the author off Oahu, the stomach contents were dominated by the heads of skipjack tuna, each neatly cut by a knife (hence obviously discarded by a fishing boat), and by garbage mixed with aluminium foil and plastic bags. De Crosta *et al.* (1984) opened the stomachs of 35 tiger sharks caught in the Northwestern Hawaiian Islands, 80% of which contained food. These authors found that 75% of the prey were sea-birds (sea-birds are present in enormous numbers at these largely uninhabited islands). Most of the fishes eaten were slow-swimming, 'well protected' species such as diodontids and monacanthids. Kauffman (1950) obtained 43 tiger sharks in the Philippines for stomach-content analysis, 22 of which contained food; 13 of the 32 prey items were sea turtles (11 hawksbills and two greens) and two were sea snakes. Stevens and McLoughlin (1991) found 79% of 98 tiger sharks from northern Australia with food in their stomachs. Of these, 62% contained fishes and 58% contained reptiles; the reptile prey consisted of sea turtles and sea snakes (the latter being found in a surprising 43% of the stomachs).

The author, in a 1966 unpublished report of the Oceanic Institute, Oahu, listed the stomach contents of 12 of 27 tiger sharks taken by set lines off Kawaihae, Kona, Hawaii; these data are presented in Table 2.

Table 2. Stomach contents of tiger sharks from Hawaii

Total length (cm)	Stomach contents
220	Kona crab ( <i>Ranina ranina</i> )
260	Goat remains Cornetfish ( <i>Fistularia petimba</i> ) (25 cm)
273	Turtle remains Shark remains (including 6 embryos) <sup>A</sup>
299	Porcupinefish ( <i>Diodon</i> sp.) (40 cm) Shark remains <sup>A</sup>
300	Fish remains (including an eel) Steak bone
304	Piece of cardboard
304	Jack ( <i>Caranx</i> sp.) (4-5 kg) Sea turtle (11 kg) Lobster Three cephalopod beaks
349	Posterior part of a sea turtle Head of a spotted porpoise
359	Pig remains
381	Sea turtle Fish
400	Two large deep-water slipper lobsters
420	An entire pig

<sup>A</sup>Shark remains are probably a result of feeding on hooked sharks and thus may not be normal food.

#### Age and Growth

*Galeocerdo cuvier* is among those species of sharks for which estimates of age and growth have been made from growth rings of vertebrae. Using the method of Stevens (1975), De Crosta *et al.* (1984) prepared the following equation for the von Bertalanffy growth curve



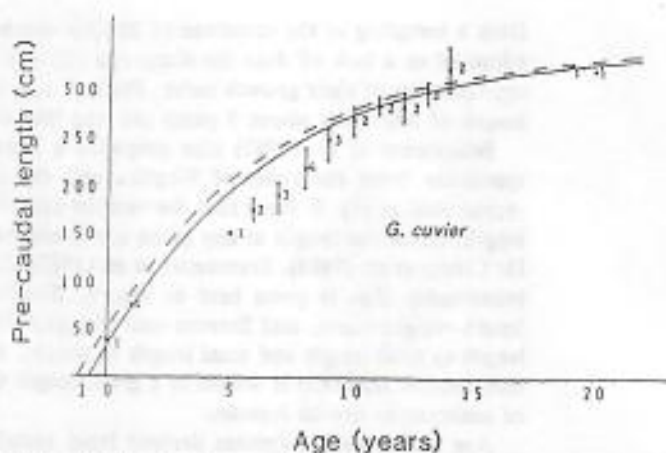


Fig. 4. Von Bertalanffy growth curves for *Galeocerdo cuvier* as calculated from vertebral age-determination data (solid line; mean lengths of year classes indicated by dots, ranges by bars, sample sizes by numbers) and from a length-frequency analysis of data from Tester (1969) (dashed line) (reproduced from De Crosta *et al.* 1984).

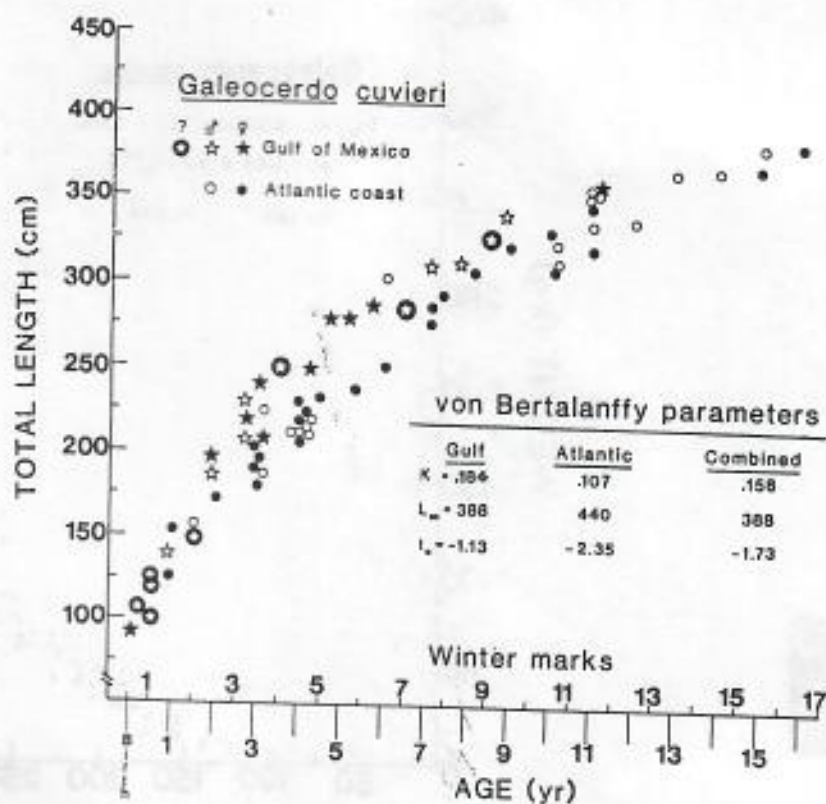


Fig. 5. Length at age for *Galeocerdo cuvier* from the Gulf of Mexico and the coast of Virginia. Individuals are plotted by their estimated actual ages (time elapsed since formation of last winter marks; birthdays set at 1 June) (reproduced from Branstetter *et al.* 1987).



from a sampling of the vertebrae of 28 tiger sharks from the Hawaiian Islands (the authors admitted to a lack of data for some age classes):  $L_t = 335(1 - e^{-0.155(t-0.619)})$ . Fig. 4 is a reproduction of their growth curve. From this, it is estimated that a shark with a precaudal length of 200 cm is about 5 years old and that one of 300 cm is about 15 years old.

Branstetter *et al.* (1987) also prepared a growth curve for the tiger shark, based on specimens from the coast of Virginia and the northern Gulf of Mexico; their curve is reproduced as Fig. 5. Note that the vertical axis of their curve is total length, not precaudal length, hence the length at any given age is notably greater than that given by the curve of De Crosta *et al.* (1984). Branstetter *et al.* (1987) also presented a figure of the length-weight relationship that is given here as Fig. 6. Kauffman (1950, fig. 2) has also presented a length-weight curve, and Stevens and McLoughlin (1991) provided equations relating fork length to total length and total length to weight. Bigelow and Schroeder (1948) pointed out that there is variation in weight at a given length with fatness and the stage of development of embryos in gravid females.

Age and growth estimates derived from vertebral rings should be confirmed by actual measurements of growth. Nearly all tagging of tiger sharks has been done while the sharks are in the sea, where only approximations can be made of their length. Branstetter *et al.* (1987) estimated that the tiger shark doubles its length in the first year of life. They stated that this estimate is supported by the growth of a full-term embryo of 69 cm total length

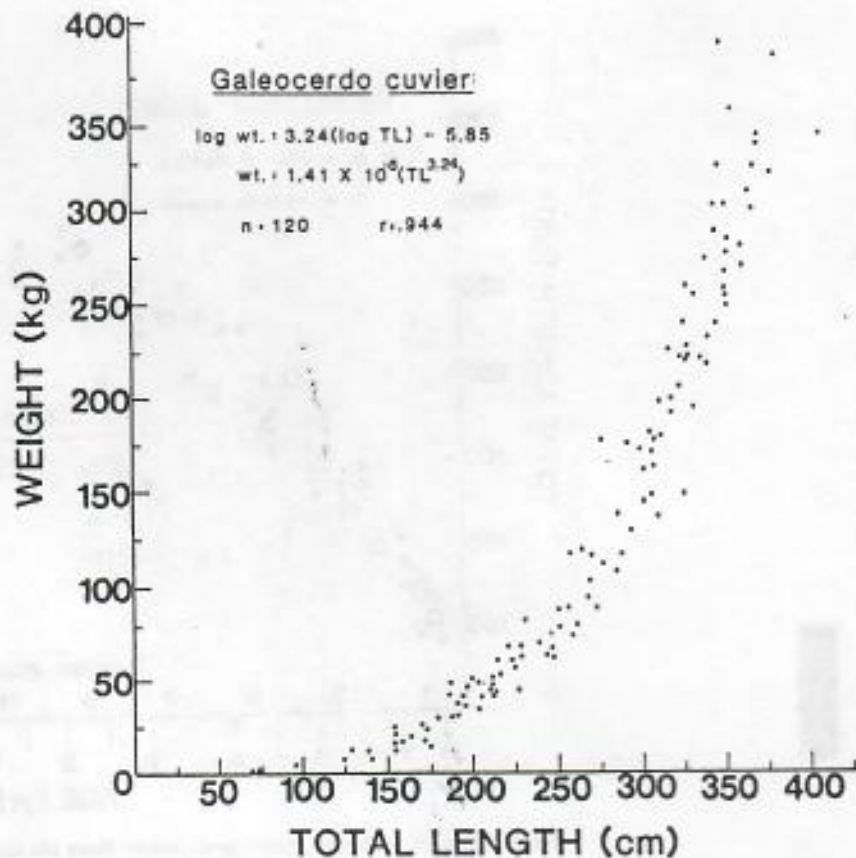


Fig. 6. Length-weight relationship for Atlantic and Gulf of Mexico *Galeocerdo cuvier* (sexes combined) (reproduced from Branstetter *et al.* 1987).



that grew to 89 cm in 12 weeks in an aquarium (Clark and von Schmidt 1965). One small tiger shark in Hawaii that was carefully measured when tagged and recovered has provided good growth data (Tester 1969). Over a period of 207 days at liberty, it grew from 131 cm total length to 173 cm, giving an annual growth of 74 cm. Casey *et al.* (1989) noted that seven tiger sharks accurately measured at both tagging and recapture have provided valuable growth data (as yet unpublished). Vertebrae were collected from three of the sharks for age determination. These workers also collected vertebrae from 13 additional tagged tiger sharks in 1990.

From their data, Branstetter *et al.* (1987) estimated a rate of growth for very large tiger sharks of 5–10 cm year<sup>-1</sup>; thus, individuals of 400–450 cm total length would be 20–25 years of age. No exceptionally large tiger sharks have been aged from vertebral rings. From von Bertalanffy curves derived from back-calculated lengths, Branstetter *et al.* gave maximum ages of 45–50 years.

As with the great white shark (*Carcharodon carcharias*), there have been what appear to be exaggerated reports of the maximum length that the tiger shark can attain. Some authors have given total lengths as great as 30 feet (9.1 m). Norman and Fraser (1937), for example, wrote, 'Grows to a length of 15–20 feet, occasionally reaching 30 feet.' However, none of the reported extraordinary sizes of tiger sharks has been scientifically confirmed. The maximum length that seems authentic is one of 18 feet (5.5 m) from Cuba (Bigelow and Schroeder 1948, quoting Howell-Rivero). From two personal experiences, the author believes that a length as great as 6 m might eventually be demonstrated.

### Reproduction

Male tiger sharks mature at 226–290 cm total length and females at 250–350 cm. This shark is the only one of the family Carcharhinidae that is ovoviviparous, and it is unusual in the large number of young produced (about 10 to 82 per litter). The size at birth is 51–76 cm total length. As noted by Compagno (1988), the relatively large size of tiger sharks at birth seems to be greater than could be accounted for by the amount of yolk available in the ova. It has been suggested that there is supplemental nutrition in the form of 'uterine milk' secreted from the lining of the uterus.

The gestation period has been given by Clark and von Schmidt (1965) as 13–16 months. Mating is reported to take place in the Northern Hemisphere in spring, with pupping the following spring and summer. Mating occurs again before full-term females have given birth to young. The young are very slender with a flexible body and caudal fin; they swim with an inefficient anguilliform motion. Branstetter *et al.* (1987) concluded that they are probably very vulnerable to predation at this stage, especially by sharks, including their own kind.

### Importance to Humans

Norman and Fraser (1937) wrote of the tiger shark, 'From a commercial point of view this Shark is of considerable value as its skin is in great demand for leather. It is very tough, and has a tensile strength of from 6–10 times that of ox-hide.' They added that the liver gives a better yield of oil than do the livers of most other kinds of sharks. The oil often has a high vitamin A content. Tiger shark fins are of high quality for shark-fin soup. Tiger shark meat is used for human consumption in fresh, frozen, dried and salted, or smoked form. With proper refrigeration and preparation, shark meat is good food; it has gained acceptance in developed countries in recent years. Tiger shark jaws and teeth are often sold as curios. In large aquaria and oceanariums, the tiger shark is a spectacular display animal. Crow and Hewitt (1988) have presented longevity records for captive tiger sharks and notes on their management.

The tiger shark is one of seven sharks for which sportfishing world records are kept (three of the categories – hammerheads, makos, and threshers – are reported only by genus).



The all-tackle record for the tiger shark is 569.02 kg (1314 pounds). This shark was caught on 60 kg (130 lb) test line off Cape Moreton, Queensland, in 1953 (Anon. 1990).

For those who venture into the sea, the concept of the importance of the tiger shark to humans takes on a different emphasis. This shark has long been regarded as second only to the great white shark as the most dangerous in the sea. Thus, for those swimming or diving in tropical waters, it is properly regarded as the greatest threat for attack on humans. This reputation has been confirmed by records of the identity of attacking sharks. Very few sharks that have attacked humans have been identified to species level. Baldrige (1973) stated, 'At least some level of identification of the attacker was possible in 257 cases. As popular belief would have it, the great white shark (*Carcharodon carcharias*) was cited most often, with 32 known attacks to its discredit. The ubiquitous tiger shark (*Galeocerdo cuvieri*) was close behind, having been identified in 27 cases including some of the most dramatic held in the Shark Attack File.'

The word *dramatic* naturally brings to mind the famous murder case in Sydney, Australia, in 1939, in which the tattooed arm of the victim, regurgitated by a tiger shark that had recently been placed in the Coogee Aquarium, provided the evidence that the man was murdered. Dr V. M. Copleston, an expert on shark attacks, examined the arm and was certain that it had been severed from the body of the victim by a sharp knife (Anon. 1986).

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# Gambling, sharks, transit

## Is gambling the cause?

Regarding Chuck Y. Gee's commentary on casino gambling (Focus, Feb. 21), I disagree with him completely. Anyone can take a set of figures and manipulate them to suit one's needs. But one important comment of his stands out: "Within blocks of Atlantic City's Boardwalk's glittery hotels and flashy gambling facilities are slum neighborhoods and vast stretches of desperate poverty."

But when was the last time Gee visited Washington, D.C.? You can make the same statement for areas of the city within blocks of the Capitol and mall, and the city also has the highest murder-killing rate in the country. And D.C. does not have any legalized gambling other than a lottery.

R.J. MAROUCHOC

## Send Hannemann to Pluto

I have an alternative to the Mufi Hannemann-Department of Business, Economic Development and Tourism-Hawaii Visitors Bureau million-dollar drag racing car to promote tourism. Put Mufi in a "Hawaiian vacation" rocket and let him orbit the planet Pluto for a while. Maybe then he'll be ready to come down to earth.

JIM ALBERTINI  
Kurtistown

## Con-con is Hawaiian affair

The Hawaii State Legislature should have no part in the running of a Hawaiian constitutional convention, except as ushers!

Some may not like it, but Mililani Trask is absolutely right! Even to secede from the Union is an option Hawaiians have, if it should make them happy.

I consider myself an outsider until invited by the Hawaiians, especially Ms. Trask, to participate in the constitutional convention.

BENJAMIN D. JACOBE  
Aiea

## Clinton and Hawaiians

It would be a historical move for President Bill Clinton to restore Ka Lahui Hawaii (the nation of Hawaii) and sovereignty to the native Hawaiians.

The lessons learned by other native people should tell the United States not to make the same mistakes. The United States has a chance to make right something that was

very wrong. For once, it shouldn't pass up the chance to repay a debt. The United States is the peacekeeper of the world. Now, keep the peace with native Hawaiians.

Bill Clinton, I call on you to restore the sovereign government of Hawaii. Follow Grover Cleveland's order to restore the monarchy. Don't pass up your chance to be in history books forever.

KEKAIKAHEELANI OLIVER  
Waiawa

## Sharks looking for turtles?

With so many articles being written about sharks lately, it surprises me that it hasn't been brought to the public's attention that all of the boards attacked by sharks were either white short boards or body boards, both of which have a white underbelly the approximate size and color of a turtle's underbelly, when seen from a shark's point of view.

Turtles are natural prey of the tiger shark. Hopefully, designers will take this into consideration and make the adequate changes needed to help ensure the future safety of our local surfing community.

DEBI WITHROW

## People are worse than sharks

Recent news on local shark hunters distresses me, for I feel that humans are the most dangerous creatures on earth.

Compared with how many more people are killed by people each minute by wars, crimes and the spread of disease, etc., around the world, sharks are being done a grave injustice.

HERBERT YUEN

## Sharks: Use common sense

I agree that informing the public about the possibility of shark attacks in a particular area by installing signs or announcing it on the radio would make them more aware of the danger.

On the other hand, I totally disagree with one agency's proposal to have thousands of pamphlets printed and distributed. Are people really interested in knowing the kind of shark they are being attacked by? Do you think this is their major concern at that point? I don't think so.

Some are talking about educating the people. What is there more to teach? Everyone knows that if they are approached by a shark that seems to be hungry, especially in 5 feet of water, this shark is not a friendly shark and, therefore, the only escape is to swim to shore.

I hope people realize that the only real solutions to preventing these attacks are awareness and common sense. Spending money on paper will not help.

ELENA BOYER