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## 1,136 scientists call for protection of deep-sea corals

### *Bottom trawling threatens newly discovered ecosystems*

SEATTLE--At a AAAS press briefing on Sunday at 1:00 PM, marine scientists will release a consensus statement from over a thousand of the world's foremost biologists, calling for governments and the United Nations to protect imperiled deep-sea coral and sponge ecosystems. The statement will be released concurrently at the 7th Conference of the Parties of the UN Convention on Biological Diversity in Kuala Lumpur, Malaysia; in Santiago, Chile; and in Madrid, Spain. Speakers at the AAAS briefing in Seattle will be Drs. Elliott Norse, Martin Willison, Daniel Pauly and Lance Morgan.

This historic proclamation--signed by 1,136 scientists from 69 countries, more than any other concerning a specific marine environmental issue--signifies unprecedented concern by experts in marine sciences and conservation biology. Scientists have recently discovered forests of gorgonian corals and reefs of stony corals at scattered locations in cold and deep ocean waters around the world. Some corals resemble "trees" up to 10 meters tall; others form dense thickets. Hundreds or thousands of species live in these cold-water coral forests and reefs, leading scientists to call them the "rainforests of the deep." But even before scientists can find them, deep-sea coral and sponge ecosystems are being destroyed by commercial fishing, especially bottom trawling.

Trawls are huge nets armed with steel weights or heavy rollers. Deep-sea fishing vessels drag them across the seafloor to catch species such as shrimp, cod, orange roughy, armorhead, grenadier and Chilean seabass. Trawls smash corals and sponges and rip them from the seafloor.

"It's ironic that billions are being spent searching for water that might once have supported life on Mars while we're destroying the dazzling diversity of life in waters here on Earth," said Dr. Elliott A. Norse, President of Marine Conservation Biology Institute in Redmond WA. "About 98 percent of the oceans' species live in, on or just above the seafloor. Many of them--including



Deep-sea corals at Madison-Swanson protected area south of Panama City, Florida, Gulf of Mexico  
Lance Horn, National Undersea Research Center/University of North Carolina at Wilmington

Full size image available through contact

ancient deep-sea corals and sponges--haven't even been discovered yet." Dr. Norse was an author of the Scientists' Statement.

Scientists have long known about corals and sponges in shallow tropical waters, and discovered deep-sea corals in the 1800s. But until recently, they did not know that coral forests and sponge reefs are widespread in certain cold and deep ocean habitats. Now scientists have discovered them in Japan, Tasmania, New Zealand, Alaska, British Columbia, California, Nova Scotia, Maine, North Carolina, Florida, Colombia, Brazil, Norway, Sweden, UK, Ireland and Mauritania, and realize that there are more species of corals in cold and deep ocean waters than in tropical shallows. Deep-sea researchers have also found that bottom trawling is rapidly eliminating coral and sponge ecosystems from Tasmania to Alaska, from Florida to Norway.

"Why should people care about deep-sea corals and sponges?" asks Dr. Norse. "On rocky bottoms of continental slopes and seamounts, corals and sponges provide habitat for countless marine wildlife, from brittle stars to fishes that are important to fisheries. Many corals and sponges contain chemicals that could become medicines for treating high blood pressure, chronic pain and cancer. Deep-sea corals are the oldest known ocean animals; one was aged 1,800 years by scientists who likened it to a bristlecone pine, the Earth's oldest known tree. Some corals contain irreplaceable records of climate change. Anyone who understands why we protect trees on land should get why we also need to protect corals and sponges: Because they're the trees in the rainforests of the deep."

"At present, scientists studying deep-sea corals are in an unfortunate race with commercial fishermen, who are trawling these corals into oblivion," said Dr. Martin Willison of Dalhousie University in Halifax NS. "As fishing has emptied coastal waters of fishes, trawlers are moving into seas as deep as 2 kilometers (1.2 miles), and into the most remote seas on Earth. A 1998 study in Conservation Biology by Les Watling and Elliott Norse showed that bottom trawling has impacts similar to forest clearcutting. But because deep-sea corals are so slow-growing, they'll take centuries to recover, if ever. In Canada's Maritime provinces, hook-and-line fishermen, who use more sustainable fishing methods, have led efforts to protect crucial seafloor habitat. But Canada's government, like the USA's, has utterly failed to curb destructive fishing practices such as trawling."

"Deep-sea corals and sponges are crucial habitat elements for seafloor species. Allowing trawling in coral forests is the worst thing we are doing in the ocean today. It should be stopped immediately until scientists can determine whether trawling in the deep-sea can be justified anywhere," said Dr. Daniel Pauly of the University of British Columbia in Vancouver BC.

"Nothing could be dumber than destroying the habitats that depleted fish populations need to recover. Governments must stop pussyfooting around and do something useful. And the United Nations should declare an immediate moratorium on trawling on the High Seas, so scientists can have time to learn the distribution, value and vulnerability of deep-sea coral and sponge ecosystems."

"If present trends continue, we don't have much time," said Dr. Lance E. Morgan, Chief Scientist of Marine Conservation Biology Institute, the other author of the Scientists' Statement. "Once trawlers clean out the refuges of deep-sea corals and sponges, they'll be gone. We need to protect these corals now. We know they are fragile and we can't afford to wait for more research to find out where they are, how important they are and how vulnerable they are; trawlers will beat us to them. We can always resume trawling, but we can not put back 1,000

year-old ecosystems. Eradicating these seafloor habitats before scientists understand their role in sustaining fishes and other marine life makes no sense at all."

Drs. Norse, Willison, Pauly, Morgan and the 1,132 other signers of the Scientists' Statement voice a strong message of hope, saying "It is not too late to save most of the world's deep-sea coral and sponge ecosystems." They commend Australia, New Zealand, Canada and Norway for taking initial steps towards protecting coral and sponge ecosystems under their jurisdiction. They urge the United Nations to establish a moratorium on bottom trawling on the High Seas. They urge individual nations and states to ban bottom trawling to protect deep-sea ecosystems wherever coral forests and reefs are known to occur within their Exclusive Economic Zones. They urge them to prohibit roller and rockhopper trawls, which allow fishermen to trawl on the rough bottoms where deep-sea corals are most likely to occur. They urge governments to support research and mapping, and to establish effective, representative networks of marine protected areas that include deep-sea coral and sponge communities.

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Signers of the Scientists' Statement include the celebrated ecologist and Pulitzer Prize-winner Dr. Edward O. Wilson of Harvard University; famed aquanaut Dr. Sylvia Earle of Conservation International; former head of the National Oceanic and Atmospheric Administration, Dr. James Baker; the father of the science of conservation biology, Dr. Michael E. Soulé; Heinz Award and Volvo Environmental Prize-winner, Dr. George Woodwell; Pew Fellows in Marine Conservation, Drs. Ana Parma, José Orensanz, Erdal Ozhan, Callum Roberts and James Estes; renowned paleoecologist and expert on historical marine ecology, Dr. Jeremy Jackson; former President of AAAS and Home Secretary of the National Academy of Sciences, Dr. Peter Raven; eminent fisheries biologist and Commission on Ocean Policy member, Dr. Andrew Rosenberg; Ecological Society of America Past President and Pew Ocean Commission member, Dr. Jane Lubchenco; MacArthur Fellow Dr. Carl Safina; the world's leading experts on classification of corals, Drs. Frederick Bayer, Stephen Cairns, Phil Alderslade, Scott France and Dennis Opresko; and experts on deep-sea ecosystems including Drs. Tony Koslow, André Freiwald, Craig Smith, Lisa Levin, Robert George, Hjalmar Thiel, Verena Tunnicliffe, Michael Rex, John Gage, Richard Haedrich, Karen Stocks, James Barry, Amy Baco-Taylor, Alex Rogers, Murray Roberts, George Somero, Jon Moore, Sandra Brooke, Paul Snelgrove, Frederick Grassle, Ron Etter and Les Watling.

Dr. Elliott A. Norse is a Pew Fellow in Marine Conservation and President-Elect of the Marine Section of the Society for Conservation Biology. His books include Conserving Biological Diversity in Our National Forests (1986), Ancient Forests of the Pacific Northwest (1990), Global Marine Biological Diversity: A Strategy for Building Conservation Into Decision Making (1993) and Marine Conservation Biology: The Science of Maintaining the Sea's Biodiversity, which will be published in 2005.

Dr. Martin Willison is one of the pioneers of deep-sea coral conservation, having organized the First International Symposium on Deep-Sea Corals in Halifax NS in 2000.

Dr. Daniel Pauly, regarded as the world's leading fisheries biologist, is author of seminal papers such as "Fishing Down Marine Food Webs" (1998) and "The Future of Fisheries" (2003) in *Science*, and his book, In a Perfect Ocean: The State of Fisheries and Ecosystems in the North

Atlantic Ocean (2002).

Dr. Lance E. Morgan organized the 2004 AAAS Meeting symposium on The Forgotten Forests: Deep-Sea Coral and Sponge Beds. He is an author of the recently published Occurrences of Habitat-forming Deep Sea Corals in the Northeast Pacific Ocean and of the first rigorous, quantitative, comparative study of bycatch and habitat damage caused by commercial fishing methods titled "Shifting Gears: Assessing Collateral Impacts of Fishing Methods in US Waters" in *Frontiers in Ecology and the Environment*.

Marine Conservation Biology Institute is a nonprofit organization dedicated to advancing the science of marine conservation biology and promoting cooperation essential to protecting and recovering the Earth's biological integrity. It is headquartered in Redmond WA, with offices in Glen Ellen CA and Washington DC. MCBI was founded by Dr. Elliott Norse, who first defined biological diversity as a conservation goal in 1980. In 1996 MCBI held the first scientific workshop to examine the worldwide impacts of bottom trawling; the workshop's findings were published in *Conservation Biology* in 1998.

Go to <http://www.mcbi.org/Press/PressRoom.htm> to view the complete list of Scientists' Statement signers, as well as striking photographs and films of deep-sea coral and sponge ecosystems and the impacts of trawling that reporters may use, with appropriate acknowledgment.

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