



OCEANOCIDE

— How we are passively observing and actively supporting
the fastest large-scale ecological destruction of all time.

By CLAIRE NOUVIAN

Photo ARNO GÄSTEIGER



Fewer than 300 boats in the world are destroying the deep sea, the largest reservoir of biodiversity on Earth. They are wiping off the map deepwater coral reefs and sponge beds thousands of years old as they chase their lucrative quarry – a few highly priced fish, known to be extremely vulnerable to overfishing because they are long-lived, slow-growing and late at reproducing. The entirety of the deep-sea catch, without exception, is sold to rich industrialized countries that certainly don't need – nor even really want – those fish. And deep-sea bottom trawling continues despite a scientific consensus

that emphasizes how utterly unsustainable and destructive this fishing practice is.

In blatant ignorance of science and oblivious to common sense, bottom trawling – or “bulldozing,” as it should be called – goes on with the complicity of our governments and our own support. Large subsidies are paid to trawling fleets with our tax money, estimated at \$126 million of public funds worldwide. Every one of us is paying for ships to go out and destroy our planet's last pristine wilderness, thus contributing to an unprecedented “oceanocide,” the largest and fastest ecological crime of all time. Without public aid, most of those ships would be operating at a loss. Why on Earth are public funds used to promote the irreversible



Imagine if you were to bulldoze Yellowstone National Park in the interest of selling off a few choice morsels.

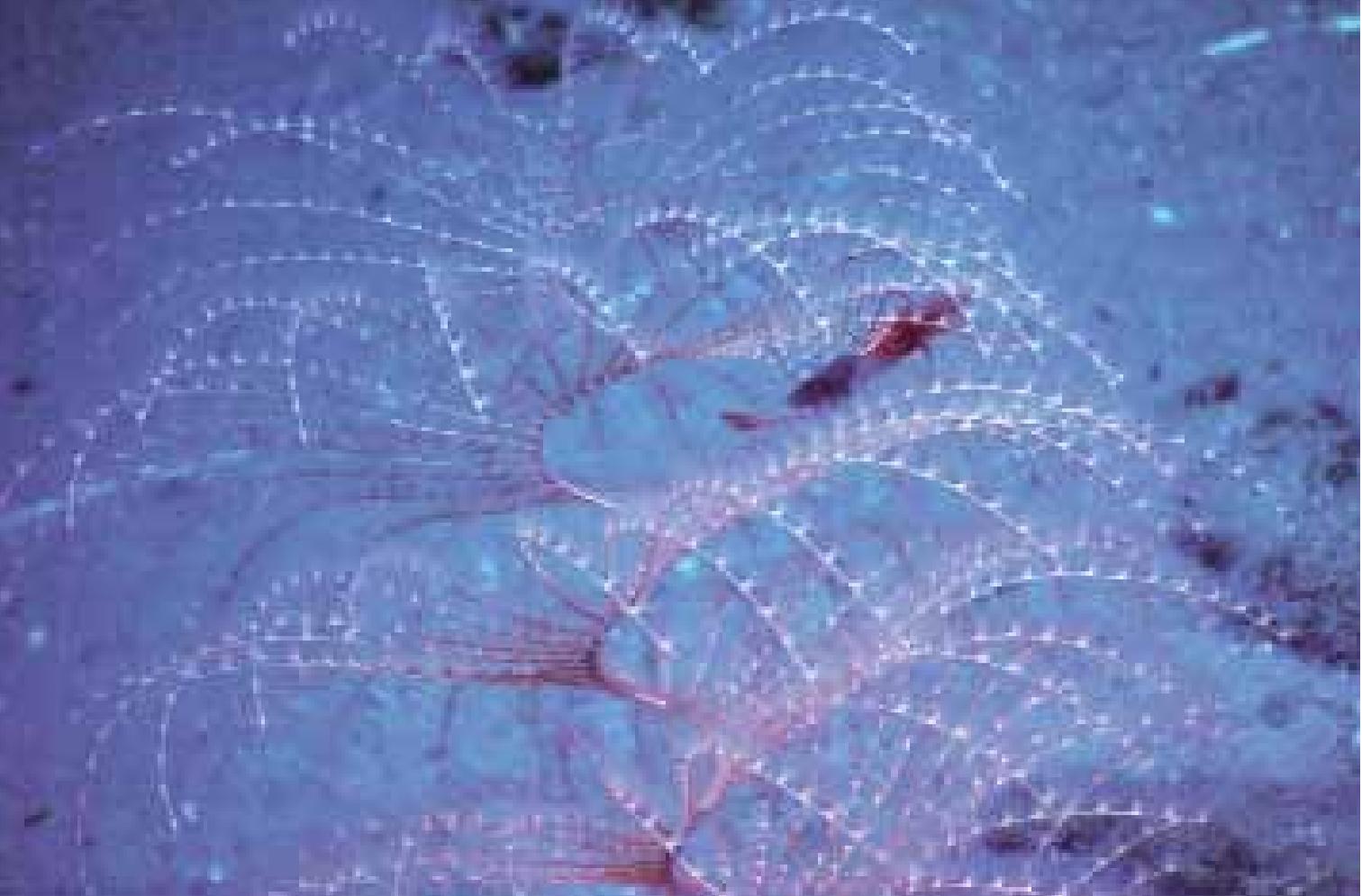
and funded. Oil subsidies provide the financial incentive for industrial-scale ships to pillage the most vulnerable habitats and species the planet possesses, in order to make a few private corporations – fewer than 50 around the world – profitable. These bottom trawlers are targeting long-lived creatures that cannot withstand the fast-paced exploitation that technology allows.

Let me clarify: I am not against fishing. On the contrary, I think everything that can be fished should be fished. What I strongly oppose is the shortsighted exploitation of non-renewable resources. I count three categories of these: whales, sharks and deep-sea animals. All have a long lifespan – as long as or longer than human beings – and their reproduction rates are low, extremely low. In the shallows, fish have extremely high food requirements to feed their rapid lifestyle and muscular bodies. They produce millions of eggs and have a short lifespan: an anchovy or a sardine lives between three to five years, a tropical tuna six to nine. In the deep sea, however, a fish commonly lives to 60 years of age. A few notable species reach well over a century, and orange roughies, which live to 160, top them all. Imagine eating a fish born at the time Thomas Edison invented electricity. No one knows how often deep-sea fish breed or how successful they are at it, all we know is that they reach sexual maturity extremely late and that they produce many fewer eggs than their shallow-water counterparts.

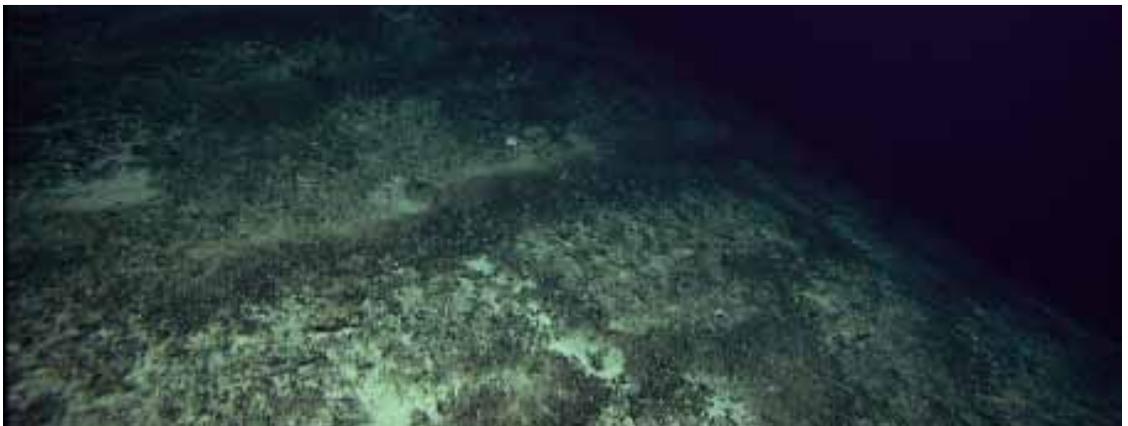
The slender snipe eel *Nemichthys scolopaceus* can reach 1.5 metres in length. It undulates in the water with its bird-like beak slightly opened and its small hooked teeth ready to entangle shrimp antennae.
© David Shale / Claire Nouvian

destruction of the common good for the shortsighted benefit of a few? The whole thing is a bit surreal. Imagine if you were to obliterate Yellowstone National Park with monstrous bulldozers in the interest of retrieving a few choice morsels to sell. The only thing you would bag from this *Terminator*-style operation would be a few big mammals that would sell for a reasonably good sum of money. How much government support do you think your bulldozing endeavour would attract? How would you rate your chances of winning public opinion to your cause? In fact, you'd stand a good chance of landing in jail for this shocking crime against a unique, precious and necessarily protected common heritage. Now consider that, when it comes to the ocean, this scenario is not only tolerated but actively encouraged

Life in the deep ocean happens in the slow lane, in a dark, cold and food-deprived environment. Despite these harsh conditions, the deep sea is home to a diversity of animals beyond anything our brain can handle, comprising millions of new species yet to be discovered. This immense diversity is not immediately apparent because deep-sea animals are usually so few and far between. We typically and mistakenly associate “deep-sea fauna” with the weird, mid-water creatures that live in the abyss. This “monster circus” is of little commercial interest, with notable exceptions such as that of the tiny lantern fish, harvested to produce engine oil because these animals are so rich in lipids. The less phantasmagoric creatures living close



Right: The passage of a deepwater trawl, like this one on top of a seamount belonging to the Corner Rise Chain in the central North Atlantic, near the mid-Atlantic Ridge, blindly removes all life found on the deep seafloor. Dragging a net over multi-millenary animal structures equates to driving a bulldozer through the Amazon forest. © Les Watling for the Mountains-in the Sea Research Team, IFE, URI-IAO, and NOAA.



to the seafloor, however, are quite fleshy and are prime candidates for the boneless white-fish fillets consumers demand. These armourheads, oreos, alfonsinos, blue ling, black scabbardfish, orange roughies and grenadiers, to name but a few of these bottom-dwellers, often live in association with deep-sea coral reefs or sponge beds that are hundreds or even thousands of years old. Radiocarbon techniques have recently re-calculated the age of some deepwater corals at more than 4,000 years, making them the planet's oldest living animals. Uprooting corals with trawlnets and then dumping them as ocean waste is akin to exhuming Egyptian mummies and disposing of them as trash. It's a crime.

suppose it might be important to mention that these interactions between trawlers and deep-sea habitats are not incidental or rare. First, wherever there's hard substrate, there are corals. And second, wherever trawlers pass, they remove 98 to 100 percent of what's on the seafloor: sponges and corals, of course, but also all sorts of animals: octopi, brittle stars, crustaceans, sea lilies, sea pens and worms, along with all the tubes, burrows, dens and other structures these animals may have built for themselves. University of Hawaii professor Les Watling reminds us that attention must also be paid to sediments and not just to coral reefs and sponge



'Think of the seafloor as the library of Alexandria. Are you sure you want to burn two books out of three, randomly?'

beds, as 90 percent of marine biodiversity is located in sediment. "Think of the seafloor as a DNA bank," he says, "or as the library of Alexandria. Are you sure you want to burn two books out of three, randomly?"

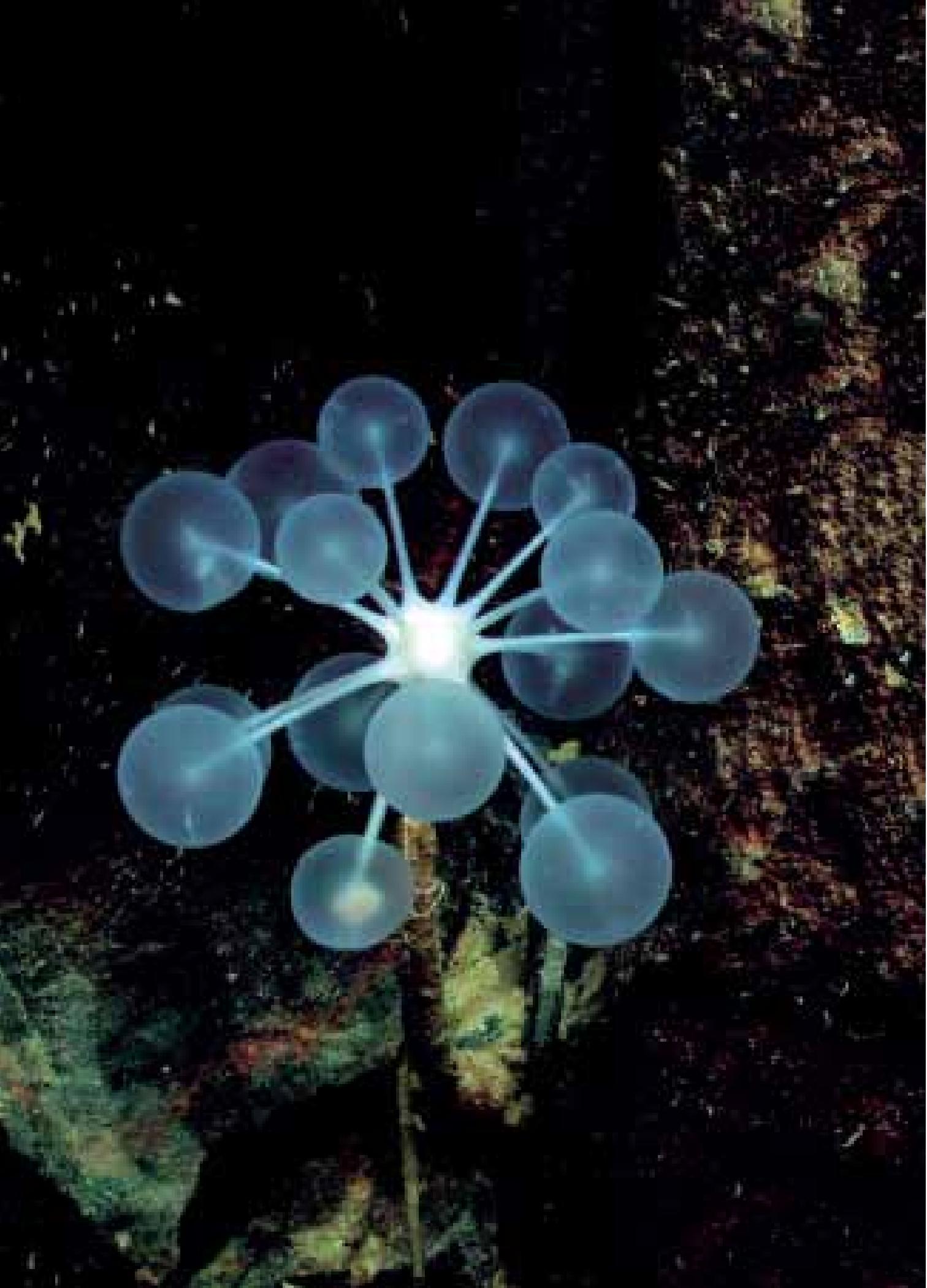
The passage of a trawler transforms this truly complex, three-dimensional habitat into a muddy soup in which animals are no longer able to lay the foundation for life. Sediments follow a complex infrastructure, just like a city, but only on a different, much smaller scale. A trawlnet dragged over a seafloor wreaks havoc on inhabitants as surely as a bombing raid creates homeless refugees. Lacking vital shelter and supplies, survivors of deep-sea trawling don't stand any chance of survival. This raises the crucial question of habitat destruction. Even if catch ratios were to suit the biological rhythms of deepwater fish, deep-sea fishing would still have to address the disastrous impact it has on the marine ecosystem. That's why deep-sea animals are the universal mascots of unsustainability.

This oceanocide becomes even more tragic when we understand that it is occurring during the sixth mass extinction, the most severe life crisis our planet has gone through in the past 500 million years. The rate at which animals are going extinct, due to the actions of man, is 100 to 1,000 times faster than any similar background event. What disappears today will not come back.

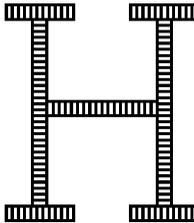
Let's go back to a few fundamentals that make exploitation of underwater resources acceptable or even possible. Fish are typically the last wild items on our dinner menu, along with a few mushroom species. We don't sow fish seeds or plant coral reefs. Some fishermen continue to put forward the 19th-century argument that ploughing the seafloor makes it more productive, although hundreds of scientific studies have shown otherwise. Fishing is not the same as agriculture. Pretending that it is, with investors setting yield expectations as if fish were industrial crops, has led to the current overfishing crisis shaking our world.

Deep-sea corals are most often associated with huge reef structures found, for example, in deep waters off Florida or Norway. Actually, fewer than 10 species can form reefs in the deep, whereas thousands of species of long and fragile gorgonians (top and facing page) are found throughout the deep ocean, wherever there is rock for them to anchor.

© Les Watling for the Mountains in the Sea Research Team, IFE, URI-IAO, and NOAA.



Every one of us is paying for ships to go out and destroy our planet's last pristine wilderness.



Harvesting wild resources means being in tune with what nature can give. So what can the deep sea give us? One scientist has calculated that “sustainable” fishing in the deep Central Pacific would mean each ship would catch one fish a day. What’s difficult to grasp is that deep-sea populations are vulnerable even though they are, at specific times and places, extremely abundant. Some fish form gigantic aggregations to feed or breed in very deep waters (as deep as 2,000 metres), but this localized biomass does not indicate the size of the overall population.

The entire subpopulation of a species can concentrate over a given area and can be fished down to commercial extinction in a few years, generally less than 10. The typical “boom and bust” pattern of deep-sea fisheries is dictated by the low productivity of deep-water animals, which encourages investors to “mine” fish populations rather than exploit them sustainably. In banking terms, the fish biomass doesn’t renew itself quickly enough to sustain anything but short-term exploitation. There is no way to live off the interest, so we destroy the capital. But if the capital is a common resource, why hesitate to turn it to individual profit? Rush for the gold!

Deep-sea bottom trawling is the result of a massive collective failure to sustainably manage productive areas

and fish stocks. Over the past 50 years, the oceans have been victims of serial depletion. First we fished down the easy-to-catch, close-to-shore populations. Once the fish bonanza was over, fishing fleets moved into the northern hemisphere on their hunt for cod, hake, flounder and halibut. When those stocks were depleted, the fishing went into the southern hemisphere. When all this bounty was gone, the fleets moved to deeper waters and simultaneously started “fishing down the food chain” for other species (smaller and uglier) that used to be discarded as bycatch. At the end of the line – and this is already underway – we’ll be fishing for krill and jellies in maritime deserts. It’s a catastrophic scenario, and, for obscure reasons, we won’t change our course. Why do we accept, and even encourage, the extermination of deep-sea animals and habitats? That’s the real question. I wish there were at least one or two solid arguments to justify this ocean genocide, such as the creation of hundreds of thousands of jobs, or perhaps seafood exports to countries with staggering poverty and an overwhelming need for animal protein. Reality-check: there is no global generosity scheme to justify this massacre. Deep-sea catches, which account for only 0.3 percent of all fish caught on the high seas (waters beyond national jurisdiction), are sold entirely to industrialized countries which, by the way, throw away perfectly tasty and renewable fish such as hake every day. The silent slaughter goes on for the increased profit of a few: 285 boats in the whole world, to be precise. How hard can it be to stop them, you may wonder? ▶

Opposite: This curious carnivorous sponge, which looks like a 1960s chandelier, is a vivid reminder that the deep sea is home to the greatest diversity of life on the planet.
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REPACKAGING A TRAGEDY

Deep-sea animals should be kept out of sight and off our plate.

“Will it be ‘rattail’ or ‘slimehead’ today for you, madam?” I’m not sure deep-sea fish would have been so quickly embraced if they had been allowed to assume their true identities, with their ugly monster faces and disgusting names. Deep-sea fish began arriving in France, the United States and other rich, industrialized nations in the 1980s, as

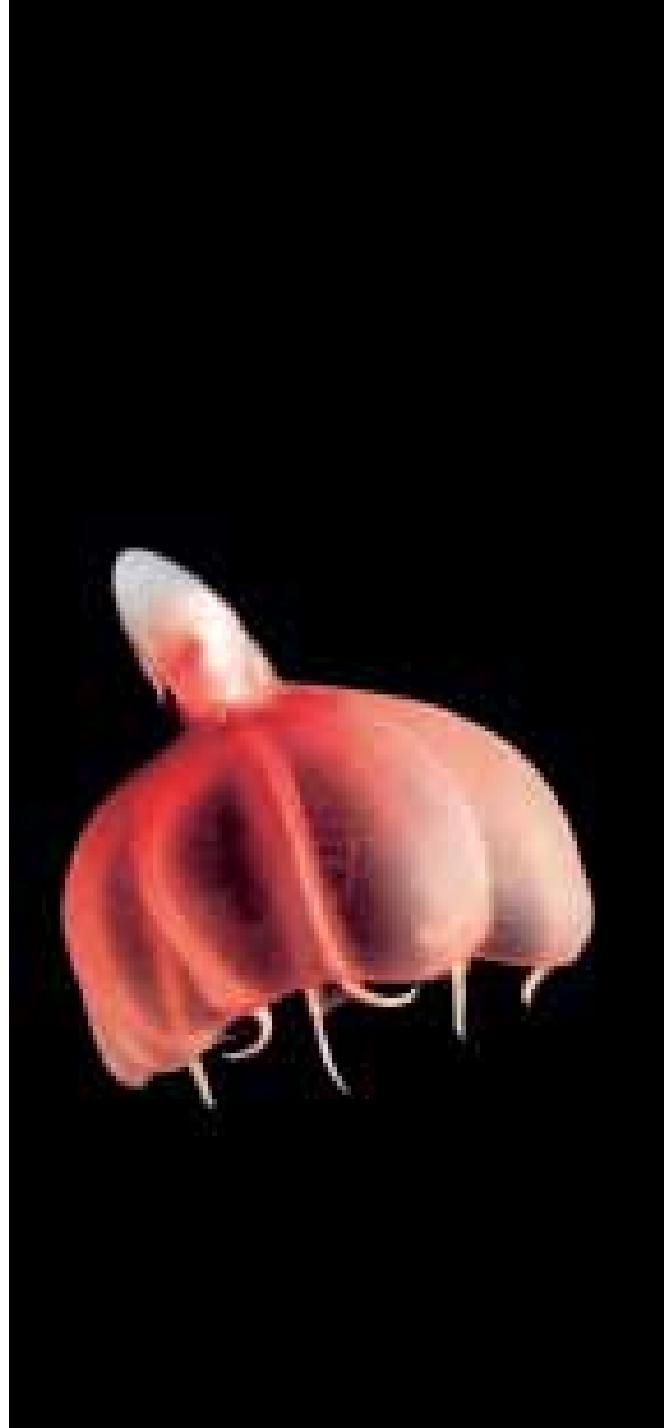
overfishing depleted stocks of common species (cod, salmon, swordfish etc.). Marketing experts advised on presenting the newcomers as “fillets” or invented attractive names for them. This is how rattails became “grenadiers,” slimeheads “orange roughies,” and Patagonian toothfish and deepwater sharks became, respectively, “Chilean seabass” and “rock salmon” (the last has now predominantly replaced cod in “fish and chips” shops in the UK). In

order to further entice consumers into switching to these strange new species, fishermen gave away the fish fillets in free “taste tests,” just like cigarette brands encourage addiction by handing out free packs in nightclubs. Consumers were kept in the dark about the food they were buying, but now they are finding out, sometimes in awe, that they have been taking part in a silent tragedy and directly driving the fishing industry to mass environmental destruction. —C.N.

How much more will have to be lost before society starts suing individuals for environmental crimes?

The only thing that has made this fishing activity legal is the fact that it started before science was able to prove it was unacceptable, unjustifiable and irreversible. Now that it has been unanimously established that deep-sea bottom fishing should be immediately halted, now that more than 1,400 scientists have expressed (in 2004) a statement of concern to the United Nations General Assembly about the vulnerability of deep-sea ecosystems, now that the UN has voted a resolution to prevent the impacts of bottom trawling on vulnerable marine habitats, now, in a word, that deep-sea fishing has finally been made *illegal*, why don't these fishing nations (10 countries in the world are accountable for 80 percent of all activity) disengage from such a small industry? All it would take is cutting the oil subsidies given to these fleets. This would so strongly jeopardize the profitability of these fishing operations that they would inevitably cease. Instead of that, states are pumping public funds into keeping those few ships afloat, using the ignorance of the public as a tacit benediction of an inexcusable environmental crime. That diverted use of public money without the explicit consent of taxpayers constitutes an environmental "odious debt" that will eternally shame governments that failed to put a halt to deep-sea bottom fishing. An odious debt, as legal theorist Alexander Sack first pointed out, serves to fund actions that go against the public interest. It is contracted by a political regime and, as such, can and should be considered as the debt of a specific government and not as that of the nation as a whole. Translation: our governments must acknowledge past mistakes and buy back deep-sea bottom trawlers to dismantle them. "Real politicians, our elusive saviours," fisheries expert Daniel Pauly once said.

If worse comes to worst, if the 10 main bottom trawling nations continue to act contrary to scientific evidence and common sense, can't the other 180 or so nations at the UN just impose a ban on deepwater bottom-trawling? Let's bear in mind that we will all suffer equally from the mass destruction of biodiversity and from the correlated



weakened resilience of the oceans when climate change hits us really hard. Nations are currently fighting tooth and nail at the UN about the governance of biodiversity on the high seas, but at the current exploitation rate of deep-sea living resources, by the time they find an agreement (the UN convention on the Law of the Sea took 15 years to negotiate and another 12 to be ratified), there will be no biodiversity left to fight over. Fishing nations have failed so badly at ensuring sustainability and non-destructiveness of high-seas bottom-fishing operations, it is time to declare them incompetent at equitably managing the common good of humanity. What we, as consumers and citizens, must urgently do is ban all types of deep-sea fish, once and for all, from our menus. We must put forward a global citizens' petition before the United Nations General Assembly calling for



the whole of the high seas to be set aside as a Marine Protected Area. Any fishing operation seeking to tap the free-for-all resources on the high seas would be obligated to produce a scientifically sound management plan demonstrating that their activities would neither jeopardize the future of the planet nor infringe upon other nations' interests.

Why aren't fisheries managers held accountable for their blatant failure to protect the marine environment and species? How much more will have to be lost before society starts suing individuals for environmental crimes? Schopenhauer said that all truth passes through three stages. First, it is ridiculed; second, it is violently opposed; third, it is accepted as being self-evident. I wonder which stage we're passing through now. ○

Top: *Stauroteuthis syrtensis* is one of the rare octopus species that can produce a luminous emission from the suckers. Bioluminescence is its response to the deep-sea food shortage: it attracts prey, avoiding chases through the obscurity.
© David Shale / Claire Nouvian

The deep sea makes up 85 percent of the ocean, a world seldom seen and even less understood. Immersed in total darkness, it is the mysterious world explored by Claire Nouvian in *The Deep*. Combining the latest research and 200 photographs – some of never-before-seen creatures – the book is a guided dive into the abyss. *The Deep*, Claire Nouvian (Chicago University Press)

