A pie in protest



Frank Loy (L), head of the US delegation wipes parts of a cream pie from his face at a top-level news conference at the World Climate that came to a dramatic halt, only seconds after it began, when a green protester hurled a cream pie at Loy on November 22. Security men immediately bundled the young woman -- who had been sitting on the front row -- out of the hall. Another protester stood on a chair and hurled abuse at Loy whose face and suit were covered in cream and jam from the pie. The US has been under severe attack at the conference by environmentalists for its alleged attempt to avoid any commitment to cut emissions from fossil fuels. Loy, a veteran of the Earth Summit process, seemed initially to be stunned by the pie attack, but soon composed himself and then grabbed the microphone to assure the journalists that the US -- AFP photo wanted a deal.

Benefits of CDM beckon Bangladesh

Bangladesh has the potential to benefit from a carbon trading regime if it takes the trouble to understand the issues at stake and what needs to be done in order to gain the benefits. This will require some understanding at the policy making level. In addition to the government, the private sector will be a key player; for it will put the CDM projects together, writes Saleemul Huq

RING this week the world's environment minisers are meeting in the Netherlands to discuss ways of implementing the Kyoto Protocol of the United Nations Framework Convention on Climate Change (UNFCCC). The COP6 of the UNFCCC, as the meeting is called, will determine whether the developed countries are really serious about their commitments accepted under the Kyoto Protocol to reduce their greenhouse gas (GHG) emissions by specified targets within a period of 10 to 12 years, called the First Commitment Period. Although there are many issues being discussed at The Hague regarding different aspects of climate change, carbon trading, under certain rules and regulations, is likely to get some form of approval. Carbon trading, also called "flexibility mechanism" or "market mechanisms" under the Kyoto Protocol, are a means whereby a developed country is allowed to pay to reduce GHG emissions in another country where it would be cheaper to do so and in return get some of the benefits of the reduced GHG emissions. This can be done in two different arrangements. The first called "joint implementation" or JI is between a developed country and a country in transition (i.e. Russia or eastern European countries) which has plenty of scope for reducing their GHG emissions. The second mechanism, also called the clean development mechanism or CDM, applies to trades between developed countries and developing countries. Although the CDM has not been fully approved yet it is likely that its rules and governance structure will be agreed at the COP6 in The Hague and that it will become

functional very soon. This will open up an opportunity for developing countries to benefit from carbon trading. However, it can also be a double-edged sword. In the first place the CDM is meant for private sector investors from the developed countries to invest in projects in developing countries which will give GHG reductions which they will pay for and take credit for. The rules of this procedure need to be applied both at the

national level as well as internationally to make sure that PCF thus, have access to CERs, which are not necessarily the GHG emission reductions (also called certified emissions reductions or CERs) are genuine and not falsified.

An important issue is about the developing countries' ability to put together and sell CDM eligible projects. For example, it has been estimated that over 80 per cent of all CDM projects may well go to only a handful of the larger developing countries such as India, China, Brazil, South Africa and a few more Latin American countries. That means most of the poorer developing countries in Asia and certainly in Africa are likely to be left behind and will not be able to benefit from this market mechanism.

However, quite a few of these poorer developing countries including Bangladesh have the potential ability to develop and market such projects if they make the effort to do so. They must first learn the rules of the game. What kind of projects are eligible, how to prepare a feasibility study in terms of carbon abatement potential as well as economic viability, etc are the basics that these countries must learn. Besides, these countries must make the private sector in the country sufficiently aware and knowledgeable about CDM to market such projects (it should be recalled that CDM projects are meant to be primarily by private sector in both developing and as well developed

In addition to specific private investments by developed country companies there are also other potential developed country investors in a future carbon market. For example the World Bank has launched the Prototype Carbon Fund (PCF) with 150 million dollars already committed from a number of developed countries and large companies. This fund is to be used to invest in projects in developing countries and countries in transition to purchase the carbon benefits (in the form of GHG emission reductions or CERs). It has already signed its first contract not. for a municipal waste treatment project in Latvia and has several more projects in the pipeline. The investors in the

tied to a single project. The World Bank's intention in starting this Fund is to kick off the carbon market at a fair rate (which is likely to be above \$15 per tonne of carbon). with proper baselines and monitoring systems in place. Although Bangladesh is not a member of the PCF it can become one if it wishes to and thus also benefit from some investments through the PCF.

Bangladesh has the potential to benefit from a carbon trading regime if it takes the trouble to understand the issues at stake and what needs to be done in order to gain the benefits. This will require some understanding at the policy making level by the relevant ministries concerned namely the Environment Ministry (the Environment Minister is attending the meeting in the Hague) and the Finance Ministry who will have to approve any projects. In addition to the government a most important player will be the private sector who will have to be the ones to put the CDM projects together. In order for them to do so, they will need some training and assistance from experts. However once they learn how to do it they will be able to develop and market the projects themselves. Finally, there is an important role for civil society organisations on this issue. This is because one of the objectives of CDM projects is not only Carbon abatement but also sustainable development. The latter is not well defined and needs the involvement of civil society groups (including NGOs, researchers and media among others) who will help define the parameters and

also act as effective monitoring agents for these projects. Thus if Bangladesh can learn to play its cards right it can expect to benefit from the emerging carbon market. which is likely to be worth billions of dollars within a few years. The critical decisions will need to be made in the next few months on whether we are up to the challenge or

The writer is the executive director of the Bangladesh Centre for Advanced Studies.

Rising waters threaten to sink South Pacific Islands

Global warming is one of the main causes of rising sea levels that are threatening villages and coastal areas around the world. In the South Pacific, island nations such as Papua New Guinea and the Solomon Islands are preparing for the worst as experts gather in the Netherlands to tackle climate change, Harlyne Joku writes from Port Moresby, Papua New Guinea

T full moon when the spring tide rises, the coastal village of Baolo in the Isabel province of the Solomon Islands starts disap-A pearing into the Pacific Ocean. Its 100 villagers must paddle from shore to their houses, which are raised above the waters on stilts, as the footpaths that lead to them become submerged.

Village chief Nelson Kile says the ocean has risen higher than normal during this spring tide season, which causes problems each month for three to four days.

"It has never happened in a hundred years, but is happening now, Kile said. 'We do not know if this is related to the issue of global warming and climate change.'

The unexpected rise in sea levels has alarmed Baolo's villagers, who now feel they must move to higher ground. The fear is so real that villagers have ended a logging ban on their island so they can get enough timber to build 400 new homes on higher ground which will see 1,200 hectares of forest cut down.

"I've said no to logging before but have agreed to it now due to the sea level threat and the urgent need for my people to be relocated," Kile

Such problems are not unique to this South Pacific island-nation. Rising sea levels threaten 10 million people living in low-lying areas in countries as diverse as Bangladesh, the Maldives, Egypt and China. Sea levels have risen 10 to 25 centimetres in the past 100 years, and

are projected to rise another 50 centimetres by 2100. Global warming which causes polar ice caps to melt is one of the major contributory factors. It has prompted the world's governments to gather in the Netherlands for the sixth Conference of Parties to the Climate Change Convention.

Papua New Guinea scientist Simon Saulei, who is studying climate change in the region, helped prepare a report on the impact of climate

change in his country, which to be submitted to the global conference. He blames rising sea levels not only on global warming but also on

ocean tectonics the natural shifting of the earth's crust. He says the ocean is rising one to five centimetres a year, a pace that is faster than normal and threatens Papua New Guinea.

Saulei says rising sea levels are already affecting Papua New Guinea's coastal areas and atoll villages. Like in the Solomons the situation worsens at spring tide.

"I do not think they will last long," Saulei says, referring to the coral islands. 'The islanders' lives have become vulnerable.'

The ocean is already submerging wharves and flooding coastal communities. Salt water is seeping into drinking wells near the shore. forcing islanders to dig fresh water wells 150 to 200 metres inland or buy drinking water from other islands.

Saulei also says carbon dioxide emissions are contributing to climate change

Papua New Guinea emits 1.6 million tonnes of carbon dioxide, the main 'greenhouse gas' that remains in the atmosphere and, like a greenhouse, traps heat.

"Papua New Guinea's figure comprises a tiny dot compared to 200 million tonnes of carbon dioxide emissions by the US and other industrialised states, yet the effect on the island state and the people is quite significant," he says. "We suffer more than the industrialised coun-

Carbon dioxide accounts for more than 80 per cent of greenhouse gas emissions. Most of this comes from industrialised countries which, although they contain only a quarter of the world's population, in 1990 contributed about three quarters of the world's carbon dioxide emissions and well over half of total global greenhouse gas emissions. Ninety-seven per cent of carbon dioxide emitted by industrialised

countries came from burning coal, oil and gas for energy.

The United Nations Intergovernmental Panel on Climate Change (IPCC) believes that the world needs to reduce its greenhouse gas emissions by at least 60 per cent.

There is a long way to go. In 1997 at the UN Convention on Climate Change in Kyoto, Japan, developed countries agreed to cut greenhouse gas emissions to 5.2 per cent below 1990 levels.

The Samoan-based South Pacific Regional Environmental Programme (SPREP), which co-ordinates environmental management and conservation for the region, agrees that urgent action needs to be

taken by the developed world. "As far as the Pacific is concerned, the sooner countries start making the reductions they have committed to and accept that much stronger reductions will be needed, the better the Pacific's chances of surviving the next millennium," states SPREP.

South Pacific environmental groups have also launched a climate change campaign, with the slogan: 'The future of the Pacific depends on a solution to climate change. It's time for us to take action now."

Local chapters of the World Wide Fund for Nature, Greenpeace and the Pacific Concerns Resources Centre warn that climate change will have dire impacts on the Pacific reefs, its land and its people.

Campaigners have distributed a petition among South Pacific islanders to sign, which calls on industrialised nations to take responsibility for reducing greenhouse gas emissions.

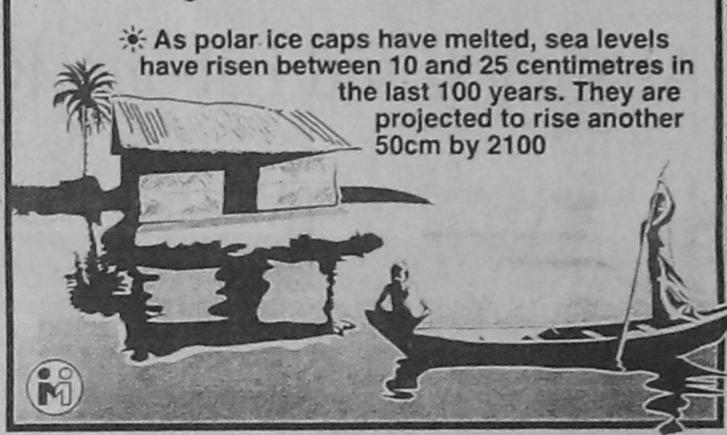
'We urge our leaders to remind the industrialised countries... the US, Japan, Australia and Canada is particular, to consider our small nations, our fragile ecosystems, our small numbers and our future generations," campaigners say. "Just like them, we want to leave a healthy friendly environment for our children.'

But as South Pacific islanders paddle to their stranded homes with

Swelling seas

Rising sea levels threaten 10 million people living in low-lying areas in countries such as Bangladesh, the Maldives, **Egypt and China**

Many of the countries affected are in the developing world, particularly south and southeast Asia. They contain over 30 of the world's largest cities



the real fear that their islands will one day disappear beneath the waves, such changes cannot come fast enough. - Gemini News

The author is a senior reporter with The National.

Treasures of the seas are on the verge of extinction

by Md. Asadullah Khan

HE sea, it has been told, is the wealth of life and without healthy seas, humanity would be doomed. Without its oceans, Earth might be a lot like Mars. The sea shapes the character of this planet, governs weather and climate, stabilises temperature, yields to the atmosphere the moisture that falls back on the land replenishing Earth's freshwater to rivers, lakes, streams - and us. Every breath we take is possible because of the life-filled, life-giving sea. Oxygen is generated there, carbon dioxide absorbed. Both in terms of sheer mass of living things and genetic diversity, that's where the action is. Rainforests and other terrestrial systems are important too, of course, but without the living ocean there would be no life on land. Most of the earth's living space, the biosphere is ocean -about 97 per cent. And not coincidentally, 97 per cent of Earth's water is ocean. The services provided are so fundamental that most of us who live here tend to take them for granted. In the past century, without much thought about the consequences, we have removed billions of tonnes of living creatures from the sea and added to it billions of tons of toxic substances. Fish, whales, shrimp and clams are regarded as commodities not as vital components of living system upon which we are utterly dependent.

When our numbers were small -- about 100 million people 5,000 years ago -- we could do little to harm the ocean's ancient ecosystems. Even by 1800, when our population swelled to one billion, the impact of humankind on the sea was slight. But by mid-1980s, our population ballooned to five billion. And the catch of ocean wildlife peaked in 1989. Since then, despite a greatly expanded global fishing fleet, the annual catch has declined. Living components of ages-old ecosystems in the sea are being consumed by a voracious new sea going predator: us. Under present "freedom of the seas" policies, even species once safe in remote parts of the deep sea are considered fair game although not much is known about how many there are, how they live or what other values they have to mankind.

though it is, goes largely unnoticed. With the exception of the occasional oil-covered shore bird or plastic debris at the tide line, the injuries lie hidden. You can see a forest fire, but you can't see a damaged reef," says Rili Hawari Djohani, an Indonesian marine biologist who is assistant director of the US-based Nature Conservancy.

Visible or not, the damage is there and it is increasing. In many cases it may be beyond control or recovery. The following aspects are worth looking into:

•As much as 10 per cent of the world's coral reefs has been wiped out, largely by pollution and destructive fishing methods. At the present rate of devastation, another 60 per cent will be destroyed in 20 to 40 years. Of the world's 15 major ocean fisheries, 13 are being exploited at a rate that challenges their ability to sustain

declining catches in the coming years. tens of thousands of square kilometres in size, are spreading rapidly from major river estuaries that pour

fish populations. World food experts predict steadily

human wastes and toxins into the sea. Coral destruction may be the most disturbing trend: reefs serve as the indispensable nurseries of sea life,

perilous early stages of existence. Some of the reef damage is caused by pollution, some by dredging for harbours and channels. Part of the reef wreckage is wilful. In many Asian nations, unscrupulous companies encourage poor fishermen to lace reefs with cyanide to stun grouper and rock cod, which are collected and placed in tanks in expensive Chinese restaurants around the world. But the cyanide remains long after the fishermen go away, killing fish and reef alike.

"Blast fishing" causes similar havoc. Reports have it that huge chunks of reef in western New Guinea and off Zambales in the Philippines have been blown apart by dynamite charges used to kill targeted fish -- along with young fingerlings, plankton, larva, eggs and the reef itself. Traditional fishermen say the practice has brought an eerie stillness to waters that once teemed increasing." with sea life. "In the past, flying fish jumped over the prow of fishing boats heading out to sea," says Jun Filoteo, a deep-sea fisherman from Zambales. "Now there is no longer such a spectacle. Aside from the motion of the waves, the sea appears so calm it is almost fish for direct sale as food, hatcheries are used to restore

Scary too is the collapse of fisheries around the world. Even in areas where nothing illegal goes on, fishing technology has become so sophisticated that it is nearly as devastating as dynamite. In 1950 the worldwide fish catch was 20 million tonnes, most of it from small boats using technology unchanged since the age of sail. By the end of the 1980s, the catch had peaked at more than 85 million tons, much of it swept up by factory ships trailing nets the size of Manhattan. Fisheries experts estimate that another 27 million tons of unwanted fish, of the US National Marine Fisheries Service.

Besides being too numerous, the fishermen also became too good. High-tech fish-finding equipment and huge nets made it possible to sweep up in a few days' catches that once took an entire season. Reports have it fishermen. Both fear that the quota rights will end up in that in the Black Sea, 21 to 26 major species have the hands of giant conglomerates, just as family farms become "commercially extinct" too few to bother chas-This human assault upon the sea, devastating ing. Fortunately, commercial depletion does not necessarily mean physical extinction. 'These stocks are very resilient, and they can come back," says Schmitten. "But if we fish them down too low, then they could way of the passenger pigeon, where salmon are grown become subject to natural catastrophes. They could be like chickens. lost." Sudden warming of waters off the south-western US coast in 1993, a result of up-welling El Nino currents from South America, brought up swarms of marauding mackerel that are depleting sea resources.

But worse by far than natural accidents are the insidious manmade disasters of ocean pollution. More than half the world's people live within 100 km of a seashore, and nine of the 10 largest cities sit upon a seacoast. Sewage, sediments, chemicals and fertiliser flow from that mass of humanity and spill into the sea. Waste poisons kill off fish, fowl and marine plants, and waste nutrients give sustenance to mammoth blooms of oxygen-hungry algae that choke other sea life. The amount • "Dead zones," layers of water devoid of oxygen and of waste oil poured down drains in a single year, by some estimates, is 20 times greater than the infamous Exxon Valdez spill off Alaska in 1989. Some of the world's coastal waters have begun to spawn broad dead zones so devoid of oxygen that nothing can live within them. About 90% of the Black Sea is dead, killed by an ages-

providing shelter for breeding and protection during the old natural build-up of deadly hydrogen sulphide and the recent addition of human pollution. New dead zones are appearing elsewhere, mainly off river estuaries rich with human wastes. One of the biggest is spreading from the Mississippi Delta into the northern Gulf of Mexico oil from leaking ships and storage tanks now pour into the sea. The Bay of Bengal near Chittagong to Cox's Bazar to Teknaf has become severely polluted by dumping wastes and oil spill from leaking ships.

For all the havoc humans are creating, the sea may ultimately prove stronger. New studies show that despite their dramatic collapse, major fish stocks show a surprising ability to recover. Says Kenneth Sherman, a research scientist for the US National Marine fisheries Service: 'The species that are depleted are the ones targeted by humans. Others are doing just fine and are

When recovery does not occur, fish farming sometimes fills the void. Japan has become a leader in socalled aquaculture as the wild stocks of its coastal fisheries have become diminished. In addition to raising the wild stocks. In the US, much of the coho salmon is grown in dams on the Columbia River. The Federal Government provides grants to out-of-work fishermen so they can shift to aquaculture. With the advent of fish farming and increasing competition in the shrinking open-seas fisheries, there is a movement to "privatise" the sea. Countries already routinely regulate fishing within 200 miles of their coasts, and proposals for new controls are being suggested every day. Prominent among the initiatives is the notion of creating a market in fishing rights: private individuals could buy and sell called the "by-catch," is thrown back dead into the the right to catch a specified amount of fish in a speciocean. There are too many people going after too few fied area. Private owners, the argument goes, will have fish," says Rolland Schmitten, assistant administrator incentives to preserve the value of their marine real estate.

Such programmes have been tried with some success in Australia and New Zealand, but there is heartfelt opposition from environmentalists and small-scale in mid-America were absorbed by big agribusiness. The result could be oceans as controlled, subdivided, fenced and farmed as the American Midwest -- a place where whales are as rare as bison, where cod have gone the

Carl Safina, founder of the National Audubon Society's Living Oceans Programme who travelled with Canadian writer Nancy Baron to the world's largest laysan albatross colony near North Pacific Ocean, explains her shocking experiences. Ravenous goosesize chicks jamming the landscape almost resembling a poultry farm have waited for more than a week for meal while both parents forage the ocean's vast expanse. The adult even after flying non-stop several thousand miles can bring little food for the chicks. Aggressive with hunger, the whining chick bites its parents' bill. The adult hunches, retching, pumping on fish eggs and several squid. The chick swallows in seconds and begs for more. But this time the surreal sight of a green plastic toothbrush emerging from the bird's gullet comes to notice. Both Nancy and Safina could hardly bear this spectacle.

The world in which albatrosses originated, birds swallowed pieces of floating pumice for the fish eggs stuck to them. Albatrosses transferred this survival strategy to toothbrushes, bottle caps, nylon netting, toys and other floating junk. Where chicks die, a pile of colourful plastic particles that used to be in their stomachs often marks the graves. The albatross's message: consumer culture permeates every watery point on the compass. From sun-bleached coral reefs to icy polar waters, no place, no water remains apart.

If albatross's eating plastics seems surprising, so do many of the oceans' problems. Most people think that oil spills cause the most harm to ocean life. But they don't as much. Fishing does. Fishing boats with huge nets and 1000-hook long-lines wreak far more havoc on the marine world than spilled oil. Over fishing has depleted major population of cod, swordfish, tuna, snapper, grouper and sharks. Even the Bay of Bengal covering Bangladesh and India has not been spared. The coastal areas covering about 480 km in the Bangladesh side has been denuded of fish resources. Survey conducted in 1973 revealed that the stock available in the Bangladesh side of the Bay of Bengal was to the tune of two lakh 73 thousand tonnes. Latest survey done by the United Nations FAO in 1984-85 showed availability of eases and pollution usually limit a farm's life to 10 only one lakh 57 thousand tonnes of fish that include years. The companies then move and start again. about 40 to 50 thousand metric tons of extractable deep sea fish and about seven to eight thousand metric tonnes of shrimps of various categories. Shockingly, instead of sensibly living off nature's interest, many fisheries from within and without have mined this wild capital and this once-famous fishing banks now lie bankrupt. Most notably in the other part of the world, the revered cod grounds of New England and Atlantic Canada have been mostly hurt. So far the farming of shrimp has had the most serious impact on our environ-

Shrimp farming is particularly damaging to the tropical world's mangrove forests, coastal necklaces of dense low-lying trees that nurture marine life, filter water and soften the sea's constant battering of the shoreline. Much of the world's shrimp is raised in ponds gouged out of these thick mangroves. Here, sheltered from the dangers of the open sea, the creatures spend six months living tightly packed-as many as 500,000 per hectare-in artificial ponds, before being scooped up, processed and Europe's North Sea and along New England's Georges exported. It would be fine if growers could use a pond Bank and Australia's Queensland coast, trawlers may over and over again. But the population density eventually fosters diseases that can knock out a shrimp population in a matter of days. Pathogens settle into the muck of shrimp waste and unconsumed fodder, poison-

ing and pond against further use. The need of the hour is enforcement of fishing limits. Experts indicate that this could ultimately enable us to catch at least 10 million tonnes of sea life than we do now. Most ocean pollution does not come from ship as popular perceptions hold. It comes from land. Gravity is the sea's energy. Silt running off dirt roads and clearcut forestland ruins coral reefs and US Salmon rivers. Pesticides and other toxics sprayed into the air and washed into rivers find the ocean as the last destination. It is now learnt that Midways in the North Pacific albatross's have in their tissues as much of the industrial chemicals called PCBs as do great lake bald eagles. The biggest source of coastal pollution are waste from farm animals, fertilisers and human sewage. They can spawn red tides and other harmful algal blooms that rob oxygen from the water, killing sea life. Reports have it that the Mississippi River, whose fine heartland silt once built fertile delta wetland, now builds in the Gulf of

Mexico a spreading dead zone -- almost devoid of marine life. Improving sewage treatment and cleaning up the runoff from farms will be increasingly vital to preserving coastal water-quality. More than a third of the country's mangrove forests -- which act as pollution filters, stop soil erosion and are invaluable marine nurseries have been cleared, threatening different varieties of fish including shellfish, different species of birds and various other animals including the Royal Bengal Tiger.

Fish farming aquaculture -- doesn't take pressure off wild fish. Many farms use large numbers of cheap, wildcaught fish as feed to raise fewer shrimp and fish of more lucrative varieties. And industrial-scale fish-and shrimp-aquaculture operations sometimes damage the coastlines where the facilities are located. As already mentioned these farms can foul the water, destroy mangroves and marshes, drive local fishers out of business and serve as breeding grounds for fish diseases. In places such as Thailand, India and Bangladesh, which grow shrimp mainly for export to richer countries, dis-

To avoid becoming just another environmental headache, aquaculture needs standards. Raising fish species alien to the local habitat should be discouraged. since escapees can drive out native fish or infect them with disease. Penning fish in open waterways is also problematic. Even when the impact on the environment is minimised rows of large fish corrals in natural waterways can be eyesores. Fish farming is best done in indoor, onshore facilities. The fish rarely escape, and the wastewater can be treated before being released. Growing species such as tilapia is ideal, since they don't have to be fed wild fish.

The biologically richest stretches of ocean are more disrupted than the richest places on land. Continents still have roadless wilderness areas where motorised vehicles have never gone. But on the world's continental shelves it is hard to find places where boats dragging nets haven't etched tracks into sea-floor habitats. In scour the bottom four to eight times every year.

Though the oceans' woes can seem overwhelming. solutions are emerging and attitudes are changing. Most people have shed the fantasy that the sea can inexhaustibly provide food, dilute endless pollution and accept unlimited trash. In 1996 the US passed the Sustainable Fisheries Act, which mandates rules against over-fishing, a recognition that protecting sea

life is good business. We should expand our concept of zoning from land to sea. Instead of an ocean free-for-all, we should designate some areas for fishing only with traps and hooks and line, and others as wildlife sanctuaries. In recent years, observations from ships, submersibles, satellites and spacecraft have yielded staggering discoveries: the existence of some [65,000 km of underwater mountain ranges, knowledge of plate tectonics and the grand earth processes that drive the shifting of continents; the presence of the largest concentrations of volcanoes on earth: and the profoundly important links between ocean currents and climate, weather and periodic phases of global warming and cooling.