MAWQATMUTI'KW

OUR CONNECTION

THEY ARE IMPORTANT TO INDIGENOUS PEOPLES. The common moniker “whiskey jack” has nothing to do with the grain-based alcohols, rather, it is an anglicization of the Cree 'Wisakedjak' and similar variations used by an Indigenous nation whose language is of the Algonquian language family. This fact makes the gray jay, Canada’s only bird commonly referred to by its traditional Indigenous name.

Gray jays are neither hunted nor endangered, but they are prime indicators of the health of the boreal and mountain forest ecozones and of climate change ...

Kirk Walker, The Royal Canadian Geographical Society

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Photo Credit: Andrew Wagstaff - Wisakedjak

Companions of Aboriginal hunters and trappers, the gray jay, Canada jay, or whiskey jack (Cree - Wisakedjak) Perisoreus canadensis is a member of the corvid or the crow family. Gray jays are year-round residents of Canada and found in every province and territory. This astonishingly tough little bird makes the most of even the coldest months and is known to nest as early as February hatching eggs and raising chicks through snowstorms and temperatures as cold as -30 ^{0}C.

mawqatmuti'kw

Winter—Spring 2017/8

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Mawqatmuti'kw is also produced to feature articles and information about MAARS work to promote knowledge about aquatic resources, ocean management, communal commercial fisheries, collaborative partnerships and governance.

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GUEST WRITER

BEAUTIFUL IS THE NIGHT SKY

by DONNA MORRIS

The night sky was beautiful last night! Some of the planets could be seen with the naked eye and the stars were brilliant. The moon gave hints of sparkle to the snow covered earth. It reminded me of the first time I saw these celestial sights through a telescope. It took place in a forested area, dark with no lights. It was at a dark sky preserve in Southwest Nova Scotia; a place where the skies and landscapes are protected from light pollution and development. A place where conservation and preservation are the topics of the day, month and year.

Conservation of natural resources and the preservation of cultural non-renewable resources have a lot of people worried. How can we conserve natural resources if we ignore our encroachment of habitat? How can we preserve a cultural non-renewable resource if we are careless about its protection.

I am a "Mi'kmaq Cultural Interpreter" at a park that is active in all the conservation and preservation issues that pertain to that biosphere. Because of my cultural background, the preservation of cultural artifacts and cultural history came easy. I was often told at a young age "if you kill it, make sure you are going to eat it." "If you take something from the earth, replace it with something renewable". This is conservation.

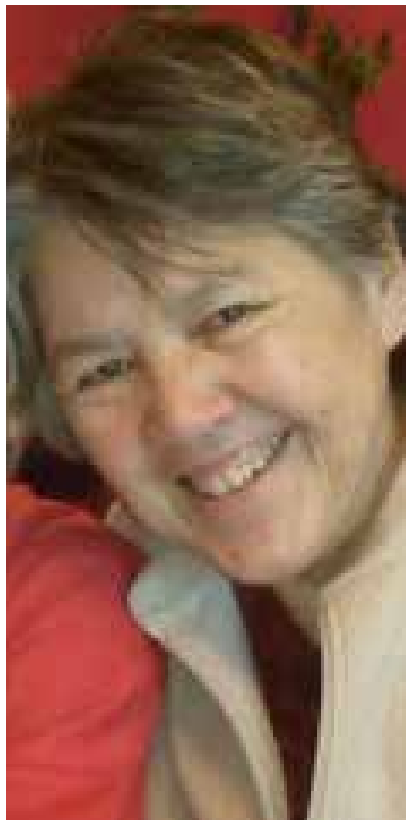
Working at the park was a little overwhelming at first, but then I realized that the cultural landscape of the park which goes far back in time, was my culture - the Mi'kmaw people who had lived here, continue as my people. The history told to audiences was my story. Everything I had been told as a child unfolded before me. It was an easy transition.

CONSERVATION

The forests came alive with the history of the Mi'kmaw people. I looked at the birch stands and thought about wigwams, canoes and cooking vessels. I looked at the forest as my ancestors did thousands of years ago. I knew how and why these trees were still here for us to enjoy, it was a matter of conserving the resource. Taking birch bark from the tree during late spring or early summer from only a few trees in a birch stand was conservation. Being cautious not to cut into the inner layer, the cambium, ensured new growth. Taking a few trees in the stand ensured sustainability. This is what my ancestors practised.

Spruce trees of different sizes and ages are scattered throughout the forest. The roots grow close to the soil surface so they can be pulled out without much effort. The roots of the spruce was gathered, stripped, boiled and split. They were then used to tie poles together, lace together birch utensils and canoe gunwales. It is very tough. Here again, the root was only taken sparsely from one area before moving to the next to ensure the health of the trees.

This is just a speck of cultural information that this landscape holds. Today in the same landscape a variety of conservation activities take place.



Donna Morris is a Mi'kmaw woman, born and raised at the Indian Brook graduated Saint Mary's University with a Bachelors Degree in Anthropology. Donna pursued Atlantic Canada Studies that led to researching Atlantic and Mi'kmaw cultural history. Childhood teachings from her Grandmothers and Elders combined with her academic knowledge became indispensable in decoding the past and insight in to the ever-changing landscape. Unraveling the past through artifacts, legends and history created opportunities in large archaeological projects. As a cultural interpreter at Kejimkujik National Park & National Historic Site, Donna now develops and facilitates programs on history, culture, preservation, conservation and climate change. She's worked on films such as Journey into the Night Sky within the UNESCO Southwest Nova Biosphere at Kejimkujik, Land and Sea, and Far and Wide.

Plants and animals are threatened by climate change, by the encroachment of other species and by development. Some species die but some are lucky enough to survive due to human intervention.

THE BLANDING'S TURTLE AND THE AMERICAN EEL

Despite recent discoveries of nests, protection, and a head start program Blanding Turtles remain an endangered species.

Should human intervention prolong the life of a species at risk at the expense of losing another? Advantages and disadvantages of protecting a species should be looked at carefully before making conservation decisions.

By saving the Blanding's Turtle, was there any consideration given to the surroundings for the turtle as a food source for other species? This question is not meant in any way to demean the conservationists who put in long arduous hours to prolong the existence of the Blanding Turtle, but the Snapping Turtle and Painted Turtle could also be facing a similar threat of extinction.

By protecting the nests of the Blanding's Turtle, other turtles became food for raccoons, foxes and birds of prey. The Snapping Turtle is now designated as a species of 'special concern', and if you happen to walk the shores and roadsides where they nest, you will only find the scattered egg shells left behind by animals. Personally, I think saving something at the risk of losing another should be considered before proceeding with heroic activities. Should we let nature take its course? Nature always replaces things with those better adapted to their surroundings.

Another species that seems to come under the watchful eye of conservationists is the American Eel. The eel was once an abundant species. However in 2012 the American Eel was designated 'threatened' in Nova Scotia.

Culturally, the eel (katew) holds a value that goes beyond sustenance. The American Eel travels across the ocean to the Sargasso Sea to spawn, and then the offspring travel back to the fresh waters to live for several decades before maturing and returning to spawn.

The American Eel is available for consumption in all stages of its long life. Eel is high in nutrients and minerals and can be eaten year round. Its skin has a number of uses from medicinal to utilitarian. It is an honour to present an eel to the elder of a Mi'kmaw community. Because of restrictions and obstacles that threaten the eels existence, the cultural practise has been diminishing. Conservation of the American Eel through restrictions on harvesting it in some areas threatens the preservation of an important cultural practise of giving eel to an elder.

The Blanding's turtle, Kejimkujik's rarest turtle, is a medium sized turtle with a distinctive dome shaped shell covered with yellow flecks and a bright yellow chin and neck. There are currently three small recognized populations of Blanding's turtles in Nova Scotia, including one in Kejimkujik.

Can we save the American Eel and the Blanding's Turtle without putting another species in jeopardy? *Can we preserve a cultural practise at the expense of losing the resource that make it so.* Can we clean our waters so the species will rebound? Can we clean the air of pollutants so our rains would not be acidic? Can we rid the waters of dams, dredging and fishing vessels which drag the ocean floor? Can we stop development of pipelines cutting through our earth and waters?

These questions are not meant to stop conservation practises, rather to bring more attention toward safer and sustainable survival methods without putting other species at risk. Saving one species means another may be deprived of its life.

There will always be people for and against the conservation of a species. Those who want to save a species from extinction should

Petroglyph depicting legend of Culloo, a winged monster and a Mi'kmaq hunter at Kejimkujik National Park.

think about the habitat where it thrives and what does not live there. Not all conservation efforts are to be frowned upon. Efforts to save forests from clear cutting would be a grand gesture. We cannot live without oxygen and the trees supply an abundance of it. What about saving our earth from 'fracking fluids poison' leaked into our water systems? We cannot live without water. Saving our species without saving the earth becomes a losing battle.

PRESERVATION

Conservation and preservation go hand in hand. Conservation is geared toward protection of natural resources such as flora, fauna, water and the land that is needed for sustainability. Preservation is preserving something that is non-renewable, such as cultural objects, landscapes, and history.

Most people lump cultural artifacts and cultural history together as being the whole culture of a specific group. When taking a cultural program or exhibition some believe they are taking part in a cultural event. It is not a cultural event or learning a culture, it is just a talk about cultural objects or items used by a specific cultural group. A teaching session. Culture is a way of life, the mores, beliefs, language, traditions, customs and world view. Culture cannot be explained thoroughly, one must live it, feel it and sense it.

Cultural items on the other hand can be a lot of things, landscape, transportation routes, utilitarian objects, hunting tools, and many more things. Stone tools, axes, adze and blades unearthed by archaeologists and researchers reveal a rich life of ancient inhabitants. Stories and legends hold a massive supply of information about the changing landscapes, animals, night sky, history, genealogy and social life. This is worth preserving.

Cultural items left behind do not necessarily have to be unearthed or revealed through legends. Some cultural resources are etched on stones that mark the shores of rivers and lakes. In Southwest Nova Scotia there are cultural resources called petroglyphs (glyphs). These are images carved on the slate outcrops that surround waters. Although only those who carved these images are the ones who can truly interpret them, some people still try to understand and explain there meanings.

To attempt to understand and learn the meaning of the petroglyphs, the knowledge of the surrounding, the history and culture of the area is an asset. These gifts from the past are a non-renewable cultural resource that needs to be preserved. Preservation methods in the case of the petroglyphs is done through the sharing of knowledge about

Night sky taken from the Eel Weir bridge at Kejimkujik National Park looking toward Georges Lake. Credit: Donna Morris

Mi'kmaq people who once lived here. Protection methods include more than history. Daily patrols of the shorelines and forests are done by Mi'kmaw staff. They ensure protection of the glyphs by removing illegal wanderers who may ignore or bypass 'no trespassing' signs and inform them of the daily programs pertaining to the cultural landscape.

Preservation of our cultural history, cultural objects and our cultural landscape provide us insight into the past so we can protect our future.

We must take the initiative to preserve and conserve without losing land, water and species.

We must preserve the 'dark night sky' so we can view celestial activities that we often take for granted by eliminating man-made pollution. Let us look at the night sky and experience the meteorite showers, the waxing and waning phases of the moon, the many planets that shine brightly in our sky, the sparkling stars, the crescent moon, and the constellations so vividly pressed against a backdrop of the 'dark night sky.' We must preserve this if only for a short time, and keep in mind that the earth is ever changing with celestial sky's with or without human intervention.

Wetlands:
Our natural safeguard against disasters

Every year on February 2nd the Maritime Aboriginal Peoples Council (MAPC) and the Maritime Aboriginal Aquatic Resources Secretariate (MAARS) with IKANAWTIKET Environmental Incorporated (IKANAWTIKET) collaborate their participation in World Wetlands Day February 2nd. The date marks the anniversary of the final draft agreement to the Convention on Wetlands reached in Ramsar, Iran – which is why the Convention is sometimes referred to as the Ramsar Convention.

World Wetlands Day
2 February 2017
Wetlands for Disaster Risk Reduction

Ramsar
Convention on Wetlands

ARABLE LANDS LOST

33,000 HECTARES A DAY!

By Baher Kamal - ROME, Aug 16 2016 (IPS) - Humankind is a witness every single day to a new, unprecedented challenge. One of them is the very fact that the world's arable lands are being lost at 30 to 35 times the historical rate. Each year, 12 million hectares are lost. That means 33,000 hectares a day!

Moreover, scientists have estimated that the fraction of land surface area experiencing drought conditions has grown from 10-15 per cent in the early 1970s to more than 30 per cent by early 2000, and these figures are expected to increase in the foreseeable future.

While drought is happening everywhere, Africa appears as the most impacted continent by its effects. According to the Bonn-based United Nations Convention to Combat Desertification (UNCCD), two-thirds of African lands are now either desert or dry-lands.

The challenge is enormous for this second largest continent on Earth, which is home to 1.2 billion inhabitants in 54 countries and which has been the most impacted region by the 2015/2016-weather event known as El-Niño.

IPS interviewed Daniel Tsegai, Programme Officer at UNCCD, which has co-organised with the Namibian government the Africa Drought Conference on August 15-19 in Windhoek.

Programme Officer at the United Nations Convention to Combat Desertification, Dr Daniel Tsegai.

Drought crisis will worsen if spring rains fail as predicted across the South of Africa.

"Globally, drought is becoming more severe, more frequent, increasing in duration and spatial extent and its impact is increasing, including massive human displacement and migration. The current drought is an evidence. African countries are severely affected," Tsegai clarifies.

The African Drought Conference focus has been put on the so-called "drought resilience."

IPS asks Tsegai what is this all about? "Drought resilience is simply defined as the capacity of a country to survive consecutive droughts and be able to recover to pre-drought conditions," he explains.

"To begin with there are four aspects of Drought: Meteorological (weather), Hydrological (surface water), Agricultural (farming) and socioeconomic (effects on humans) droughts."

The Five Big "Lacks"

Asked for the major challenges ahead when it comes to working on drought resilience in Africa, Tsegai tells IPS that these are mainly:

1. Lack of adequate data base such as weather, water resources (ground and surface water), soil moisture as well as past drought incidences and impacts;
2. Poor coordination among various relevant sectors and stakeholders in a country and between countries in a region;
3. Low level of capacity to implement drought risk mitigation measures (especially at local level);
4. Insufficient political will to implement national drought policies, and
5. Economics of drought preparedness is not well investigated; achieving a better understanding of the economic benefits of preparing for drought before drought strikes is beneficial.

As for the objectives of the UNCCD, Tsegai explains that they are to seek to improve land productivity, to restore (or preserve) land, to establish more efficient water usage and improve the living conditions of those populations affected by drought and desertification.

According to Tsegai, some of the strategies that can be adopted to build drought resilience

include:

First: a paradigm shift in the way we deal with drought. We will need to change the way we think about drought.

"Drought is not any longer a one time off event or even a 'crisis'. It is going to be more frequent, severe and longer duration. It is a constant 'risk', he tells IPS.

"Thus, we need to move away from being reactive to proactive; from crisis management approach to risk management; from a piecemeal approach to a more coordinated/ integrated approach. Treating drought as a crisis means dealing with the symptoms of drought and not the root causes," Tsegai explains.

"In short, developing national drought based on the principles of risk reduction is the way forward."

Second: strengthening drought monitoring and early warning systems (both for drought and the impacts);

Third: assessing vulnerability of drought in the country (drought risk profiling on whom is likely to be affected, why? Which region and what will be the impacts?);

Fourth: Carrying out practical drought risk mitigation measures including the development of sustainable irrigation schemes for crops and livestock, monitoring and measuring water supply and uses, boosting the recycling and reuse of water and waste-water, exploring the potential of growing more drought tolerant crops and expanding crop insurance.

The Five Big Options

Asked; "what is expected outcome of the African Drought Conference?" Tsegai answers:

1. To come up with a Common Strategy document at Africa level, a strategy that strengthens African drought preparedness that can be implemented and further shared at country level.
2. To lead to the development of integrated national drought policies aimed at building more drought resilient societies based on the sustainable use and management of natural resources (land / soil, forest, biodiversity, water, energy, etc.).
3. Countries are expected to come up with binding Drought Protocol- to adopt Windhoek Declaration for African countries-, which would be presented at the African Ministerial Conference on the Environment next year and expected to be endorsed at the African Union summit.
4. With this in mind, the outcomes of the conference will be brought to the attention of the African Union for the collective African heads of states and governments' endorsements, and
5. It is further expected that the conference will strengthen partnerships and cooperation (South-South) to support the development of new and the improvement of existing national policies and strategies on drought management.

Droughts, The "Costliest" Disasters

It has been estimated that droughts are the world's costliest natural disasters and affect more people than any other form of natural disaster, Tsegai tells IPS.

"Droughts are considered to be the most far-reaching of all natural disasters, causing short and long-term economic and ecological losses as well as significant spiralling secondary and tertiary impacts."

To reduce societal vulnerability to droughts, a paradigm shift in drought management approaches is required to overcome the prevailing structures of reactive, post-hazard management and move towards proactive, risk based approaches of disaster management, he stresses.

"Risk based drought management is, however, multifaceted and requires the involvement of a variety of stakeholders, and, from a drought management policy perspective, capacities in diverse ministries and national institutions are needed."

Drought affecting 14 million people in Southern Africa Picture: Gallo Images

Story Credit: by Baher Kamal, August 2016, Inter Press Service News Agency. ipsnews.net

ENCOURAGING SOLUTIONS TO PLASTIC POLLUTION AND PREVENTING MARINE LITTER FOR A HEALTHIER OCEAN AND A BETTER FUTURE

SHIPS BRING YOUR COFFEE, SNACK, PESTS & DISEASES

by BAHER KAMAL

ROME, Aug 23 2016 (IPS) - "Every evening, millions of people all over the world will settle into their armchairs to watch some TV after a hard day at work. Many will have a snack or something to drink…

… That TV probably arrived in a containership; the grain that made the bread in that sandwich came in a bulk carrier; the coffee probably came by sea, too. Even the electricity powering the TV set and lighting up the room was probably generated using fuel that came in a giant oil tanker."

This is what the International Maritime Organisation (IMO) wants everybody to keep in mind ahead of this year's World Maritime Day. "The truth is, shipping affects us all… No matter where you may be in the world, if you look around you, you are almost certain to see something that either has been or will be transported by sea, whether in the form of raw materials, components or the finished article."

Yet few people have any idea just how much they rely on shipping. For the vast majority, shipping is out of sight and out of mind, IMO comments. "This is a story that needs to be told… And this is why the theme that has been chosen for the World Maritime Day 2016 is "Shipping: indispensable to the world." The Day is marked every year on 29 September.

OVER 80 PER CENT OF GLOBAL TRADE CARRIED BY SEA

Some $1.1 trillion worth of agricultural products are traded internationally each year. Photo: FAO

Meanwhile, another UN organisation–the United Nations Conference on Trade and Development (UNCTAD), informs that around 80 per cent of global trade by volume and over 70 per cent of global trade by value are carried by sea and are handled by ports worldwide.

These shares are even higher in the case of most developing countries, says UNCTAD.

"There are more than 50,000 merchant ships trading internationally, transporting every kind

Containers pile up in the Italian port of Salerno.

Some $1.1 trillion worth of agricultural products are traded internationally each year.

of cargo. The world fleet is registered in over 150 nations and manned by more than a million seafarers of virtually every nationality."

A FLOATING THREAT

All this is fine but as another major United Nations organisation also reminds that not all is great about sea-born trade.

Sea Containers Spread Pests and Diseases' is the title of an information note issued on August 17 by the Rome-based Food and Agriculture Organisation of the United Nations (FAO).

FAO highlights that while oil spills garner much public attention and anguish, the so-called "biological spills" represent a greater long-term threat and do not have the same high public profile, and gives some good examples.

"It was an exotic fungus that wiped out billions of American chestnut trees in the early 20th century, dramatically altering the landscape and ecosystem, while today the emerald ash borer – another pest that hitch-hiked along global trade routes to new habitats – threatens to do the same with a valuable tree long used by humans to make tool handles, guitars and office furniture."

FAO explains that perhaps the biggest "biological spill" of all was when a fungus-like eukaryotic microorganism called *Phytophthora infestans* – the name of the genus comes from Greek for "plant destroyer" – sailed from the Americas to Belgium. Within months it arrived in Ireland, triggering a potato blight that led to famine, death and mass migration.

"The list goes on and on. A relative of the toxic cane toad that has run rampant in Australia recently disembarked from a container carrying freight to Madagascar, a biodiversity hotspot, and the ability of females to lay up to 40,000 eggs a year make it a catastrophic threat for local lemurs and birds, while also threatening the habitat of a host of animals and plants."

FAO informs the public, municipal authorities are ramping up their annual campaign against the tiger mosquito, an invasive species that arrived by ship in Albania in the 1970s. *Aedes albopictus*, famous for its aggressive biting, is now prolific across Italy and global warming will make swathes of northern Europe ripe for colonisation.

"This is why the nations of the world came together some six decades ago to establish the International Plant Protection Convention (IPPC) as a means to help stem the spread of plant pests and diseases across borders boundaries via international trade and to protect farmers, foresters, biodiversity, the environment, and consumers."

"The crop losses and control costs triggered by exotic pests amount to a hefty tax on food, fibre and forage production," says Craig Fedchock, coordinator of the FAO-based IPPC Secretariat. "All told, fruit flies, beetles, fungi and their kin reduce global crop yields by between 20 and 40 per cent."

TRADE AS A VECTOR, CONTAINERS AS A VEHICLE

Invasive species arrive in new habitats through various channels but shipping is the main one FAO reports.

"And shipping today means sea containers: Globally, around 527 million sea container trips are made each year – China alone deals with over 133 million sea containers annually. It is not only their cargo, but the steel contraptions themselves, that can serve as vectors for the spread of exotic species capable of wreaking ecological and agricultural havoc."

For example, an analysis of 116,701 empty sea containers arriving in New Zealand over the past five years showed that one in 10 was contaminated on the outside, twice the rate of interior contamination.

"Unwelcome pests included the gypsy moth, the Giant African snail, Argentine ants and the brown marmorated stink bug, each of which threaten crops, forests and urban environments. Soil residues, meanwhile, can contain the seeds of invasive plants, nematodes and plant pathogens," FAO informs.

"Inspection records from the United States, Australia, China

Stacked up shipping containers.

and New Zealand indicate that thousands of organisms from a wide range of taxa are being moved unintentionally with sea containers," the study's lead scientist, Eckehard Brockerhoff of the New Zealand Forest Research Institute, told a recent meeting at FAO of the Commission on Phytosanitary Measures (CPM), IPPC's governing body.

These phytosanitary (the health of plants) measures are intended to ensure that imported plants are free of specified pests.

Here, FAO warns that damage exceeds well beyond agriculture and human health issues. Invasive species can cause clogged waterways and power plant shutdowns.

Biological invasions inflict damages amounting to around five per cent of annual global economic activity, equivalent to about a decade's worth of natural disasters, according to one study, Brockerhoff said, adding that factoring in harder-to-measure impacts may double that.

Around 90 per cent of world trade is carried by sea today, with vast panoply of differing logistics, making agreement on an inspection method elusive. Some 12 million containers entered the U.S. last year, using no fewer than 77 ports of entry.

"Moreover, many cargoes quickly move inland to enter just-in-time supply chains. That's how the dreaded brown marmorated stink bug – which chews quickly through high-value fruit and crops – began its European tour a few years ago in Zurich."

This animal actively prefers steel nooks and crannies for long-distance travel, and once established likes to set up winter hibernation niches inside people's houses.

Story Credit: by Baher Kamal, August 2016, Inter Press Service News Agency. ipsnews.net

TOXIC AIR

INVISIBLE KILLER STIFFLES 300 Million Children

by BAHER KAMAL

ROME, November 1, 2016 (IPS) - About 300 million children in the world are living in areas with outdoor air so toxic – six or more times higher than international pollution guidelines – that it can cause serious health damage, including harming their brain development.

This shocking finding has just been revealed by the United Nations Children's Fund (UNICEF), in a new report — 'Clear the air for children'. "Pollutants don't only harm children's developing lungs – they can actually cross the blood-brain barrier and permanently damage their developing brains – and, thus, their futures," UNICEF's executive director Anthony Lake on October 31 said while announcing the report.

"Air pollution is a major contributing factor in the deaths of around 600,000 children under five every year – and it threatens the lives and futures of millions more every day," he added. "No society can afford to ignore air pollution."

These findings came a week ahead of the 22nd Conference of the Parties (COP 22) to the UN Framework Convention on Climate Change (UNFCCC) in Marrakesh, Morocco, where UNICEF is calling on world leaders to take urgent action to cut air pollution in their countries.

"Nine in ten people breathe air that is not safe. Air pollution is an invisible killer that we may face on a simple walk home or even in our homes – WHO"

Using satellite imagery, the report further shows that around two billion children live in areas where outdoor air pollution, caused by factors such as vehicle emissions, heavy use of fossil fuels, dust and burning of waste, exceeds minimum air quality guidelines

On 24 October 2016 in Yenagoa, Bayelsa State, Nigeria, children pass in front of a flame fed by waste and rubber materials in order to make Kanda, a type of smoked meat, at an abattoir. Photo: UNICEF/Tanya Bindra

set by the World Health Organization (WHO).

South Asia has the largest number of children living in these areas, at 620 million, with Africa following with 520 million children, and the East Asia and Pacific region with 450 million children living in areas that exceed guideline limits.

Children Breathe Faster, Take in More Air than Adults

UNICEF further stressed that children are more susceptible than adults to both indoor and outdoor air pollution as their lungs, brains and immune systems are still developing and their respiratory tracks are more permeable.

It added that young children also breathe faster than adults, and take in more air relative to their body weight.

In particular, the most disadvantaged, who already tend to have poorer health and inadequate access to health services, are the most vulnerable to the illnesses caused by polluted air.

The UNICEF report also examines the impact of indoor pollution, commonly caused by the use of fuels like coal and wood for cooking and

heating, which mostly affects children in low-income, rural areas.

"Together, outdoor and indoor air pollution are directly linked to pneumonia and other respiratory diseases that account for almost one in 10 under-five deaths, making air pollution one of the leading dangers to children's health."

UNICEF further added that it is asking world leaders attending COP 22 to take four urgent steps in their countries to protect children from air pollution, these include: reducing pollution to meet WHO global air quality guidelines; increasing children's access to health care; minimizing children's exposure to sources of pollution such as locating sources of pollution such as placing factories away from schools and playgrounds as well as the use of cleaner cook stoves and monitoring air pollution.

For its part, the United Nations World Health Organization (WHO) in partnership with the Coalition for Climate and Clean Air (CCAC) and the Government of Norway on October 20 launched a global awareness campaign on the dangers of air pollution – especially 'invisible killers' such as black carbon, ground-level ozone and methane – for the health of individuals and the planet.

Air Pollution Kills Seven Million People a Year

The campaign,'BreatheLife, Clean air, a healthy future' aims to mobilise cities and their inhabitants on issues of health and protecting the planet from the effects of air pollution. 'BreatheLife' brings together expertise and partners that can tackle both the climate and health impacts of air pollution.

According to WHO, air pollution kills nearly seven million people each year, nearly 12 per cent of deaths worldwide. And it is responsible for 35 per cent of deaths due to lung disease, 27 per cent of deaths from heart disease, 34 per cent of deaths from stroke, and 36 per cent of deaths from lung cancer.

"Urban air pollution levels also tend to be higher in many low and middle-income cities and in poor neighbourhoods of high-income cities. This means reductions in pollutants can have particularly large health benefits for lower income groups as well as for children, elderly, and women."

The campaign seeks to cut in half the number of deaths from air pollution by 2030 – the target year for the achievement of the UN Sustainable Development Goals (SDGs), adopted by the UN General Assembly in September 2015.

'Breathe Life' highlights the practical policies that cities can implement to improve the air quality through better housing, transport infrastructure, managements of waste and energy systems.

It also educates individuals and communities about the measures they can take daily to achieve cleaner air, such as stopping the incineration of waste, development of green spaces and the choice of walking or cycling.

"Improved vehicle standards, prioritization of clean public transport, and the adoption of stoves and more efficient alternative fuel for cooking, lighting and heating are also part of the actions put forward by the campaign the goal of saving more lives and protect the environment."

For WHO and its partners, this series of measures to achieve a reduction of pollutants could significantly reduce the number of annual deaths from air pollution.

Story Credit: by Baher Kamal, November 2016, Inter Press Service News Agency. ipsnews.net

ENCOURAGING SOLUTIONS TO PLASTIC POLLUTION AND PREVENTING MARINE LITTER FOR A HEALTHIER OCEAN AND A BETTER FUTURE

HAPPY WORLD OCEAN DAY

JUNE 8 2017

World Oceans Day

worldoceansday.org

RELOCATING DUE TO CLIMATE CHANGE

by H. ALEXANDER

New York - 18 August 2016. A tiny Alaskan village has voted to abandon their ancestral home to the rising seas, becoming possibly the first settlement in the United States forced to relocate due to climate change.

Shishmaref's 650 residents voted 89-78 in favour of a long-discussed proposal to move the entire village, to an as-yet-undecided new location, according to an unofficial count by the city clerk.

In March a Native American community in Louisiana announced that it too, was relocating - thus the Alaska village and the residents of the Isle de Jean Charles are vying to be the first to move.

The remote Alaskan village, on a mile-wide island 600 miles from Alaska's biggest city Anchorage, is described as being on the frontline of the climate change battle.

Home for generations of seal hunters and fishermen, the island has lost 3,000 feet of coastline in the past 35 years. Rising temperatures have shrunk the sea ice, which buffered Shishmaref from storm surges. At the same time, the permafrost that the village is built on has begun to melt, with the shore receding at an average rate of up to 10 feet a year.

Warmer waters allow more commercial ships to pass, polluting the seas and disturbing their fragile ecosystem. Thinner ice has led to a surge in fatalities among the hunters, who plunge to their deaths through the cracks.

"To put this in perspective: I was born in 1997, and since then, Shishmaref has lost about 100 feet," said Esau Sinnok, 19, who last month was invited to the White House and commended for his activism.

"In the past 15 years, we had to move 13 houses – including my dear grandma Edna's house – from one end of the island to the other because of this loss of land.

"Within the next two decades, the whole island will erode away completely."

Mr Sinnok said that some of the residents were worried about moving away from the island they

Credit: Alamy - Shishmaref in the winter, when temperatures fall to 26 degrees Celcius below zero. Insert: Credit: Andrew Burton/Getty - The village of Shishmaref, Alaska, which sits upon the Chukchi sea.

have lived on for generations, and fear the break-up of their community.

"All 650 people there are my family. And not being able to see them every day like I'm used to - if I had to move to the city I'd be heartbroken and sad not seeing all of their faces."

But he said everyone was confronted with the reality of their situation every day.

"I lost a loved one," he told Alaskan radio. "He fell through the ice when him and my dad and a few others went out to the mainland on their snowmachines on the ice to go duck hunting.

"He thought that the ice would be frozen like in previous years, but for some reason it wasn't frozen all the way so he fell through and lost his life."

Campaigners have been lobbying for solutions for many years. In January 2014 five villagers went to Washington DC to urge politicians to assist – bearing pineapple-sized chunks of ice, which melted as they presented them to Congress.

Debra Hersrud, a student, told panelists that in 2004 her family was forced to evacuate their home because stormy swells ripped away the earth, leaving the back of the house dangling over an ocean cliff.

"It was scary. We had to immediately move all of our things out of the house and we went to go stay with my grandparents," she said.

The challenges have made it difficult to retain quality teachers and to receive support for things such as school improvements, because organisations are reluctant to spend money in a community with a short shelf life.

The cost of relocating Shishmaref is estimated at around $180 million.

Shishmaref residents have been told that no federal money is available to help them move, so residents were angered when, at the end of 2013, John Kerry announced that Vietnam will get $17 million from America to deal with climate change there.

"I ask that you put America first, especially the Alaskans who deal with this reality on a daily basis," said Lisa Murkowski, in a 2014 letter to President Barack Obama.

"As the United States prepares to assume the Chairmanship of the Arctic Council, it is essential we are prepared to address adaption issues in our own Arctic communities."

Story Credit: by Harriet Alexander, August 2016, The Telegraph News. http://www.telegraph.co.uk/news/2016/08/17/alaskan-village-votes-on-relocating-due-to-climate-change/

THREATENED

AFRICA'S INDIGENOUS PEOPLES IN DANGER

by BAHER KAMAL

ROME, May 3 2017 (IPS) - The cultures and very survival of indigenous peoples in Africa are seriously threatened. They are ignored, neglected and fall victims to land grabbing and land dispossession caused by extractive industries, agribusiness and other forms of business operations.

These are some of the key findings of a major report "The Indigenous World 2017," on the state of indigenous peoples worldwide, issued on the occasion of the tenth anniversary of the United Nations Declaration on the Rights of Indigenous Peoples.

The report, launched on 25 April by the International Working Group for Indigenous Affairs (IWGI) during the UN Permanent Forum on Indigenous Issues meeting (24 April—5 May), emphasises that in spite of progress, there are still major challenges facing indigenous peoples in Africa.

Africa is home to an estimated 50 million indigenous peoples, that's around 13 per cent of the total of 370 million indigenous peoples worldwide. They live in all regions of Africa, with large concentrations in North Africa where the Amazigh people live. In West Africa, there are large pastoralist populations in countries like Niger, Mali, Burkina Faso, Cameroon etc.

There are also large concentrations of indigenous peoples in East Africa with big pastoralist populations in countries like Ethiopia, Kenya, Uganda and Tanzania. Hunter-gatherers are found in many countries in central and Southern Africa, though they are smaller in numbers than the pastoralist groups.

In several African states, explains IWGIA, "indigenous peoples are yet to be recognised as such." Arguments of all Africans being indigenous or that the concept "indigenous peoples" is divisive and unconstitutional are persistently expressed in political statements and continue to shape policies of a number of African countries.

Large-scale dispossessions of indigenous peoples' lands remain a significant challenge in several African states, says the report, adding that the global drive for raw materials, agro-business and building major infrastructure projects are pushing indigenous peoples to their last boundaries.

A recent African Commission's report on extractive industries and indigenous peoples reveals the negative impact several mining, agro business and logging projects are having on indigenous peoples' land rights and access to natural resources, according to IWGIA.

In several cases, tensions with indigenous peoples have led to open conflicts, including loss of lives. In this regard, the African Commission has sent urgent appeals to a number of African governments on serious human rights violations affecting indigenous peoples.

Forced evictions and other forms of serious human rights violations make indigenous peoples in Africa to be "marginalised economically and politically and participate to a very limited extent in decision-making processes".

"They have very limited possibilities of voicing their perspectives and priorities or influencing their own futures." The issue of extractive industries is once again a recurrent and overarching theme in the Indigenous world. Numerous examples show that both states and industries are repeatedly ignoring the key principle of Free, Prior and Informed Consent.

Mega infrastructure projects, investments in extractive industries and large-scale agriculture are increasingly posing a threat to the everyday life of indigenous peoples and their ability to maintain their land, livelihood and culture.

At the same time, Wiben Jensen added, indigenous peoples in Africa have proven to be very resilient, and despite the many problems they face and the lack of support they receive from their governments, they are still there and manage to survive in often very harsh environments based on their unique indigenous knowledge of nature and the natural resources.

"All this is happening amidst an alarming rate of violence and discrimination against indigenous peoples and human rights defenders around the world."

VIOLENCE AGAINST INDIGENOUS WOMEN, GIRLS

Warnings that violence against indigenous women and girls continues in several African communities including the harmful cultural practices of Female Genital Mutilation, early or forced marriage and inaccessibility to standards on reproductive rights.

Overall, one could put African states into three categories as far as the protection of indigenous peoples' rights is concerned.

First, some African states have fully endorsed the concept of "indigenous peoples in Africa" and have moved to adopt legal or policy frameworks aimed at addressing community human rights. "These states are still small in number but their potential impact is immense."

Second, some African states recognise and are willing to redress the historical injustices and marginalisation suffered by certain sections of their national populations that self-identify as indigenous peoples, "but remain uncomfortable with the term "indigenous peoples" and therefore prefer using alternative concepts in their laws or policies."

Third, there are African states that continue to contest the existence of indigenous peoples in the continent or the relevance of the concept in Africa. There are numerous reasons for this denial, including a misunderstanding of what the concept "indigenous peoples in Africa" means

THE FORGOTTEN PEOPLES, REPORT

The 30th report 'The Forgotten Peoples' IWGiA's provides an update of the current situation for indigenous peoples worldwide and a comprehensive overview of the main global trends and developments affecting indigenous peoples during 2016.

It also highlights that despite some encouraging national achievements, the country reports in this year's edition continue to illustrate the great pressures facing indigenous communities at the local level.

Over 70 experts, indigenous activists and scholars have contributed to the Indigenous World 2017.

CLIMATE CHANGE

MAY ERADICATE DAILY LATTE

by EMMA MILLS

The Telegraph, UK, 1 September 2016 - Coffee could become extinct by 2080 if global warming continues to worsen, according to a report by The Climate Institute.

It's expected that half of the world's coffee farming land will no longer be suitable for plantation by 2050 due to increasing temperatures, fungi and pests. It's also predicted that wild coffee varieties such as Arabica could become extinct within the next 70 years unless climate change is tackled.

The decline in production will not only affect coffee lovers worldwide but also affect the livelihoods of around 120 million people in more than 70 countries that depend on the industry.

Consumers are also likely to see impact on flavour, aroma and prices, as coffee becomes more scarce.

It's not just rising temperature that's affecting crops; climate change has paved the way for fungi such as coffee leaf rust to attack crops. In 2012, Central America was hit by a wave of the fungus which caused a drop in production of around 2.7 million bags, affected 350,000 jobs and cost $500 million (£377 million).

The fungus is still spreading and was recently reported in mountainous areas of Columbia where it was previously too cool for it to survive.

A pest known as the coffee berry borer which is usually found in plantations below 1,500 metres above sea level has also spread upwards harming previously safe plantations. On Mount Kilimanjaro, the borer is now found nearly 300 metres higher than it was last century.

A warming of just one or two degrees could see this insect's population explode and have a devastating effect on agriculture.

Jim Hanna, sustainability director for Starbucks said: ""What we are really seeing as a company as we look 10, 20, 30 years down the road - if

ACCORDING TO BUDDY LOANS

IN NUMBERS	COFFEE
140 million	Number of 60kg bags of coffee that were produced in 2014/15
9 million	Bags exported in July alone
21,000	Predicted number of coffee shops in the UK by 2020
811	Passenger vehicles needed to make the equivalent carbon emissions to a paper coffee cup
7**0 million**	Cups of coffee consumed in the UK every year

Global warming has left coffee plants oreuceptible to fungi and pests. Credit: Alamy

conditions continue as they are - is a potentially significant risk to our supply chain. If we sit by and wait until the impacts of climate change are so severe that is impacting our supply chain then that puts us at a greater risk."

Mario Cerutti, Green Coffee & Corporate Relations Partner at Lavazza, said: "We have a cloud hovering over our head. It's dramatically serious. Climate change can have a significant adverse effect in the short term. It's no longer about the future; it's the present."

In the next few decades there is likely to be a dramatic shift in coffee production, farmers may move away from the equator and head further up mountains where they could clash with other landowners or affect forests.

The global coffee supply is at risk and some varieties could become extinct by 2080.
Credit: Alamy

Story Credit: by Emma Mills, September 2016, The Telegraph. http://www.telegraph.co.uk/food-and-drink/news/coffee-will-be-extinct-by-2080-climate-change-could-spell-an-end/

NEW WHALE DISCOVERED

by AKSHAT RATHI

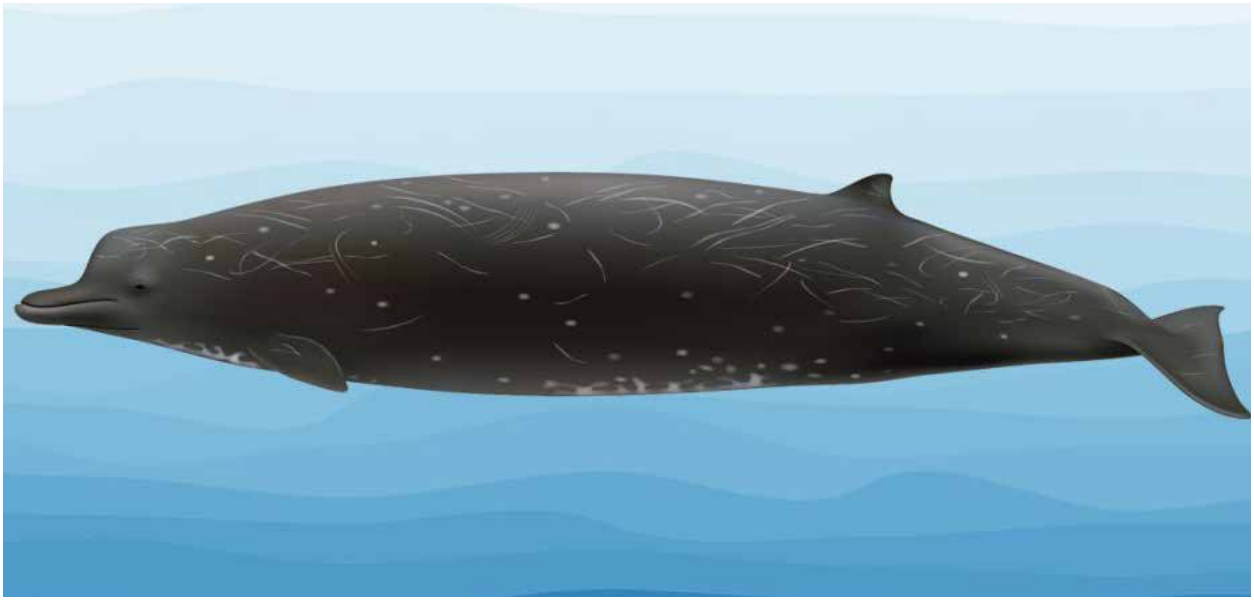
Quartz Media, July 27, 2016 - Whales are hard to miss, even in the vast underwater wilderness of the oceans. So it's surprising that we're still discovering new species of whales.

The first hints of a new species came from Japan in 1940s, when whalers reported catching an unknown beaked whale. Then, in 2004, a dead whale washed up on an Alaskan shore that looked vaguely familiar. The next hint came in 2013, when Japanese scientists used modern DNA analysis to test old samples and found evidence that indeed this mysterious mammal may be new to us. Then, finally, in 2014, another washed up dead on a shore in Alaska.

A new study used the 2014 sample and compared it with 178 other samples of whales across the Pacific Rim held by the National Oceanic and Atmospheric Administration (NOAA). The genetic analysis revealed that this species was very different from any known species of beaked whale, and it is likely to be a new species that will soon be given its own name.

The reason it took so long to discover is because scientists didn't have enough evidence to claim it was a new species. Some features resembled those of a known species, Baird's beaked whale. But scientists now know that the 2014 dead whale was not an adult. A full-grown adult of the new species would be about two-thirds the size (25 feet) and darker in color than an adult Baird's beaked whale, and the genetic analysis shows it belongs to the genus Bernadius.

"We don't know how many there are, where they're typically found, anything," Phillip Morin, a molecular geneticist at NOAA, told National Geographic. "But



Catch me if you can. (NOAA)

Photo: Kristin Westdal @KWestdal

we're going to start looking."

Discoveries like this one highlight just how little we know about the ocean. If nothing else, that is reason enough to ensure that we don't damage our oceans. "We're doing increasing damage to our environment, and we can't even begin to conserve the biodiversity we know is out there," Morin said. "Yet there's so much more about our world we don't even understand."

Story Credit: by Akshat Rathi, July 2016, Quartz Media - https://qz.com/743043/its-2016-and-scientists-say-theyve-just-discovered-a-new-species-of-whale/

WARMING OCEAN KILLS NOVA SCOTIA KELP

by CHRIS LAMBIE

Local Xpress - Jul 13, 2016 - The loss of the kelp beds has caused a 'catastrophic' shift to algae turf that carpets the ocean floor, according to new research out of Dalhousie University.

Decades of warming ocean water has nearly destroyed the “luxuriant kelp beds” off Nova Scotia’s coast, causing a “catastrophic” shift to algae turf that carpets the ocean floor, according to new research out of Dalhousie University.

It shows that mean kelp biomass has declined between 85 and 99 per cent over the past four to six decades.

“We think it’s driven by temperature,” said Karen Filbee-Dexter, a marine ecologist at Dalhousie who worked on the study and used the research to successfully defend her doctoral thesis.

“Most of the kelp beds in our protected warmest bays — St. Margarets Bay and Mahone Bay, all those areas that get really warm are pretty much gone.”

She looked at sites along the province’s South Shore including Little Duck Island in Mahone Bay, Mill Cove in St. Margarets Bay, and Lobster Bay, near Yarmouth, that have been monitored by divers since as far back as 1949. Kelp in those areas normally grows between one and two metres tall off the ocean floor, though they can get much taller in the cold waters of the Bay of Fundy, where they have more access to nutrients.

“I looked at all the historic records of kelp biomass along the coast that I could find,” Filbee-Dexter told Local Xpress.

A kelp bed is normally “one of the most productive and important ecosystems in the entire world. It rivals the productivity of rainforests,” she said.

Marine ecologist Karen Filbee-Dexter displays sugar kelp in Halifax that was collected near Terence Bay. The amount of kelp off Nova Scotia has declined between 85 and 99 per cent over the past 40 to 60 years. (TIM KROCHAK / Local Xpress)

But all that's changing as global warming heats up the ocean by 0.3 ºC to 0.6 ºC per decade.

"If you went into a metre squared and you cut away all the kelp, it used to weigh five kilograms and now it weighs 0.5 kilograms," Filbee-Dexter said.

"Most of that's happened in the last three decades."

Kelp, lives in the shallow band of coastline where light can reach the sea floor, forms the base of a food chain and is critical habitat for larval groundfish and young lobsters that coastal communities depend on when they mature.

"That's the most vulnerable stage for a lot of fish," she said. "Often when they reach adult sizes, things don't want to eat them as much."

In summertime, ocean water in some bays is hitting temperatures of 18 ºC to 20 ºC at the depths where kelp once thrived, three to ten metres below the ocean's surface.

"So this is just getting beyond the tolerance of these kelps," Filbee-Dexter said

"What it normally does is make them really easy to break off and detach."

Kelp is a form of algae that use anchors, dubbed hold-fasts, that attach them selves to the ocean floor in spots where they can still get

sunshine through the water.

"The problem is that your habitat with the attached kelp is losing all of those fronds. So even if some of it lives for a bit and is exported as food to other areas, overall if you can't have that base amount of biomass, then your whole system will be less productive and it won't work as well."

In the late 1970s, sea urchins, which do well in warm water, were eating the kelp. So regulators allowed people to start fishing for them to export for use in Japan, where sushi chefs use urchin roe to make a delicacy known as uni maki. Urchins can fetch as much as $8 a pound on the Japanese market.

"They call it liquid gold," Filbee-Dexter said of the urchin eggs.

Warming water has also harmed the sea urchin population off Nova Scotia.

Disease that came with warming waters has killed off urchins close to Nova Scotia's coast.

"You can't find them in the shallows," Filbee-Dexter said.

The disease that killed urchins was delivered to our shores by tropical storms and hurricanes, she said.

"Every time the disease happens it's introduced with a large storm and it kills urchins easier at higher temperatures," she said.

These hurricanes, dubbed "killer storms," are becoming worse, Filbee-Dexter.

"At least that's the trend off Nova Scotia right now," she said.

"It's not that there's more hurricanes, it's just that the biggest hurricane is predicted to be worse."

Just when the urchin threat seemed past, enter *Mebranipora*, an invasive aquatic invertebrate that grows better in warmer temperatures and encrusts kelp fronds.

"It looks like chain plates of armour that are white and cover the whole kelp."

It first appeared in our waters in the 1980s, causing kelp already weakened by warmer ocean temperatures to break off from their ocean floor anchors.

Kelp is being replaced by what Filbee-Dexter calls turf, which looks like moss on the sea floor.

"Turf is very small algae," she said. "They're opportunistic. So they're going to come in and bloom and colonize. But they're not creating any habitat or structure."

Scientists believe the turf will prevent kelp from recovering after a warm summer, she said.

"Kelps only grow on hard substratum. They need to attach or else they'll get sucked away by wind. They need their rocks and they need their hold-fasts."

The disappearance of kelp, which covers 25 per cent of the world's coastline, is not limited to Nova Scotia waters.

"This is happening in Australia, it's happening in Norway, it's happening in Spain and Portugal," she said.

It's difficult to predict what the loss of kelp will mean to various Nova Scotia fisheries, she said.

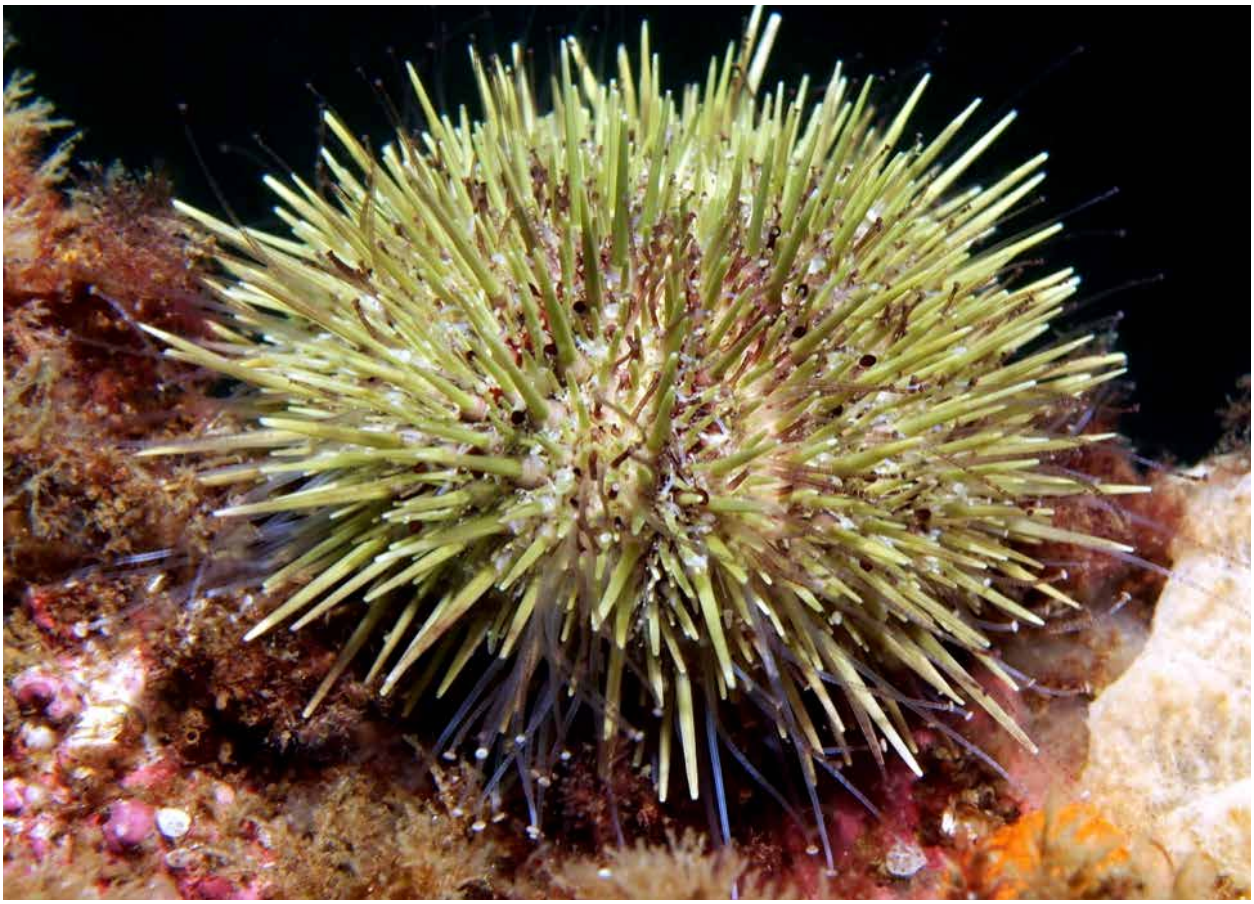
"It's conceptually simple and tempting to say our fisheries are going to all go down because the climate's warming. But that's not true. It's actually messier than that.

"Some species will do better and some species will do worse. But I think if you ask any fisherman right now, 'Is what you see this year similar to last year?' they will say, 'No.' The system is changing and they're having to be a lot more nimble and adaptive than they've ever had to be."

While kelp seems to still be doing well in some colder waters around the province, shallow bays are getting just too warm to support it.

"We saw tropical fish in St. Margarets Bay in 2012," Filbee-Dexter said, noting they were trigger fish that likely swam in on the Gulf Stream. "We'd never seen that before."

Limiting coastal development and clamping down on poor water quality management could



Warming water has also harmed the sea urchin population off Nova Scotia.

help kelp survive, she said.

"If you minimize those stressers, you might give the kelps a chance of actually fighting the other stressers because, in some ways, they're being hit on all fronts right now."

No matter what happens in the future, expect more abrupt and unexpected ecosystem changes in the future, she said.

"That phenomenon is likely to increase. They're becoming more common and they're becoming harder to recover (from) and harder to anticipate."

Filbee-Dexter, 27, grew up in the St. Margarets Bay area. A dedicated sailor, she suspects the next generation is going to have a much different experience living beside the sea.

"I think I took it for granted that I was living in such a beautiful part of the world, and they might actually understand that it's more vulnerable and that it has been changing."

Filbee-Dexter is off to the Norwegian Institute for Marine Science this fall, where she'll spend the next two years studying Arctic kelp beds. She hopes to eventually find a scientific post here.

"I'm interested in what's going on in the Arctic, for sure," she said. "But I also have a soft spot for what's happening in Nova Scotia."

Story Credit: by Chris Lambie, Local Xpress, July 2016. https://www.localxpress.ca/local-news/warming-ocean-water-kills-kelp-off-nova-scotias-coast-336705

GROWING BETTER BIVALVES ON A BIODEGRADIABLE SUBSTRATE

by KATIE MOSHER

North Carolina Sea Grant, February 3, 2017 - Media stories often cite Sandbar Oyster Company as an unlikely partnership between a scientist and a fisherman – a successful duo not only in the half-shell market, but also in ecological restoration.

"He's not my normal consideration of what a scientist would be like." That's how fisherman David Cessna, better known simply as Clammerhead, describes Niels Lindquist in a WRAL-TV story.

A closer look reveals the collaboration is not so surprising. A few years back, they were part of an applied research team studying N.C. fisheries and habitat. Administered by North Carolina Sea Grant, those research projects required one or more partners from the fishing industry.

"We had many days working together on the water," recalls Lindquist, a researcher at the Institute of Marine Sciences of the University of North Carolina at Chapel Hill. "What started as general conversations evolved into deeper discussion and debate, and ultimately to a greater understanding of — and trust in — each other's knowledge of North Carolina oysters and our particular skills within the team."

John Fear, North Carolina Sea Grant deputy director, says their partnership and the resulting new company achieve a broader goal of collaborative research. "Local knowledge, including intuition of those who work the water, has value alongside the scientific process of gathering and analyzing data," he says.

Lindquist and Cessna were on a team looking at oyster enemies — carbonate-boring sponges that rapidly colonize on marl, a material traditionally used in reef restoration. The invaders can make marl, and even oyster-shell reefs, launching points to spread to nearby natural reefs.

Niels Lindquist, left, and David Cessna, right, turned research discussions into a business plan for Sandbar Oyster Company, which focuses on oyster aquaculture, reef restoration and living shorelines. Credit: UNC Research

The team's further research also showed that areas where oysters historically grew could no longer be ideal for future restoration. In North Carolina, saltwater intrusion is shifting the low-salinity zones for oysters farther upstream. In high-salinity waters, prime oyster-growing sites are intertidal sandbars — areas rarely associated with natural or constructed oyster reefs.

Cessna and Lindquist's long-running discussions ultimately turned into a business plan, with their company name taken from sandbars offering growing opportunities. They became entrepreneurs as the idea grew to test a novel material as the basis for oyster aquaculture, habitat restoration and living shorelines.

The new, biodegradable substrate is especially resilient during early reef formation, they note. It succeeds in varied locations: under docks, on sandbars and in shoreline-protection projects. Critically, the material does not provide refuge for oyster enemies, like the boring sponges.

Leveraged funding from UNC-CH and other sources has fostered growth. In June 2016, Sandbar Oyster Company was one of five startups to receive funding and business mentors through a competition hosted by the NC IDEA Foundation.

With a patent pending, Lindquist and Cessna continue working with university and community partners.

Steve Murphey of the N.C. Division of Marine Fisheries notes the agency has tested the new substrate, to evaluate its ability to lure oyster larvae to settle and grow. The substrate, with the seed oysters attached, can then be moved to restoration locations. Demonstration projects focusing on salinity also will help in selecting new restoration sites, he adds.

Lindquist continues in his university role, mentoring graduate students. He also has partnered with the N.C. Division of Coastal Management, North Carolina Sea Grant and N.C. Coastal Federation on research proposals, fieldwork and data analysis. Cessna has added new duties, including representing the business at research and culinary meetings along the East Coast.

"North Carolina Sea Grant is proud to have provided early and ongoing research funding for projects that spurred this startup highlighting the value of oysters as human food and as habitat engineers," Fear notes.

"Equally important, Niels and Clammerhead have created a lasting partnership with economic and policy impacts."

The Sandbar Oyster Company produces oysters known locally as green gills, a style that draws top prices in France. Credit: Courtesy Niels Lindquist

The new substrate attracts oyster larvae naturally, and results in rapid growth. Credit: Courtesy Niels Lindquist

Story Credit: by Katie Mosher, NOAA, February 2016. http://seagrant.noaa.gov/News

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MOST SUSTAINABLE COOPERATIVES IN THE WORLD

MAKE WAY FOR BAMBOO

by SHANTHA RAMANAYAKE

Feb 5 2017 (The Sunday Times - Sri Lanka) - Bamboo with its graceful form has been an inspiration to artists and poets in many eastern countries. It is considered to bring good luck and prosperity to those who live near it. This is, in fact, a reality as bamboo is now established as an eco-friendly crop with high socio-economic returns.

Forest cover in Sri Lanka decreased from 84% of the land in 1886 to 23% in 1992. In a predominantly agricultural country like Sri Lanka, there is a strong link between population growth and deforestation. Agricultural production, in the past, especially until the Green Revolution, has been mainly by increasing the area under production putting pressure on forests. In addition to the demand for food, demand for many wood based products is also increasing.

Other main factors that contributed to loss of forest cover are large-scale agricultural and human settlement projects, excessive harvesting of trees and corruption.

Timber is a limited and valuable commodity. According to the Sri Lanka Forestry Sector Master Plan (1995), annual sawn-wood consumption per 1000 persons in 1993 was estimated to be 31 cubic metres. Demand for plywood and other wood-based panels is predicted to increase at rates of 2.8% and 3.5% respectively per year. To counter the increasing shortage, sawn-wood is now imported. Reforestation is also carried out but the annual rate of deforestation during 1956 – 1992 was more than 40,000 ha while average annual replanting during the same period was only about 2,000 ha.

Forest loss has a devastating effect on biodiversity and forest dependent communities. Soil erosion and loss of water especially in catchment areas are now evident. Forests are a vast carbon sink and anthropogenic release of heat trapping carbon dioxide to the atmosphere is another major consequence of forest loss.

Solving the problem of forest loss is a prerequisite

to any effective response to climate change. Sri Lanka being a UN REDD+ (United Nations collaborative initiative on Reducing Emissions from Deforestation and Forest Degradation) signatory is committed to reducing emissions. Bamboo could play an important role under the NRIFAP (National REDD+ Investment Framework and Action Plan) to mitigate emissions. A glaring omission in the measures and policies in its implementation is the non-inclusion of bamboo even though it has multiple benefits in mitigating emissions directly and indirectly – as a carbon sink, timber substitute, its role in forest protection and many other environmental benefits.

Bamboo belongs to the family of grasses. Unlike other grasses the culms are woody. The underground rhizomes bearing adventitious roots bind soil particles together and control soil erosion enhancing soil-build up helping reclamation of degraded land. The roots are shallow and bamboo does not tap deep water. In fact the rhizomes store water for tiding over dry conditions. Bamboo is fast growing and can be harvested after 4 to 6 years of planting. Harvesting can be done sustainably over many years as new culms regenerate from the rhizome annually. A timber tree which takes as many as 20 to 60 years to grow is harvested only once in its life time.

Bamboo grows in a variety of habitats. Sri Lanka is among the countries where bamboo grows naturally though it has only small scattered areas under natural bamboo cover. The endemic bamboos of the island are the small diametre bamboos or reeds commonly called “bata”. However, many new species have been introduced.

Bamboo: Growing naturally in Sri Lanka

China is the world’s leader in bamboo processing and utilization and leads bamboo export markets, accounting for over 60% of trade. India has also declared the bamboo sector as a priority sector for development for its capacity to promote the four concerns namely Economic development, Environmental

sustainability, Equity and Employment termed the four 'E's. Recently the TATA Trust has entered into an agreement with the Government to set up a Bamboo Research Development Centre in Maharashtra which will be also used to impart skill and training to the rural and tribal people in the region.

It is a well-known fact that bamboo helped in the economic development of some of the world's poorest countries in Latin America, Africa and Asia. Harnessing this resource for the benefit of the nation should be our goal. We have the benefit of being amongst those countries where bamboo grows naturally. Bamboo can grow in impoverished soils and rehabilitate it. We have sufficient land for cultivating this crop. It can be grown along riverbanks forming a live wall protecting the riverbank. Abandoned plantations, forest fringes, land degraded by soil erosion or sand mining are some areas where bamboo can be grown, leaving arable land for growing agricultural and plantation crops. Large extents of tea land are abandoned due to soil erosion and bamboo should be an ideal crop there.

It is necessary to plant bamboo to start new ventures. Identification of suitable species and raising healthy planting material is a requirement. Large-scale bamboo plantlet production is possible by tissue culture techniques and this technique is available in the country while it is a much sought after technique elsewhere. Tissue culture techniques along with conventional methods could be applied to raise required planting material.

The Mahaweli Authority has claimed that over one million bamboo plantlets have been produced using tissue culture technology and planted in many parts of the country. But information on their survival and performance in the different ecological zones is not available. I have seen massive clumps of bamboo planted by the Mahaweli Authority over ten years ago and it is indeed a sorry sight to see the dried up bamboo poles going waste. These could be utilized for suitable purposes. In fact, revival of new growth in clumps requires regular harvesting of older culms.

The extent of the present bamboo resource has to be determined. At least the extent of utilization may be determined by surveying the number of permits issued for harvest and transport. Although the Forest Department had carried out a survey of permits issued between 1989 to 1990, the present extent of utilization is not known.The strict legislation imposed on harvesting and transport of bamboo in 1992 by the Forest Department was based on the limited extent of availability and use at that time. Presently the traditional utilization of large bamboo is less due to use of metal scaffolds in the construction sector and bamboo handicrafts are rapidly being replaced by cheaper plastic ware.

Legislation on bamboo protection needs to be reviewed by the Forest Department and adapted as the present situation demands. Farmers are not aware of sustainable harvesting where only the old culms should be removed and the outer younger culms left to retain the vigour of the clump.Sustainable management practices have to be enforced and licence to harvest issued based only on such practices. Furthermore, investors are reluctant to start large plantations as they are not sure of getting permits for harvest and transport. Such provision should be an encouragement and indication of State support to those who are keen on starting bamboo based ventures.

There has to be a definite national plan and serious commitment to get a viable bamboo industry moving. Tea plantation companies with large tracts of unproductive tea but good infrastructure and other resources should seriously consider bamboo as a priority in their future diversification efforts. The need for long duration soil rehabilitation is critical for continuance of the tea industry, and bamboo could well be the rehabilitation crop!

(The writer, formerly a Senior Scientist at the Institute of Fundamental Studies is a consultant and specialist in bamboo and plant tissue culture)

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published by The Sunday Times, Sri Lanka

THE MANY USES

Bamboo has been utilised traditionally in construction of houses and as a handicraft material. It has been the main livelihood for the rural people living near bamboo habitats. This craft has a long history but is on the decline for many reasons and needs to be revived.

A mature bamboo culm has flexible wood with a density comparable to that of high value timber. Its straightness, lightness, strength, hardness, and easy workability, are ideal for a variety of technological purposes. During the Second World War, "plybamboo" was produced in China for aircraft material.

Since then technological improvements have resulted in the development of various types of processed bamboo products that last long and are strong enough to be substituted for timber.

Bamboo mats which are prepared by weaving culm strips are glued together to produce bamboo mat boards. Bamboo veneers are peeled by machine from large culms about 3-4 m long that have been pretreated in boiling water. Bamboo sheets are also produced by breaking and widening the large culms after hot-water treatment and glued together to form boards in the same way as plywood. Bamboo boards can be used in making furniture, floors, walls, doors, ceilings, etc. Particle boards are manufactured from bamboo chips. Processed bamboo products are increasingly in demand as the trend in most developed countries is the use of natural rather than synthetic products.

Even entire houses can be constructed using processed bamboo. Low cost bamboo houses as well as costly innovative buildings designed by renowned architects such as Simon Valez are much in demand. Houses that are light and strong and are able to withstand earthquakes are also constructed in earthquake prone areas.

Bamboo is used in many ways. Its earliest use on an industrial scale is in the manufacture of paper pulp which is still carried out in India and China mostly. Species with long fibre and higher cellulose to log content are suitable for this purpose and also for use in making rayon.

Bamboo supplies 10% of the world's paper pulp. The cost per metric ton of paper is over US$ 700/. It can be estimated that a plantation of giant bamboo (Dendrocalamusgiganteus) with 200 bamboo clumps per hectare can give an annual yield of about 2000 poles with a biomass of as much as 50 metric tons of bamboo for manufacture of paper pulp. Fifty metric tons of bamboo can yield 20 metric tons of paper pulp which at a cost of US $ 700/ give a potential income of US $ 14000/ per hectare per year.The sale of poles alone at the rate of SLR.200/ per pole could give a potential income of SLR 400,000/ per hectare. Thus farming bamboo will be an income generator contributing to alleviation of poverty.

Bamboo shoots are a nutritious vegetable. Export of canned bamboo shoots is a thriving industry in Indonesia and Thailand. Species suitable for edible shoot production (Dendrocalaumusasper, D. latiflorus) are grown on plantation scale. Such plantations provide both edible shoots and mature poles for construction and generate an income of over US $ 50 million per year.

Bamboo charcoal and activated carbon are also in high demand. Manufacture of bamboo charcoal is a cottage industry in some parts of Africa.

These are only some of the ways in which bamboo is utilized and shows its enormous potential. Its cultivation and utilisation can give rise to livelihood development and productive employment leading to eradication of extreme poverty. A variety of new export commodities can be produced and help in the economic development of the country.

Story Credit: Shantha Ramanayake, Inter Press Service News Agency, February 2017. ipsnews.net

MOTHER TREES RECOGNIZE KIN AND SEND MESSAGES OF WISDOM

by LACY COOKE

Inhibitat News, June 2016 - More information continues to surface that trees may be far more connected than we thought. Forest ecologist Suzanne Simard of The University of British Colombia gave a TED talk in June, during which she detailed research that shows mother trees recognize their kin. At a time when an increasing number of people are disconnected from the natural world, Simard hoped to persuade the audience to think differently about forests.

In the talk Simard said, "… we set about an experiment, and we grew mother trees with kin and stranger's seedlings. And it turns out they do recognize their own kin. Mother trees colonize their kin with bigger mycorrhizal networks. They send them more carbon below ground. They even reduce their own root competition to make elbow room for their kids. When mother trees are injured or dying, they also send messages of wisdom on to the next generation of seedlings…so trees talk."

Related: Researchers believe trees may have their own living Internet.

Trees send each other carbon through mycelium, or fungal threads, and it looks like the sending process isn't simply random. According to Simard's research, mother trees prioritize their offspring when it comes to providing them with key nutrients and other resources. Trees can send not only carbon through mycorrhizal networks, but also nitrogen, water, defense signals, phosphorous, and allele chemicals.

Simard says mycorrhizal networks have "nodes and links." Fungi act as links, and trees as the nodes. The busiest nodes she calls mother trees. Mother trees can sometimes be connected

Images via Pixabay (1,2)

to hundreds of trees, and the carbon they pass to those trees is said to increase seedling survival by four times.

Her findings are incredibly relevant for conservation. If too many mother trees are cut down, "the whole system collapses." Simard thinks we'd be more careful about cutting down trees if we were aware of the deep connections between their "families". You can watch her whole TED talk at www.ted.com/talks/suzanne_simard_how_trees_talk_to_each_other?language=en

Story Credit: Lacy Cooke, Inhabitat News, June 2016 - http://inhabitat.com/mother-trees-recognize-kin-and-send-them-messages-of-wisdom/

FRANCE BANS PLASTIC PLATES, CUPS & CUTLERY IN A BID TO SAVE THE PLANET

BY CHASE PURDY

Quartz Media, September 2016, PARIS – It's a logical move for a country known to revel in the finer things. France this week became the first country to pass an all-out ban on plastic cutlery, plates, and cups.

The new law is set to take effect in 2020 and will be part of France's Energy Transition for Green Growth Act, which has already set a ban on disposable plastic bags throughout the country. The law will only allow disposable tableware made from 50% biologically-sourced materials that are compostable at home. The restrictions on plastic products follow the global climate agreement reached in Paris in 2015, a meeting of nations looking to curb the effects of climate change.

Plastic production requires the use of fossil fuels, which evidence has shown to have played a role in climate change. Once produced, plastic products are not biodegradable and can wind up languishing in garbage dumps and polluting the ocean and waterways, which often have adverse effects on wildlife.

Human use of plastic has become so commonplace that scientists have estimated that by 2050 there will be more plastic than fish in the sea. In fact, mankind has created so much plastic that some say it will likely show up in future fossil fuels.

French president François Hollande said the new law against disposable plastic tableware would make his country "an exemplary nation in terms of reducing greenhouse gas emissions, diversifying its energy model and increasing the deployment of renewable energy sources."

Its detractors disagree. A European

Do you ever feel like a plastic bag... (Reuters/Swoan Parker)

packaging manufacturers trade group, Pack2Go Europe, has urged the European Commission to launch a legal battle against France, arguing that the ban violates EU law on the free movement of goods. A representative of the Brussels-based group said that, "Finding a package that meets the really critical food hygiene requirements that consumers want, that can also be composted in a domestic composter…right now they don't exist."

French environment minister Ségolène Royal initially viewed the reform as "anti-social," given that low-income families rely more on plastic utensils. So the law was pushed from 2017 to 2020.

Story Credit: Chase Purdy, Quartz Media, September 2016 - https://qz.com/788845/france-bans-plastic-cups-plates-and-cutlery-in-a-bid-to-save-the-planet/

UN DECLARES WAR ON OCEAN PLASTICS

by BAHER KAMAL

ROME, Feb 23 2017 (IPS) - The available data is enough for the United Nations to literally declare war on oceans plastic. More than 8 million tonnes of plastics leaks into their waters each year – equal to dumping a garbage truck of plastic every minute, wreaking havoc on marine wildlife, fisheries and tourism and costing at least 8 billion dollars in damage to marine ecosystems.

In fact, the Nairobi-based United Nations Environment Programme (UNEP) on February 23 launched an unprecedented global campaign to eliminate major sources of marine litter: micro-plastics in cosmetics and the excessive, wasteful usage of single-use plastic

The world's largest beach clean-up in history on Versova beach in Mumbai, India. Credit: UNEP

In bathroom shelves across the world lie toothpaste and facial scrubs packed with tiny plastic pieces that threaten marine life. Up to 51 trillion microplastic particles are already in our oceans! Credit: UNEP

by the year 2022.

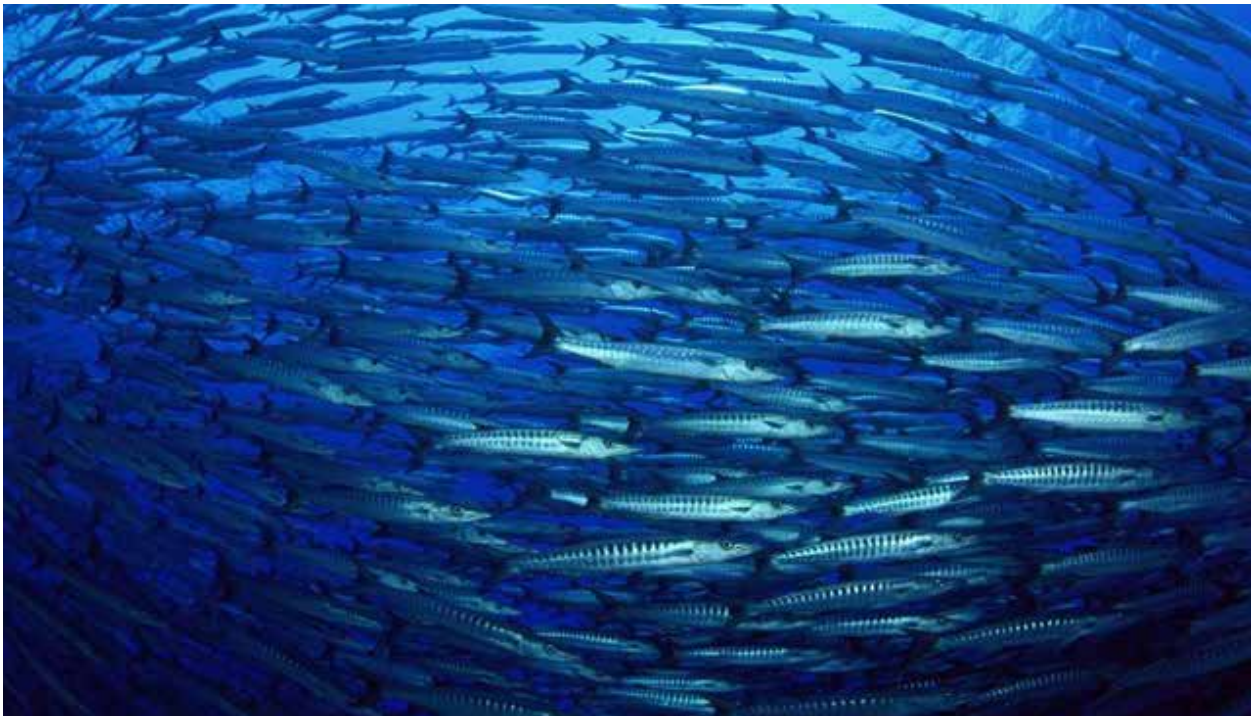
Launched at the Economist World Ocean Summit in Bali, the #CleanSeas campaign urges governments to pass plastic reduction policies; targeting industry to minimize plastic packaging and redesign products; and calling on consumers to change their throwaway habits – before irreversible damage is done to the seas.

Erik Solheim, UNEP's Executive Director, said, "It is past time that we tackle the plastic problem that blights our oceans. Plastic pollution is surfing onto Indonesian beaches, settling onto the ocean floor at the North Pole, and rising through the food chain onto our dinner tables. We've stood by too long as the problem has gotten worse. It must stop."

Throughout the year, the #CleanSeas campaign will be announcing ambitious measures by countries and businesses to eliminate micro-plastics from personal care products, ban or tax single-use bags, and dramatically reduce other disposable plastic items.

The #CleanSeas campaign is a global movement targeting governments, industry and consumers to urgently reduce the production and excessive use of plastic that is polluting the earth's oceans, damaging marine life and threatening human health.

The UN environment body aims to transform all spheres of change –habits, practices, standards and policies around the globe to dramatically reduce marine litter and the



Healthy oceans have a central role to play in solving one of the biggest problems of the 21st century – how to feed 9 billion people by 2050. Credit: FAO

> *"We don't need to invent or negotiate something new, we just need to have action to implement what we already agreed upon." - Isabella Lovin, Deputy Prime Minister of Sweden.*

harm it causes.

So far, ten countries have already joined the campaign with far-reaching pledges to turn the plastic tide: Belgium, Costa Rica, France, Grenada, Indonesia, Norway, Panama, Saint Lucia, Sierra Leone and Uruguay.

Pledges to Turn the Plastic Tide

Indonesia has committed to slash its marine litter by a massive 70 per cent by 2025; Uruguay will tax single-use plastic bags later this year. Costa Rica will take measures to dramatically reduce single-use plastic through better waste management and education.

And Vidar Helgesen, Minister of Climate and the Environment of Norway, said: "Keeping our seas clean and our marine life safe from plastic is a matter of urgency for Norway. Marine plastic litter is a rapidly increasing threat to marine life, seafood safety and negatively affects the lives of people in coastal areas all around the world. Our oceans cannot wait any longer."

Eneida de León, Minister of Housing, Territorial Planning and Environment of Uruguay, underlined: "Our goal is to discourage the use of plastic bags through regulations, give an alternative for workers in the waste sector, and develop education plans regarding the impact of the use of plastic bags on our environment…"

According to estimates,

at the rate we are dumping items such as plastic bottles, bags and cups after a single use, by 2050 oceans will carry more plastic than fish and an estimated 99 per cent of seabirds will have ingested plastic.

Major announcements are expected during The Ocean Conference in New York at the UN Headquarters 5 – 9 June, and the December UN Environment Assembly in Nairobi, Kenya.

"No Need to Invent or Negotiate Something New…" – Sweden

In addition to the 8 million tonnes of plastic dumped each year in the waters, oceans are also victims of overfishing, acidification and increasing global water temperatures linked to climate change.

The United Nations on February 15 held a two-day meeting at its headquarters in New York, to prepare for an **Ocean Conference** in June this year, which will aim **"to help safeguard the planet's oceans and help them recover from human-induced problems."**

On this, the deputy prime minister and climate minister of Sweden, Isabella Lövin, said in a video log on Twitter that the Conference could be a "chance of a lifetime" to save the oceans under enormous stress.

Most likely reflecting the general feeling of most scientists, environmentalists and civil society organisations, Lövin said "We don't need to invent or negotiate something new, we just need to have action to implement what we already agreed upon."

Lövin was referring to the expected 'Call to Action' that will result from the Conference in connection with stopping illegal fishing, stopping marine pollution and addressing the special circumstances of small island developing States.

The World is Going in a Totally Wrong Direction

In an interview to IPS UN Bureau, Lövin said, "the world is going in the totally wrong direction," when it comes to achieving the goal of sustainable oceans and life below water.

"If you look at the trends right now, you see more and more overfishing, we are seeing more and more pollution, plastic litter coming into our oceans, and we're also seeing all the stress that the ocean is under due to climate change, acidification of the water, but also the warming and sea level rises and all of this is putting a tremendous, tremendous pressure on our oceans," Lövin explained.

During the New York meeting, the UN has called for voluntary commitments to implement Goal 14 and on February 15 launched an online commitment registry, which has its first three commitments – the Swedish Government, the UN Environment Programme, and Peaceboat, a non-governmental organisation.

The site will be up through the end of the Conference, which starts on World Environment Day, marked annually on 5 June, and includes 8 June, celebrated as World Oceans Day.

The voluntary commitments "underscore the urgency for action and for solutions," said Under-Secretary-General Wu Hongbo, who heads the UN Department for Economic and Social Affairs and serves as the Secretary-General of the Conference.

Story Credit: by Baher Kamal, February 2017, Inter Press Service News Agency. ipsnews.net

KASHMIR'S DYING LAKES SHRINKING AND DARKENING

by UMAR SHAH

SRINAGAR, February 22 2017 (IPS) - Mudasir Ahmad says that two decades ago, his father made a prophecy that the lake would vanish after the fish in its waters started dying. Three years ago, he found dead fish floating on the surface, making him worried about its fate.

Like his father, Ahmad, 27, is a boatman on Kashmir's famed Nigeen Lake, located north of Kashmir's capital, Srinagar. He says the lake has provided a livelihood to his family for generations, but now things are taking an "ugly turn".

"The floods of September 2014 wreaked havoc and caused heavy loss to property and human lives. That was the first signal of how vulnerable we have become to natural disasters due to environmental degradation."
—Researcher Aabid Ahmad

The gradual algae bloom in the lake, otherwise known for its pristine beauty, led to oxygen depletion. Fish began to die. Environmentalists term the development the first visible signs of environmental stress in the lake.

But no one was more worried than Mudasir himself. "We have been rowing boats on the lake for centuries. My grandfather and my father have been fed by this lake. I also have grown up here and my livelihood is directly dependent on the lake," Ahmad told IPS.

He believes the emergence of rust-coloured waters is the sign of the lake dying a silent death, and he holds everyone responsible. "We have built houses in an unprecedented way around its banks. The drainage from the households directly drifts into the lake, making it more polluted than ever," Ahmad said.

Blessed with over 1,000 small and large

Fayaz Ahmad Khanday plucks a lotus stem from Wullar Lake in India's Kashmir. He says the fish population has fallen drastically in recent years. Credit: Umer Asif/IPS

water bodies, the landlocked Kashmir Valley, located in northern India, is known as the land of lakes and mountains. However, due to large scale urbanization and unprecedented deforestation, most of the water bodies in the region have disappeared.

A recent study by Kashmir's renowned environmentalists Gowher Naseem and Humayun Rashid found that 50 per cent of lakes and wetlands in the region's capital have been lost to other land use/land cover categories. During the last century, deforestation led to excessive siltation and subsequent human activity brought about sustained land use changes in these assets of high ecological value.

The study concludes that the loss of water bodies in Kashmir can be attributed to heavy population pressures.

Research fellow at Kashmir University, Aijaz Hassan, says the Kashmir Valley was always prone to floods but several water bodies in the region used to save the local population from getting marooned.

"All the valley's lakes and the vast associated swamps played an important role in maintaining the uniformity of flows in the rivers. In the past, during the peak summers, whenever the rivers would flow high, these lakes and swamps used to act as places for storage of excessive water and thereby prevented large areas of the valley from floods," Hassan said.

India's largest freshwater lake, Wullar Lake, is located in North Kashmir's Bandipora area. It too is witnessing

Fishermen cover their heads and part of their boats with blankets and straw as they wait to catch fish Kashmir's Dal Lake. Credit: Umer Asif/IPS

severe degradation due to large-scale human intervention. Wullar Lake, which claimed an area of 217.8 sq. km in 1911, has been reduced to about 80 sq. km today, with only 24 sq. km of open water remaining.

Environmentalist Majid Farooq says large areas of the lake have been converted for rice cultivation and tree plantations. According to him, pollution from fertilizers and animal waste, hunting pressure on waterfowl and migratory birds, and weed infestation are other factors contributing to the loss of Wullar Lake's natural beauty. The fish population in the lake has witnessed a sharp decline due to depletion of oxygen and ingress of pollutants.

Another famed lake known as Dal Lake has shrunk by 24.49 per cent in the past 155 years and its waters are becoming increasingly polluted.

The lake, according to research by the University of Kashmir's Earth Science Department, is witnessing "multiple pressures" from unplanned urbanization, high population growth and nutrient load from intensive agriculture and tourism.

Analysis of the demographic data indicated that the human population within the lake areas had shown "more than double the national growth rate."

Shakil Ahmad Ramshoo, head of Department of Earth Sciences at University of Kashmir, told IPS that the water quality of the lake is deteriorating and no more than 20 per cent of the lake's water is potable.

"As the population increased, all the household sewage and storm runoff goes into the Dal Lake without any treatment — or even if there is treatment done, it is very insufficient. This has increased the pollutant load of the Dal Lake," he said.

According to Ramshoo, when the study compared the past water quality of the lake with the present, it found ingress of the pollutants has increased and the lake water quality has deteriorated significantly.

According to the region's tourism department, over one million tourists visit Dal Lake annually and around 300,000 people are directly and indirectly dependent on the lake for their livelihood. The multimillion-dollar handicrafts industry of Kashmir, which gives employment to over 200,000 people, is also heavily dependent upon the arrival of tourists in the region.

A study on the Impact of Tourism Industry on Economic Development of Jammu and Kashmir says that almost 50-60 per cent of the total population of Jammu and Kashmir is directly or indirectly engaged in tourism related activities. The industry contributes 15 per cent to the state's GDP.

However, Mudasir Ahmad, whose livelihood is directly dependent on the lake, says every time he takes tourists to explore the lake in his Shikara (a boat), he is asked about the murkier water quality.

"My grandfather and even my father used to drink from this lake. The present situation is worrisome and if this goes unabated, tourists would cease to come. Who would spend money to see cesspools?" Ahmad said.

Fayaz Ahmad Khanday, a fisherman living on Wullar Lake, says the fish production has fallen drastically in the last three years, affecting both him and hundreds of other fishermen.

"Fish used to be present in abundance in the lake but now the scarcity of the species is taking toll. Every day we see dead fish floating on the lake's waters. We really are concerned about our livelihood and the fate of the lake as well," Khanday lamented.

The fisherman holds unplanned construction around the lake responsible for its pollution. Aabid Ahmad, a research scholar in Environmental Studies, says Kashmir has become vulnerable to natural disasters as most of the region's water bodies have either disappeared or are shrinking.

"The floods of September 2014 wreaked havoc and caused heavy loss to property and human lives. That was the first signal of how vulnerable we have become to natural disasters due to environmental degradation," Ahmad told IPS.

But, for Shakeel Ramshoo, it is still possible to restore the lakes and water bodies of Kashmir.

"Don't move the people living on these water bodies out. You just allow them to stay in the lake. We have to control the haphazard constructions that are taking toll around these water bodies," he said.

"Hutments in the water bodies should be densified with STPs (Sewage Treatment Plants) installed in every household. Land mass can be removed and the area of the water bodies would increase. Also, the sewage treatment mechanism should be better so that the ingress of pollutants is ceased," Ramshoo said.

Story Credit: by Umar Shah, February 2017, Inter Press Service News Agency. ipsnews.net

INDIGENOUS PEOPLES LANDS GUARD 80 % OF WORLD'S BIODIVERSITY

by B. KAMAL

ROME, Feb 9 2017 (IPS) - They are more than 370 million self-identified peoples in some 70 countries around the world. In Latin America alone there are over 400 groups, each with a distinct language and culture, though the biggest concentration is in Asia and the Pacific– with an estimated 70 per cent. And their traditional lands guard over 80 per cent of the planet's biodiversity.

They are the indigenous peoples.

They have rich and ancient cultures and view their social, economic, environmental and spiritual systems as interdependent. And they make valuable contributions to the world's heritage thanks to their traditional knowledge and their understanding of ecosystem management.

"But they are also among the world's most vulnerable, marginalized and disadvantaged groups. And they have in-depth, varied and locally rooted knowledge of the natural world, "says the Rome-based International Fund for Agricultural Development (IFAD).

"Unfortunately, indigenous peoples too often pay a price for being different and far too frequently face discrimination," the Fund, which hosts on Feb 10 and 13 on Rome the Global Meeting of the Indigenous People Forum in the Italian capital.

During this biennial meeting, the United Nations specialised agency will bring together representatives of Indigenous Peoples' Organisations from across the world, as well as leaders of partner bodies to engage in a direct dialogue and improve participation of indigenous peoples in the Fund's country programmes.

Over the centuries, the Indigenous peoples "have been dispossessed of their lands, territories and resources and, as a consequence, have often lost control over their own way of life. Worldwide, they account for 5 per cent of the population, but represent 15 per cent of those living in poverty."

One of the most effective ways to enable

In much of the Andes, soil erosion is thought to be one of the most limiting factors in crop production. Soil is vulnerable to erosion where it is exposed to moving water or wind and where conditions of topography or human use decrease the cohesion of the soil. ©IFAD/ Juan I. Cortés

indigenous peoples to overcome poverty, it adds, is to support their efforts to shape and direct their own destinies, and to ensure that they are the co-creators and co-managers of development initiatives.

RIGHTS OF INDIGENOUS PEOPLES

The United Nations Declaration on the Rights of Indigenous Peoples, adopted by the General Assembly on Sep. 13, 2007, establishes a universal framework of minimum standards for the survival, dignity, well-being and rights of the world's indigenous peoples.

KEY FACTS

- There are more than 370 million self-identified indigenous people in the world, living in at least 70 countries
- Most of the worlds' indigenous peoples live in Asia
- Indigenous peoples form about 5,000 distinct groups and occupy about 20 per cent of the earth's territory
- Although indigenous peoples make up less than 6 per cent of the global population, they speak more than 4,000 of the world's 7,000 languages
- One of the root causes of the poverty and marginalization of indigenous peoples is loss of control over their traditional lands, territories and natural resources
- Indigenous peoples have a concept of poverty and development that reflects their own values, needs and priorities; they do not see poverty solely as the lack of income
- A growing number of indigenous peoples live in urban areas, as a result of the degradation of land, dispossession, forced evictions and lack of employment opportunities

Credit: IFAD

SOURCE: IFAD

The Declaration addresses individual and collective rights; cultural rights and identity; and rights to education, health, employment and language. And it outlaws discrimination against indigenous peoples and promotes their full and effective participation in all matters that concern them.

It also ensures their right to remain distinct and to pursue their own priorities in economic, social and cultural development. The International Day of the World's Indigenous Peoples is observed on Aug. 9 every year.

Announcing the Forum, IFAD noted that it has more than 30 years of experience working with indigenous peoples. In fact, since 2003, an average of about 22 per cent of the Fund's annual lending has supported initiatives for indigenous peoples, mainly in Asia and Latin America.

Since 2007, it has administered the Indigenous Peoples Assistance Facility (IPAF). Through small grants of up to 50,000 dollars, it supports the aspirations of indigenous peoples by funding micro-projects that strengthen their culture, identity, knowledge, natural resources, and intellectual-property and human rights.

To help translate policy commitments into action, it has established an Indigenous Peoples' Forum that promotes a process of dialogue and consultation among indigenous peoples' organisations, IFAD staff and member states.

The Fund empowers communities to participate fully in determining strategies for their development and to pursue their own goals and visions by strengthening grass-roots organisations and local governance.

Land is not only crucial to the survival of indigenous peoples, as it is for most poor rural people – it is central to their identities, the Fund reports. "They have a deep spiritual relationship to their ancestral territories. Moreover, when they have secure access to land, they also have a firm base from which to improve their livelihoods."

According to this international Fund, indigenous peoples and their knowledge systems have a special role to play in the conservation and sustainable management of natural resources.

The first global meeting of the Indigenous Peoples' Forum at IFAD was held in Rome on 11-12 February 2013. ©IFAD/ Giulio Napolitano

INDIGENOUS WOMEN'S UNTAPPED POTENTIAL

They also named the fund as the "bank of the poorest" as it provides grants and low-interest credits to the poorest rural communities, recognises indigenous women's untapped potential as stewards of natural resources and biodiversity, as guardians of cultural diversity, and as peace brokers in conflict mitigation.

Nonetheless, it says, indigenous women are often the most disadvantaged members of their communities because of their limited access to education, assets and credit, and their exclusion from decision-making processes.

This 'bank of the poorest' is a specialised agency of the United Nations, which was established as an international financial institution in 1977, being one of the major outcomes of the 1974 World Food Conference, which was organised in response to the food crises of the early 1970s that primarily affected the Sahelian countries of Africa.

That world conference resolved that "an International Fund for Agricultural Development should be established immediately to finance agricultural development projects primarily for food production in the developing countries."

One of the most important insights emerging from the Conference was that the causes of food insecurity and famine were not so much failures in food production but structural problems relating to poverty, and to the fact that the majority of the developing world's poor populations were concentrated in rural areas.

Since its creation, IFAD invested 18.4 billion dollars to help 464 million rural poor people.

Story Credit: by Baher Kamal, February 2017, Inter Press Service News Agency. ipsnews.net

'PEOPLE OF WILDLIFE' KNOW HOW TO PROTECT NATURE

by BAHER KAMAL

ROME, Mar 10 2017 (IPS) - In the northern part of Mount Kenya, there is an indigenous community — the Lakipiak Maasai ("People of Wildlife") — which owns and operates the only community-owned rhino sanctuary in the country.

They have managed to alleviate the human-wildlife conflicts that arise in the area due to the intrusion of wild animals searching for water, prey and pasture during drought.

And they achieved this by reducing bush-cutting to ensure more fodder for wildlife on their lands. Through this conservation strategy, indigenous peoples have demonstrated that they can coexist harmoniously with wildlife while supporting their own pastoral lives and cultures.

No wonder, for thousands and thousands of years, the Earth's original peoples have faced hard challenges, yet they managed to survive and conserve their natural environment.

They still do so in spite of modern humans who have been systematically abusing their rights, stripping their lands, confining them to reserves, and show disdain for their ancestral cultures and knowledge.

Now, following recent trends, the international scientific and development community has been further recognising the invaluable role of the indigenous peoples when it comes to facing one of the most dangerous challenges of modern times: the extinction of biological diversity.

For instance, the United Nations says that actively involving indigenous peoples and local communities in wildlife conservation is key to maintaining biodiversity and ensuring sustainable rural livelihoods.

The urgent challenges that the world faces in maintaining biodiversity worldwide require that indigenous peoples are empowered to

The cultures of indigenous peoples traditionally involve the sound management of wildlife. A Maasai pastoralist holding a pregnant ewe in Narok, Kenya. Credit: FAO

act at the national level with assistance from the international community, on March 3 said the UN Food and Agriculture Organization (FAO) on the occasion of World Wildlife Day.

"The cultures of indigenous peoples and local communities involve the stewardship of wildlife. They simply cannot imagine their life divorced from nature and their interest in the sustainable use of resources is strong," said Eva Müller, Director of FAO's Forestry Policy and Resources Division.

Empowerment of these groups combined with their knowledge and long-term planning skills is essential to ensure the survival of future generations – of both humans and wildlife, Müller added.

The relationship between humans and wildlife is highlighted in a new edition of FAO's quarterly forestry publication Unasylva, which is jointly produced by the Collaborative Partnership on Sustainable Wildlife Management, comprising 14 international organisations.

It cites several case studies from various countries to illustrate how indigenous peoples can optimize the benefits for their livelihoods while also safeguarding wildlife, provided they are given the rights to make their own decisions in the territories they inhabit.

Human-wildlife conflicts have become more frequent and severe particularly in Africa, due to increasing competition for land in previously wild and uninhabited areas, Unasylva noted.

"This is often the result of human population growth, increasing demand for natural resources, and growing pressure for access to land, such as expansion of transport routes, agriculture and industries. More specifically, the publication stresses that in central and southern Africa, wildlife

Active involvement of indigenous peoples and local communities in wildlife conservation is key to maintaining biodiversity. An indigenous tarsier holding onto a tree branch in Bilar, Philippines. Credit: FAO

and people will continue to share landscapes and resources with conflicts likely to worsen unless actions are taken."

FAO, the French Agricultural Research Centre for International Development (CIRAD) and other partners have developed the first Human-Wildlife Conflict (HWC) toolbox, which has helped a local community in Gabon's Cristal Mount National Park.

It explains that local farmers in this area were particularly frustrated by the fact that animals such as cane rats, roan antelopes, bush pigs and elephants were destroying their entire crops, and thus threatening their livelihoods. At the same time, laws prohibited these farmers from taking action by hunting the protected animals either for meat or to protect their crops.

Anyway, when it comes to underlining the essential role of indigenous people in protecting Nature, FAO is no exception.

In fact, other major conservations organisations, such as the International Union for Conservation of Nature (IUCN), notes that "indigenous and traditional peoples have often been unfairly affected by conservation policies and practices, which have failed to fully understand the rights and roles of indigenous peoples in the management, use and conservation of biodiversity."

In line with numerous international instruments, several IUCN resolutions emphasise indigenous peoples' rights to lands, territories, and natural resources on which they have traditionally subsisted.

These resolutions stress the need to enhance participation of indigenous peoples in all conservation initiatives and policy developments that affect them. Furthermore, they recognise that indigenous peoples possess a unique body of knowledge relevant for the conservation and sustainable use of natural resources.

Another leading environmental organisation fully agrees.

The UN Environment Programme (UNEP) recognises the importance of Indigenous Peoples' participation as well as the valuable inputs that these holders of traditional knowledge – gained through trans-generational experiences, observations and transmission – can contribute to sustainable ecosystem management and development.

"Their close relationship and dependency on functioning ecosystems have made many Indigenous Peoples extremely vulnerable to changes and damages in the environment. Logging, mining activities, pollution and climate change all pose increasing threats to indigenous livelihoods and their survival."

Story Credit: by Baher Kamal, March 2017, Inter Press Service News Agency. ipsnews.net

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RIGHTS OF INDIGENOUS PEOPLES 'CRITICAL' TO COMBAT CLIMATE CHANGE

BY BAHER KAMAL

ROME, Jul 25 2016 (IPS) - No longer is it about restoring the legitimate rights of over 370 indigenous peoples spread across 70 countries worldwide, many of them living in dire situation, but now about their central, critical role in combating climate change.

Victoria Tauli-Corpuz, the United Nations Special Rapporteur on the Rights of Indigenous Peoples has relentlessly emphasized this new reality.

"Very few countries have so far made a clear commitment to a requirement in the Paris Climate Change Agreement that countries undertaking climate change activities should ensure the rights of indigenous peoples," she says, while reminding of "the large number of violent deaths of people protecting their forests and rights to land in 2015 – the deadliest year for environmental defenders on record."

"It's a dire situation in terms of respect for the rights of indigenous peoples," she told the participants in the United Nations Food and Agriculture Organisation's Committee on Forestry which met in Rome on July 18-22.

"Indigenous peoples across the world experience the consequences of historical colonisation and invasion of their territories, and face discrimination because of their distinct cultures, identities and ways of life," according to UN Special Rapporteur on the Rights of Indigenous Peoples.

On this, FAO stated that "governments must do much more to provide the enabling conditions required for indigenous peoples, local communities, smallholders and their organisations to restore degraded landscapes and achieve climate change mitigation and

Maasai pastoralists, who participate in a farmer field school, are selling animals at a local market in Narok, Kenya. Indigenous peoples have a key role to play in addressing climate change. Credit: FAO

adaptation in practice."

Specifically, René Castro Salazar, FAO's Assistant-Director General warned that the issue of indigenous rights to land and territories was 'critical' for the success of climate change initiatives.

"Unless we help indigenous peoples achieve secure land tenure and better governance, it will be very hard to achieve long-term solutions," Castro Salazar said. "We are lagging behind, and we need to do more."

VAST CARBON STOCKS

A third of global forests are under some form of management by families, smallholders, local communities and indigenous peoples, and represent some of the most important carbon stocks in the world, FAO reported during the meeting. Government-recognised community forests alone hold an estimated 37.7 billion tonnes of carbon stock.

"Family smallholders, local communities and indigenous peoples have a key role to play in preserving these carbon stocks by reducing deforestation, managing forests sustainably and restoring tree cover as part of productive rural economies, particularly when they belong to strong producer organisations," according to the UN agency.

In addition, an estimated 1.5 billion hectares of land hold potential for smallholder farmers to combine agriculture with trees.

Food and Agriculture Organization of the United Nations

"But failure to find the best way to engage with local stakeholders and align their interests with forest conservation can significantly compromise the chances of achieving carbon sequestration and mitigation targets."

GREATER OWNERSHIP

In an outcome statement issued at the close of the Rome meeting, participants urged governments to provide the enabling conditions required for local communities, indigenous peoples and local producers, "to manage larger territories, from securing and enforcing tenure rights to creating favourable business incentives and offering technical, financial and business extension services."

They also called on global financing mechanisms, government programmes and private investors to direct investment and support towards local communities, indigenous peoples, smallholders and producer organisations.

Finally, they called for climate change initiatives "to shift towards giving greater ownership to local communities, indigenous peoples, smallholders and producer organisations and engaging them in participatory and qualitative assessment of the forest cover and trees on farms they manage."

Livelihoods of Millions of People, Precarious

On the occasion of the Rome meeting, FAO issued a new study that helps to fill a significant knowledge gap on the presence and extent of forests and trees in the world's drylands, where the food security and livelihoods of millions of people, already precarious, are increasingly being threatened by climate change.

The study's preliminary findings show that trees are present with hugely varying densities on almost one-third of the world's 6.1 billion hectares of drylands, which cover an area more than twice the size of Africa. Almost 18 per cent of this area contains forests.

An estimated 2 billion people, 90 per cent of whom are in developing countries, live in drylands. Recent studies have indicated the need to restore these areas to cope with the effects of drought, desertification and land degradation.

In particular, water availability in drylands is expected to decline further due to changes in climate and land use, the new study warns.

"Poor people living in remote rural areas will be most vulnerable to food shortages, which combined with violence and social upheaval, are already leading to forced migration in dryland regions in Africa and western Asia."

Until now, there has been little statistically based knowledge on dryland trees –particularly those growing outside forests– despite their vital importance to humans and the environment, according to the study.

The leaves and fruit of trees are sources of food for people and fodder for animals; their wood provides fuel for cooking and heating and can be a source of income for poor households; trees protect soils, crops and animals from the sun

and winds, while forests are often rich in biodiversity.

Drylands are divided into four aridity zones (see map): the dry sub-humid zone, is the least arid of the four zones and consists mostly of the Sudanian savanna, forests and grasslands in South America, the steppes of eastern Europe and southern Siberia, and the Canadian prairie.

Most dryland forests occur in this zone, as do some large irrigated, intensively farmed areas along perennial rivers; at the other extreme, the hyper-arid zone is the driest zone and it is dominated by desert – the Sahara alone accounting for 45 per cent, and the Arabian desert forming another large component.

FACTBOX

At a glance: some preliminary findings of the FAO Global Drylands Assessment:

- The global drylands contain 1.11 billion hectares of forest land, which is 27 per cent of the global forest area, estimated at approximately 4 billion hectares.
- Two-thirds of the drylands forest area can be defined as being dense, meaning it has closed canopies (i.e. a canopy cover greater than 40 per cent).
- The second most common land use in drylands is grassland (31 per cent), followed by forest (18 per cent) and cropland (14 per cent). The category other lands constitutes 34 per cent of the global drylands area.
- The least-arid zones have the most forest. The proportion of forest land is 51 per cent in the dry subhumid zone, 41 per cent in the semiarid zone, 7 per cent in the arid zone and 0.5 per cent in the hyperarid zone. The average crown cover density is ten times higher in the dry subhumid zone than in the hyperarid zone.
- Trees outside forests are present on 1.9 billion hectares of drylands (31 per cent of the global drylands area), if all land with more than 0 per cent crown cover is included. Thirty per cent of croplands and grasslands have at least some crown cover, as do 60 per cent of lands classified as settlements.

Story Credit: by Baher Kamal, July 2016, Inter Press Service News Agency. ipsnews.net

"OCEAN NOT A DUMPING GROUND"

by N. ACKBARALLY

PORT-LOUIS, Mauritius, Apr 19 2017 (IPS) - An internationally renowned scientist, Ameenah Gurib-Fakim became Mauritius's sixth president on June 5, 2015 – and one of the few Muslim women heads of state in the world.

Her nomination constituted a major event in the island's quest for greater gender parity and women's empowerment, giving a higher profile to women in the public and democratic sphere of Mauritius.

Gurib-Fakim started her career in 1987 as a lecturer at the Faculty of Agriculture, University of Mauritius. She was one of the leading figures in local academia with a reputation far beyond the Indian Ocean before she accepted the post of president.

She has also served in different capacities in numerous local, regional and international organizations. Gurib-Fakim has lectured extensively and authored or co-edited 26 books and numerous academic articles on biodiversity conservation and sustainable development.

In this exclusive interview with IPS, President Gurib-Fakim urged world leaders to save our oceans, noting that this critical ecosystem impacts millions of livelihoods, particularly for small island-states and coastal communities.

This June, the United Nations will convene a high-level Ocean Conference to Support the Implementation of Sustainable Development Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development at U.N. Headquarters in New York.

Human activity has already left a huge

President of Mauritius Ameenah Gurib-Fakim. Credit: Nasseem Ackbarally/IPS

footprint on the world's oceans, Gurib-Fakim notes. "We have always assumed that the ocean is a dumping ground – which it is not."

EXCERPTS FROM THE INTERVIEW FOLLOW

Q: How would you rate the oceans in terms of importance in the context of sustainable development?

A: The ocean space occupies 70 percent of the world's surface and it still remains unknown. There is no doubt that ocean space impacts livelihood, especially for islands and coastal communities. Several countries in the South-West Indian Ocean, for example, rely heavily on fishing to sustain livelihoods. In 2013, fish accounted for 17 percent of the world population's intake of animal protein and 6.7 percent of all protein consumed. Coral-reef fish species also represent an important source of protein.

With more than 60 percent of the world's economic output taking place near coastlines and in some African countries, the ocean economy contributes 25 percent of the revenues and over 30 percent of export revenues. It is becoming increasingly clear the enormous potential of our oceans.

Q: Do you think that the objectives of the World Ocean Summit can still reverse the decline in the health of our ocean for people, planet and prosperity?

A: This Summit brings on board all the stakeholders involved with ocean issues. This summit is also a pledging conference as funding always remains a thorny issue and yet there is urgency in data collection on several areas of the ocean ecosystems. It provides the policymaker and the researcher a holistic picture of what the ocean stands for and will hopefully change the narrative on the need to reverse the decline of the health of our ocean space.

Climate change remains a big component as acidification of the waters as well as rise in temperatures will affect both the flora and fauna.

We must always be mindful to the fact that humans have had a huge footprint in the health of our oceans as we have always assumed that the ocean is a dumping ground. It is NOT. There are within the ocean space, very fragile ecosystems that can be destroyed by small increases in acidity or temperatures.

Q: As an Ocean State, Mauritius does not seem to have given due consideration to the importance of our oceans in terms of an environmental asset. How would this Ocean Summit help to change our mindset?

A: Mauritius has a very small landmass, we have a very large space of 2.2 million km and I think what the ocean summit helps us to do is to bring back to the fore these multiple challenges or opportunities that the ocean as an entity presents to the economy of Mauritius. As I said, one of the areas will be sustainable fishery, which can be flagged into the economy. Mauritius and in the South West Indian Ocean fisheries are threatened, with up to 30 percent of the fish stock over-exploited or depleted and 40 percent fully exploited. The poor management of this sector has amounted to an annual loss of about USD 225 million.

However, the ocean is not only fish, it is also sustainable tourism as well as renewable energy, including wave energy, amongst others.

Q: The health of our oceans is critical for the survival of humanity. We have seen that despite all the international conferences and commitments, all the ecosystems of our planet are collapsing one after the other. How will this conference help to change things globally, but equally locally?

A: For me, the ocean cannot and should not be taken as a dumping ground or a carbon sink. We should also take stock of effluents coming from the rivers as all the runoffs eventually end up in the sea. Plastic pollution is also a very big issue because we know that a lot of damage is being done to wildlife because of un-recycled plastic. These conferences help us to see visually the impact of these polluting activities. They also bring live images, testimonies from people who have first-hand experiences. They help to change the mindset of people. They also try to bring people to think differently, sustainably. We need to change the way people do business, the way people look at the ocean, we need to have a completely fresh look at these.

Q: Climate change is a major challenge for the survival of humanity, and we have seen that the United States of America has started to back-pedal on climate change agreements. How do you perceive this change

of policy from a major carbon dioxide producer?

A: To me, climate change is the biggest threat to humanity because it will impact not only on the ocean but also all the ecosystems on earth. It will impact the loss of many species; already 17,000 are threatened and when these species disappear, they reduce the resilience of our ecosystem. I always say biodiversity underpins life on earth and it also in the ocean as well. This balance in the oceans ecosystem is very very fragile.

So, any change, even half a degree increase in temperature of the water, is not sustained by the animals living out there and they will disappear and that is a thing that we do not want to envisage. Now, some countries want to backpedal on climate change agreements, it's very unfortunate because many countries have fought very very hard to contain emissions. Large economies like India have started a global alliance on renewal energy, China has also made pledges, but it would be unfortunate that any country pulls out of this agreement because we are not talking about the short term but about the long term and for the larger good of humanity.

For those countries that feel that they still need fossil fuels to grow the economy, green technologies have shown that it is possible to sustain growth with same. It is proven and I don't think people have to shy away from the fact that by disinvesting in fossil fuels their economy will still progress. Clean energy is the answer.

Q: What are your hopes and expectations for the ocean summit?

A: The hope is that those who made pledges deliver on them. We are not too far off the tipping point, but I think all is not lost. We need to act fast and deliver on results as well as on commitments. Our future depends on it.

Q: Nearly two years into your term as President of the Republic of Mauritius, how do you perceive the question of gender equality in Mauritius, and are things are improving?

A: Post-independence Mauritius had a very low per capita income of around 200 USD. Several decisions had been taken since then to ensure the well being of the people and one such decision was to make education free for all in 1976. Education is an enabler and ensures social mobility of people. At that moment in time, parents did not have to make choices of whether to educate their sons or daughters.

Over 40 years down the line we have seen the transformation that this decision has had. The percentage of women in many professional spheres has increased. The medical, judiciary, teaching professions have more than their fair share of women's representation. We may be weak in terms of percentage at board levels or in politics but I think that it is work in progress. My message is very clear on this issue… any country that wants to make progress cannot afford to ignore 52 percent of its workforce and talents.

Story Credit: by Nasseem Ackbarally, April 2016, Inter Press Service News Agency. ipsnews.net

BERING STRAIT THEORY DEAD

by ALEXANDER EWEN

Indian Country Media Newwork, August 2016 - Two new studies have now, finally, put an end to the long-held theory that the Americas were populated by ancient peoples who walked across the Bering Strait land-bridge from Asia approximately 15,000 years ago.

Because much of Canada was then under a sheet of ice, it had long been hypothesised that an "ice-free corridor" might have allowed small groups through from Beringia, some of which was ice-free. One study published in the journal Nature, entitled "Postglacial Viability and Colonization in North America's Ice-Free Corridor" found that the corridor was incapable of sustaining human life until about 12,600 years ago, or well after the continent had already been settled.

An international team of researchers "obtained radiocarbon dates, pollen, macrofossils and metagenomic DNA from lake sediment cores" from nine former lake beds in British Columbia, where the Laurentide and Cordellian ice sheets split apart. Using a technique called "shotgun sequencing," the team had to sequence every bit of DNA in a clump of organic matter in order to distinguish between the jumbled strands of DNA. They then matched the results to a database of known genomes to differentiate the organisms. Using this data they reconstructed how and when different flora and fauna emerged from the once ice-covered landscape. According to Mikkel Pedersen, a Ph.D. student at the Center for Geogenetics, University of Copenhagen, in the deepest layers, from 13,000 years ago, "the land was completely naked and barren."

"What nobody has looked at is when the corridor became biologically viable," noted study co-author, Professor Eske Willerslev, an evolutionary geneticist at the Centre for GeoGenetics and also the Department of Zoology, the University of Cambridge. "The bottom line is that even though the physical corridor was open by 13,000 years ago, it was several hundred years before it was possible to

Courtesy Mikkel Winther Pedersen - Looking south through what was once the "ice-free corridor" in present-day Canada. A new study suggests that humans couldn't have traversed through the corridor until about 12,600 years ago, thus bringing about the end of the Bering Strait Theory.

use it." In Willerslev's view, "that means that the first people entering what is now the U.S., Central and South America must have taken a different route."

A second study, "Bison Phylogeography Constrains Dispersal and Viability of the Ice Free Corridor in Western Canada," published in the Proceedings of the National Academy of Sciences, examined ancient mitochondrial DNA from bison fossils to "determine the chronology for when the corridor was open and viable for biotic dispersals" and found that the corridor was potentially a viable route for bison to travel through about 13,000 years ago, or slightly earlier than the Nature study.

Geologists had long known that the towering icecaps were a formidable barrier to migration from Asia to the Americas between 26,000 to 10,000 years ago. Thus the discovery in 1932 of the Clovis spear points, believed at that time to be about 10,000 years old, presented a problem, given the overwhelming presumption of the day that the ancient Indians had walked over from Asia about that time. In 1933, the Canadian geologist William Alfred Johnston proposed that when the glaciers began melting, they broke into two massive sheets long before completely disappearing, and between these two ice sheets people might have been able to walk through, an idea dubbed the "ice-free corridor" by Swedish-American geologist Ernst Antevs two years later.

Archaeologists then seized on the idea of a passageway to uphold the tenuous notion that Indians had arrived to the continent relatively recently, until such belief became a matter of faith. Given the recent discoveries that place Indians in the Americas at least 14,000 years ago, both studies now finally lay to rest the ice-free corridor theory. As Willerslev points out, "The school book story that most of us are used to doesn't seem to be supported." The new school book story is that the Indians migrated in boats down along the Pacific coast around 15,000 years ago. How long that theory will hold up remains to be seen.

Story Credit: by Alexander Ewen, August 2016, Indian Country Media Newwork - https://indiancountrymedianetwork.com/history/genealogy/the-death-of-the-bering-strait-theory/

GLOBAL TREATY ON PLASTICS

by NILS SIMON

Ensia, August 9, 2016 — HERE'S WHAT IT SHOULD LOOK LIKE. *Plastic pollution is more than an ocean problem, and it's time we treat it as such.* Plastics have boosted our economy because they are versatile, cheap and durable. Yet, thanks to these same traits, in the course of establishing a US$750 billion global industry, we have also created a massive problem. Rivers are filled with plastic garbage. Plastic bottles soil beaches. Masses of plastic are floating in the ocean. Birds become entangled in plastic pieces, and whales' stomachs fill with plastic debris. Plastics can harm humans, too, by releasing toxic additives.

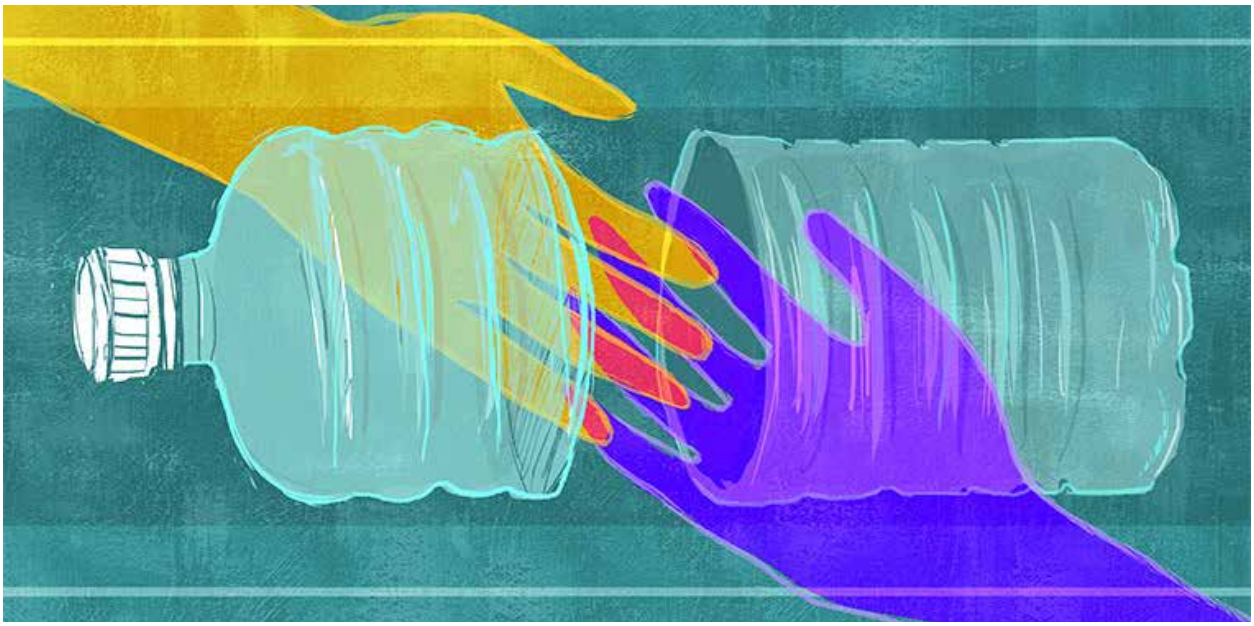
And the problem is getting worse: The production of plastics reached 311 million metric tons (343 million tons) in 2014 and is continuing to increase worldwide. Scientists estimate that in 2010 alone between 5 and 13 million metric tons (6 and 14 million tons) of plastics streamed into the sea. Many hopes have been put on biodegradable plastics, but those still don't break down easily enough.

A number of initiatives have recognized the need to address plastic pollution more decisively, including the United Nations' Sustainable Development Goals. In the Leaders' Declaration from its 2015 summit, the G7 committed to "combat marine litter." The U.N. Environment Programme has published several reports on the environmental impact of plastics, launched a number of initiatives against marine litter, and passed a resolution on microplastics and marine litter at its latest U.N. Environment Assembly in May 2016. Although the resolution recognizes plastic pollution as "a rapidly increasing serious issue of global concern that needs an urgent global response," thus far these initiatives have done little to solve the problem.

Plastic ends up in the oceans, but it doesn't start there.

BACK TO THE LAND

Why has plastics pollution been so intransigent from a global governance perspective? One reason is the inevitable difficulty that comes with complex policy problems, where many actors have a stake in the game and no clear-cut remedy exists. Still, I believe



that a more hands-on approach can at least pave the way toward more durable solutions. However, for it to do so we must rethink current efforts to shape multilateral actions, which have mostly taken place with a focus on oceans. After all, plastic ends up in the oceans, but it doesn't start there. Oceans-based agreements just don't have what it takes to tackle the main sources of plastic pollution. It is time to step up the game by negotiating a global treaty aimed at reducing plastic pollution that goes beyond marine pollution and tackles the roots of the problem.

Two options seem most viable for crafting a binding international agreement to deal with plastics. First, a stand-alone treaty could be negotiated, a multilateral environmental agreement dealing specifically with the production, use and disposal of plastics. It would not have to be built entirely from scratch because the U.N. already has a cluster of treaties dealing with a range of chemicals (which plastics are) and waste (which most plastics become). This chemicals and waste cluster is built by the Basel, Rotterdam and Stockholm conventions, which deal with the shipment and treatment of hazardous waste, international trade of toxic chemicals, and persistent organic pollutants, respectively. This cluster will soon be joined by the Minamata Convention, restricting the use and trade of mercury and dealing with its disposal. Any of these conventions could be a model for a plastics treaty that would be far more appropriate than a marine agreement because they contain provisions on how to deal with harmful substances from a life-cycle perspective, ban the most hazardous ones, and offer a framework through which countries in need can receive assistance.

Second, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal could be amended to specifically address plastic throughout its life cycle. Back in 2002, the Basel Convention's member states passed technical guidelines on how to deal with plastic waste. These guidelines could serve as the basis for negotiating an amendment that, once ratified, would make sustainable management of plastics mandatory to its members.

First and foremost, a common vision and clear goals are crucial.

There are also quirkier alternatives, building on a mix of legally binding and voluntary measures. For example, so-called emerging policy issues like nanoparticles or lead in paint are tackled under the Strategic

Approach to International Chemicals Management. SAICM is a voluntary multi-stakeholder policy framework for managing chemicals sustainably. It could be used to launch a plastics-based program, to raise awareness among governmental and non-governmental actors alike, and to prepare negotiations on a treaty. In addition, land- and oceans-based approaches could be combined to build on their respective strengths. The former could be covered in a stand-alone treaty or a treaty amendment as described above, whereas the latter could be tackled under the U.N. Convention on the Law of the Sea, MARPOL or the various regional seas agreements to focus on waste dumping at sea or lost fishing gear.

CRITICAL ELEMENTS

Whatever form the new agreement will take, the specific content will be key to its success in reducing plastic pollution. Five critical elements should be included (for a related take, see this proposal for a Global Action Agenda).

First and foremost, a common vision and clear goals are crucial. The vision should call for the sustainable management of all plastics throughout their life cycle. A number of concrete goals could specify steps to achieve this, and a review system for measuring how well all nations implement them would make progress transparent.

Second, a plastics treaty should demand (and support) building effective national collection and recycling systems, because they are the most effective means of preventing plastic littering. Extended producer responsibility schemes and multi-stakeholder partnerships could be fostered to further extend collection where governments lack capacities. When this doesn't suffice, plastic manufacturers could be charged to provide revenues for establishing recycling systems.

Third, the treaty should create conditions for a more circular plastic economy. Chemical and other companies must be pushed toward innovation for more sustainable products, including plastics that more easily degrade in the environment. This is a huge innovation challenge for the industry, yet it can elicit a race to the top just as provisions to safeguard the ozone layer through the Montreal Protocol did 30 years ago. The companies moving first will have the biggest advantages in the years to come.

Fourth, no matter how good collection programs are and how safe innovative plastics will become, some of it will still end up in the environment (joining the millions of tons already there). A plastics treaty should thus provide for mechanisms to deal with any plastic waste that remains.

Fifth, to get all this to work, a plastics treaty must provide funds for implementation. These days, raising money for multilateral

There is a strong economic argument for taking on the plastics challenge: Not only are environmental and health damages of untreated plastic pollution extremely costly, there is also huge savings potential.

agreements is a really tough job. But there is a strong economic argument for taking on the plastics challenge: Not only are environmental and health damages of untreated plastic pollution extremely costly, there is also huge savings potential (for example, the Ellen MacArthur Foundation estimates that 95 percent of the value of plastic packaging — some US$80 billion to US$120 billion — is lost each year when the material is discarded).

The problem of plastic pollution will not be resolved by simply negotiating a new international treaty. However, such a treaty could be the cornerstone for a more comprehensive approach linking public and private actors, binding regulation and market-based schemes, land-based and ocean-centered activities.

We have seen a lot of partnership-based, ocean-focused and mostly voluntary action in the past. It is time to bring international law into this picture and craft a treaty that can spearhead a real and enduring solution.

Story Credit: by Nels Simon, August 2016, Ensia News. https://ensia.com/voices/we-need-a-global-treaty-on-plastics-heres-what-it-should-look-like/

VIEWS FROM MAARS

MARITIME ABORIGINAL AQUATIC RESOURCES SECRETARIATE

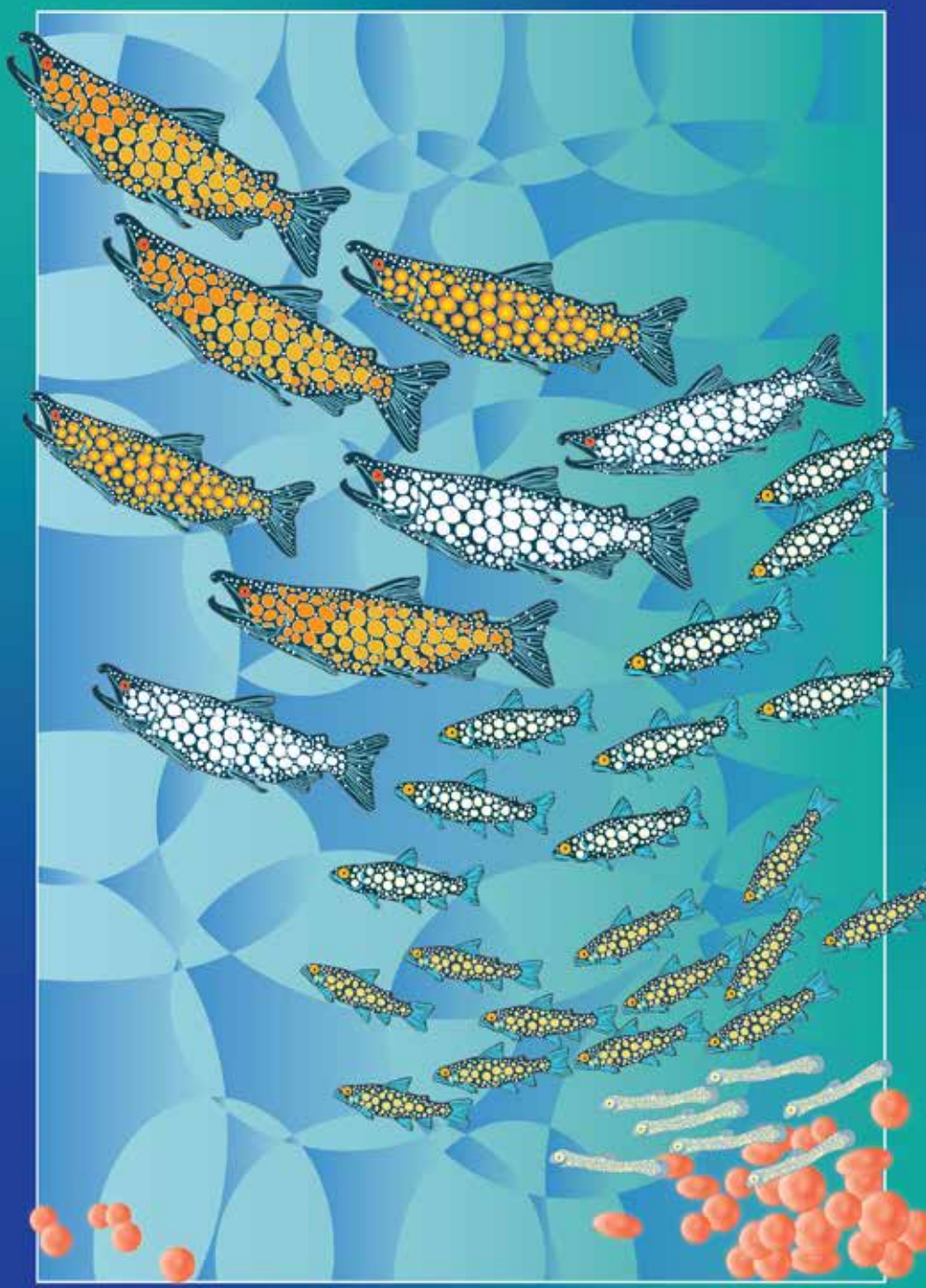


Illustration by Anna Nibby-Woods

WESAKECHAK

A BIRD BY MANY NAMES

by JAMIE KNILL

The Gray Jay, Whiskey Jack, Moosebird, Canada Jay, Camp-Robber, Meat-Bird, Wesakechak. Canada's new national bird goes by many names. It was chosen by Canadian Geographic in November 2016 based on the opinions of tens of thousands of Canadians, ornithologists and conservationists, cultural experts, and Indigenous peoples. Why was this bird chosen to represent our nation? It is found in every province and territory, has never been recorded outside of North America, and has the majority of its habitat located within Canada. Gray Jays do not migrate; they are permanent residents of Canada who live in the boreal and mountain forest regions year-round. These little birds are quite remarkable and have a very unique lifestyle.

Gray Jays are scavengers and regularly eat insects, berries, small mammals and amphibians, carrion, bird eggs and nestlings, and fungi. They are opportunistic feeders who will steal food from camp sites and have even been seen landing on a live moose to eat a tick off its back. Not all of these foodstuffs are consumed immediately. The Gray Jay, like squirrels, makes hidden caches of food throughout its territory to survive during the winter. They use special saliva to glue their food together into a ball and hide it in trees by covering it with a piece of bark or lichen. These caches are distributed evenly throughout the forest to prevent theft or catastrophic loss. Because of their stationary lifestyle, the lifespan of the Gray Jay is on average 8 years, but the oldest on record reached the age of 17.

Photo Credit: Jason Dain - Gray Jay with mischievous grin.

Nesting occurs extremely early in the year. New nests are built staring in February with eggs laid at the end of March and hatching in mid April. The young jays are able to leave the nests by early May. The nest is usually built on the south side of the tree or on the north side of a clearing or break in the forest. Scientists do not know exactly why this is but it is thought to be related to the amount of sunlight received in such a specific location. By the time the baby jays are 50 days old, they are able to feed themselves and are nutritionally independent. However, there is competition between Gray Jay brothers and sisters, with one "dominant" juvenile expelling its siblings from their parents' territory. Territories are passed down through generations of families. If both parents are still alive, the dominant juvenile stays with them for the first year until it finds a nearby vacant territory and may help raise the next year's young.

The Gray Jay is much quieter than its cousins, the Crow and Blue Jay. The gray jay sing a "whisper song–a soft melody interspersed with quiet clicks." Despite being much less vocal than other birds, they are able to make many more sounds. They are even very good at mimicking predator calls such as that of Hawks and Crows, though why they do this is unknown.

ABORIGINAL CONNECTIONS

The name Whiskey Jack is an anglicization of the Cree word Wisakedjak or Algonquin word Wesakechak. This makes the Gray Jay Canada's only bird to be referred to in common language by its traditional Indigenous name.

In Ojibwa stories, the trickster Nanabozho assumes the Gray Jay's form, giving it a playful, kind spirit. Similar Cree stories picture the Gray Jay as a shape shifter. In the stories the Gray Jay is not only a trickster, but also a great teacher and messenger of the forest. Some western

Aboriginal Peoples consider the appearance of the Gray Jay in the morning as a good omen and its vocalizations as early warnings to hunters of nearby predators. There are even some Yukon Gwich'in guides that say the Gray Jay's singing and flittering movements from tree to tree can lead a lost hunter home.

The Gray Jay also appears in many Mi'kmaq stories, one being the story of the stars. In this story, the Gray Jay along with other birds decide to hunt the Bear. During the chase, many of the birds, including the Gray Jay, fall behind Robin and Chickadee who are leading the hunt. He knows that Bear has been shot by Robin's arrow but decides to take his time reaching the hunters so that he may arrive after all of the hard work is done but still feast on the meat. The Gray Jay always arrives after the kill earning him the name: he-who-comes-in-at-the-last-moment. Robin and Chickadee share the food with Gray Jay anyway, even though he did not help, as sharing is tradition. In this story, Bear is the bowl of the big dipper and the bird-hunters are the handle of the constellation. The story also explains the Gray Jay's opportunistic scavenging habits.

THREAT OF CLIMATE CHANGE

Unfortunately, the Gray Jay population is declining. One of the main reasons for this is thought to be due to their winter food supply being spoiled due to warmer winters. This "fridge failure" has been attributed to the 60% decrease in Gray Jay range in Algonquin Park, Ontario between 1980 and 2005. When the Gray Jay's winter caches rot, they are not able to successfully lay eggs and raise their young. This link to climate change and the long lifespan of the Gray Jay makes them excellent indicators to study climate change.

Photo Credit: Andrew Wagstaff. Adult Gray Jay perched on a branch.

HOW CAN YOU HELP?

Placing bird feeders with suet in the winter months may help them to survive if their caches fail. You can also participate and report sightings of the Gray Jay using Bird Studies Canada's FeederWatch program or by logging sightings on eBird Canada (www.ebird.ca). You can sign up for FeederWatch by calling 1-888-448-BIRD or online at http://www.birdscanada.org/volunteer/pfw/index.sp?lang=EN

22 MAY 2017
INTERNATIONAL DAY FOR BIOLOGICAL DIVERSITY
Biodiversity and Sustainable Tourism

2017 WORLD WETLANDS DAY

by JESSICA SEWARD

Every year on February 2nd, the Maritime Aboriginal Peoples Council (MAPC) and the Maritime Aboriginal Aquatic Resources Secretariate (MAARS) with IKANAWTIKET Environmental Incorporated (IKANAWTIKET) collaborate their participation in World Wetlands Day. The date marks the anniversary of the final draft agreement for the Convention on Wetlands reached in Ramsar, Iran – which is why the Convention is sometimes referred to as the Ramsar Convention.

IKANAWTIKET provides information about wetlands to educate youth and the public about the importance of wetlands and their ecosystem services.

Each year the Standing Committee of the Ramsar Convention on Wetlands declares a theme for World Wetlands day, highlighting the vital role which wetlands play for sustainability, social economic benefits, and rural-peasant incomes, including the fight against climate change. Wetlands for Disaster Risk Reduction is the 2017 theme which aims at raising awareness about wetlands and to emphasize how healthy wetlands reduce the impacts of extreme weather events such as floods, droughts and cyclones on communities providing resilience to those forces.

(http://www.worldwetlandsday.org/)

A whole new group of excited wetland experts!

This year's theme focuses on how wetlands are nature's shock absorbers. Peatlands and wet grasslands within watersheds and river basins act as natural sponges. These saturated lands create wide surface pools, absorb large quantities of water during heavy rainfall periods, and reduce the impacts of floods in streams, rivers and surrounding communities. The ability of wetlands to store water also helps to safeguard against drought. Other wetland types such as mangroves and saltmarshes contain vegetation whose roots bind to the shoreline resisting coastal erosion caused by wind and crashing waves. This vegetation also reduces the speed and height of storm surges. These wetland ecosystem functions combine to build resilience against climate change.

From left to Right. Shubenacadie Sam, Ducks Unlimited's mascot Drake, Smokey the Bear, and IKANAWTIKET's mascot CLIPIE were all together on Wetlands Day at the Shubenacadie Wildlife Park on February 2, 2017.

IKANAWTIKET, using the Wetlands Interactive Display, delivered a hands-on activity where 55 youth from the Newbridge Academy in Bedford, Nova Scotia learned about different wetland types and functions. Using wood chips, peat moss, sand, and gravel the youth developed their own functioning wetlands.

Coinciding with the theme of Risk Reduction, youth learned about ecosystem services provided by wetlands such as filtration and flood control were used.

Youth used a variety of household ingredients to create 'pollution' which the students poured into their wetland models.

As the 'pollutants' made their way through the layers of the fabricated wetlands in this demonstration, the layers worked together to absorb water and filter out contaminants from the system.

One important function of a wetland is its ability to slow the movement of surface runoff from rain and melting snow. This

The IKANAWTIKET Wetlands Display uses common household products to imitate pollutants that contaminate many wetlands in Nova Scotia. Detergents from washing vehicles, camping, and improper waste-water treatment, excess nutrients such as phosphorous and nitrogen from agricultural and other operations, industrial waste from improper containment and spills, as well as road salt during winter months all make their way into waterways and wetlands leading to habitat degradation and biodiversity loss.

process enables excess nutrients and sediment to settle out of the water column and be sequestered by aquatic vegetation. This process occurs in all forms of wetlands including bogs, peatlands, marshes, and even small seasonal wet spots like vernal pools in our backyards.

It is clear from the experiment, that the wetlands had absorbed much of the excess water, as well as removed significant amounts of the contaminants. However, these results varied depending on the order of the soil layers, as well as the quantity of contaminants the youth introduced into their wetland systems. This was an important hands-on experiment aimed to teach the youth about how wetlands function, and if wetlands are overburdened with contaminants, wetlands can lose their buffering capacity resulting in flooding and water contamination.

IKANAWTIKET is excited to be partnering with the 2017 Class of Dalhousie Agricultural College's Engineering Department to develop and fabricate a more mobile, light weight, and modular Wetlands Demonstration Lab which will allow us to engage groups of 10-15 up to

Youth from Newbridge Academy participate in the Interactive Wetlands Display.

"Dalhousie Agricultural College Engineering Department's Class of 2017 presents their year-end project on April 4, 2017. The need for a mobile lab was raised with the 'class of 2017, by Jessica Seward of Ikanawtiket. The class conceived and produced a prototype of a mobile "Wetland Lab", dubbed the "QuadBog", which will be used at different venues to educate youth about wetlands and the ecosystem servies which they provide.

larger groups of 15-40 students.

Education about our environment and how it functions is an important lesson for students as they become engaged in real world environmental issues that go beyond the classroom walls. Students are also able to see the significance of their classroom studies and can relate them to the complex environmental issues confronting our planet today. Through programs like IKANAWTIKET's Wetlands Display students can acquire the skills they need to be the creative problem solvers and environmental advocates of the future.

This program fosters the education of today's youth and raises the public's understanding about the socio-economic benefits of wetlands, as well as the health, habitat, biodiversity, and sustainability of wetlands.

Joshua McNeely asking youth why they think some of the wetlands worked better than others at absorbing excess water and filtering certain contaminants.

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THE EVOLUTION OF OCCUPATIONAL HEALTH & SAFETY

by BARRY MARSMAN

In the early twentieth century employers did not have any legal duty to provide compensation or have to assume responsibility for the care of injured workers, unless the cause of the accident or injury was deemed to be completely the fault of the employer's workplace. During this period, the central legal principle of "assumption of risk" governed workplace hazards, thereby placing the onus on workers who, upon accepting employment, assumed and accepted all the risks associated with their occupation of employment.

The Depression of the 1870s worsened workplace conditions for Canadians who were forced to work longer days for smaller wages and under conditions without any safety or health regulation nor access to compensation in the event of injury.

In 1887, the Government of Canada directed the Royal Commission on the Relations of Capital and Labour in Canada to investigate the condition of working people throughout the Dominion.

Documenting the feedback of close to 1800 witnesses, the Commission concluded that there was an unacceptable level of injury among workers as well as oppressive working conditions. The Commission, made several recommendations for improving Occupational Health and Safety (OH&S) and called for establishing standards and mandating regular

Barry Marsman at a workplace of a former employer as Health, Safety and Environmental Cordinator.

inspections. The Commission also included a recommendation calling for the creation of a system for compensating victims of industrial accidents regardless of who was at fault for the accident and proposed that a labour bureau be created to administer the development of OH&S regulations.

In 1913, Justice William Meredith, who was appointed to a "Royal Commission to study workers' compensation", produced his final report, known as the Meredith Report. The Meredith Report outlined principles whereby workers abandon their right to sue in exchange for compensation benefits. Particularly, the "Meredith Principles" promoted no-fault compensation for injured workers through collective financial liability or a system of financing liability costs to be shared by all employers. The regime would be managed through an independent administration which would be directed by a non- political governing board that had complete jurisdiction - in effect this meant that the governing board had the final decision on all claims.

The Association of Workers' Compensation Boards of Canada (AWBC) was founded in 1919, as a non- profit organization to accelerate the exchange of information

between Workers' Compensation Boards and Commissions. In the early twentieth century, All Canadian Provinces had created worker's compensation boards and every jurisdiction in Canada had passed legislation to regulate heating, ventilation, hygiene, lighting, accident reporting, and fire safety.

In the early 1970's, the Ontario government established the "Royal Commission on the Health and Safety of Mine Workers" which communicated the following three key workers' rights which now form the basis of all Canadian Occupational Health and Safety (OH&S) regulations.

1. The right to refuse dangerous work without penalty;
2. The right to participate in identifying and correcting health and safety problems;
3. The right to know hazards in the workplace.

The three rights noted above, to this day, still form an important basis for all current OH & S frameworks, processes and legislation in Canada.

Occupational health and Safety is structured under an assortment of instruments in Canada, comprising of acts, regulations, standards, guidelines, and codes. These mechanisms form the general rights and responsibilities of employers, workers and supervisors. OH&S legislation differs from jurisdiction to jurisdiction and each province and territory publishes its own regulations in addition to federal regulations. As such, all fourteen jurisdictions in Canada – one federal, ten provincial and three territorial – have their own OH&S legislation. The majority of workers and workplaces are regulated by provincial and territorial legislation, with the exception of employees of the federal government and federal entities in Canada, who fall under federal legislation.

I hope this brief history helps all our Aboriginal Communal Commercial Fisheries Entities, fishers, captains, owners and managers better appreciate how evolving new legislation, including that of Transport Canada's "New Fishing Vessels Safety Regulation" coming into force July 13, 2017 are spreading the reach of Occupational Health and Safety to include the health and safety of fishers undertaking one of the most dangerous occupations - fishing out at sea.

GOAL 14

Conserve and sustainably use the oceans, seas and marine resources for sustainable development

By 2025, prvent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution.

NEW AIR QUALITY STANDARD FOR SULPHUR DIOXIDE

by JOSHUA MCNEELY

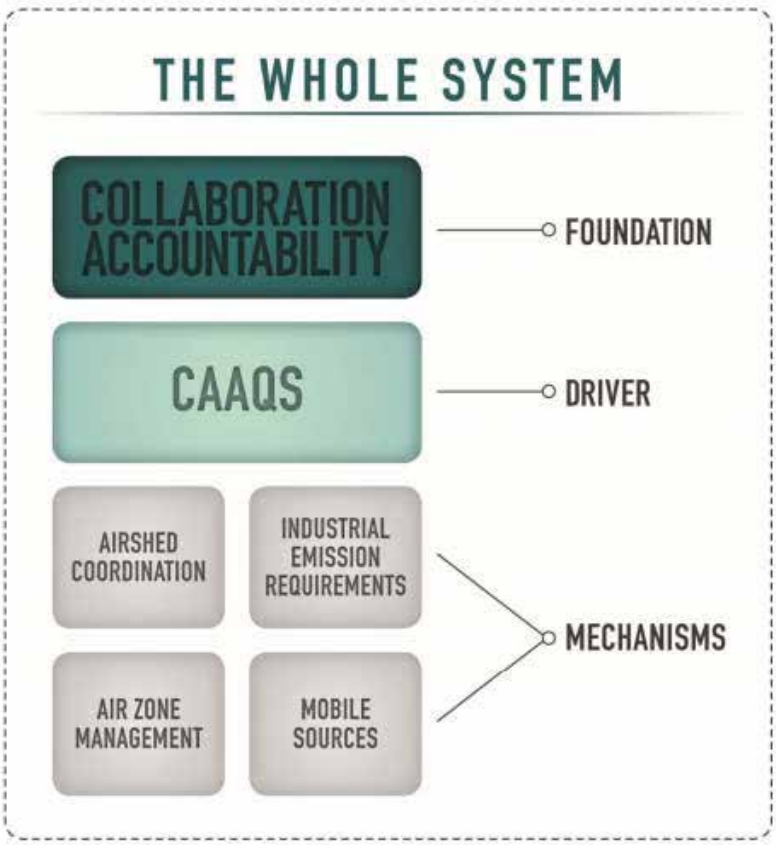
Joshua McNeely, October 3, 2016, Montreal, Quebec - The Canadian Council of the Ministers of the Environment (CCME) has adopted a new Canadian Ambient Air Quality Standard (CAAQS) for an important air pollutant in Canada: Sulphur Dioxide (SO2).

From the CCME website:

"As a part of the continuing implementation of the Air Quality Management System (AQMS), Ministers took action to reduce sulphur dioxide emissions. These emissions are linked to respiratory health problems, particularly for children and adults with asthma, and environmental impacts such as acid rain and smog.

Ministers announced new Canadian Ambient Air Quality Standards (CAAQS) for sulphur dioxide, that will drive the improvement of air quality across the country. These standards were developed through a collaborative process that included industry associations, non-governmental organizations, indigenous organizations and governments."

Management level and action	Management levels for the 1-hour CAAQS for SO_2 (ppb)		Management levels for the annual CAAQS for SO_2 (ppb)	
	Effective 2020	Effective 2025	Effective 2020	Effective 2025
Red To ensure that CAAQS are not exceeded through advanced air management actions	> 70 ppb (CAAQS)	> 65 ppb (CAAQS)	> 5.0 ppb (CAAQS)	> 4.0 ppb (CAAQS)
Orange To improve air quality through active air management and prevent exceedance of the CAAQS	>50 to ≤70 ppb	> 50 to ≤ 65 ppb	>3.0 to ≤ 5.0 ppb	> 3.0 to ≤ 4.0 ppb
Yellow To improve air quality using early and ongoing actions for continuous improvement	> 30 to ≤ 50 ppb		> 2.0 to ≤ 3.0 ppb	
Green To maintain good air quality through proactive air management measures to keep clean areas clean	≤ 30 ppb		≤ 2.0 ppb	



By comparison, the previous standards established in 1974 (and reviewed in 1989) under the previous National Ambient Air Quality Standards (NAAQS) acts for the one hour exposure was 172 ppb and for an annual exposure of 11 ppb.

Significant to this decision by the federal and provincial ministers responsible for air quality, is that the new standards for SO2 were developed through a review, discussion, and negotiation process of the CAAQS Development and Review Working Group (CDRWG). The CDRWG is comprised of representatives for industry, health and environmental NGOs, Aboriginal Peoples, the provinces and territories, Environment and Climate Change Canada, and Health Canada.

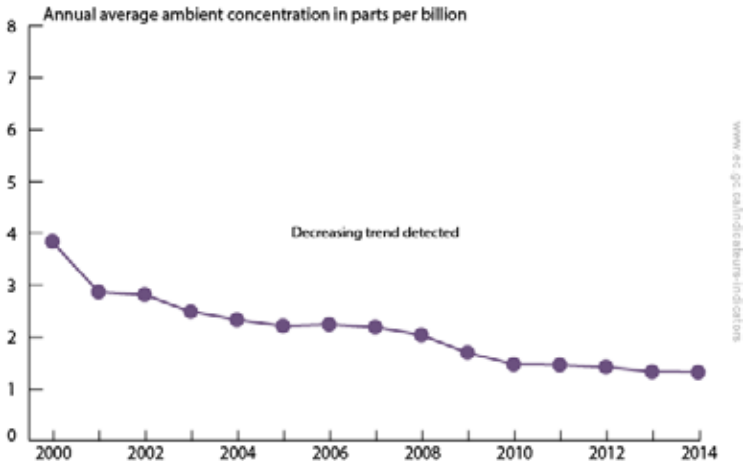
The CDRWG is a new process under a new Canadian-wide Air Quality Management System (AQMS) adopted by the CCME in 2012. Under AQMS, the federal, provincial, and territorial governments, share responsibility for managing point source industrial air emissions and mobile emissions at broad air zone (within provinces) and air shed (transboundary) levels. The vision of AQMS is for jurisdictions to work with

industry, environmental NGOs, and others to review ambient air quality conditions in their respective air sheds/air zones to make recommendations about how to achieve the best air quality possible in their respective air shed/air zone, guided by the CAAQS values and accompanying CCME guidance documents.

For areas in the red (above the CAAQS level), this would require active management of air pollution sources to reduce ambient air pollutant concentrations below the CAAQS value. Areas in the orange would require active management to improve air quality and prevent an exceedance of the CAAQS. Areas in the yellow require early and on-going actions (e.g., development of an air shed or air zone management plan or promotion of new technologies) in order to achieve continuous improvement. While areas in the green are comparatively much cleaner, those air zones and air sheds still require continuous monitoring, public education, and publication of reports showing air quality trends and progressive management actions which have resulted in lower air pollution levels guided by the CCME vision of "continuous improvement and keeping clean areas clean".

It is remarkable that not only was the new sulphur dioxide standard developed by the CDRWG, led by consensus of industry, health and environmental NGOs, and Aboriginal Peoples representatives, the CCME ministers value the process and output such that the recommendation from CDRWG went through all levels of the CCME decision-making process unchanged and it was adopted by the CCME ministers without any changes. Even more remarkable then is that the new standard for ambient air SO2 is about 5 times more stringent than the previous National Ambient Air Quality Standard and one of the most stringent standards for SO2 in the world.

A concern expressed when developing the new SO2 standards is whether or not industry will be able to adopt new technologies and practices in sufficient time to achieve the standards. In the case for sulfur dioxide a lot has already been achieved over the past decade, particularly with the introduction of new low sulfur fuels, new scrubbers on industrial stacks, and decreased reliance on coal-fired electrical generation (though coal is still widely used in Nova Scotia).



For example, of the 81 communities sampled by the National Air Pollution Surveillance stations, 10 communities are currently above 65 ppb (the new hourly standard for 2025), but only 5 are projected to be above the 2025 standard when it comes into effect after considering air improvement actions currently underway (i.e., the "Business as Usual" case). Likewise there is a projected improvement in annual exposure amounts.

Currently, 6 communities are at or above 4 ppb (the new annual standard for 2025), but in the Business as Usual case only 4 communities are expected to be at or above the standard by the time it comes into effect in 2025. The largest problem areas in Canada will be Trail, BC; Taylor, BC; Prince George, BC; Fort McKay, AB; and Sarnia, ON, all of which are expected to be above 100 ppb on an hourly standard in 2025, with Trail expected to be well above 200 ppb. More worrisome is that Taylor, Fort McKay, and Sarnia expected to have higher ambient SO2 levels in 2025 than they did in 2012.

In Atlantic Canada, Saint John, NB continues to be a problem with high short-term exposures.

Hourly readings currently exceed 80 ppb; however the Business as Usual case forecasts a reduction of about ½ by 2025, putting Saint John in the Yellow Level for hourly ambient SO2. Halifax has been a problem in the past for the long-term or annual exposure levels, but is currently around 2 ppb; however, the 2025 Business as Usual model forecasts a doubling of the annual ambient SO2 concentration in Halifax, which puts it at risk of exceeding the annual standard for 2025.

As with other areas of Canada, there also exists some localized high pollution events which are not recoded by the National Air Pollution Surveillance system. An important recommendation for regulators is that the CAAQS should be used as a guide for broad scale management, while "fence-line" air monitoring stations and other local air monitoring stations should be used to set objectives and conditions of approval for facilities, transportation corridors, etc. The CCME is also requesting provinces and industry representatives to submit a list of other air monitoring stations which meet the National Air Pollution Surveillance criteria so that the CDRWG can make better informed decisions when we undertake the SO2 CAAQS review in a few years' time, as well as when we move ahead on other CAAQS.

I am pleased to be one of the 12 non-government members of the CDRWG and that we have been able to openly and frankly listen to each other's views, constraints, and desire for cleaner air. Canada has achieved some remarkable reductions in air pollution and we should all pat each other on the back. Certainly, industry does much of the "heavy lifting" and bears much of the up front costs to reduce emissions. Environmental and health NGOs have done an admirable job to research the effects of air pollution and educate Canadians. The public has also become much more aware of the health and environmental effects of air pollution and have demanded cleaner fuels, lower emission infrastructure, and more publicly available information to help inform consumers to choose greener products.

I feel that with all that effort to produce some of the lowest ambient air SO2 levels recorded in recent decades, it is our duty to the current generation of air quality champions and to the future generations who will breath cleaner air that we "lock-in" our recent successes with a new SO2 Canadian Ambient Air Quality Standard.

As we go to press, I am just returning from another CDRWG meeting to set the new CAAQS for nitrogen dioxide. If everything goes well, I hope to be able to report by this fall a similar success story led by industry, NGO, and Aboriginal Peoples consensus for a new ambitious CAAQS for NO2 by which we might measure our legacy.

NEW FISHING VESSEL SAFETY REGULATIONS coming into force on July 13, 2017

If you own or operate a commercial fishing vessel, please read this important safety information. It applies to all commercial fishing vessels that are not **more than 24.4 metres** in length and **not more than 150 gross tonnage**.

Most commercial fishing deaths happen because of vessel instability, where a vessel capsizes, founders, or sinks or, because of crew falling overboard. Transport Canada's priority is to help reduce deaths and injuries as well as loss or damage to commercial fishing vessels. This is why we regularly engage with fishing vessel owners, safety groups and fishing safety associations across the country. Their ideas helped us develop new safety requirements that reflect industry best practices and new technology.

New *Fishing Vessel Safety Regulations* that come into force on **July 13, 2017**, will help reduce the risk of accidents and save lives.

The previous *Small Fishing Vessel Inspection Regulations* remain in force until July 13, 2017.

What's New?

1. **You must provide written safety procedures for your crew**

It's a fact: written safety procedures help increase safety and reduce accidents.

Note: Transport Canada marine safety inspectors do not have to approve your written safety procedures, but they may ask to see copies of them on board. Visit Canada.ca/fishing-vessel-safety for templates.

You must also:

- Hold safety drills to ensure your crew is prepared to follow the safety procedures in an emergency.
- Keep records of every drill.

2. **Your vessel must carry proper safety equipment**

The new requirements provide a range of choices for safety equipment all small fishing vessels must carry (such as life rafts):

- The personal life-saving appliances and visual signals you must carry **depend on hull length.**
- The life rafts and other life-saving appliances you must carry **depend on the class of voyage and hull length**.
- The firefighting equipment youmust carry **depends on hull length**.

practices and standards for stability that are appropriate to the type of vesseland that take into account its intended operations.

- A vessel that is not required to conform to Section 4 of TP 1332 or the recommended practices and standards must have the stability needed to safely carry out the vessel's intended operations.

Notes:

1. Even if your vessel is not required to undergo a stability assessment, it must still have the stability it needs to safely carry out its intended operations.
2. If your fishing vessel had a stability assessment before July 13, 2017, Transport Canada will accept this as meeting the new requirement if:
   - Transport Canada approved the assessment; and
   - The assessment is up-to-date and accurately reflects the vessel's structure, fishing gear and operations.
3. **A fishing vessel of closed construction**, more than 15 gross tonnage and used for catching herring or capelin any time between July 6, 1977, and July 13, 2017, **will still need** a stability assessment as per the previous *Small Fishing Vessel Inspection Regulations*.

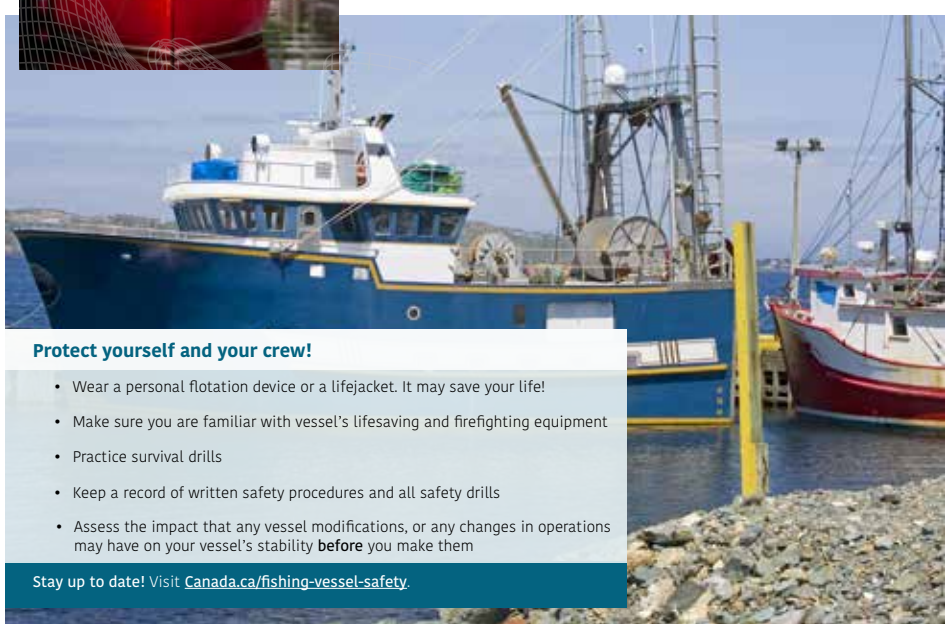
Transport Canada will accept a stability assessment conducted during that period as continuing to meet the requirement if:

- Transport Canada approved the assessment; and
- The assessment is up-to-date and accurately reflects the vessel's structure, fishing gear and operations.

Small Vessel Compliance Program

A new version of the Small Vessel Compliance Program is being developed to help owners and operators of small commercial fishing vessels not more than 15 gross tonnage understand and meet the regulatory requirements.

Please note that all fishing vessels more than 15 gross tonnage will continue to be inspected for certification by Transport Canada.



Protect yourself and your crew!

- Wear a personal flotation device or a lifejacket. It may save your life!
- Make sure you are familiar with vessel's lifesaving and firefighting equipment
- Practice survival drills
- Keep a record of written safety procedures and all safety drills
- Assess the impact that any vessel modifications, or any changes in operations may have on your vessel's stability **before** you make them

Stay up to date! Visit Canada.ca/fishing-vessel-safety.

OUR READERS

TRASHY RAMPS HARMFUL AND A DISGRACE

By Anna Nibby-Woods, May 2017. I often wonder what prompts people to do what they do, good or bad. "*Recently I had a chance to actually ask one of these people why*".

It all started with a caller to a talk-radio show about litter which prompted me to write to my town council about litter on our access ramps to and from a 100 series highway. Before I received a response to my letter the garbage disappeared from both the on and off ramps to my community. The identity of this good semaritan who did this benevolent environmentally conscientious action was a mystery. It took me a few days to find out who that citizen was but then to also find out that this same person wasn't even from my town but lived in the next town over. He did us such a huge favour, not just in cleaning up that mountain of trash but lite a fire under our metaphorical feet to look after this ongoing problem. Since then, a Town Councilor has organized a committee of businesses and residents which created a clean-up group that will meet four times a year to get the job done.

The first of four scheduled clean-ups to pick up accumulated garbage from the highway access ramps to our town happen April 29th, 2017.

"You must be the change you want to see in the world." Mahatma Gandhi

Over 20 bags (x4) of trash collected by our good semaritan from the access ramps to our small town in rural Nova Scotia. Photo credit: unknown

A COMPELLING REASON

A HEALTHY ENVIRONMENT DEPENDS ON YOU & ME

Sooner or later, we will have to recognise that the Earth has Rights too, to live without pollution. What mankind must know is that human beings cannot live without Mother Earth, but the planet can live without humans.

... Evo Morales

Fifty years ago, the supertanker SS Torrey Canyon hit rocks off the coast of Cornwall, England spilling more than 100,000 tonnes of crude oil into the English Channel. Beaches were left knee-deep in sludge and thousands of sea birds were killed in what remains the UK's worst environmental accident.

IKANAWTIKET

environmental respect l'environnement

The objective of IKANAWTIKET Environmental Incorporated is: to promote the preservation of the natural environment by educating and informing the public about environmental issues, biodiversity in the Maritime Provinces, Aboriginal culture, Aboriginal worldview, and traditional knowledge in relation to the environment.

IKANAWTIKET advances education by undertaking research which is made available to the public, providing training and instruction, offering courses, seminars, convening conferences, meetings and developing educational tools related to understanding and respecting the environment.

The charitable work of IKANAWTIKET Environmental Incorporated benefits the community by preserving and protecting the environment through the preservation, protection, and restoration of habitats, and increasing the public's understanding about the environment and its importance to all life.

"Is controlling nature worth destroying our environment and our biodiversity, killing our young, and poisoning our food, water, and air?"

IKANAWTIKET
Environmental
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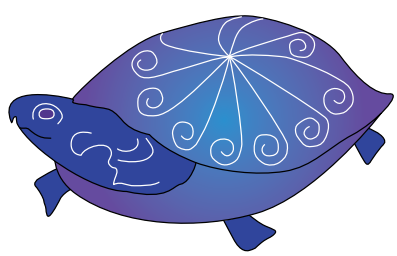

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StFX IS AN ENVIRONMENTALLY FRIENDLY CAMPUS

At StFX, we are serious about environmental sustainability and the health of our planet. From 2008 to 2016 we reduced our energy use by 27.5 per cent, leading to a 21.8 per cent drop in greenhouse gas emissions. That's equivalent to removing over 1,500 mid-sized cars from the road, every single year.

Our students, faculty and staff are highly engaged in making StFX a clean and green community. StFX students have led the way on outfitting our student union building with solar panels, and organizing initiatives that empower the StFX community to boost our commitment as environmental guardians. We believe a green planet is in our power! Learn more at stfx.ca/sustainability.

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stfx.ca

AQUATIC RESOURCES

AT STFX explore the characteristics that determine the nature of aquatic resource ecosystems and examine the way humans interact with those resources, including looking at sustainability from local and international perspectives.

Students who major in Aquatic Resources at StFX find fascinating career opportunities. Many graduates go on to advanced studies in law, planning, resource and sustainability management, marine and freshwater sciences, archaeology and more. You will be ready to pursue a career as a research ecologist, environmental analyst, lab and field assistant, water resources scientist, environmental scientist or environmental quality analyst, and much more.

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