

# CHAPTER 38

## A FOCUS ON POLITICS, LAWMAKING, AND OUR FEDERAL AND INTERNATIONAL ENVIRONMENTAL LAWS

### 38. 1. INTRODUCTION

#### 38. 1. 1. Our Representative Democratic Form of Government

The CNMI is part of the American nation. At the same time, we are a self-governing Commonwealth. All American-affiliated states, commonwealths and territories, and numerous other nations and states have democratic societies. More accurately, each is a **representative democracy**. This means we elect our leaders and lawmakers. It is these whom we elect who govern us and make our laws.

Like other U.S. states, commonwealths, territories — and the American nation as a whole — we pass our locally-applicable laws through our elected representatives.

These laws ultimately decide how our environment is used, conserved, and improved. Like all laws, environmental laws reflect the policy choices our elected leaders make.

#### 38. 1. 2. Influencing our Elected Leaders

We help our elected leaders determine the best policies to choose when we express our opinions to them. There are many effective (and legal) ways to influence our elected leaders to act quickly on an issue that concerns us. Under the U.S. Constitution each person has a right to free speech and to petition the government for a redress of their grievances.

Circulating a petition is one very effective method. Others include writing a personal letter, having a one-to-one conversation, and writing a letter to the editor of a local newspaper concerning a certain environmental issue.

#### 38. 1. 3. Elections

We also tell our elected leaders what we want, and what we do not want, each time we cast our vote in our islands' elections. Get ready to be a voter if you are not one already. Voting is an important public responsibility and it's the key to the success of every democracy. Elections occur every two years for some offices. Others happen every four years. There are even special elections that can be called at any time.



*The CNMI is part of the American nation. At the same time, we are a self-governing Commonwealth.*

Do the individuals asking for your vote care about the environment? Do they understand local and federal environmental issues and laws? Not sure? Why not ask them? This makes for an excellent class project.

Most elected leaders are very pleased to be invited to come to a class to speak about their work. You will find that they also wish to learn how students feel about the issues. Non-elected government agency appointed directors and staff will usually also volunteer as resource speakers when asked.

Elections are fun and exciting but they are also very serious matters. They call upon us, as citizens, to carefully choose the best amongst all the candidates running.

#### 38. 1. 4. Secret Ballots

We should all try to learn about the issues and the candidates before we vote. It is usually best to keep your vote a secret, however, unless you are actively helping in a candidate's campaign.

The right to a secret ballot is another U.S. constitutionally guaranteed right. Keeping our choices and our ballots secret is critical in preventing illegal vote tracking and election fraud.

If you are helping a campaign or running for office yourself, get out there and wave to other potential voters. Tell them why you or your candidate would make a good island leader. What is your candidate's viewpoint on pollution control, endangered species protection, and regulating development? Let the public know.

#### 38. 1. 5. Goals of Environmental Laws

The goal of many environmental laws is to help prevent, minimize and remedy damages to our earth's natural resources. "Think globally, act locally", so the saying goes.

For example, our environmental laws might help prevent damage to our coastal or ground water's quality. They do this by limiting the amount of a pollutant a private firm or public agency may release into it. Other laws require past polluters to clean up areas which they have polluted. Through our environmental laws, those found to be responsible for polluting the environment must pay for the costs of cleaning up their mess.

How much pollution is too much? Which species should be declared endangered? How much land should be set aside as protected habitat for our wildlife and our wilderness recreation needs? What restrictions, if any, should we place on our fishing harvests?

Making these choices involves value judgments. These in turn involve tradeoffs and sacrifices. There are different perspectives on what the *right thing to do* is, which vary from individual to individual, island to island, and country to country. The results of this "give and take" become our overall environmental policies. These policies then guide our lawmaking.

#### 38. 1. 6. Federal vs. International Laws

Here in the CNMI we apply and are subject to municipal, commonwealth-wide, national, and international environmental laws.

MAYOR <small>(Vote for not more than one)</small>		MEMBER CITY COUNCIL <small>(Vote for not more than six)</small>	
Robert Frederick Loderer		Juan W. Cook	Write In
Write In		Jeffrey D. Greenfield	
		Earl C. Ipan	
		Gerald T. "Jerry" O'Dell	
		Clay J. Kastenman	
		R. Scott Silverthorn	
		Patricia M. Winter	
		Write In	
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*Through our environmental laws, those found to be responsible for polluting the environment must pay for the costs of cleaning up their mess.*

Here we focus our attention on the last two, national and international environmental laws. We also discuss situations when states, commonwealths, and territories have certain requirements under these laws.

Our national laws govern the actions of individuals and groups within our nation. The requirements of our international laws, on the other hand are enforced differently. These generally rely on reporting and regular meetings of the countries concerned.

International laws are rather unique in this regard. Nations will usually draft national laws to implement the requirements of international agreements which they agree with and are signatories to.

## 38. 2. THE ENVIRONMENT AND THE U.S. LEGAL SYSTEM

### 38. 2. 1. The CNMI and U.S. Environmental Laws

Here in the United States, both our federal government and our states, commonwealths, and territories have the authority to develop laws.

The CNMI has a special relationship, known as the Covenant, with the United States. This special relationship means that the CNMI is not required to comply with certain federal laws in the same way that a state or territory would be. The CNMI is however, required to comply with all federal environmental laws.

### 38. 2. 2. Our Federalist System and Intergovernmental Relations

The U.S. system is a federalist system. This means that lawmaking authority is divided between the states, commonwealths, territories and the U.S. Federal government.

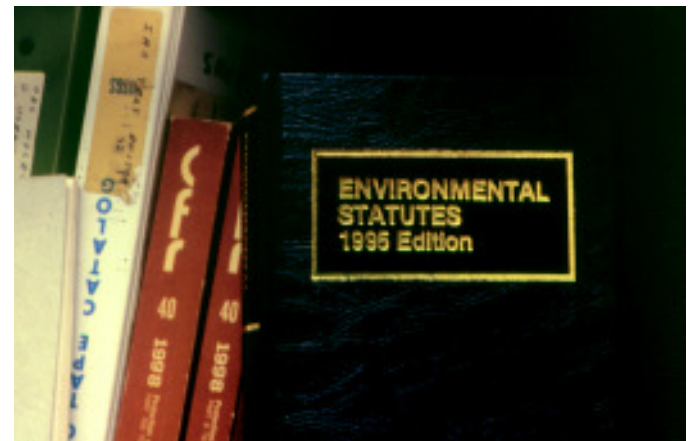
As mentioned, both the U.S. Federal government and the states, commonwealths and territories have the authority to implement environmental laws. States, commonwealths, and territories retain these authorities as a reserved right under the tenth amendment to our U.S. Constitution.

This amendment asserts that “The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people.”

States, commonwealths, and territories enact this authority by drafting and adopting their own Constitutions. They use this authority in the exercise of their **police powers**. These are Common Law-recognized powers. The police powers enable these jurisdictions to take actions to protect the public health, safety, and welfare of their citizens.

State, commonwealth, and territory environmental laws which protect against pollution usually find their basis in their power to protect their citizens’ public health.

States, commonwealths, and territories have the authority to develop laws in any area except where the Federal government has been given sole jurisdiction. State, commonwealth, and territory



*Both the U.S. Federal government and the states, commonwealths and territories have the authority to implement environmental laws.*

laws are only applicable to the citizens, residents and visitors of these jurisdictions.

The Federal government also gets its lawmaking power from the U.S. Constitution. Article VI of the U.S. Constitution is called the **supremacy clause**.

It states that all laws made according to the requirements established in the U.S. Constitution, and all international treaties which the United States enters into, are classified as the supreme law of the land. This means that these laws are legally superior to any conflicting laws developed by a state, commonwealth, or territory.

States, commonwealths, and territories have a great deal of authority to regulate environmental impacts through their reserved police powers. A state, commonwealth, or territory cannot, however, enact a law that contradicts or weakens an existing Federal law.

If a state, commonwealth, or territory law did this, the law would be unconstitutional. Thus it would be unenforceable. The supremacy clause also prohibits a state, commonwealth, or territory from enacting laws that contradict the civil rights granted by the U.S. Constitution.

For example, a state, commonwealth, or territory could not pass a law that prohibited people from exercising their constitutional right to free speech. When one law has legal superiority over another, it is said to *preempt* the latter.

Federal laws are applicable to all citizens of the U.S. nation. When there is a conflict, the Supreme Court has ruled that the supremacy clause mandates state, commonwealth, and territory officials to enforce the federal laws.

### 38. 2. 3. The Sources of Our Environmental Laws

Environmental laws, or **statutes**, are enforced and interpreted through **regulations** and **judicial opinions**.

Statutes are laws enacted by a legislature. Federal statutes are laws developed by the U.S. Congress. A statute generally begins as a bill introduced into either the U.S. Senate or the U.S. House of Representatives by one or more senators or representatives.

A bill becomes a U.S. statute (a law) by being approved in both the House and Senate by a majority vote, and being signed into law by the President of the United States.

If the President does not like a bill, the President can **veto** it or refuse to sign it into law. If this happens, the only way that the bill can become a law is for it to be voted on again in the House and Senate. If, the second time around, the bill is approved by a 2/3rds majority, it becomes a law even without the President's signature. This is called a **veto override**.

The process of turning a bill into a law is called **enactment**. Once a statute is enacted, it becomes part of the United States Code (U.S.C.). Statutes are sometimes also called Acts. An example of an



*Federal statutes are laws developed by the US Congress.*

environmental statute is the U.S. Clean Water Act (37 U.S.C. Secs. 1251-1376). Sometimes the words “et seq.” will follow a law reference. This means that the reference refers to the original law, as well as all amendments to it.

By using this coded reference, and the others we provide in this chapter, you can look up all of our U.S. laws either at a law library, at most court buildings, or through the help of a lawyer (many keep their own sets), a community legal service, or on the Internet.

Copies of federal laws can be obtained by asking a member of the U.S. Congress or by writing to the U.S. Library of Congress. The Internet is quickly becoming the most frequently used reference to obtain digital files of federal laws.

Although Congress enacts federal laws, it generally delegates the authority to implement them to one or more Federal agencies. Under this authority, a federal agency will issue **regulations**.

When a federal agency proposes regulations, they are published in the **Federal Register**. The Federal Register is a large document published daily. It can also now be found on the Internet.

In most cases, the agency will first publish a draft set of regulations. This makes it available for review and comment by other agencies, special interest groups, and the general public.

The agency issuing the rules must consider all relevant comments received. They must decide whether the draft rules need to be changed. After the agency has received public comments and made any changes, the regulations are finalized and published in their final form (called a **final rule**). Although some regulations have the force of law, regulations are not and do not become law, per se.

Most final rules include a date after which the agency can enforce them. This date is known as the effective date of the regulation.

In rare cases, an agency can issue a direct final rule. This is a regulation that was not published as a draft for public comment. A direct final rule is only issued when it is expected to only have a positive impact. Federal regulations may only be challenged in federal courts.

**Judicial opinions** play an important role in the implementation and interpretation of federal environmental laws. Federal courts have the power to decide if a law violates the U.S. Constitution. If it does, the parts in violation must be redrafted.

The courts also play a significant role in determining how laws are implemented. They do this by deciding controversies between adversarial parties.

For example, environmental organizations might **sue** the government or an industry to require that a certain part of a law or regulation be implemented in a different way. The judges and juries of the U.S. court system then decide the outcome of these lawsuits.



*The Federal Register is a large document published daily. It can now be found on the Internet.*

The courts also decide what the legislators intended when they drafted the law in question, and how it should be implemented in certain cases. The court's decision establishes **precedents**. A precedent must be followed or taken into account when deciding future cases.

Only on very rare occasions will the U.S. Supreme Court choose not to adhere to an earlier Supreme Court precedent. When it does not, it must determine that a **judicial error** was made by the earlier Court. These error determinations become new precedents and thus may have the effect of law as well.

As mentioned, states, commonwealths, and territories have the authority to implement laws that are only enforceable on the citizens and residents under their jurisdiction. In general, local lawmaking follows the same pattern as the federal lawmaking process. Commonwealth laws can be found using the Commonwealth Code in law libraries, at courts, at the legislature, and through local attorneys.



*Only on very rare occasions will the U.S. Supreme Court choose not to adhere to an earlier Supreme Court precedent.*

CNMI agencies often provide copies of those laws that specifically refer to their mandates. At the time of this book's writing the Commonwealth Code encompasses four volumes. 2 CMC Sec. 1501 et seq. is the reference for our Commonwealth's Coastal Resources Management Act.

As with federal laws, the authority to implement state, commonwealth, or territory laws and to write regulations is generally delegated by the state, commonwealth, or territory legislature to a respective agency.

Although states, commonwealths, and territories cannot enact laws that contradict or weaken federal laws, each has the power to issue laws that are stricter than federal laws.

Let's suppose, for example, the federal government establishes a minimal level for contaminants in drinking water (which it does). Any state, commonwealth, or territory can enact a law that sets an even lower, more strict standard.

If it did, this would mean that industries and public authorities in that state, commonwealth, or territory would not be allowed to discharge as much pollution as they could if only the federal law applied.

State, commonwealth, or territory laws may be challenged in either federal or state, commonwealth, or territory courts, depending on the issues involved. Courts most often uphold the more locally developed standard in recognition of the state, commonwealth, and territories' protection of public health police power authority.

### **38. 3. AGENCIES TASKED WITH IMPLEMENTING ENVIRONMENTAL LAWS**

#### **38. 3. 1. Introduction**

As mentioned, Congress often delegates the authority to implement federal laws to one or more federal agencies. These agencies

are responsible for two things. First, they develop regulations that define how the law is to be applied to the activities that the law was intended to govern. Second, they enforce the law and any adopted regulations throughout the country.

Federal agencies sometimes transfer enforcement and implementation authority to states, commonwealths, and territories. This only occurs if the state, commonwealth, or territory has demonstrated the sufficient capability to carry out the requirements of the law. The primary agencies responsible for implementing environmental laws are discussed below. There are several more.

### 38. 3. 2. The U.S. Environmental Protection Agency (EPA)

The Environmental Protection Agency (EPA) was created by the U.S. President in 1970. This important agency was one result of the large environmental movement of the 1960's and the "call to arms" by Rachel Carson's book, *Silent Spring*. You may recall we mentioned her work in our first chapter and several others.

The EPA is tasked with implementing most federal laws that prevent and control pollution. These include laws controlling air and water pollution, managing solid and hazardous waste, and regulating pesticides and toxic substances.

The U.S. EPA headquarters is located in Washington DC. The agency also maintains ten regional offices located throughout the United States.

These regional offices have primary responsibility for implementing the federal environmental laws within their areas. They are also responsible for issuing permits and enforcing them. The CNMI falls under the jurisdiction of EPA Region IX.

The Region IX EPA's main office is in San Francisco, California. A team under the Office of Pacific Islands Programs located there helps find funding solutions for, and also oversees the CNMI's, Hawaii's, American Samoa's, and Guam's attempts to address their pollution concerns. Assistance is also given to the Republic of Belau, the Federated States of Micronesia (Kusaie, Yap, Pohnpei, and Chuuk), and the Republic of the Marshall Islands.

### 38. 3. 3. The U.S. Department of the Interior (DOI)

This agency is tasked with the management of many of our federally owned, civilian-controlled, public lands and resources. Major programs within the Department of the Interior include the U.S. Fish and Wildlife Service, the U.S. Bureau of Land Management, and the U.S. National Park Service.

It also includes the U.S. Geological Survey (U.S.G.S). The U.S.G.S. contains, amongst others, the Hydrologic Resources Division and the recently added Biological Resources Division. This later division undertakes research on nationally important biological resources such as endangered species.

### 38. 3. 4. The U.S. Department of Commerce (DOC)

Much of this department is devoted to trade and industry activities. However, it also contains the very large National Oceanic and Atmospheric Administration (NOAA).



*The EPA is tasked with implementing most federal laws that prevent and control pollution.*



*The DOI is tasked with management of all federally owned, civilian-controlled, public lands and resources.*



NOAA has three main areas of concern. It conducts marine and atmospheric research. It manages living resources and the marine environment. Finally, it maintains environmental databases.

The National Marine Fisheries Service (NMFS) is housed within NOAA. The NMFS is responsible for management of federal fisheries resources and their habitat. NOAA also provides support for state, commonwealth, and territorial Coastal Zone Management programs.

### 38. 3. 5. The U.S. Department of State

The U.S. State Department is tasked with negotiating international treaties and conventions on environmental issues. Only the federal government may enter into international agreements. Article One, Section Ten of the U.S. Constitution forbids states, commonwealths, and territories from entering into such agreements.

Within the State Department is the Bureau of Oceans and International Environmental and Scientific Affairs. The Bureau is responsible for implementing international policies and proposals in many areas. These include such areas as oceans, fisheries, tropical forests, biological diversity and wildlife.

### 38. 3. 6. The U.S. Department of Homeland Security: US Coast Guard

One branch of the U.S. Department of Homeland Security is the U.S. Coast Guard. The Coast Guard is responsible for addressing oil and hazardous substance spills in the marine environment. The Coast Guard also implements maritime laws, such as those that control pollution from ships.

### 38. 3. 7. State, Territory and Commonwealth Agencies

Each state, commonwealth, and territory of the United States has agencies similar to those in the federal government. These agencies implement and administer all locally developed environmental laws and regulations applicable within their borders.

They set standards and establish guidelines, provide public education and outreach, and monitor compliance. They may inspect sites, investigate instances of potential non-compliance, bring suits, and levy fines.

The primary environmental enforcement agencies in the CNMI are the Coastal Resources Management Program (CRM), the Division of Environmental Quality (DEQ), and the Division of Fish and Wildlife (DFW). These agencies often work in coordination with the CNMI's Attorney General's Office for enforcement actions.

## 38. 4. OUR MAJOR FEDERAL ENVIRONMENTAL LAWS; AN OVERVIEW

### 38. 4. 1. Introduction

The United States government has drafted several environmental laws. Many of these laws are implemented by individual states, commonwealths and territories through their laws or standards. Many states have also drafted laws to increase the strictness of federal laws and to expand their applicability.

*The Department of Commerce contains the very large National Oceanic and Atmospheric Administration (NOAA), in which the National Marine Fisheries Service (NMFS) is housed.*



*The US State Department is tasked with negotiating international treaties and conventions on environmental issues.*



For example, several states, commonwealths and territories have laws to protect species in addition to those listed by the federal government as threatened or endangered. Our Commonwealth is a good example. At the time of this book's writing the CNMI lists the Marianas Fruit Bat as endangered while the U.S. government does not. This section will discuss our country's major federal laws for environmental protection and conservation.

#### 38. 4. 2. National Environmental Policy Act (NEPA)

No single environmental law covers all environmental activities and issues. The closest thing to such an all-encompassing law is the National Environmental Policy Act (42 U.S.C. Secs. 4321-4370b), originally drafted in 1969.

Under this Act, the Federal government and its agencies are required to assess the environmental and human health impacts of proposed federal activities that may adversely affect the environment. Such activities might include proposed construction, land clearing, or mining. NEPA review is also required for certain activities aimed at improving environmental conditions or mitigating past environmental damage.

Impacts from federal activities are to be weighed against several other concerns. These include the U.S. government's policy objectives, the benefits of the proposed action, and any options for reducing or mitigating impacts.

To meet these requirements, federal agencies are required to prepare **environmental impact statements (EIS's)**, or **environmental assessments (EA's)**. These should communicate potential adverse impacts to the public. They should present options for addressing these impacts to the extent practicable.

NEPA requires that the public be involved. The public should help evaluate whether proposed federal actions are adequately designed to protect human health and the environment.

Only activities undertaken by federal public agencies, or by U.S. government-hired contractors working on the behalf of these agencies, are subject to NEPA. This federal law does not apply to private development.

When developing EA's or EIS's, federal agencies must meet certain requirements. They must identify and discuss direct, indirect, and cumulative impacts of their proposed actions. A "no action" alternative must also be considered.

The EIS always includes a review of the proposed activities in light of other environmental regulations at all government levels, and discusses possible conflicts. This is because the goal of NEPA is to avoid environmental problems before any activity is started.

Many states have implemented their own versions of NEPA. These are generally called State Environmental Policy Acts, or SEPA's. These laws require state, commonwealth, or territory agencies to conduct an environmental review of any major activity that the state, commonwealth, or territory is considering undertaking.



*The Coast Guard, a branch of the U.S. Department of Homeland Security, is responsible for addressing oil and hazardous substance spills in the marine environment. The Coast Guard also implements maritime laws, such as those that control pollution from ships.*

Here in the CNMI, certain large development projects, such as hotels, golf courses, and homestead projects are also required to prepare EIAs under our Coastal Resources Management Program (see our chapter on development permitting).

## 38. 5. POLLUTION CONTROL AND PREVENTION LAWS

### 38. 5. 1. Introduction

Most of our federal environmental laws can be classified as either pollution prevention and control laws, or living resource conservation laws.

Pollution prevention and control laws are designed to reduce the amount of pollution released into specific **environmental media**, such as air, water, groundwater, and soil. Laws that focus on only one of these media are called media-specific laws.

Almost all of the pollution prevention and control laws in the United States are media-specific laws. Many of these laws were first drafted in the 1970s and 1980s. At that time, media-specific laws seemed adequate. This was because a large portion of our country's pollution came from factories and industrial sources, which were polluting either the air or the water.

To a large extent, these laws have been very successful. Many rivers that were badly polluted have been cleaned. Many hazardous chemicals that were released to the air are now captured and disposed of in other, safer ways.

Today however, much of the water and air pollution in the United States is created by individuals, not factories. It comes from sources like the exhaust from our cars and from the fertilizers and pesticides we put on our yards, farms, and golf courses.

However, our various efforts towards controlling pollution has each created its own set of problems. What do we do with the waste that we once released into the water? What do we do with the smoke that we once released into the air?

Recycling has helped reduce the amount of waste in some industries. Factories are able to recapture and reuse chemicals that they would once have thrown away. At some point, though, many of these pollutants do end up in the waste stream. If we collect the pollutants and take them to a landfill, aren't we simply moving them from one environmental medium to another?

Pollutants can also move from one medium to another on their own. For example, automobile exhaust contains chemicals that can increase the acidity of lakes and streams. These chemicals are released into the air, but they end up in the water by falling out of the air with the rain.

Similarly, consider solid hazardous waste that is buried in the ground at landfills. This waste can degrade and leach into the groundwater, sometimes endangering drinking water supplies.



*In the CNMI, certain large private development projects, such as hotels and golf courses, are required to prepare EIAs under our Coastal Resources Management Program.*



*Much of the water and air pollution in the United States is created by individuals, not factories. It comes from sources like the exhaust from our cars and from the fertilizers and pesticides we put on our yards, farms, and golf courses.*

Over the years, we have developed a better understanding of what happens to pollutants in the environment. We have increased our ability to detect pollutants. We also have a better understanding of the adverse effects these pollutants have on human and environmental health.

The original media-specific pollution control laws have been amended several times to incorporate our new knowledge of how pollutants move through the environment. For example, the most recent Clean Air Act amendments contain provisions for controlling the automobile exhaust emissions that contribute to acid rain.

Regulators are interested in controlling these emissions, in part, because of the adverse impact they have on lakes and streams. This is just one example of how a media-specific law is being used to deal with the multi-media nature of pollution.

### 38. 5. 2. The Clean Air Act

The Clean Air Act (42 U.S.C. Secs. 7401-7642) was one of the first environmental laws implemented in the United States. Congress drafted it in 1970. Since then, Congress has strengthened and expanded its requirements through numerous amendments. The most important amendments were passed in 1990.

The major goal of the Clean Air Act is to reduce the amount of pollution released into the air. It does not matter whether the pollution is intentional or a byproduct of other activities. Under the Act, the EPA established levels of allowable pollution. These levels are the **national ambient air quality standards (NAAQS)**.

Currently, six pollutants are limited through the NAAQS. They are carbon monoxide, sulfur dioxide, nitrogen-oxide compounds, particulates, ozone, and lead.

As discussed earlier, states, commonwealths, and territories that are authorized by the EPA to implement the Clean Air Act, can set their own standards. However, these standards must be at least as restrictive as the federal standards. At the time of this book's writing, the CNMI does not have separate air quality standards.

NAAQS apply to pollution from both stationary and mobile sources. Examples of stationary sources include power plants, industrial facilities, and garbage incineration facilities. Mobile sources generally include automobiles and trucks.

**Non-attainment areas** are locations within the United States which do not meet the NAAQS for a specific pollutant or combination of pollutants. Special, stricter standards apply to these areas. These special standards attempt to bring the level of pollution down to acceptable levels.

The Clean Air Act also contains special provisions for new sources of air pollution. The EPA requires that these sources meet stricter air pollution standards. This is because these new sources can more easily benefit from modern technology to control their pollution emissions.



*NAAQS apply to pollution from both stationary...*



*and mobile sources.*

These standards require new stationary air pollution sources to implement **best available technology** controls. This is so they can reduce the amount of pollution they emit.

The standards take many factors into account. They consider demonstrated technologies, costs for implementation, and energy consumption requirements.

Another portion of the Clean Air Act addresses the release of hazardous substances from industrial operations. Before the 1990 amendments, the EPA had emission standards for only eight categories of hazardous air pollutants.

Today, the Clean Air Act controls 189 hazardous air pollutants. The EPA must now pre-identify the best available control technologies for stationary sources to control pollutant emission levels.

In addition, industries must report when they exceed specified levels. These reports are made available to the public. The **Emergency Planning and Community Right to Know Act of 1986 (EPCRA)** requires such reports.

The 1990 amendments to the Clean Air Act also included new provisions for protection of the stratospheric **ozone layer**. This layer shields the earth from the harmful, cancer-causing radiation of the sun.

In the late 1980s, several substances called **Chlorinated fluorocarbons (CFC's)**, were found to break down the ozone layer. These chemicals are used as refrigerants, aerosol propellants, solvents, and fire suppressants. Thus, they were in air conditioners, spray cans, and fire extinguishers.

An international agreement phased out the production of these substances. It required nations to implement programs that reduce the amounts of these chemicals being released into the air. See our discussion on the Montreal Protocol below.

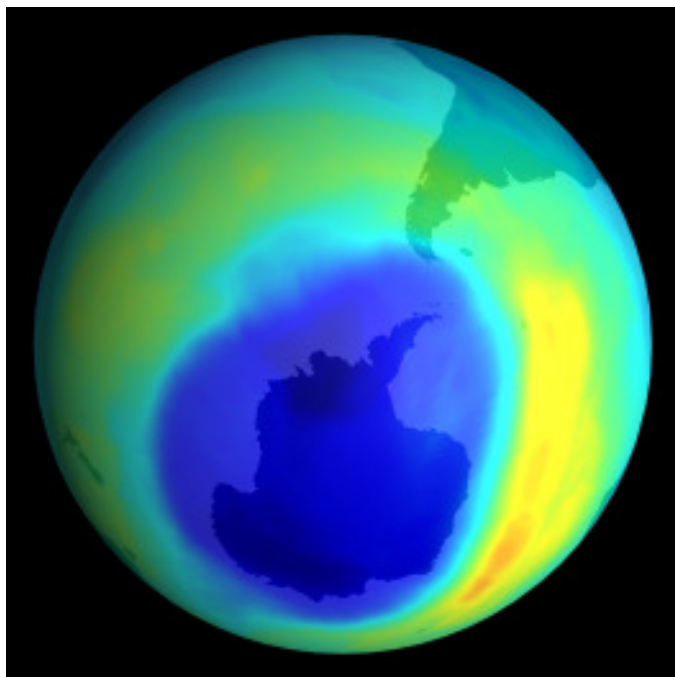
The deadline set for phasing out production of these chemicals was 1995. The Clean Air Act contains provisions for phasing out CFC production in the U.S.. Other provisions ensure that the remaining stocks of chemicals are not released into the air.

The Clean Air Act makes it illegal for businesses that service air conditioners to release these chemicals to the atmosphere. When servicing automotive, residential, and industrial air conditioners, they must use equipment that recycles the CFCs. (See our chapter on Air and Noise pollution.)

### 38. 5. 3. The Clean Water Act

The Clean Water Act (33 U.S.C. Secs. 1251-1376) is designed to protect and restore the chemical, physical and biologic integrity of our nation's waters. It controls water pollution from two sources. These are point sources and nonpoint sources.

If a pollutant is discharged directly into the water through a pipe or outfall, it is considered a point source. Point sources are required to obtain a permit for discharging pollutants.



*The 1990 amendments to the Clean Air Act also included provisions for protection of the stratospheric ozone layer. This layer shields the earth from the harmful, cancer-causing radiation of the sun. This image illustrates the "hole" in the ozone layer over Antarctica.*

This permit is called a **National Pollution Discharge Elimination System (NPDES)** permit. It is aimed at reducing the amount of pollution directed into open waters.

Nonpoint source pollution comes from releases that are not directly out of a pipe. Examples of these releases are runoff from roads, seepage from landfills, and overflow of stormwater drains.

#### Point Source Pollution and Pollution Standards

To reduce pollution from point sources, the EPA has established three types of standards. They are **technology-based** standards, **ambient or water quality-based** standards, and **health-based** effluent standards.

Technology-based standards require a facility discharging pollutants to use available technology to control the discharge. There are several types of technology-based standards that apply to different activities.

For example, sewage treatment facilities have specific technology-based standards aimed at reducing specific pollutants. Examples of such pollutants are suspended solids and fecal coliform bacteria.

Ambient or water quality standards are used when technology-based standards are not sufficient to ensure protection of a body of water. States, commonwealths and territories are required to classify all water bodies according to how those waters are used.

In the CNMI, most waters are classified as "AA". This means that they must be free from toxic pollutants in concentrations that would harm human, plant or animal life. Such harm includes, but is not limited to, decreased growth rate or reproductive success, or significant alterations in population or community ecology. Water near our ports are classified as "A", with slightly less stringent standards applying.

Once a standard is set, the **total maximum daily load (TMDL)**, or discharge level, for individual pollutants is established. The TMDL is at a level that maintains water quality standards. It is the job of each state and territory to determine at what level ambient water quality standards and TMDLs should be set.

The other standards used to control water pollution are health-based standards. These are used in two cases. They apply when technology-based standards are not sufficient to ensure adequate protection of public health. They also apply when the pollutant being discharged is a toxic pollutant that threatens public health.

Toxic pollutant effluent standards have been set for six chemicals. They are aldrin, endrin, toxaphene, benzedrine, polychlorinated biphenyls (PCB's), and DDT and related compounds.



*In the CNMI, most waters are classified as "AA". This means that they must be free from toxic pollutants in concentrations that would harm human, plant or animal life.*

### Nonpoint Source Pollution

Nonpoint source pollution is much more difficult to control. This is because it is often difficult to determine where the pollutant is coming from.



*Runoff from agricultural lands can contain high levels of fecal coliform bacteria, pesticides, nutrients, and other pollutants. Under its erosion and stormwater control regulations and other rules, the DEQ requires the implementation of best management practices.*

Runoff from agriculture lands can contain high levels of fecal coliform bacteria, pesticides, nutrients, and other pollutants. It is often impossible to identify clearly whose land the pollutants came from. This is because pollutants from many different locations run together before reaching a major water body, such as a lagoon. It is also much more difficult to control nonpoint source pollution through the use of technology.

States, commonwealths and territories identify those water bodies that do not meet water quality standards. They establish these standards for each water body. They determine whether the pollutants are coming from point or nonpoint sources.

The CNMI Division of Environmental Quality regularly tests waters here in the CNMI. It does this to determine if they meet CNMI water quality standards.

Under its erosion and stormwater control regulations and other rules, the DEQ requires the implementation of **best management practices**. These often include construction of storm water detention areas. Such areas prevent contaminated storm water from running off into the lagoon. (See our chapter on Water Pollution.)

#### [38. 5. 4. The Marine Protection, Research and Sanctuaries Act](#)

This federal regulation prohibits illegal dumping of waste materials into the territorial sea of the United States or contiguous waters. It also regulates the transport of material from the U.S., or on U.S. waters, for the purpose of ocean dumping.

The EPA has the authority to issue permits for ocean dumping. However, such dumping must not threaten the marine environment or public health.

Permits are regularly issued for the disposal of material dredged from harbors and shipping channels into deep water areas, for example.

#### [38. 5. 5. The Resource Conservation and Recovery Act \(RCRA\)](#)

RCRA (42 U.S.C. Secs. 6901-6992) is the primary federal law which controls solid and hazardous waste disposal. It is a very complex law, originally drafted in 1976. It has undergone many changes through amendments since then.

Unlike the Clean Water Act and the Clean Air Act, the RCRA is not media-specific. It addresses waste disposal across all environmental media. RCRA defines waste as:

“any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities.”



*The CNMI Division of Environmental Quality regularly tests waters here in the CNMI. It does this to determine if they meet CNMI water quality standards.*

A further subcategory of this definition is hazardous wastes. However, this category excludes domestic sewage, irrigation return flows, point source discharges permitted under the Clean Water Act, and certain radioactive wastes.

RCRA establishes guidelines and standards for the disposal of household and non-hazardous wastes. But, it leaves management of those wastes up to state and territorial governments.

The federal government's role is threefold. First, it ensures that standards for the design of landfills are implemented correctly. Second, it issues permits to these landfills for operation. Finally, it regulates the transport of household and non-hazardous wastes in coastal areas. States, commonwealths and territories are required to develop waste management plans that meet federal requirements.

For hazardous wastes, RCRA establishes strict criteria for tracking, storage, and disposal. The system for managing hazardous wastes is often referred to as a **cradle to grave system**.

This is because waste generators, transporters and disposers are required to document their activities during the whole "life" of the hazardous waste. This substance is tracked from the moment it is classified as a waste, to the time it is finally and properly disposed of.

RCRA prohibits the landfilling or land disposal of certain hazardous wastes. It prohibits diluting or mixing wastes to reduce their hazardous components. RCRA also establishes disposal requirements for nuclear waste. (See our chapter on Solid Waste.)

### 38. 5. 6. The Pollution Prevention Act of 1990

In contrast with the RCRA, the Pollution Prevention Act (42 U.S.C. Secs. 13102-13109) established a national policy favoring waste reduction over waste disposal.

The PPA provides financial assistance to states, commonwealths and territories to reduce wastes from various categories of sources. The goal is to reduce the amount of waste that will eventually need to be handled under RCRA. Thus, it also seeks to reduce the amount of waste generated. A section of the PPA focuses on reducing and recycling hazardous wastes.

### 38. 5. 7. The Comprehensive Response Compensation and Liability Act (CERCLA)

CERCLA (42 U.S.C. Secs. 9601-9675) addresses environmental contamination at sites that are no longer used for industry or other purposes. CERCLA is also called the **Superfund law**. This is because it creates a revolving fund that can be used by state and local governments to clean up certain hazardous waste sites.

The EPA lists these sites on the National Priorities List. CERCLA begins cleanup by identifying a **potentially responsible party (PRP)**. This is the organization believed to be responsible for causing contamination at a specific site. In some cases, there will be several PRPs.



*RCRA establishes guidelines which ensure that standards for the design of landfills are implemented correctly. Saipan's Marpi landfill meets these standards.*



*The Superfund program addresses environmental contamination at sites that are no longer used for industry or other purposes.*



*In Fall of 1990, the supertanker Exxon Valdez ran aground in Prince William Sound, Alaska, creating the worst oil spill in U.S. history.*



*The OPA-90 requires facilities that store, transport, or manufacture oil to develop oil spill contingency plans. It also requires them to provide access to equipment needed to respond to a worst-case oil spill.*

The EPA has established mandatory cleanup standards for various contaminants. These standards dictate how much contamination needs to be removed from a site. The EPA must agree that it meets the standards. Then it is considered clean and no longer a threat to human and environmental health.

Public participation is a required component of a CERCLA site cleanup, or remediation. The public is informed of the amount and type of contamination found at a site, the options for cleaning it, and the costs of the cleanup.

CERCLA also establishes important procedures. These allow the assessment of natural resource damages. They also allow requiring a PRP to incorporate the costs of that damage into the remedies the PRP must develop.

Let us say a company was found to be polluting a stream that caused tilapia and other fish to die. Under CERCLA, a natural resource damage claim could be brought against the company. If the company is found to be responsible, there are several possible actions.

The company could be required to clean up the contamination in the stream. Additionally, it could be ordered to undertake programs to restock the stream with fish.

Alternatively, the company might be required to pay money to compensate the public for the loss of the fish. This money is usually given to an agency that is designated as a **natural resource trustee**. The money is generally used for natural resource restoration or enhancement.

#### [38. 5. 8. Oil Pollution Act of 1990 \(OPA-90\)](#)

In Fall of 1990, the supertanker **Exxon Valdez** ran aground in Prince William Sound, Alaska. It created the worst oil spill in U.S. history. In response to this event, the Congress passed the Oil Pollution Act of 1990 (33 U.S.C. Secs. 2701-2719).

This act established liability for oil spills. It also created a system for recovering damages incurred. Damages can include economic losses, loss of fish and wildlife resources, and loss of subsistence use of resources such as fisheries.

The Act requires the EPA and the Department of Commerce to develop procedures for calculating damages from oil spills. The Department of Commerce does this through the National Oceanographic and Atmospheric Administration (NOAA).

The OPA-90 also requires facilities that store, transport, or manufacture oil to develop oil spill contingency plans. It also requires them to provide access to equipment needed to respond to a worst-case oil spill.

#### [38. 5. 9. Coastal Zone Management Act](#)

The Coastal Zone Management Act (16 U.S.C. Secs. 1451-1464) is the primary federal statute for protecting coastal areas from pollution and other adverse impacts.



Under the CZMA, coastal states, commonwealths and territories are provided with federal assistance in the form of grant funding. They must use this to regulate activities on and around their coastal zones and tidal areas.

To receive funding, states, commonwealths and territories must develop coastal zone management programs. These programs must also include plans for addressing coastal nonpoint source pollution. The goal of the Act is to ensure that coastal areas are protected for future generations from the impacts of pollution and development.

At the time of this book's writing the CNMI has implemented its coastal zone (resource) management program (CRMP) for over thirty years. We also have a coastal nonpoint source pollution prevention and control plan. The CRMP is administered by the Coastal Resource Management Office. Under this CNMI-established program, development in the coastal areas is required to meet certain standards.

These standards serve to protect our coastal resources. Amongst other requirements, they limit building heights, unit density, and lot coverage. They also require public access and mandate several nuisance mitigation plans. Finally, they also limit how close structures can be placed to the shore. (For a full description of our CRMP, see our chapter on development permitting.)

### **38. 6. LIVING RESOURCE CONSERVATION LAWS**

Congress designed most of the pollution prevention and control laws (just reviewed) to protect people from the adverse impacts of environmental pollution.

Living resource conservation laws, on the other hand, are aimed at protecting species other than humans. These species are protected from adverse impacts associated with human development and over-harvesting activities.

Many of these laws were originally implemented to target certain species of interest that are used. Examples of such use species are fish and wildlife used for food or recreation. However, the laws increasingly recognize the importance of non-use species in maintaining the overall health of our environment.

These laws often take an ecosystem approach to management. This helps to ensure that many types of species are protected, not just those that are of use to humans.

#### **38. 6. 1. The Endangered Species Act**

The Endangered Species Act (16 U.S.C. Secs. 1531-1544) is designed to protect habitats and ecosystems for species in danger of becoming extinct.

The U.S. Fish and Wildlife Service and the National Marine Fisheries Service (NMFS) share joint responsibility for implementing the requirements of the Endangered Species Act.



*The CNMI has implemented its coastal zone (resource) management program (CRMP) and has a coastal nonpoint pollution prevention and control plan which is administered by the Coastal Resource Management Office.*



*The Fish and Wildlife Service implements the Endangered Species Act for all land animals and plants.*

The Fish and Wildlife Service implements the law for all land animals and plants. NMFS, on the other hand, implements the law for all marine species.

Several factors can lead to the extinction of a species. Two common factors are disease and predation. Other factors are the destruction, modification, or curtailment of species habitat. Another factor is the overuse of species for commercial purposes.

Yet another factor is the inadequacy of existing regulatory mechanisms to protect the species. Both the CNMI and the U.S. federal government periodically assess the health of species populations. If a species is in jeopardy, it is classified as either **threatened** or **endangered**.

Once listed, a *recovery plan* is developed for each species. This recovery plan does four things. First, it identifies critical habitat needed for the species' recovery and survival. Second, it identifies an approach for assessing the factors that led to the species' decline. Third, it identifies a program for monitoring the species recovery and health. Finally, it provides estimates of the time and cost requirements for the species' recovery.

The federal government works closely with the states, commonwealths and territories to monitor these species' recovery. It provides funding for research, monitoring, and in some cases, habitat acquisition.

Species that have been listed by the government as either threatened or endangered are protected by federal laws from harmful activities. Such activities might include development and land clearing.

If threatened or endangered species are located on any property, public or private, land owners or developers must obtain a federal permit prior to undertaking any activities that could adversely affect the species. Such permits are called **incidental take permits**.

Activities that result in the death of at least one member of a species are said to result in a take of the species. Mitigation is required for threatened or endangered species takes. Mitigation can take the form of habitat acquisition, protection, or enhancement.

Violations of the Endangered Species Act can result in a fine of up to \$25,000 for each violation (each animal or plant killed). Willful or purposeful violations are subject to a \$50,000 fine and up to one year in jail.

The U.S. federal government is the only entity that can implement the U.S. Endangered Species Act. However, states, commonwealths and territories are also encouraged to develop legislation and programs that protect species.

In some cases, states, commonwealths, and territories have identified additional species that do not qualify for federal protection but are listed as threatened or endangered under these jurisdiction's laws. Recall our mentioning earlier the case of the Marianas Fruit Bat.



Mitigation is required for threatened or endangered species takes. Mitigation can take the form of habitat acquisition, protection, or enhancement.

States, commonwealths and territories that have active species protection programs can qualify for additional funding from the federal government for resource assessment and monitoring. (See our chapter on Endangered Species.)

### 38. 6. 2. Wetlands Protection

The Clean Water Act is primarily aimed at protecting water quality for human health. However, one portion of this Act is aimed at protecting wildlife habitat. This is Section 404 of the Clean Water Act. This section addresses the protection of wetlands from filling and dredging.

The U.S. Army Corps of Engineers has primary authority for implementing the requirements of Section 404. However, EPA retains the ability to enforce decisions. They set guidelines that the Corps must follow when making decisions. The U.S. Fish and Wildlife Service often provides comments and advice to the Army Corps of Engineers on wetland matters.

Activities that would drain, fill, or dredge a wetland must obtain a permit from the Army Corps of Engineers. Prior to applying for a permit, the applicant needs to document consideration of other options that would avoid impacts to the wetland. The applicant must also show a review of alternatives that would minimize wetland impacts.

If a permit to degrade a wetland is issued, the Corps will normally require the permittee to mitigate the impacts. Enhancement, restoration, or creation of additional wetlands are three actions which can be used to mitigate impacts.

In recent years, the Corps has been requiring a two-to-one mitigation level. This means that two acres of wetland must be enhanced, restored or created for every one acre that is damaged by the permittee.

Unfortunately, wetlands are complex ecosystems that are not currently well understood. Therefore, in many places wetland creation has only been marginally successful at replacing the functions and values the original wetland provided. Here in the Northern Marianas, however, there have been several very successful mitigation efforts. (See our Wetlands chapter.)

### 38. 6. 3. Magnuson Fisheries Conservation and Management Act

Under the Magnuson Act, the U.S. asserts jurisdiction over 200 miles of territorial sea as well as the living and mineral resources located there. The Act establishes a program for managing the sustainable use of these fisheries.

Under the Act, eight regional fisheries management councils were developed. Representatives from the federal government, states, commonwealths, territories, or Indian nations, and the fishing industry serve on these councils. They are tasked with developing fisheries management plans.

These plans are for those fisheries occurring in waters under their jurisdiction that are threatened by overfishing.



*Wetlands are complex ecosystems. In many places, such as the created wetland at American Memorial Park, it is only marginally successful at replacing the functions and values the original wetland provided.*

The majority of fisheries management plans that have been developed create open-access fisheries. Under such plans, anyone is able to obtain a fishing license. These management plans may include restrictions on season, fishing gear used, or type of fish caught. But, they do not restrict the number of fishermen.

In general, these plans have not been effective at reducing over-fishing. As a result, new management techniques are being tried that limit the number of fishermen allowed to fish. These approaches are called **effort restriction** techniques.

Recent amendments to the Magnuson Act have increased the role for the countries/islands of Micronesia to manage fisheries in their waters. The CNMI, for example, is now able to concur on bilateral agreements that would allow some foreign countries to fish in the 200 mile zone around our islands.

Revenue from the sale of foreign fishing licenses would be provided to the CNMI to help fund our marine conservation activities. (See our Fisheries Management chapter).

#### [38. 6. 4. The Migratory Bird Act \(16 U.S.C. Sec. 703\)](#)

This act prohibits the unlicensed capturing, killing or possessing of **migratory birds**. The Department of the Interior can issue licenses for the hunting of certain migratory birds. Generally, such licenses are issued through state, commonwealth, or territorial fish and wildlife agencies.

The hunting is generally limited to a few species of ducks, geese, pheasants, grouse, and doves. The Act also prohibits anyone from selling or exporting migratory birds. Here in the CNMI, hunting of migratory species is not allowed due to their very few numbers and restricted habitats.

#### [38. 6. 5. The Marine Mammal Protection Act](#)

The MMPA prohibits the killing or importing of all marine mammals. Likewise, people are prohibited from harassing marine mammals. This includes requiring boaters to avoid approaching any closer than 100 yards to a marine mammal in the water or on land.

The NMFS issues incidental take permits for certain activities, such as oil drilling and fishing, that would likely result in the death or injury of only a few aquatic mammals.

### **38. 7. INTERNATIONAL TREATIES AND AGREEMENTS**

National laws are developed to balance competing uses of the environment within a country. Similarly, international laws and treaties are designed to address competing uses and impacts on the environment between countries.

Some of these laws focus on limiting pollution that travels from one country to another (**transboundary pollution**) or into common areas, such as the **high seas**, that are outside the jurisdiction of any nation. There are also laws that attempt to protect species that migrate across national boundaries.

Enforcement of international treaties and conventions is much more difficult than enforcement of national environmental laws. In the



*Under open-access fisheries, anyone is able to obtain a fishing license.*

United States, the EPA and other federal, state, commonwealth, and territorial agency have the jurisdictional authority to enforce our environmental laws.

However, most nations do not want to allow an international body to have authority over their citizens. Thus, enforcement of international treaties and conventions is usually undertaken by individual nations over only their own citizens. This can create significant problems.

Some nations agree to abide by the requirements of international treaties, but they do not implement adequate national laws to enforce the treaties. To force some nations to comply with their responsibilities, other nations that are parties to the agreement often use economic incentives, such as **sanctions**.

In the United States, the federal government has sole authority to negotiate international treaties and agreements. After these agreements are signed by the representatives of the participating nations, they must be ratified by Congress and made into U.S. laws.

Several laws or portions of laws in the U.S. result from international treaties. A few of the more important international environmental treaties are discussed below.

### 38. 7. 1. The Montreal Protocol on Substances that Deplete the Ozone Layer

This international agreement requires nations to cease production of chemicals that deplete the **stratospheric ozone layer**. Developed countries were required to discontinue production by December 31, 1995. Developing nations were given an additional ten years to complete their production phase out.

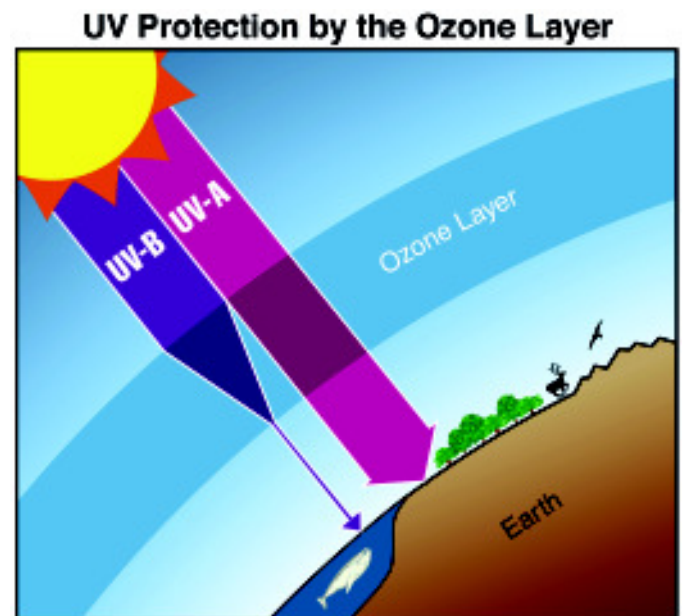
The Montreal Protocol provides for transferring technology from developed countries to developing nations. It also provides for cooperation in developing alternatives to ozone-depleting chemicals. The United States is a party to this agreement. It enforces its provisions under Title VI of the Clean Air Act.

### 38. 7. 2. The United Nations Convention on the Law of the Sea

The **United Nations Convention on the Law of the Sea (UNCLS)** was drafted in the early 1980s. Its goal is to create a structure for the governance and protection of all aspects of ocean use. This includes agreements governing the use of the airspace above the oceans, and the seabed and subsoil below.

At the time this convention was first negotiated, coastal state jurisdiction extended only twelve miles from shore. All other areas were considered to be in the high seas.

The inability of states, commonwealths and territories to exert authority over high seas areas created significant problems. For example, the majority of fisheries resources could be found in areas that were outside national jurisdiction. Nations had no way to prevent overfishing by vessels from their own or other nations. This was because nations could not control these high seas areas.



*The Montreal Protocol requires nations to cease production of chemicals that deplete the stratospheric ozone layer.*

The Law of the Sea created a framework for the allocation of jurisdictions, rights, and duties among coastal nations. This framework balanced the interests of nations in controlling the areas and resources off their coasts against the interests of other nations concerning their freedom to use the ocean without undue restriction.

One of the major accomplishments to emerge from this convention was the establishment of **200-mile Exclusive Economic Zones (EEZ's)**. These are areas that are under the control of nations for the purposes of utilizing living and non-living resources. However, vessels of other nations may pass unimpeded through these EEZs.

The Law of the Sea convention was unique in the scope of issues that it covered. It was also unique in the level of international participation involved in drafting it. The convention has many non-environmental aspects. These include agreements on where and when shipping can take place.

There also are agreements on how minerals from the deep sea bed are to be allocated among nations. The convention also addresses several broad environmental issues. These include allocation and use of living marine resources, and the control of pollution from vessels and land-based sources.

One of the interesting aspects of the UNCLS is the fact that it creates regulations with which nations agree to comply. Moreover, it develops the framework for negotiating new agreements as the need arises.

One example of such an agreement recently reached, using the UNCLS framework, is the Convention on Straddling Stocks and Highly Migratory Species of Fish. This convention attempts to address the overfishing of stocks that migrate throughout the ocean, such as tuna and billfish.

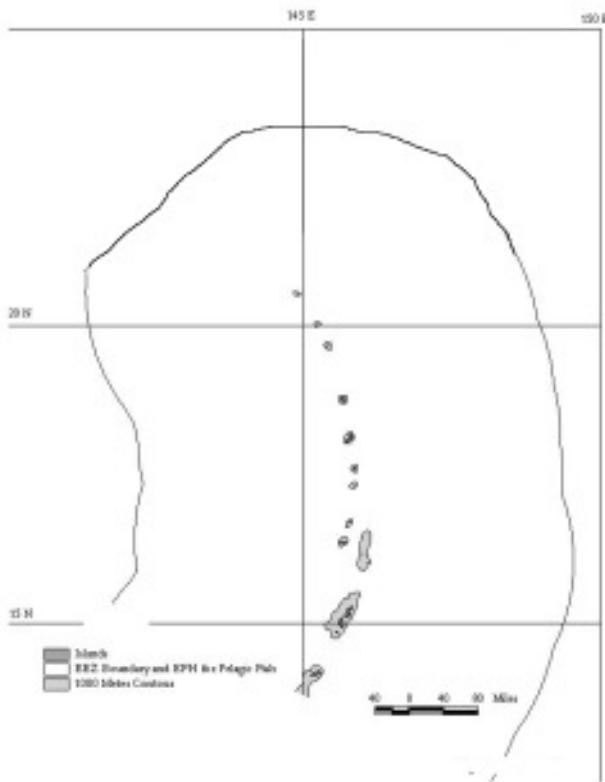
Another example of an agreement that emerged from the Law of the Sea treaty is the **MARPOL Convention**. This contains provisions to prevent pollution from various ship-borne sources, such as bilge water, garbage, and sewage.

### 38. 7. 3. Agenda 21

A significant number of nations attended the 1992 United Nations Conference on Environment and Development. The text of **Agenda 21** emerged from this conference.

This convention is similar to the UNCLS, in that it attempts to create a framework for protecting **biodiversity** worldwide. It also seeks to ensure that development is undertaken in a manner that is biologically sustainable.

Unlike the Law of the Sea, however, Agenda 21 contains only recommendations on species conservation and impact assessment. There are no specific requirements or agreements with which nations must comply. Nevertheless, Agenda 21 has the potential to develop agreements that will change the way nations use and protect biological resources, while attempting to ensure continued economic growth.



*One of the major accomplishments to emerge from the United Nations Convention on the Law of the Sea was the establishment of 200-mile exclusive economic zones (EEZ's).*

#### 38. 7. 4. Convention in International Trade in Endangered Species (CITES)

This convention is the international counterpart to the U.S. Endangered Species Act. It establishes a system of regulations and prohibitions in the trade of endangered or threatened species. These species include both plants and animals, or any specimen part thereof.

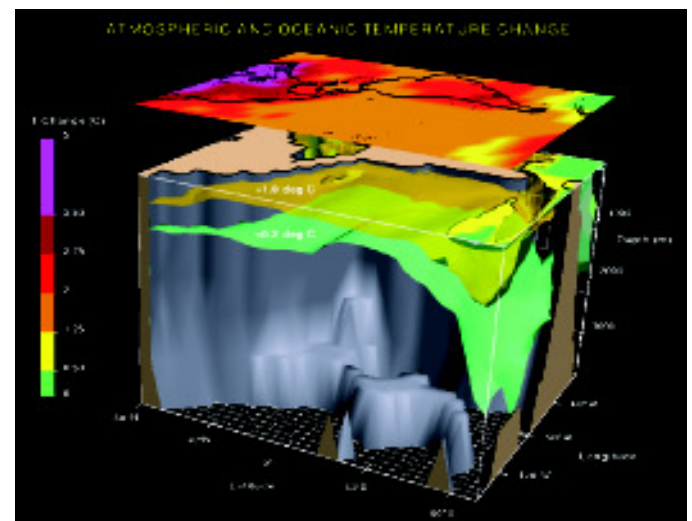
Species are listed in Appendix I of the CITES if they are threatened with extinction as a result of international trade. They are listed in Appendix II if the species is not in immediate danger of extinction, but requires trade controls for its survival.

Species are nominated for listing in either appendix by countries that are parties to the convention. The parties then vote on which ones to list. CITES also funds several panels of international experts who research species survival and recovery. There are currently 136 countries, including the United States, that are parties to CITES.

#### 38. 7. 5. Kyoto Summit Accords

The Kyoto Summit was held in Kyoto, Japan in response to scientific findings of significant increases of worldwide sea and atmospheric temperatures. Such an increase has been documented during historic times, rising especially since the industrial revolution. This is often called **global warming**. The Kyoto Summit Accords established goals for reducing the human-caused production of gases which can contribute to the greenhouse effect.

The Kyoto treaty would require industrialized nations, including the United States, to cut greenhouse emissions — mostly carbon dioxide from burning fossil fuels — by more than one-third beginning in 2008. At the time of this book's writing, although over 50 nations had done so, the treaty had not yet been signed by the U.S. delegation nor submitted to the U.S. Senate for ratification. These actions are expected in the near future. (See our chapters on Global Climate and Air Pollution.)



*The Kyoto Summit was held in Kyoto, Japan in response to scientific findings of significant increases of worldwide sea and atmospheric temperatures.*

