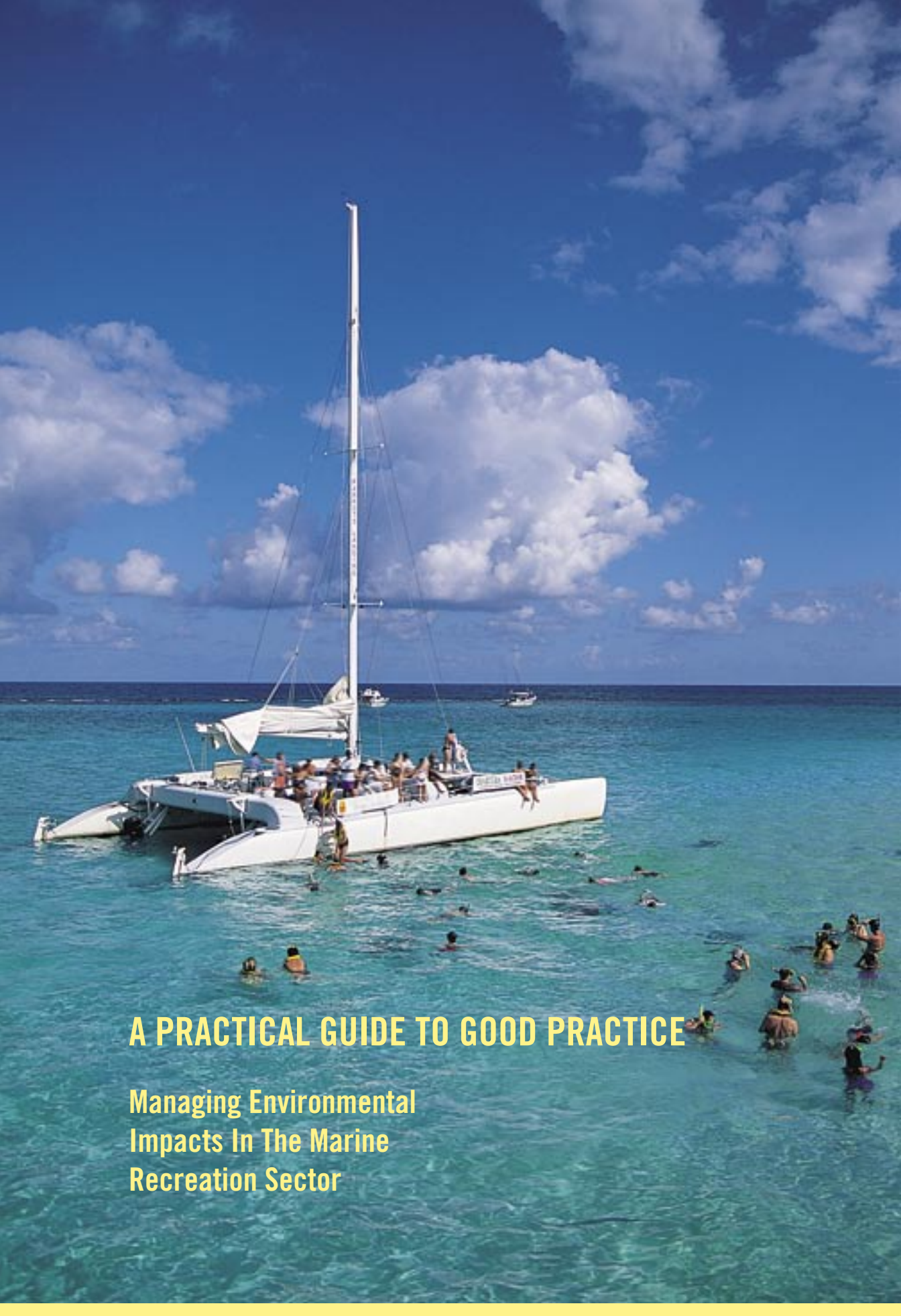

A PRACTICAL GUIDE TO GOOD PRACTICE

Managing Environmental Impacts In The Marine Recreation Sector

THE CENTER FOR ENVIRONMENTAL LEADERSHIP IN BUSINESS

CORAL® The Coral Reef Alliance

TOUR OPERATORS INITIATIVE FOR SUSTAINABLE TOURISM DEVELOPMENT

TABLE OF CONTENTS

2	Anchoring
4	Boat Operation
6	Boat Maintenance
8	Boat Sewage and Garbage Disposal
10	Snorkeling, Diving and Snuba
12	Seafood Consumption and Souvenir Purchasing
14	Recreational Fishing
16	Marine Wildlife Viewing
18	Sources of Further Information
INSERT	Self-assessment Checklist

MEMBERS OF THE TOUR OPERATORS' INITIATIVE ARE:

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ACKNOWLEDGMENTS

This guide is the result of a collaborative effort by The Center for Environmental Leadership in Business (CELB), The Coral Reef Alliance (CORAL) and The Tour Operators' Initiative (TOI). The following individuals contributed to writing various drafts of the guide and to the overall editing of the document: Jamie Sweeting and Sarah Raposa of CELB; Tegan Hoffmann, Brian Huse and Rich Wilson of CORAL; and Giulia Carbone of UNEP and TOI. We would like to thank Amy Sweeting for her revision and editing of the final document. We would also like to thank Glenn Prickett, Roger McManus, Jamie Bechtel, Frank Stewart, Laury Saligman, and Maggie Bowne from Conservation International and CELB. We are grateful to Tom Ingram of the Diving Equipment and Marketing Association (DEMA) and Mercedes Silva of the Caribbean Tourism Organization (CTO) for helping us secure forums for consultation on the draft guide. And we would like to extend a special thank you to all the individuals who provided feedback on the guide online and at the following events: the September 2003 Caribbean Tourism Organization's 5th Annual Conference on Sustainable Tourism in St. Kitts; the September 2003 World Parks Congress in Durban, South Africa; the October 2003 DEMA Show in Miami, Florida; and the November 2003 Tour Operators' Initiative Annual General Meeting in Madrid, Spain. This guide was made possible thanks to financial support from Ford Motor Company as well as USAID and the UN Foundation, the main donors of The Mesoamerican Reef Alliance (MAR) of the International Coral Reef Action Network (ICRAN).

ICRAN
International Coral Reef Action Network

The Mesoamerican Reef Alliance (MAR) of the International Coral Reef Action Network (ICRAN): MAR of ICRAN is an innovative alliance, led by UNEP's Caribbean Environment Programme and implemented by ICRAN partners, that engages governments, the private sector, NGOs and international donors in the adoption of better practices in the areas of fisheries, tourism and watershed management, to reduce negative impacts on the Mesoamerican reef system. This guide is a contribution to ICRAN's workplan. www.icran.org

WHY WE CREATED THIS GUIDE

Major contractors of marine recreation services, including tour operators, hotels and cruise lines, are increasingly showing a preference for providers that adopt environmental good practices. Thus, for marine recreation providers – from dive operations to boat rentals to wildlife viewing tours – improving environmental performance can not only contribute to marine conservation and the economic development of coastal communities, it can also improve business, by increasing their attractiveness to companies seeking responsible suppliers.

This guide, which is based on an intensive consultation process with industry, local and national authorities, and conservation organizations, is designed for marine recreation providers seeking to understand and adopt environmental good practices. It can also be used as a tool by hoteliers, tour operators and cruise lines in selecting and managing suppliers based on sustainability criteria. For eight key topics associated with marine recreation, we offer a brief summary of the potential impacts, the rationale for good practice and suggestions on how to reduce these impacts. Recognizing that an extensive amount of information on environmental good practices for the marine recreation industry already exists, we offer sources for further information at the end of the guide.

In the beginning of the guide, we have inserted a self-assessment checklist to allow marine recreation providers to compare their own performance against environmental good practices. This checklist is similar to one that was developed for cruise lines, tour operators and hotels to evaluate their contracted marine recreation suppliers. The questions in the checklist help suppliers understand the issues considered by companies that are trying to make more informed contracting decisions.

BENEFITS FOR BUSINESSES AND COMMUNITIES

Poorly conducted, uninformed or irresponsible marine recreation activities can seriously undermine the health and aesthetics of near-shore marine environments and coral reefs, the very resources that service providers rely on for a healthy business and visitors demand for an enjoyable vacation. Improving environmental and social performance can not only prevent serious impacts, such as loss of tourist revenue, higher unemployment in the tourism sector, lower fish catches and health threats to local people, it can also improve the viability of the tourism industry as a whole. This, in turn, will stimulate economic growth, increase food and employment resources for local populations, and conserve ecosystems such as intact coral reefs that protect coastal communities from waves and storm damage.

ANCHORING

WHAT IS THE ISSUE?

The use of anchors for mooring commercial and recreational boats causes extensive damage to near-shore marine ecosystems, especially coral reefs. Anchors, and the chains connected to them, damage warm water corals by crushing and killing the corals and other organisms on which they fall. Repeated anchor drops or large anchors can break up the integrity of the reef, causing widespread scarring and leaving the injured corals open to infection. Anchoring can also cloud water with disturbed sediment, choking tropical corals and limiting available sunlight, which the symbiotic algae need for photosynthesis.

WHY SHOULD I CARE?

While it is possible for sea bottom habitats, especially coral reefs, to recover from anchor damage, this is a very slow process that can take many decades. In areas of intense anchor damage, it is unlikely that a reef will ever make a full recovery. In these cases, much of the diversity of life – and thus the economic basis of many marine recreation services – may be lost forever. Preventing anchor damage requires minimal investment or operational change, but can return significant benefits in terms of increased revenues from tourists who want to see healthy, intact reefs. Among the specific impacts of anchoring are:

- FEWER FISH Degraded habitat reduces the number and variety of fish, which are important for both attracting visitors and ensuring the health of the reef.
- FEWER LIVING CORALS Anchors and chains scar coral reefs by breaking and crushing coral colonies and other reef-dwelling organisms.
- FEWER NEW CORALS When a coral reef is reduced to rubble by inappropriate or irresponsible anchoring, it becomes more difficult for new corals to grow, and the reef will further decline.
- MORE STRESSED CORALS Remaining corals will be stressed and, therefore, more vulnerable to associated problems, such as coral bleaching events and diseases.
- MORE ALGAE GROWTH The sediment-filled anchor scars are poor environments for new coral growth, but good environments for fast-growing algae, which may take the place of corals.
- CLOUDY WATER Anchoring can cause an increase in sand and sediment in the water, making once clear water appear cloudy or murky and preventing corals from getting the sunlight they need to survive. Reduced visibility due to cloudy water negatively affects the quality of visitor experience to a reef environment.
- DESTRUCTION OF SEAGRASS BEDS Boats generally swing around in different directions when anchored, and the chains and lines attached to anchors can cause severe damage to seagrass beds.

WHAT CAN I DO?

- USE MOORING BUOYS Mooring systems provide permanent lines that allow boaters to fix their position without dropping anchor. An effective mooring program includes the installation of moorings that are suitable for near-shore marine and coral reef areas, use of moorings by all boats, and regular maintenance and correct use of moorings.

- CHANGE BOATING PRACTICES Small adjustments to standard practice can help save near-shore marine and coral reef ecosystems, for example:

    - Correctly use mooring buoys whenever possible. For reasons of safety, always run a check when you tie up to a mooring point (a buoy). Give yourself more room to maneuver by passing a mooring line about half the length of your boat through the eye of the buoy and securing both ends to a cleat on the deck.
    - If anchoring is absolutely necessary, make sure your boat is anchored in a designated area, away from important ecosystems and reefs and where it will not be dragged near these areas and accidentally cause damage.
    - Consider the use of drift dives instead of anchored dives when no moorings are present.

- EDUCATE CUSTOMERS Many tourists who rent boats, sailboats, kayaks or canoes have little understanding of how harmful anchors can be to near-shore marine environments and reefs. Educate your customers by:

    - Explaining what mooring buoys are and that renters should use them whenever possible.
    - Explaining the proper way to anchor, before the renters set out.
    - Providing waterproof written reminders of proper anchoring practices on all vessels.
    - Explaining the potential impacts of poor anchor use.

BOAT OPERATION

WHAT IS THE ISSUE?

Each year, poorly conducted or irresponsible boat operation and accidents damage near-shore and coral reef environments in popular marine coastal destinations around the world. If a boat collides with a coral reef, it can crush and kill large areas of corals and other reef dwelling organisms. Although large commercial ships are known to have caused significant damage when running aground on reefs, smaller private or commercial boats can also severely impact a reef ecosystem. While vessel groundings can have the most immediate and destructive impact on coral reefs, an increase in sedimentation from propeller wash and wave creation can smother reef dwelling organisms and inhibit the photosynthetic process of symbiotic algae that live within coral tissues. In addition, the use of older boats and jet skis that have inefficient two-stroke engines can generate significant levels of pollution. These impacts can cause costly and often irreversible damage to ecologically and economically valuable marine communities. However, many of these problems can be avoided with careful planning and environmentally conscious boating, which will lead to healthier coral reef ecosystems and a stronger local economy based on the many uses of natural marine resources.

WHY SHOULD I CARE?

- FEWER LIVING SPECIES AND LESS OVERALL DIVERSITY Degraded marine habitats harbor fewer marine mammals, fish and other species that are key components of both a healthy coral reef or near-shore marine ecosystem and a viable marine recreation industry.
- FEWER NEW CORALS When a reef is altered by boat groundings or increased sedimentation, the substrate on which new corals attach is disturbed and often destroyed, leading to slower reef recovery.
- CLOUDY WATER Boat groundings, propellers and waves often cause an increase in sand and sediment in the water, reducing the sunlight available for marine organisms to produce food through photosynthesis and negatively affecting the quality of the visitor experience.

WHAT CAN I DO?

FOLLOW PROPER NAVIGATION AND MOORING PRINCIPLES BY

- Staying within designated channel markers and staying beyond the furthest visible reef patch in unknown or unmarked reef areas.
- Obeying all speed signs to avoid hitting marine mammals.
- Identifying dark water areas as possible important shallow ecosystems, such as shallow reefs.
- Knowing how to properly read and interpret a navigational chart.
- Using reef mooring buoys where available over coral reefs. If anchoring, always drop anchors in sand or rubble channels, well away from living reefs and allowing sufficient scope to avoid dragging along the bottom.

KEEP BOATS IN PRIME CONDITION FOR OPERATIONS AND EMERGENCIES BY

- Having boat engines regularly serviced by a certified mechanic and, when possible, replacing older two-stroke engines with more fuel-efficient, cleaner burning four-stroke outboards. If you do use a two-stroke outboard engine, opt for alkylate petrol. If you have a larger vessel with inboard engines, consider retrofitting to use biodiesel as an alternative fuel source.
- Carrying a supply of basic tools for engine repairs out at sea.
- Always carrying both a primary and secondary anchor line, so vessels can be securely moored in emergency situations.
- Keeping absorbent sponges onboard to deal with hazardous chemical spills.
- Using nontoxic oils wherever possible. Wait until you get to a marina to dispose of any waste oil.
- Refueling only at a dock or in the marina. If you fill up at sea, you could spill fuel into the water.

EDUCATE CUSTOMERS AND TOURISTS WHO RENT BOATS BY

- Instructing renters in basic navigation, boat handling and safety principles.
- Explaining the sensitive nature of the ecosystem and the importance of avoiding shallow areas with motorized vessels.
- Providing easy-to-use waterproof navigation and location charts.
- Providing onboard information about the location and use of reef mooring buoys at popular snorkel and dive locations.

BOAT MAINTENANCE

WHAT IS THE ISSUE?

Proper boat maintenance can significantly reduce unintentional and unnecessary environmental impacts. Environmental damage can be caused by leaks of toxic substances, such as oil or fuel, and the release of heavy metals from antifouling bottom paints. Although one small fuel leak from a recreational vessel may not cause long-term damage, over time, the cumulative effects of pollution from many boats in a popular area can lead to significant degradation of coral reefs and other marine environments. These impacts can have negative consequences for both the ecological health and economic value of an entire coastal community.

WHY SHOULD I CARE?

- INCREASE IN STRESSED AND DISEASED CORALS Fuels, oils and antifouling bottom paints contain known carcinogens and heavy metals. Studies have shown that these substances can stress and kill living corals and other organisms. Increased levels of stress and death in corals can lead to an overall reduction of diversity in a reef ecosystem, which will also negatively impact the experiences of potential visitors to the reef.
- DISTRIBUTION OF TOXINS IN THE FOOD CHAIN Toxic antifouling paint can accumulate in a sensitive environment in the form of small chips that settle on a reef. Once these chips begin to grow algae on them, they can be consumed by herbivores in the ecosystem, leading to the distribution and buildup of heavy metals throughout fish populations and negatively affecting other consumers, from carnivorous fish to humans. Known health threats or problems with fish supplies in an area can diminish the attractiveness of a destination to tourists.
- FEWER FISH AND REEF DIVERSITY NEAR HARBORS The cumulative effects of pollution from poorly maintained vessels permanently moored in local marinas and harbors can reduce ecosystem health and increase toxicity levels in consumable fish and coral reefs in nearby waters. This can lead to fewer fish, corals and other key components of coral reefs and other marine ecosystems.
- DAMAGE TO MARINE LIFE FROM TOXIC WASTE Illegal or accidental dumping of toxic waste at sea can kill a variety of marine life, including fish, marine mammals, turtles, seabirds and smaller species, such as plankton and other microorganisms. Many of these species are key attractions for tourists, and their loss can harm the viability of the tourism industry in an area.

WHAT CAN I DO?

- PERFORM REGULAR ENGINE MAINTENANCE Have a mechanic perform regular servicing of engines, fuel tanks and associated components, to maximize operating capacity and minimize fuel consumption. Use clean-burning four-stroke engines whenever possible.
- REGULARLY INSPECT AREAS THAT ARE SUSCEPTIBLE TO POTENTIAL LEAKS OF TOXIC SUBSTANCES This can include regularly checking fuel lines and tanks, filters, separators, vents and bilge pumps.
- KEEP TOXIC-ABSORBENT SPONGES IN BILGES These sponges can significantly reduce and/or eliminate discharge of oils and fuels. Many types of sponges are available that absorb fuel and oil, but not water. Absorbent sponges should always be kept onhand while a vessel is being fueled in a marina or harbor.
- WHEN APPLICABLE, USE NONTOXIC ANTIFOULING PAINTS ON BOAT HULLS International laws are beginning to ban commonly used antifouling paints. These paints are known to contain biocides and heavy metals that can negatively affect both human health and the marine environment. Less harmful antifouling paints are now commercially available, including paints that are made from biodegradable substances and are significantly less toxic than past products.
- USE BIODEGRADABLE CLEANING AGENTS Several commercial nontoxic biodegradable cleaning agents are now available that reduce the amount of toxic pollutants and chemicals that boats release into the environment.
- AVOID ONBOARD REFRIGERATION UNITS THAT USE CHLOROFLUOROCARBONS (CFCs) CFCs have been shown to cause damage to the earth's ozone layer, which filters out harmful ultraviolet radiation (UV) from the sun. As a light-sensitive animal, corals can be damaged by significant increases in UV exposure.
- AVOID PUMPING OILY BILGE WATER OR OTHER HAZARDOUS SUBSTANCES INTO THE SEA Unless the boat is in danger, wait to pump out oily bilge water, particularly when you are near a coral reef. Avoid using detergents or emulsifiers as bilge cleaners.

BOAT SEWAGE AND GARBAGE DISPOSAL

WHAT IS THE ISSUE?

As marine tourism associated with near-shore marine and coral reef environments has grown in recent years, sewage and garbage disposal from small vessels has become a subject of concern for many within the tourism industry. Vessels discharging raw or partially treated sewage and dumping garbage in coastal waters pose an increasing threat to both people and the environment. Human waste contains nutrients, pathogens and viruses that can contribute to disease and detrimental algal blooms in near-shore marine environments. These blooms reduce available oxygen in the environment and smother coral reefs, leading to a decrease in coral cover and negatively affecting populations of fish and other species that use coral as a source of food and habitat. Increased levels of bacteria, viruses and diseases associated with human waste can also pose serious risks for human health and food resources in a local community by contaminating a variety of harvestable fish and other species.

Garbage disposed into the marine environment is both unsightly and dangerous. Plastic objects, fishing line, cigarette butts and styrofoam debris are often consumed by turtles, seabirds, fish and marine mammals and cause the death of millions of these animals every year. When garbage becomes entangled on coral reefs, it smothers and kills coral colonies and can pose a safety hazard to snorkelers and divers.

WHY SHOULD I CARE?

- INCREASED LEVELS OF VIRUSES, BACTERIA AND DISEASE Fecal coliform is a common bacteria associated with human waste. The buildup of this and other pathogens in the environment can cause contamination of food supplies, threatening both reef ecosystems and human populations in a region and diminishing the attractiveness of an area as a tourist destination.
- INCREASE IN ALGAE GROWTH Nutrient loading in a coral reef stimulates algal blooms that smother and inhibit coral growth, leading to a reduction in coral cover and associated declines in health throughout the reef community.
- FEWER FISH Many species of reef fish depend on living coral as a food resource as well as for habitat and shelter. When algal blooms or garbage damage reef communities, fish populations decline, negatively affecting ecosystem health and diminishing the experience of visitors to the reef.
- STRESSED AND DISEASED MARINE ORGANISMS Pathogens associated with microorganisms contained in human waste can cause disease in marine organisms, in particular several species of corals.
- INCREASE IN THREATS TO WILDLIFE In addition to the threats posed by sewage, garbage is often mistaken as food and can kill seabirds, turtles, fish and marine mammals. When garbage becomes entangled in near-shore marine ecosystems, it can smother and kill living organisms, particularly coral and other reef-dwelling species. Because many of these animals are prime attractions for tourists to a destination, their loss can seriously hurt the tourism industry in an area.

WHAT CAN I DO?

- USE PUMP-OUT FACILITIES WHERE AVAILABLE Disposal of sewage from small vessels on land is the best way to protect the marine environment, as waste from these facilities generally goes to some kind of treatment plant.
- RECOMMEND THAT PASSENGERS USE LAND-BASED RESTROOM FACILITIES PRIOR TO BOAT EXCURSIONS Most land-based facilities are connected to some kind of municipal waste treatment facility, which can significantly reduce discharge of untreated sewage at sea.
- TREAT SEWAGE PRIOR TO RELEASE FROM VESSEL If pump-out facilities are not available, there are several biodegradable chemicals and mechanical methods that can be used to reduce solids and pathogens in waste prior to disposal in the environment. It is also important for small vessels to proceed as far offshore as possible before discharging treated sewage, to prevent contamination of bottom sediments and coral reef habitat in shallow coastal regions. Avoid discharging toilets or sewage holding tanks in confined or crowded places, environmentally sensitive areas or marine protected areas.
- KEEP MARINE VESSEL SANITATION DEVICES IN GOOD OPERATING CONDITION Regularly inspect and maintain all hoses, fittings and mechanisms associated with waste storage, to prevent accidental discharge of untreated sewage.
- SUPPORT THE ESTABLISHMENT OF NO DISCHARGE ZONES The creation and enforcement of No Discharge Zones helps protect ecologically and economically important coastal areas.
- KEEP GARBAGE CONTAINED AND MINIMIZE USE OF PLASTICS AND STYROFOAM Contain garbage bins on tour boats, or keep them inside, to minimize the chance of debris blowing overboard. Use paper plates, cups and other items, instead of plastic or Styrofoam products.
- PICK UP DAMAGED FISHING NETS OR LINES CUT AWAY FROM PROPELLERS Leaving fishing nets or lines in the sea could harm marine wildlife.
- EDUCATE TOURISTS Many tourists are unaware of the potential damage that something as small as a cigarette butt can cause in the marine environment. Supply information to tourists regarding the threat that improper garbage disposal poses to marine life.

SNORKELING, DIVING AND SNUBA*

WHAT IS THE ISSUE?

In many popular coastal destinations, near-shore marine ecosystems are beginning to show signs of damage as a result of the snorkeling and diving industry. The consistent presence of small and large groups of people in shallow coral reefs and other habitats can lead to significant degradation of an ecosystem over time. Irresponsible or inexperienced snorkelers and divers regularly crush and break corals and other reef dwelling organisms with fins, equipment and body parts. This damage usually comes as a result of people who are unable to maintain control in the water, stand or walk in a shallow area, fight a current, or get a closer look at, photograph, handle, touch and feed wildlife. While a great deal of contact with coral reefs is inadvertent, many snorkelers and divers knowingly engage in practices that are detrimental to reefs. All these impacts can lead to a decline in living corals and other reef-dwelling organisms, increases in sedimentation, and disturbance to wildlife. Moreover, impacts from snorkelers and divers compound damage to reefs and other habitats that are already suffering from other forms of environmental stress.

WHY SHOULD I CARE?

- DISRUPTED SEA BOTTOM HABITATS Contact from fins, equipment or body parts crushes and kills bottom dwelling organisms and their habitats. In heavily used areas, the cumulative effects of many snorkelers and divers can lead to increased levels of degradation in the ecosystem and a decrease in the quality of the visitor experience.
- INCREASE IN SEDIMENTATION Stirred up sediment can disrupt sea bottom communities, smothering and choking coral colonies and causing broader impacts in the ecosystem.
- DISTURBANCE OF MARINE WILDLIFE Excessive disturbance can cause animals to leave primary feeding and reproductive areas, which can lead to an overall decline in habitat health and a decrease in the primary features that attract tourists. When animals become habituated to being fed by divers or snorkelers, they may lose some of their ability to find food on their own, which can affect population size and change natural behaviors.
- REMOVAL OF CORAL MUCUS Repeated contact between divers and snorkelers and coral removes the coral's mucus covering and causes physical damage to coral tissue. This can increase the susceptibility of corals to pathogens, diseases and other competitive organisms.

*Snuba is a relatively new water sport for non-certified divers that combines snorkeling and SCUBA. Participants breathe air from a standard regulator underneath the surface, but do not wear the buoyancy control device and air tank associated with traditional SCUBA. Instead, a tank is kept on a small raft at the surface, and air lines are fed underwater to participants.

WHAT CAN I DO?

- ESTABLISH A NO-CONTACT POLICY Promote a voluntary no-contact policy for recreational snorkelers and divers. These policies can be supported by encouraging the use of flotation vests for inexperienced snorkelers and discouraging the use of gloves by divers.
- CONDUCT ENVIRONMENTAL AWARENESS BRIEFINGS FOR TOURISTS AND OTHER MARINE ENTHUSIASTS Educate tourists, photographers, videographers and others about the sensitive nature of near-shore marine and reef ecosystems and the potential impacts that can result from irresponsible snorkeling and diving.
- CONDUCT BUOYANCY REFRESHERS Offer buoyancy refreshers and other basic dive skills training for inexperienced, out-of-practice or infrequent divers, addressing the importance of issues such as proper weighting and streamlining of gear.
- DISCOURAGE FEEDING AND HARASSMENT OF SHARKS, REEF FISH AND OTHER MARINE WILDLIFE The level of wildlife disturbance caused by snorkelers and divers can be significantly reduced with a voluntary policy of "take only pictures, leave only memories" that discourages fish feeding and harassment of wildlife.
- SUPPORT MOORING BUOY PROJECTS The establishment of permanent mooring buoys at popular snorkel and dive sites significantly reduces anchor damage to near-shore marine environments, particularly coral reefs. Use drift dives to avoid anchoring when no mooring buoy is available.
- SUPPORT THE ESTABLISHMENT OF MARINE PROTECTED AREAS (MPAs) Designation of MPAs often results in an increase of protective measures in an area, including the reduction or elimination of anchoring, fishing, harvesting of corals and other species, and harassment of wildlife. These protections often enhance the economic and ecological value of an area and create market advantages for businesses operating in them.
- ADDRESS DIVER CARRYING CAPACITY Work with other marine recreation providers and the local government on issues of diver carrying capacity, in order to avoid overcrowding at popular sites, thus diminishing the threat to these sites while at the same time enhancing the visitor experience.

SEAFOOD CONSUMPTION AND SOUVENIR PURCHASING

WHAT IS THE ISSUE?

The overharvesting of marine resources for seafood or as ornamental souvenirs poses a serious threat to the health of near-shore and coral environments. There is great potential for short-term monetary gain through the sale of popular seafood such as fish or lobsters, as well as ornamental souvenirs, including corals, turtle shells and other reef dwelling organisms. As a result of consumer demand, many species are now harvested from coral reefs and other marine habitats in an unsustainable manner. Removal of key components of an ecosystem leads to cascading changes that are often not visible until serious environmental degradation begins to occur. For example, the popularity of particular seafood dishes has already led to serious declines of spiny lobsters, crabs and conchs, and fish such as groupers, jewfish, snappers and jacks throughout the Caribbean. Compounded by other existing environmental problems, overconsumption can negatively impact the health and marketability of the same natural areas that attract and support tourists in the first place.

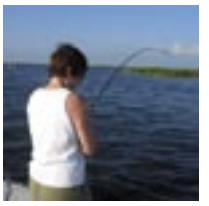
Tourists are often unaware that a seemingly harmless purchase of a seafood dish or marine ornamental souvenir can have serious negative consequences for the environment. Marine recreation providers have a unique opportunity to influence the choices tourists make by practicing and promoting low-impact, nonconsumptive activities. Additionally, operators can provide information to tourists on where they acquire seafood and what types of local species – whether for sale as seafood or souvenirs – are threatened, endangered, or otherwise protected by law and thus should be avoided.

WHY SHOULD I CARE?

- LOSS OF KEY ECOSYSTEM SPECIES Overharvesting of particular species that play a vital role in the ecosystem can lead to numerous environmental changes. For example, when too many herbivorous fish are harvested from a coral reef, various species of algae can become overgrown, smothering living corals by blocking sunlight and creating a ripple effect of negative changes throughout the ecosystem.
- REDUCTION IN MARINE BIODIVERSITY The overharvesting of ornamental objects, such as corals, aquarium animals and shells, negatively impacts overall near-shore marine health and diversity and diminishes the attractiveness of an area to visitors.
- INCREASE IN ILLEGAL AND DESTRUCTIVE FISHING Driven by the potential for short-term financial gain, many fishers will turn to destructive fishing methods to harvest popular seafood or ornamental species. In reef systems, this often includes nets that damage reef structure, dynamite blasting and use of cyanide to poison and catch fish.
- FEWER FISH The popularity of seafood species such as groupers and snappers has already led to severe declines in these types of fish. Further consumption will likely lead to the listing of several of these species as endangered, threatening the survival of the species and limiting their availability for food and sport.
- FEWER CARNIVORES Many popular game fish, such as groupers, jewfish and jack, are important carnivores. The reduction of these animals will likely lead to overall changes in the marine ecosystem.

WHAT CAN I DO?

- EDUCATE CLIENTS TO BE INFORMED CONSUMERS Provide information to clients about the sensitive nature of coral reef ecosystems, including which species in a given region should not be consumed as seafood or purchased as souvenirs because they are rare, threatened or endangered.
- SUPPORT ECOLOGICALLY SUSTAINABLE FISHERIES PRACTICES If you serve seafood cuisine, do not choose fish that are threatened or endangered. Instead, support suppliers that harvest non-threatened or endangered fish and other species in an ecologically sustainable manner. Provide tourists with this information, in order to promote sustainable fisheries.
- AVOID SELLING OR PURCHASING MARINE ORNAMENTAL SOUVENIRS Inform tourists how they can help prevent the removal of key components of marine ecosystems for short-term gain by avoiding the purchase of marine ornamental souvenirs.
- OBSERVE THE LAW Abide by all regional, national and international laws regarding the harvesting of marine species.



RECREATIONAL FISHING

WHAT IS THE ISSUE?

Recreational fishing has long been a popular activity. Throughout the world's coastal destinations, tourists regularly seek out sport fishing charters that target popular and ecologically important game fish, such as marlin, dorado and wahoo. Spear fishing and pole fishing in coral reef areas have also gained in popularity in recent years, among both tourists and local people. An overall decline in reef fish in coastal environments has been linked to spear fishing and overconsumption of marine resources, and studies have shown that spear fishing can negatively impact populations of reef fish such as Nassau grouper and various types of parrotfish. According to critics, spear fishing is too effective as a method of harvesting certain types of reef fish. For example, because parrotfish rest within the reef at night, they are an easy target. Spear fishers also often target the largest fish on a reef, thus drastically reducing the reproductive capacity of particular species in an area.

Recreational fishing, compounded by subsistence and commercial fishing, has led to the overharvesting of a number of marine species throughout the world. Spiny lobsters have virtually disappeared from reef environments all over the Caribbean, and Hawaiian groupers are now extremely rare in the main Hawaiian Islands. Other popular game fish, including groupers, jewfish, jacks, wrasses and snappers, have been significantly reduced throughout the Caribbean and other areas in recent years. Decreases in these key species can lead to cumulative impacts throughout a marine environment. For example, many species of parrotfish are important algae grazers within a reef ecosystem. Along with other grazers, parrotfish prevent algae from overgrowing and smothering a coral community, and a decline in these species can have serious negative consequences for an entire reef community.

Given the decline of many popular game fish species in recent years, catch-and-release fishing is a growing practice among sportfishing charters. Catch-and-release programs support conservation through the protection of game fish, while simultaneously promoting an increasingly valuable sector of the marine tourism industry.

WHY SHOULD I CARE?

- FEWER FISH IN NEAR-SHORE MARINE AND CORAL ECOSYSTEMS Overfishing by both commercial and sportfishing operations can severely reduce populations of both reef and pelagic fish species. Removing key species from the food chain can cause significant changes throughout the ecosystem. In addition, the severe reduction in certain species of game fish can hurt the viability of the recreational fishing industry.
- REDUCTION IN BIODIVERSITY The overharvesting of fish and other popular game species negatively impacts the overall health and diversity of near-shore marine and coral ecosystems. This loss of diversity, aside from threatening the overall health and integrity of the ecosystem, can also diminish the attractiveness of the area to potential tourists.

WHAT CAN I DO?

- PRACTICE CATCH-AND-RELEASE FISHING Partial or total catch-and-release programs can be especially effective when dealing with threatened or endangered fish species.
- AVOID SPEAR FISHING Many critics believe that spear fishing is too effective a method of harvesting marine resources. Additionally, the limited time available to SCUBA divers, as opposed to free divers, often contributes to excessive and rapid harvesting by SCUBA divers.
- PREVENT MARINE POLLUTION FROM FISHING GEAR Marine debris poses a serious threat to both coral reefs and open ocean species. Because monofilament line, lead weight and associated fishing gear can tangle and kill corals and many other forms of marine life, ensure that no marine debris is left behind from your fishing practices.
- OBSERVE THE LAW Nearly all regions of the world have laws and regulations that govern fish catch sizes and seasons. These laws are generally established to protect fisheries, and recreational fishers will benefit by following them.
- USE "ECOLOGICAL COMMON SENSE" In addition to observing laws and regulations, maintain awareness to avoid spawning aggregations, reproductive seasons and harvesting of juveniles. Additionally, when a large school of potential game fish is located, contribute toward the sustainability of the ecosystem and the fishing industry by not harvesting the entire school.

MARINE WILDLIFE VIEWING

WHAT IS THE ISSUE?

As the importance of coastal tourism has grown in recent years, marine recreation providers have realized that many marine species previously considered "harvestable" now generate much greater economic value through wildlife viewing by tourists. Yet, seemingly harmless viewing of wildlife can have serious impacts if not conducted responsibly. While habitat destruction, direct harvesting, pollution and marine debris remain the most important threats to marine animals, intrusive or irresponsible methods of marine wildlife viewing can potentially harm and even kill popular animals, such as whales, dolphins, manatees, dugongs and marine turtles.

The primary threat to marine life from wildlife viewing tours comes from improper boating practices and corralling of animals during viewing. Many marine mammals, particularly large whales, migrate to tropical coastal regions to mate and give birth to calves, and are very sensitive to disturbance. An intrusive tour boat can easily separate or create stress between a whale cow and her calf in places like Hawaii or the Caribbean. Noise from large numbers of boats creates stressful conditions for animals and may interfere with their hunting and diving behaviors. Propellers from power boats are also known to scar and often kill slow moving animals, such as manatees and sea turtles, that swim near the surface in coastal regions. Moreover, direct collisions with fast moving boats or thrill craft, such as jetskis and waverunners, can kill or maim these and other marine animals.

In addition to poor boating practices, intrusive actions by individual water sports enthusiasts, such as snorkelers, divers and kayakers, can disturb marine life and, in some cases, drive animals from their primary habitat. For example, the chasing or handling of marine turtles can cause them to abandon primary feeding grounds, while excessive daytime interaction in shallow bays can deprive dolphins of important rest periods.

WHY SHOULD I CARE?

- DISTURBANCE OF COW/CALF PAIRS Marine mammals such as whales and dolphins can commonly be located in shallow, coastal tropical waters when nursing their young. Intrusive viewing can create stress in mothers, separate cow/calf pairs and decrease survival rates in newborn calves.
- ABANDONMENT OF PRIMARY FEEDING OR REPRODUCTIVE GROUNDS Excessive handling or interaction can cause marine turtles to abandon primary feeding grounds, while marine mammals may leave key breeding sites if overstressed by human interaction. Declines in these species in popular destinations may diminish their attractiveness to visitors.
- INJURY OR DEATH Slow moving marine animals, particularly manatees and marine turtles, can be injured and killed by propellers and fast moving boats. Scarring caused by propellers can make marine animals more susceptible to infection and disease. These animals are often popular attractions for tourists, whose experience may be diminished if they are not present.

WHAT CAN I DO?

- AVOID CHASING MARINE ANIMALS Whether in the water or on a boat, always operate at a slow speed and never chase marine animals. If whale watching, it is best to approach animals very slowly from the side, as opposed to head-on or from behind, and keep at a safe distance (i.e. engines should shut off at 100 meters from whales). If animals approach the vessel, slow down or stop and put propellers in neutral. Always let the animal determine its own path and behavior.
- PRACTICE A NO-CONTACT POLICY Always avoid touching and handling marine animals such as turtles, whales, dolphins and manatees.
- NEVER FEED WILD ANIMALS Providing artificial food to sharks, reef fish or other marine wildlife can alter their behavior and impair their natural feeding abilities and survival mechanisms.
- AVOID SURROUNDING ANIMALS If several tour boats are engaged in whale watching, for example, a concerted effort should be made to avoid surrounding the animals and causing unnecessary stress. This same concept applies to individuals or small groups that are in the water viewing wildlife.
- OBSERVE THE LAW In recent years, many destinations have passed laws banning or limiting the use of thrill craft or fast boat operations in sensitive marine habitats, in order to protect slow moving or endangered marine animals such as manatees, turtles and whales. Additionally, in many places it is illegal to touch or handle marine wildlife, particularly if the animals are threatened or endangered.
- BE LITTER CONSCIOUS Marine debris is one of the greatest threats to wildlife in the oceans today. If engaged in boating or coastal activities, always make sure that trash goes in its proper place and does not end up in the marine environment.
- AVOID ILLEGAL IMPORT OF CAPTIVE ANIMALS Companies that participate in the purchasing of marine wildlife for entertainment shows should complete all purchases solely through legal channels.
- ENSURE A HEALTHY ENVIRONMENT FOR CAPTIVE ANIMALS Companies should ensure that animals are properly and adequately cared for by professionals and are not used in ways that are cruel or threaten the health of the animal.

SOURCES OF FURTHER INFORMATION

In recent years, a number of environmental codes of conduct and best practices have been developed and implemented throughout many sectors of the tourism industry. While much of the impetus for developing these codes and promoting sustainable tourism has come from environmental organizations, governmental bodies, small businesses and local concerns, the wider tourism industry has also steered policies and practices in this direction. This trend toward simultaneously promoting economic growth while protecting the environment was embodied in the United Nations' designation of 2002 as the International Year of Ecotourism. This section offers a sampling of organizations that are working on developing sustainable models of tourism, and a listing of several notable examples of established tourism environmental codes of conduct and voluntary certification schemes.

ORGANIZATIONS

- *Caribbean Alliance for Sustainable Tourism http://www.cha-cast.com*
- *Caribbean Tourism Organization http://www.onecaribbean.org*
- *Conservation International http://www.conservation.org*
- *International Council of Cruise Lines http://www.iccl.org*
- *International Hotel and Restaurant Association http://www.ih-ra.com*
- *International Hotels Environment Initiative http://www.ihei.org*
- *The International Ecotourism Society http://www.ecotourism.org*
- *Tour Operators' Initiative for Sustainable Tourism Development http://www.toinitiative.org*
- *United Nations Environment Programme http://www.unep.org*
- *World Tourism Organization http://www.world-tourism.org*
- *World Travel and Tourism Council http://www.wttc.org*
- *World Wildlife Fund http://www.wwf.org*

CODES OF CONDUCT AND VOLUNTARY CERTIFICATION SCHEMES

Snorkeling and Diving Guidelines

CORAL REEF ALLIANCE
- Coral Friendly Diving Guidelines
  http://www.coralreefalliance.org/parks/divingguide.html
- Coral Friendly Snorkeling Guidelines
  http://www.coralreefalliance.org/parks/snorkelguide.html

GREAT BARRIER REEF MARINE PARK AUTHORITY: Best Environmental Practices – Snorkeling and Diving
http://www.gbrmpa.gov.au/corp_site/key_issues/tourism/diving.html

INTERNATIONAL CENTRE FOR ECOTOURISM RESEARCH: Green Guide to SCUBA Diving
http://www.gu.edu.au/centre/icer/

MOTHER JONES ACTION ATLAS: Diver's Guide
http://www.motherjones.com/coral_reef/dive.html

PROFESSIONAL ASSOCIATION OF DIVE INSTRUCTORS (PADI): Tips for Divers
http://www.projectaware.org/uk/english/tfd.asp

U.S. NATIONAL MARINE FISHERIES SERVICE: The Responsibilities of the Shore Diver
http://www.shorediving.com/content/know_the_law.htm

SOURCES OF FURTHER INFORMATION

Marine Wildlife Viewing Guidelines

CORAL REEF ALLIANCE

- Turtle-Watching Guidelines
  http://www.coral.org/media/guidelines/turtleWatching.pdf
- Whale and Dolphin Watching
  http://www.coral.org/media/guidelines/whaleWatching.pdf

GREAT BARRIER REEF MARINE PARK AUTHORITY

- Best Environmental Practices – Turtle-Watching
  http://www.gbrmpa.gov.au/corp_site/key_issues/tourism/turtle_watching.html
- Best Environmental Practices – Whale and Dolphin Watching
  http://www.gbrmpa.gov.au/corp_site/key_issues/tourism/whale_dolphin_watching.html

INTERNATIONAL CENTRE FOR ECOTOURISM RESEARCH
Green Guide to Whale Watching
http://www.gu.edu.au/centre/icer/

SOUTH AUSTRALIAN WHALE CENTRE
Regulations and Environmental Code
http://www.sawhalecentre.com/whale_watching/ww_regulations.html#top

U.S. NATIONAL MARINE FISHERIES SERVICE ALASKA REGIONAL OFFICE
Alaska Marine Mammal Viewing Guidelines and Regulations
http://www.fakr.noaa.gov/protectedresources/mmv/guide.htm

U.S. NATIONAL MARINE FISHERIES SERVICE OFFICE OF PROTECTED RESOURCES
Marine Mammal and Sea Turtle Viewing Guidelines
http://www.nmfs.noaa.gov/prot_res/MMWatch/southeast_guidelines.htm

WATCHABLE WILDLIFE
Wildlife Viewing Guidelines
http://www.watchablewildlife.org/

WHALES ALIVE
Tonga Whale-Watching Guidelines
http://www.whalesalive.org.au/tongaguidelines.html

WHALE AND DOLPHIN CONSERVATION SOCIETY
Cetacean Watching Code of Conduct
http://www.wdcs.org/dan/publishing.nsf/allweb/BE19E21D788B09D080256AD10034F436

THE WHALE MUSEUM – SOUNDWATCH BOATER EDUCATION PROGRAM
Best Practices for Viewing Marine Life
http://www.whale-museum.org/downloads/soundwatch/SWguidelines_02.pdf

WHALE WATCH OPERATORS ASSOCIATION NORTHWEST
Best Practices Guidelines 2003
http://www.nwwhalewatchers.org/guidelines.html

SOURCES OF FURTHER INFORMATION

Boating Practices

GREAT BARRIER REEF MARINE PARK AUTHORITY

- Best Environmental Practices – Boating
  http://www.gbrmpa.gov.au/corp_site/key_issues/tourism/boating.html
- Best Environmental Practices – Anchoring
  http://www.gbrmpa.gov.au/corp_site/key_issues/tourism/anchoring.html
- Best Environmental Practices – Moorings
  http://www.gbrmpa.gov.au/corp_site/key_issues/tourism/moorings.html
- Best Environmental Practices – Waste Disposal (Garbage, Oil Products and Sewage)
  http://www.gbrmpa.gov.au/corp_site/key_issues/tourism/waste_disposal.html

SMART VOYAGER CONSERVATION PROGRAMS: Tour Operator Certification
http://www.rainforest-alliance.org/programs/sv/certification-standards.html

U. S. COAST GUARD: National Clean Boating Campaign
http://www.uscg.mil/hq/g-m/nmc/clean.htm

Fishing Guidelines and Seafood Choices

AQUATIC RELEASE CONSERVATION
Guide to Handling and Releasing Fish, Sea Turtles, Marine Mammals and Seabirds
http://dehooker4arc.com/release_guide.htm

AUDUBON SOCIETY: Seafood Lover's Guide
http://www.audubon.org/campaign/lo/seafood/cards.html

BLUE OCEAN INSTITUTE: Seafood Mini Guide
http://www.blueoceaninstitute.org/

ENVIRONMENTAL DEFENSE: Seafood Selector
http://www.environmentaldefense.org/seafood/fishhome.cfm

GREAT BARRIER REEF MARINE PARK AUTHORITY: Best Environmental Practices – Fishing
http://www.gbrmpa.gov.au/corp_site/key_issues/tourism/fishing.html

MONTEREY BAY AQUARIUM: Seafood Watch
http://www.mbayaq.org/cr/seafoodwatch.asp

THE ORIGINAL FISH HOTLINE: How to Release Salmon
http://fishhotline.com/release.htm

BEACHES

BLUE FLAG: Caribbean Beach Criteria Certification Program
http://www.blueflag.org/Caribbean_criteria.asp

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THIS GUIDE IS A JOINT INITIATIVE OF:

THE CENTER FOR ENVIRONMENTAL LEADERSHIP IN BUSINESS

The Center for Environmental Leadership in Business (CELB) provides a new forum for collaboration between the private sector and the environmental community. Created in a partnership between Conservation International (CI) and Ford Motor Company, CELB operates as a division of CI and is governed by a distinct executive board of leaders from the business and environmental communities. CELB engages the private sector worldwide in creating solutions to critical global environmental problems in which industry plays a defining role. CELB's Travel & Leisure program works with leading tourism companies to integrate conservation principles into their day-to-day operations and to influence the planning and management of key tourist destinations.

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Conservation International (CI)
Tel: +1-202-912-1000
www.celb.org
www.conservation.org

THE TOUR OPERATORS' INITIATIVE FOR SUSTAINABLE TOURISM DEVELOPMENT

The Tour Operators' Initiative for Sustainable Tourism Development (TOI) is a network of more than 20 tour operators that have committed to incorporate sustainability principles into their business operations and work together to promote and disseminate practices compatible with sustainable development. TOI was developed with the support of the United Nations Environment Programme (UNEP), the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the World Tourism Organization (WTO/OMT). The Center for Environmental Leadership in Business is an active partner of the TOI, providing technical and financial assistance.

Tour Operators' Initiative for Sustainable Tourism Development (TOI)
Tel: +33-1-44371450
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unep.tie@unep.org

THE CORAL REEF ALLIANCE

Since its founding in 1994 by conservation-minded scuba divers, The Coral Reef Alliance (CORAL) has gained unique credibility among the diving community. The organization has implemented creative strategies both for educating divers and dive operators about the importance of coral reef conservation and for engaging dive businesses and consumers in actual reef protection. CORAL's annual Dive In To Earth Day mobilizes hundreds of dive businesses, thousands of divers and dozens of park practitioners throughout the world to clean up reefs and other marine areas and to educate their communities about marine and reef conservation issues. CORAL also possesses expertise in and an international reputation for marine park management best practices and has successfully transferred this expertise.

The Coral Reef Alliance (CORAL)
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www.coral.org

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