

NET CASUALTIES



Sea turtles have been swimming the world's oceans since before the dinosaurs roamed the earth, more than 110 million years ago. As recently as decades ago, sea turtles were abundant in the world's oceans. Human activities have driven sea turtle populations worldwide to dangerously low levels. All six sea turtles species found in U.S. waters are listed as threatened or endangered under the Endangered Species Act. "Dirty fishing" by commercial fishing operations represents one of the greatest threats to their survival.





MAR MAS/OCEANA

Sea Turtles at Risk

Each year, commercial fishing operations in the United States capture and kill thousands of sea turtles.

In the United States and many other countries, sea turtle habitats overlap with commercial fishing grounds, which create a gauntlet of deadly obstacles for turtles and other ocean wildlife. In the Atlantic Ocean, sea turtles are forced to swim through waters crowded with massive bottom trawls, gillnets, longlines, and scallop dredges. In the Pacific Ocean, gillnets and longlines are major threats to sea turtles.

Sea turtle populations are particularly vulnerable to the harm caused by human activities. Sea turtles live for a long time, but only reach reproductive maturity late in life. As a result of predators and other natural risks, relatively few sea turtles survive to maturity and even fewer individuals live to reproduce. Consequently, minimizing sea turtle mortality from human activities, such as commercial fishing, is especially critical.

SEA TURTLES IN U.S. WATERS

David Palange



Olive ridley sea turtle

(*Lepidochelys olivacea*)

Status: THREATENED

Olive ridley sea turtles are named for their olive-colored shell. While they do not nest in the United States, individuals migrate to feed in the waters off of the southwestern coast. The decline of this species is primarily due to capture in commercial fisheries, loss of nesting habitat and the direct harvest of adults and eggs.

ANDY BRUCKNER/NMFS



Green sea turtle

(*Chelonia mydas*)

Status: ENDANGERED (FLORIDA)/

THREATENED (REST OF U.S.)

Green sea turtles are named for their green-colored body fat. They are found in the Atlantic Ocean from Florida to Massachusetts, as well as in the Gulf of Mexico and the Caribbean. Primary nesting sites for the Atlantic populations in U.S. waters are the eastern coast of Florida, the U.S. Virgin Islands and Puerto Rico. Additionally, they inhabit the central Pacific, including the Hawaiian Islands. Capture by commercial fisheries and direct harvest account for high mortality rates and slow population recovery.



NPS

Kemp's ridley sea turtle

(*Lepidochelys kempii*)

Status: ENDANGERED

One of the smallest of all the sea turtles, Kemp's ridley sea turtles are about two feet long and weigh up to 100 pounds. Their primary habitat is the nearshore and inshore waters of the northern Gulf of Mexico, and nesting populations are found along the southeastern coast of Texas and northern Mexico. Kemp's ridleys are threatened by capture in commercial fishing operations and the direct harvest of adults and eggs.



NMFS

Leatherback sea turtle

(*Dermochelys coriacea*)

Status: ENDANGERED

Leatherbacks are the largest sea turtles in the world, with some measuring up to eight feet long and weighing a ton. They spend most of their time far out at sea, but females from the Atlantic population come to nest in Florida, the U.S. Virgin Islands and Puerto Rico. In the past 25 years, the Pacific population has dropped by 95 percent due to capture in drifnet and longline fisheries, harvest of eggs, and ingestion of plastics.



JUAN CUETOS/OCEANA

Loggerhead sea turtle

(*Caretta caretta*)

Status: THREATENED

Loggerhead sea turtles are named so because of their large heads, which have a strong jaw for crushing shellfish. They nest on beaches from Texas to Virginia, and Florida hosts one of the two most important nesting beaches for the species in the world. The mortality of these turtles in shrimp trawls has been reduced in recent years with the introduction of Turtle Excluder Devices (TEDs), but they still face capture and death by trawls and other types of indiscriminate fishing gear.



CAROLINE ROGERS/USGS

Hawksbill sea turtle

(*Eretmochelys imbricata*)

Status: ENDANGERED

Hawksbill sea turtles are named for their beak-like mouth. In the United States, they nest on beaches in the U.S. Virgin Islands, Puerto Rico, Texas, and Hawaii. Capture in commercial fisheries is largely responsible for the decline of this species. Even though it is banned internationally, trade driven by demand for its beautiful shell is another threat to the Hawksbill population.

How many is too many?

This report describes, for the first time, the total number of sea turtles that U.S. commercial fisheries are authorized to catch and kill, and demonstrates that many of these fisheries far exceed their authorized levels. Specifically,

U.S. fisheries were permitted to kill nearly 10,000 sea turtles, and injure more than 334,000 sea turtles¹.

The fisheries that harm and kill sea turtles occur throughout the geographic range of U.S. waters. These fisheries use a variety of gear types, including gillnets, longlines and dredges. The government is obligated to account for the combined effects of these fisheries, but it has yet to sufficiently fulfill this responsibility.

These figures also only represent the 25 fisheries that have been assessed by the federal government. In reality, dozens more fisheries that interact with sea turtles have not been accounted for. In addition, these figures do not account for the other activities, such as dredging projects, beach restoration, coastal development, and oil and gas exploration, that affect sea turtles and require federal permits. So the true effect of human activities on sea turtles populations is certainly significantly higher.

But worse yet, even when these high “allowances” for injuring and killing sea turtles are reached, the federal government takes no measures to limit the harm. This report also explains how the mid-Atlantic trawl fisheries, scallop dredge fishery, and Atlantic pelagic longline fishery have harmed and killed substantially greater numbers of sea turtles than they are allowed, but still are allowed to operate with no additional restrictions. In fact, every fishery for which we have estimates has exceeded its limit. Many other fisheries are likely operating at higher levels than authorized, but since the government has not conducted estimates for those fisheries, there is no way to know.

¹ The National Marine Fisheries Service considers sea turtle interactions to either be lethal or non-lethal. All interactions put in the non-lethal category are treated the same regardless of the extent of the injury.

What needs to be done?

The U.S. government needs to implement a system to ensure that the permitted fishing activities are not driving threatened or endangered sea turtles to extinction. Specifically, the government should do the following:

- 1) Increase and improve at-sea fishery observer programs to obtain accurate counts of the sea turtles injured and killed by commercial fishing operations in U.S. waters;
- 2) Calculate how many sea turtles of each species and in each region of the United States can be harmed and killed without jeopardizing the recovery or continued existence of their populations;
- 3) Issue authorizations to commercial fisheries and other federally-permitted activities allowing them to harm and kill sea turtles only if, in total, they do not exceed the number of sea turtles that can be caught and killed without jeopardizing the recovery or continued existence of the populations; and
- 4) Stop the permitted activity if it reaches its maximum “allowance” to harm and kill sea turtles for the year.

These measures would allow commercial activities to continue while protecting sea turtles from additional harm and help their populations recover. The government-issued authorizations should be seen as the maximum level of harm that can be allowed while permitting a reasonable level of activity. These levels should not be seen as a target to reach, but instead as the absolute limit of contact with sea turtles that can be allowed. Given the precarious status of sea turtle species in U.S. waters, all efforts should be made to avoid and prevent sea turtle interactions in the first place, while continuing to reduce the harm caused by those that do occur.

The Broken System

The government regularly issues authorizations for commercial fishing operations to harm and kill sea turtles, but has never added them up or assessed the total impact of these activities on sea turtle populations.

Oceana conducted a review of the most recent Biological Opinion for each of the 25 fisheries in which the government provided authorizations to harm and kill sea turtles. Biological Opinions are issued by the government as part of the process required by the Endangered Species Act to ensure that activities do not jeopardize the continued existence of species on the brink of extinction. All biological opinions include a section that addresses the interaction with and killing of endangered species by the proposed activity. In the case of fisheries, this section gives permission to the fishery to operate and to catch and kill sea turtles at stated levels.

This analysis found that as of September 2006, the government gave 25 commercial fisheries permission to kill almost 10,000 sea turtles and to harm another 334,000 each year.

These fisheries occur throughout the range of waters under United States jurisdiction and employ a variety of gear types. The following sections of this report provide a detail by geographic region.

These figures only represent the 25 fisheries that have been assessed by the federal government. The government has not yet assessed the catch and harm to sea turtles in other fisheries, including many of those managed by states. In addition, these figures do not include the numbers of sea turtles the government allows to be harmed by other actions, such as dredging, beach restoration, coastal development, and oil and gas exploration. As a result, the federal government has actually given permission for many more than 10,000 turtles to be killed.

Non-Lethal Takes

The government allows commercial fisheries to catch, entangle, and strike hundreds of thousands of sea turtles each year. Remarkably, it assumes that these interactions result in only two outcomes—death, or perfect health.

For example, the government estimates that a loggerhead sea turtle has a 40 percent chance of survival if it has swallowed a fishing hook from a pelagic longline and has 10 feet of fishing line hanging out of its mouth. If the turtle is one of the lucky 40 percent in this situation, then it is

counted as alive and well, exactly as if it had never swallowed the hook. However, turtles that do survive these types of entanglements almost certainly have impaired swimming and foraging abilities, altered migratory behavior, and reduced breeding and reproductive success—impacts that the federal government does not account for in any quantitative way.

Figure 1.

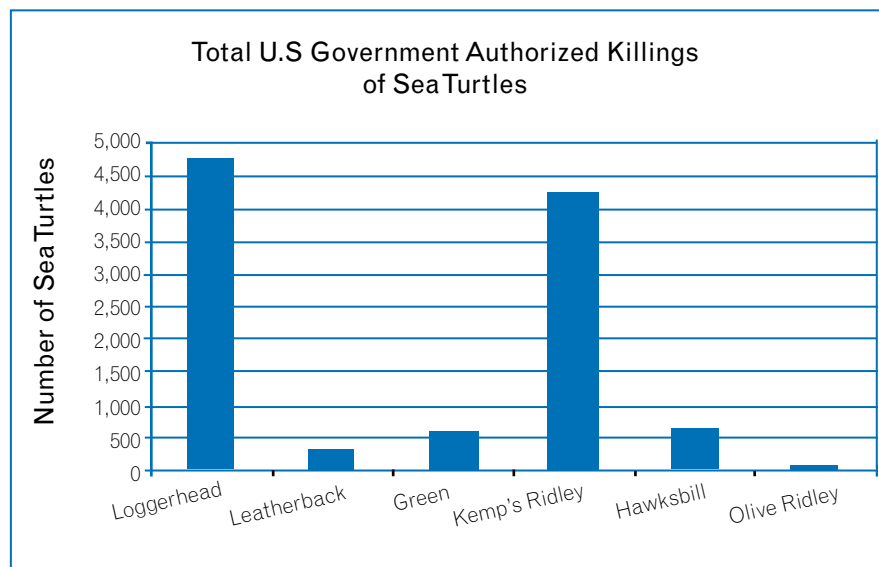
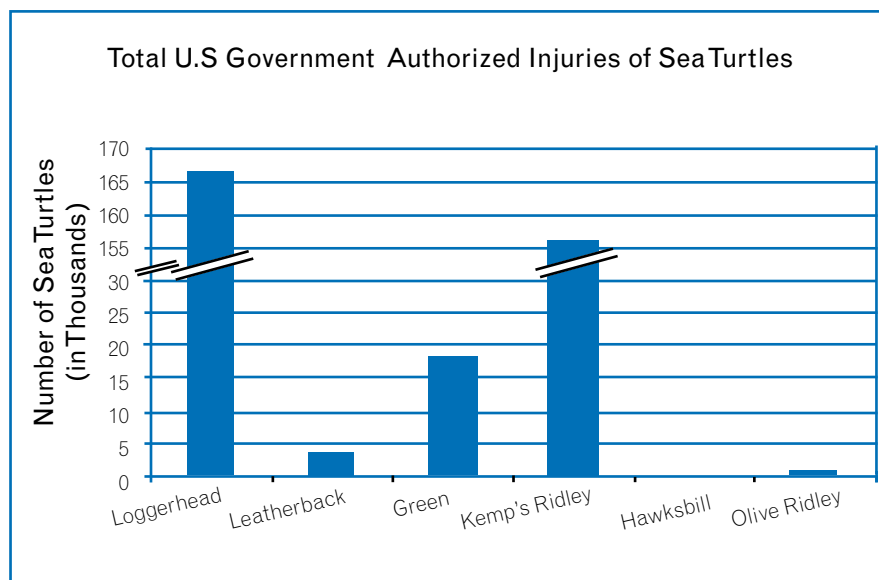


Figure 2.



The Northeast

The northeast region encompasses the waters off the east coast of the United States from North Carolina to Maine. Many loggerhead and leatherback sea turtles spend a significant portion of their life span in this region and forage and reproduce in these waters.

In the northeast, the federal government allows 14 fisheries to harm and kill sea turtles, most of which are loggerhead sea turtles.

Fisheries in the northeast region are permitted to kill 546 sea turtles and harm an additional 908 each year.

The Atlantic sea scallop fishery has the greatest impact on sea turtles of the fisheries in the northeast. The scallop fishery is permitted to catch more than half of the total number of sea turtles allowed for the entire region. And, because of the significant harm caused by the heavy dredge gear it uses, this single fishery accounts for nearly 90 percent of all the sea turtles allowed to be killed in the region.

However, turtle deaths in the trawl fisheries in the mid-Atlantic region is an emerging problem. A new government report found that the number of sea turtles that these fisheries are allowed to catch is a gross underestimate and the real catch is significantly higher. These findings are discussed in greater detail in the next section of this report.

Figure 3.

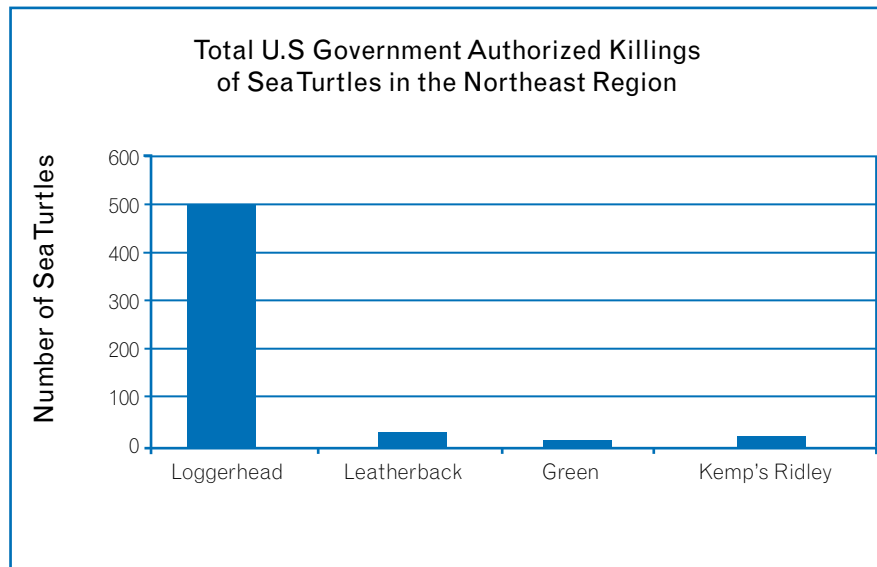
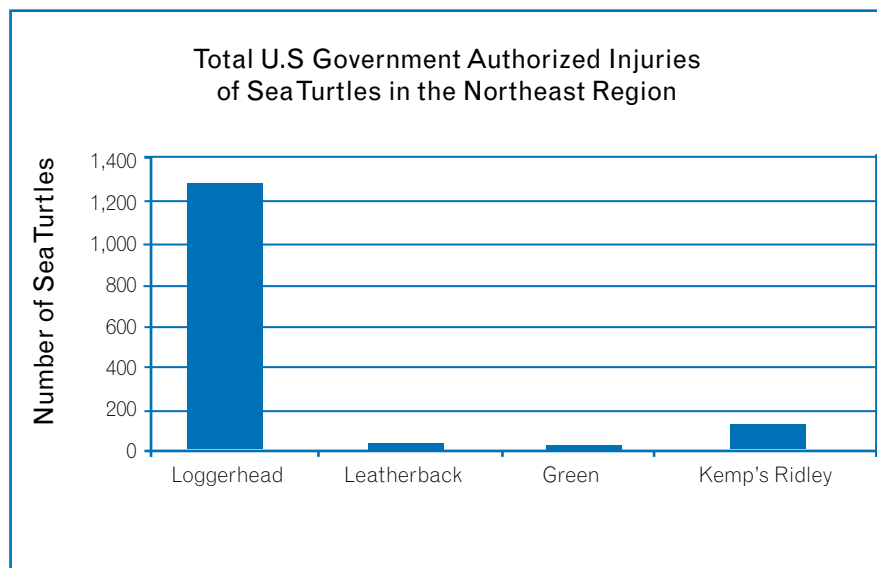


Figure 4.



The Southeast

The southeast region includes the waters of the Atlantic off of the southeastern United States and the Gulf of Mexico. In this region, fisheries catch all species of sea turtles, including significant numbers of loggerhead and Kemp's ridley sea turtles. However, one of the largest impacts of fisheries in this region may be the injuring and killing of endangered leatherback sea turtles and the endangered Florida breeding population of green sea turtles.

In the southeast, the government allows 6 fisheries to kill 9,330 sea turtles and harm an additional 333,000 each year.

The shrimp trawl fishery does more harm to sea turtles than any other fishery in the United States. Each year, the government gives the shrimp fishery permission to kill, catch, strike, entangle or otherwise injure a total of more than 340,000 sea turtles. The vast majority of these are assumed to pass unharmed through turtle excluder devices (TEDs), escape hatches for turtles that are designed to prevent turtles from being caught in the trawl nets. Nevertheless, the majority of all turtles killed in the United States are killed by this fishery. In addition, turtles can clearly be stressed and injured from striking the metal grid bars of a TED, which unfortunately can happen repeatedly to the same turtle.

In the southeast region, after the shrimp trawl fishery, the Atlantic pelagic longline fishery is the next biggest contributor to sea turtle mortality.

Figure 5.

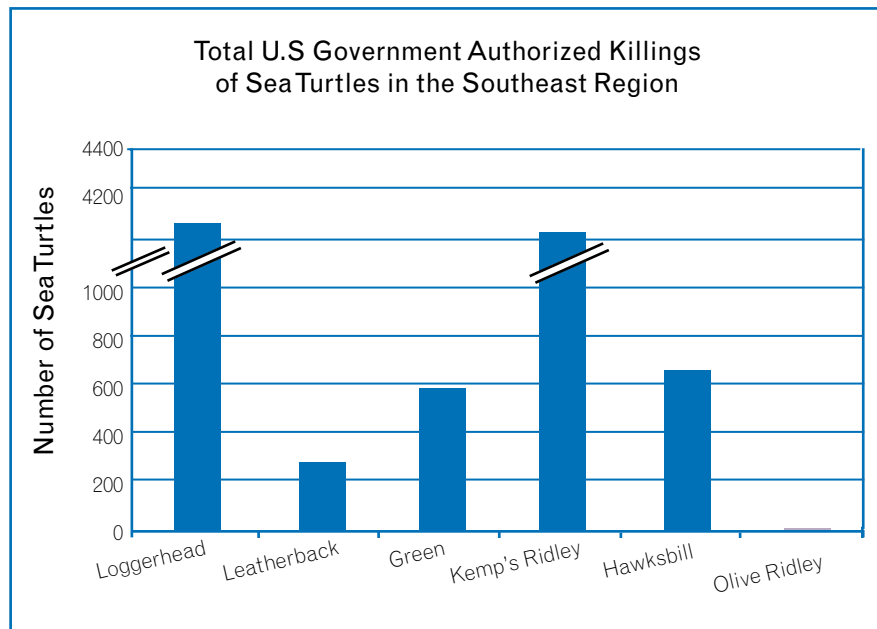
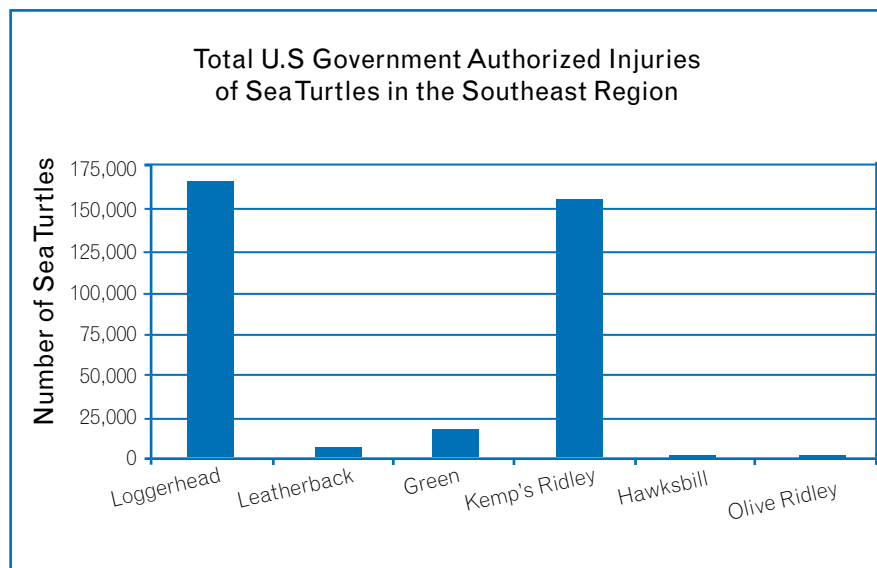


Figure 6.



The West

In the waters off of the Pacific coast of the United States and in the Pacific Islands, 5 fisheries are allowed to kill 72 sea turtles and harm an additional 230 each year.

Although these numbers are lower than in other regions, they are particularly significant because of the critically endangered status of the Pacific leatherback. The Pacific leatherback² is in such severe decline that scientists think they will become extinct in the Pacific Ocean within the next 30 years. The pelagic longline fisheries, which primarily target swordfish, tuna and shark, are responsible for the majority of sea turtles killed in the Pacific.

² Leatherback sea turtles are listed on the International Union for the Conservation of Nature (IUCN) Red List as Critically Endangered.

Figure 7.

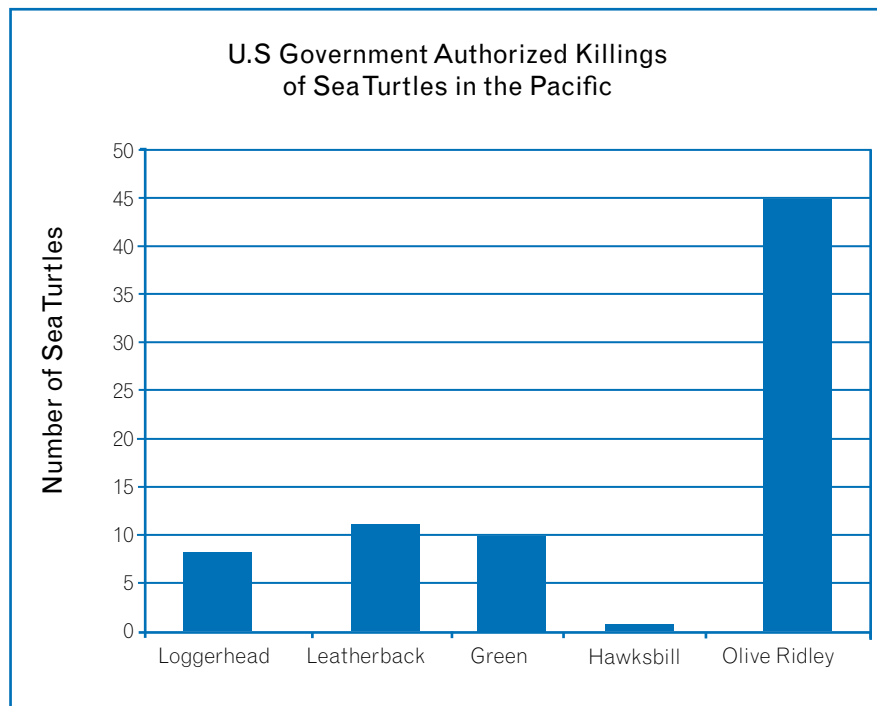
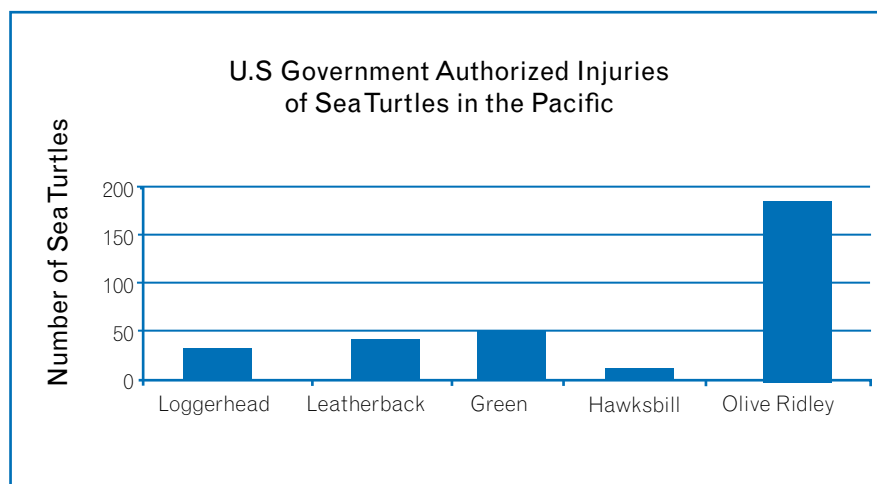


Figure 8.



Over the Limit

Unfortunately, the hundreds of thousands of sea turtles the government allows commercial fishing to injure or kill each year are just the beginning of the story. In nearly all fisheries, the government does not monitor fishing activity to verify how many turtles are actually caught and killed. And in those cases when the government does estimate actual catches, the information is not used to protect turtles.

Instead of halting fishing activity once the authorized levels have been reached, the government simply increases the limits, allowing for more sea turtles to be killed the next year. Every fishery for which estimates exist—including the mid-Atlantic trawl fisheries, the Atlantic sea scallop dredge fishery, and the Atlantic pelagic longline fishery--has routinely exceeded its authorized levels, with no consequences for fishing operations. These government failures are detailed below.

Mid-Atlantic Trawl Fisheries – Trawl nets are used to catch a variety of fish species in the mid-Atlantic region including summer flounder, croaker, weakfish, groundfish, and squid. A variety of fisheries using trawl gear in the Mid-Atlantic are permitted to capture a total of 49 loggerhead sea turtles. However, a recent report by the National Marine Fisheries Service estimated that these fisheries actually catch 616 sea turtles each year³ – more than 12 times the current authorized limit. Some of the fisheries documented in the report had no government authorization to catch sea turtles, while others had authorizations but are greatly exceeding them. The government has yet to make any official statement of intent to address these problems.

³ Murray, 2006

Atlantic Sea Scallop Dredge Fishery - Sea scallops are gathered by dragging heavy steel bags called dredges along the sea floor. These dredges are towed in areas in the Atlantic Ocean from the Canadian border to North Carolina--areas also frequented by sea turtles. Each year, hundreds of turtles are caught, drowned, or bludgeoned by the dredges. In 2003, the government authorized the fishery to kill 25 sea turtles, but an analysis at the end of the year revealed that 579⁴ had either been killed or had serious injuries that would lead to death or the failure to reproduce. Fishing activity continued all season despite the excessive catch of sea turtles.

The next year, instead of making meaningful efforts to reduce the catch of sea turtles, the government “solved” the problem by increasing the number of sea turtles that could be killed from 25 to 479 – a 18-fold increase.

Most recently, in August 2006, the government issued a rule requiring vessels in the Atlantic sea scallop fishery using dredge gear to screen off the mouth of the dredge bag with “turtle chains.” These heavyweight chains cross horizontally and vertically across the mouth of a dredge with the stated purpose of protecting turtles from harm by keeping them out of the dredge. Unfortunately, the government has no data on what happens to the sea turtles when they are hit by the chains. While the chains will prevent harm caused by capture in the dredge gear, the government's own scientists acknowledge that the same number of sea turtles will likely sustain serious injuries or die with the turtle chains in place as without them⁵. This is because instead of being swept into the dredge, the turtles will likely be run over by the 4,500-pound dredge⁶. In addition, any injury to the sea turtles from the chains will be out of sight, undocumented and not subject to monitoring. As a result, it will be impossible for the government to accurately assess the impact of this fishery on sea turtles.

⁴Murray, 2004

⁵NOAA Fisheries, 2006.

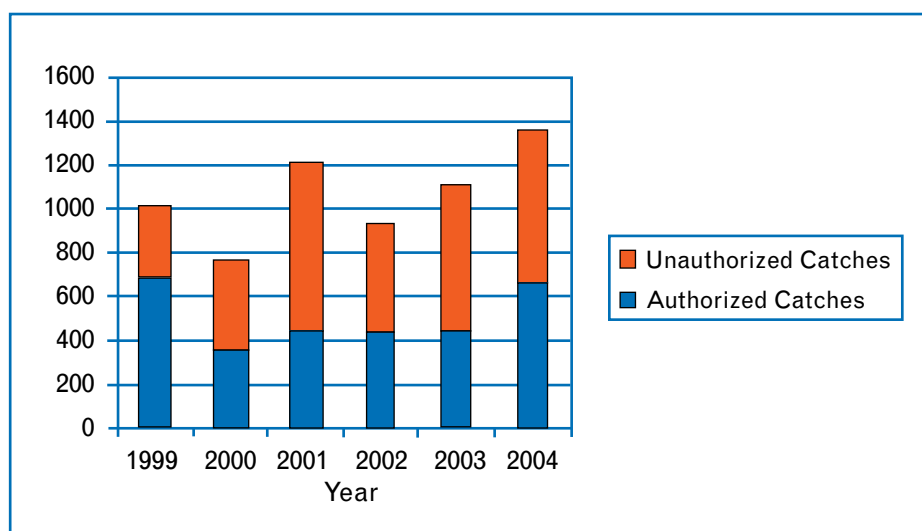
⁶ NOAA Fisheries, 2006.

Atlantic Pelagic Longline Fishery - Lines with thousands of baited hooks strung for miles across the open ocean are used to catch swordfish, tuna and other large, commercially valuable fish. These “longlines” can be up to 40 miles long, and average 28 miles in length. Sea turtles are common in the warm waters where these longlines are used and are often snagged on the hooks or entangled in the line itself. This fishery has a long history of capturing sea turtles and although research shows that there may be ways to deter turtles from the hooks, progress has been slow.

For every year from 1999 to 2004, the Atlantic pelagic longline fishery exceeded the number of endangered leatherback sea turtles it was allowed to catch; in 4 out of those 6 years, the overages were more than 100 percent above the authorized limit⁷. Similarly, in 4 out of those 6 years, the fishery also caught more loggerhead sea turtles than it was authorized⁸.

Only after several years of excessive overages did the government take action to reduce harm to sea turtles from this fishery. In late 2004, the government required that long-line fishing use more circular shaped fishing hooks. However, questions remain on the effectiveness of these circle hooks. In 2005, sea turtle interactions were lower than previous years, but a significant portion of that reduction was related to the reduction of fishing effort in the Gulf of Mexico caused that year by the hurricanes Katrina and Rita.

Figure 9: Estimated Pre-Hurricanes and Gear Modification Catches of Endangered Leatherback Sea Turtles in the Atlantic Pelagic Longline Fishery



⁷Garrison, L.P. 2003; Garrison, L.P. 2004; Garrison, L.P. and R. M. Richards, 2004; and Yeung, C. 2001.

⁸Garrison, L.P. 2003; Garrison, L.P. 2004; Garrison, L.P. and R. M. Richards, 2004; and Yeung, C. 2001.

Government Delinquency

Laws exist to protect sea turtles from harm due to human activities. One of the principal laws protecting sea turtles in U.S. waters is the Endangered Species Act, which was enacted more than 30 years ago. However, sea turtle populations continue to be in trouble because the government does not adequately implement the law and sufficiently protect sea turtles from commercial fishing operations, one of the greatest human threats to sea turtles worldwide.

The Endangered Species Act prohibits the harm or kill of any endangered or threatened species, but special exceptions are provided to allow for reasonable levels of human activity. These exceptions are intended to be limited and authorized only if the government determines that allowing the harm or kill of a few individuals will not impede the population's recovery or cause even further declines in the population.

However, the government has never added up the total number of sea turtles it allows commercial fisheries to catch in order to ensure that the total activity by all fisheries is not pushing turtles to the brink of extinction. In fact, each year the federal government, through the National Marine Fisheries Service, authorizes commercial fishing operations to hook, entangle, or strike hundreds of thousands of sea turtles with fishing gear – and kill nearly 10,000 turtles. Worse yet, when fisheries catch their authorized number of sea turtles, the government continues to allow fishing activity to continue even if more turtles are caught.

U.S. Laws Protecting Sea Turtles

Endangered Species Act

In the United States, the principal law protecting sea turtles is the Endangered Species Act. Under the Endangered Species Act, it is the responsibility of the National Marine Fisheries Service to provide for the conservation of sea turtles in the ocean by developing meaningful protections for their populations designed to protect and recover sea turtle populations.

Pursuant to the Endangered Species Act, the National Marine Fisheries Service issues Incidental Take Statements for individual fisheries, which are intended to allow for fishing activity while ensuring that interactions with sea turtles do not jeopardize the health or recovery of turtle populations. The Incidental Take Statements provide government authorization to commercial fishing operations to harm and kill a specified number of sea turtles. However, the government currently fails to address a number of key areas. First, the cumulative impacts of the individual Incidental Take allowances from commercial fishing activity on sea turtle populations needs to be assessed. Second, the government allows fishing activity to continue at current levels even if these incidental take allowances are grossly exceeded. Third, there is no attempt by the federal government to cumulatively assess the impacts of all permitted actions, including commercial fishing, coastal development and other activities, on sea turtles populations. Without this critical information, the federal government may be blindly leading sea turtles down a path to extinction.

Magnuson-Stevens Act

The Magnuson-Stevens Act also provides protections for sea turtles in U.S. waters. This Act governs all commercial fishing activities in the U.S. Exclusive Economic Zone (EEZ), which extends from 3 to 200 miles from shore, and provides that:

"conservation and management measures must, to the extent practicable, minimize bycatch, and, to the extent that bycatch cannot be avoided, minimize bycatch mortality"

The Magnuson-Stevens Act defines bycatch as all forms of marine animal and plant life other than marine mammals and birds which are harvested in a fishery, but which are not sold or kept for personal use, and includes economic discards and regulatory discards. Yet, despite the clear mandate in the Act to avoid and minimize the catch of sea turtles, the majority of fishery management plans in the United States do not account for sea turtle bycatch or include measures to reduce interactions with turtles

Conclusions

All six sea turtles species found in U.S. waters are listed as threatened or endangered under the Endangered Species Act. Yet, the government continues to authorize the capture of hundreds of thousands of sea turtles in U.S. commercial fisheries each year. Even worse, when these authorized levels are exceeded—levels that are ostensibly not to be exceeded without jeopardizing the species recovery—it takes no meaningful action to solve the problem. A similar lack of action follows the government's discovery that sea turtles are being injured or killed in new fisheries.

The U.S. government needs to implement a system to ensure that the fishing activities it permits are not driving sea turtles to extinction. As presented in this report, the government should determine how many sea turtles of each species and in each region of the United States can be harmed and killed in all fisheries without jeopardizing the continued existence of their populations or their recovery, issue authorizations to interact with turtles based on these numbers, and then actually enforce the limits that they create.

The time to act is now... before it is too late.





TABLES

Table 1. Summary of all federally authorized sea turtle takes from fishing activities within U.S. waters. ^{9,10} These are the authorized take levels the most recent Section 7 Biological Opinion for each fishery.														
Fishery	Annual Authorized Incidental Take (IT) and Lethal (L) Subset													
	Loggerhead		Leatherback		Green		Kemp's Ridley		Hawksbill		Olive Ridley		Total take per activity	
	IT	L	IT	L	IT	L	IT	L	IT	L	IT	L	IT	L
Northeast Region	1,314	509	19	17	13	11	136	20	0	0	0	0	1,454	546
Southeast Region	164,113	4,253	3,799	284	18,968	572	155,587	4,232	45	652	35	8	342,416	9,331
West Region	35	8	40	11	52	10	0	0	8	1	185	45	302	72
National Total	165,462	4,770	3,858	312	19,033	593	155,723	4,252	53	653	220	53	344,172	9,949

⁹ Numbers do not sum up properly across species (i.e. the bottom row) because in a few cases, the permitted takes can be allocated for multiple species. For example, a fishery might be able to take 3 loggerheads and 1 leatherback or 1 Kemp's Ridley.

¹⁰ In some cases, allocations are given over a multiyear time span. Thus, the average annual allocation might not be a whole number. In these cases, the numbers have been rounded to the nearest whole number.

Table 2. Summary of all U.S. federally authorized sea turtle takes from fishing activities under the jurisdiction of the Northeast Regional office of the National Marine Fisheries Service. ^{11,12} Authorized take levels are from the most recent Section 7 Biological Opinion for each fishery.										
Fishery	Annual Authorized Incidental Take (IT) and Lethal (L) Subset									
	Loggerhead		Leatherback		Green		Kemp's Ridley		Total take per activity	
	IT	L	IT	L	IT	L	IT	L	IT	L
Bluefish	6	3	0	0	0	0	6	6	12	9
Deep-sea red crab	1	1	1	1	0	0	0	0	2	2
Herring	6	3	1	1	1	1	1	1	9	6
Jonah Crab ¹³	0	0	2	2	0	0	0	0	2	2
Lobster ¹⁴	2	2	5	5	0	0	0	0	7	7
Mackerel, squid, butterfish	6	3	1	1	2	2	2	2	11	8
Monkfish ¹⁵	4	1	2	1	2	1	2	1	6	3
Multispecies ¹⁶	1	1	1	1	1	1	1	1	2	2
Pound net, VA	507	2	2	2	3	2	103	2	615	8
Sea Scallop ¹⁷	752	482	1	1	0	0	0	0	753	483
Skate ¹⁸	1	1	1	1	1	1	1	1	1	1
Spiny dogfish	3	2	1	1	1	1	1	1	6	5
Summer flounder, scup, sea bass ¹⁹	19	5	0	0	2	2	19	5	21	7
Tilefish	6	3	1	1	0	0	0	0	7	4
Northeast Region Subtotal	1,314	509	19	17	13	11	136	20	1,454	546

¹¹Numbers do not sum up properly across species (i.e. the bottom row) because in a few cases, the permitted takes can be allocated for multiple species. For example, a fishery might be able to take 3 loggerheads and 1 leatherback or 1 Kemp's Ridley.

¹²In some cases, allocations are given over a multiyear time span. Thus, the average annual allocation might not be a whole number. In these cases, the numbers have been rounded to the nearest whole number.

¹³The take is allotted for 3 years: 6 lethal or non lethal takes over three years, or an average of 2 lethal or non lethal takes per year.

¹⁴Nine leatherbacks may be taken biennially, for an average of 4.5 individuals each year.

¹⁵Three loggerheads, and either 1 green, leatherback, or Kemp's Ridley are anticipated to be captured in monkfish gillnet gear annually. Additionally, 1 sea turtle may be captured in monkfish trawl gear.

¹⁶Incidental takes of leatherback, green, and Kemp's Ridley sea turtles is aggregate.

¹⁷Scallop dredge: 749 (479 lethal subset) loggerheads; scallop trawl: 3 loggerheads and 1 leatherback, either dead or alive

¹⁸Incidental takes of loggerhead, leatherback, green, and Kemp's Ridley sea turtles is aggregate.

¹⁹Takes are aggregate for loggerheads and Kemp's Ridelys.

Table 3. Summary of all U.S. federally authorized sea turtle takes from fishing activities under the jurisdiction of the Southeast Regional office of the National Marine Fisheries Service.^{20,21} Authorized take levels are from the most recent Section 7 Biological Opinion for each fishery.

Fishery	Annual Authorized Incidental Take (IT) and Lethal (L) Subset													
	Loggerhead		Leatherback		Green		Kemp's Ridley		Hawksbill		Olive Ridley		Total take per activity	
	IT	L	IT	L	IT	L	IT	L	IT	L	IT	L	IT	L
Dolphin fish and Wahoo ^{22,23}	12	2	12	1	2	1	2	1	2	1	0	0	16	2
Atlantic Pelagic Longline ²⁴	623	146	660	183	35	8	35	8	35	8	35	8	1,318	337
Sargassum ²⁵	3	3	0	0	0	0	0	0	0	0	0	0	3	3
Shark bottom longline and drift gillnet ²⁶	274	151	34	18	6	1	6	1	6	1	0	0	314	170
Pamlico Sound Gillnet ^{27,28}	41	3	2	2	168	46	41	14	2	2	0	0	254	69
Shrimp trawling ²⁹	163,160	3,948	3,090	80	18,757	514	155,503	4,208	N/A	640	0	0	340,510	8,750
Southeast	164,113	4,253	3,799	284	18,968	572	155,587	4,232	45	652	35	8	342,416	9,331

²⁰Numbers do not sum up properly across species (i.e. the bottom row) because in a few cases, the permitted takes can be allocated for multiple species. For example, a fishery might be able to take 3 loggerheads and 1 leatherback or 1 Kemp's Ridley.

²¹In some cases, allocations are given over a multiyear time span. Thus, the average annual allocation might not be a whole number. In these cases, the numbers have been rounded to the nearest whole number.

²²The total annual number of authorized takes for all species combined is 16 turtles, 2 of which can be lethal takes.

²³The total number of authorized takes for all species combined is 16 turtles, 2 of which can be lethal takes.

²⁴Hawksbill, green, Kemp's Ridley, and olive ridley takes are aggregate. Takes are authorized for a three year period; the above is the take anticipated for 2006.

²⁵The above takes are the average of the 5 year take limit: 15 loggerheads and 1 other sea turtle (leatherback, Kemp's Ridley, hawksbill, or green). All interactions are expected to be lethal.

²⁶The takes are the annual average of the 5 year take limit. Green, Kemp's Ridley, and hawksbill sea turtle takes are aggregate

²⁷Incidental takes are given for 3 year periods for Kemp's Ridley, green and loggerhead sea turtles in this fishery. These numbers are annual averages. In addition to the annual estimate, 6 observed takes of turtles in any combination of these species can occur on the western shore of Pamlico Sound. These 6 allowed observed takes have not been included.

²⁸The numbers for leatherbacks and hawksbills are observed takes, not extrapolated, so a much greater number than 2 of each can legally be taken.

²⁹Incidental takes of hawksbill sea turtles could not be calculated from data available at the time of the Biological Opinion.

Table 4. Summary of all U.S. federally authorized sea turtle takes from fishing activities in the Pacific.^{30,31} Authorized take levels are from the most recent Section 7 Biological Opinion for each fishery.

Fishery	Annual Authorized Incidental Take (IT) and Lethal (L) Subset											
	Loggerhead		Leatherback		Green		Hawksbill		Olive Ridley		Total take per activity	
	IT	L	IT	L	IT	L	IT	L	IT	L	IT	L
ETP Purse Seine ³²	3	0	2	0	35	2	2	0	133	7	175	9
California/Oregon Drift Gillnet ³³	5	2	3	2	4	1	0	0	4	1	16	6
Hawaii Deep-set Longline	4	2	18	7	6	5	0	0	37	35	65	49
Hawaii shallow-set Longline	17	3	16	2	1	1	0	0	5	1	39	7
Western Pacific Handline, troll, poll and line ^{34,35}	6	1	1	0	6	1	6	1	6	1	7	1
West Region	35	8	40	11	52	10	8	1	185	45	302	72

³⁰Numbers do not sum up properly across species (i.e. the bottom row) because in a few cases, the permitted takes can be allocated for multiple species. For example, a fishery might be able to take 3 loggerheads and 1 leatherback or 1 Kemp's Ridley.

³¹In some cases, allocations are given over a multiyear time span. Thus, the average annual allocation might not be a whole number. In these cases, the numbers have been rounded to the nearest whole number.

³²Authorized takes are 1 loggerhead mortality every 7 years and 1 leatherback and 1 hawksbill mortality every 10 years.

³³Loggerhead takes in the gillnet fishery are dependent on an El Niño event.

³⁴This category includes the handline fisheries, troll fisheries, pole and line fisheries managed under the Pelagics Fisheries Management Plan as well as the longline fisheries based out of American Samoa.

³⁵The 6 takes, one of which can be lethal, are for all hardshell turtles so it can be any mix of green, hawksbill, loggerhead, and olive ridley sea turtles.

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