

WATER LOG

A Legal Reporter of the Mississippi-Alabama Sea Grant Consortium

Volume 18:4 1998



Fifth Circuit Considers Standing

Sierra Club v. Glickman,
156 F.3d 606 (5th Cir. 1998)

Kristen M. Fletcher, J.D., LL.M.

In the latest of a series of cases brought by the Sierra Club concerning endangered species dependent upon water from the Edwards Aquifer in Texas, the Fifth Circuit found that it does have standing to challenge Department of Agriculture policies. The Fifth Circuit upheld successful challenges under the Endangered Species Act

and Administrative Procedures Act and reaffirmed that federal agencies have an affirmative duty to conserve endangered species.

History of the Edwards Aquifer

The Edwards Aquifer is a 175-mile long underground aquifer that stretches through central Texas. Unless removed by pumping, water in the aquifer is eventually discharged through a series of springs, the two largest of which are in areas that serve as the only

habitat of five federally endangered and threatened species that are dependent on the aquifer waters for their survival.¹ Humans also depend upon the aquifer for irrigation for crops, as a primary source of water, and for businesses which support the area economy. As a result of this dependence by both man and nature, the Edwards Aquifer has been the focus of extensive efforts to conserve its limited water resources.

In addition to prior legislative

see Standing pg. 4

Turtles Win at Eleventh Circuit

Court Finds Beach Lighting "Takes" Endangered Sea Turtles

Loggerhead Turtle v. County Council of Volusia County, Florida,
148 F.3d 1231 (11th Cir. 1998).

Brad Rath, 2L

On August 3, 1998, the United States Eleventh Circuit Court of Appeals held that Volusia County, Florida, must take additional measures to protect endangered sea turtles that nest on its beaches to be in compliance with the Endangered Species Act.¹ Reversing the District Court decision,² the Eleventh Circuit ruled that a permit that

allowed beachfront driving in sea turtle nesting areas did *not* allow harmful artificial lighting within the areas. The finding decides an issue of first impression and clarifies permitting procedures under the Endangered Species Act.

Sea Turtles in Volusia County

As in many areas along the Gulf of Mexico and the Atlantic coasts of Florida, the beaches of Volusia County serve as nesting grounds for the threatened loggerhead sea turtle and the endangered green sea tur-

tle.³ The beaches are popular tourist attractions with high density residential development. The developed beaches present numerous dangers for adult and hatchling sea turtles, especially from artificial lighting and beachfront driving.⁴ In the spring, female adult sea turtles reach the beaches and deposit their eggs in the sand. Several months later, the hatchlings break out of their shells at night and instinctively crawl toward the brightest light which, on an undeveloped beach, is the moon's reflection off the surf.

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WATER LOG is a quarterly publication reporting on legal issues affecting the Mississippi-Alabama coastal area. Its goal is to increase awareness and understanding of coastal problems and issues.

To subscribe to **WATER LOG** free of charge, contact Mississippi-Alabama Sea Grant Legal Program, Lamar Law Center, University, MS, 38677, or contact us via e-mail at waterlog@olemiss.edu. We welcome suggestions for topics you would like to see covered in **WATER LOG**.

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From the Editor's Desk

In recognition of the close of the Year of the Ocean and what has been called the "last frontier," we've devoted two articles of this issue to studies of the deep sea. On page 16, you'll find an article about a teacher's experience on a NOAA research vessel from our Editor-at-Large, John Duff. And, on page 18, we review the account of a woman's journey to the bottom of the ocean. Hopefully, they will inspire your own such journey.

*Also in this issue, you will find a Reader Survey on pages 11 and 12. As we strive to improve our services to you, your opinions are essential. Please take a few moments to fill out the survey as it will provide us with a better idea of your needs and ideas for **WATER LOG**.*

We look forward to hearing from you and wish peace to you and your family this holiday season.

Kristen M. Fletcher
Editor

WATER LOG Notes

United States v. Beggerly, 118 U.S. 1862 (1998).
In Issue 18:1, we reported on *Beggerly v. U.S.*, the Fifth Circuit Court of Appeals case granting ownership of 729 acres of Horn Island to landowner Clark Beggerly. In July, the U.S. Supreme Court reversed the Fifth Circuit decision, restoring claim of these acres to the National Park Service. The Court ruled there was insufficient jurisdiction over the case and would not extend the 12-year statute of limitations under the Quiet Title Act, precluding the claim.

U.S. Appeal to World Trade Organization.

In Issue 18:2, we reported the World Trade Organization (WTO) decision that the U.S. had violated international law by banning imports of shrimp from nations not using turtle excluder devices on trawls. The United States appealed and in October, the WTO reversed its prior ruling and found that trade restraints imposed in the interest of protecting natural resources are permissible. But, it reaffirmed that the United States had applied its standard unfairly by failing to negotiate optional strategies.

District Court Penalizes from the “Top-Down”

United States v. Gulf Park Water Company, 14 F.Supp. 2d 854 (S.D. Miss. 1998).

Kristen M. Fletcher, J.D., LL.M.

This year, the Gulf Park Water Company became the first defendant in southern Mississippi to be penalized under the Clean Water Act using a “top-down methodology.” Last March, the U.S. District Court for the Southern District of Mississippi elected to use a top-down assessment method when calculating the appropriate penalty for violations of the Clean Water Act. After twelve uninterrupted years of discharge into the Mississippi Sound, the court fined the defendants \$1.5 million.

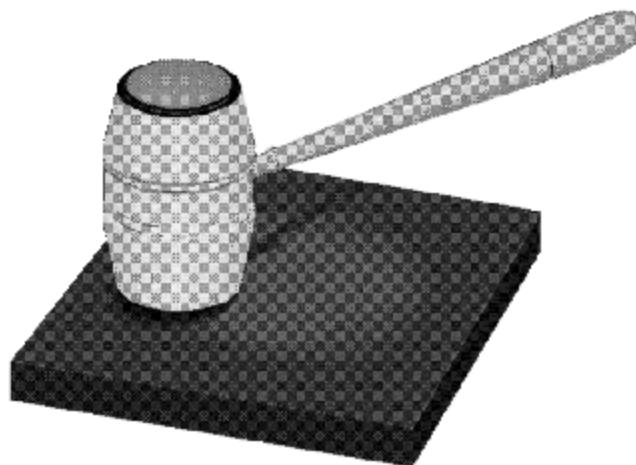
The defendants, Gulf Park Water Company, Johnson Properties, and Glenn and Michael Johnson (hereinafter Gulf Park), are owners and operators of a wastewater treatment facility that discharged wastewater directly into the waters of the United States, specifically into the Mississippi Sound. For twelve years, the defendants continuously discharged without a National Pollutant Discharge Elimination System (NPDES) permit, as required by the Federal Clean Water Act (CWA). After numerous attempts by the Chancery Court of Jackson County and the Mississippi Department of Environmental Quality (DEQ), the Chief of the Water Division at DEQ referred the case to the U.S. for civil enforcement.¹

The defendants continued to illegally discharge after the United States filed the complaint against them in 1993 for 1,825 violations of the CWA. The defendants were found guilty on July 2, 1997 and were required to pay a deposit for connection to the Gulf Coast Regional Wastewater Authority, permitted for such discharges. After eight days passed and the defendants had neither paid the requisite deposit nor ceased illegally discharging, the United States moved to hold them in contempt. Ultimately, Gulf Park complied with the order on July 23. The court then considered the appropriate penalty for the violations.

Section 309 of the CWA mandates civil penalties for each violation and states that the violator “shall be subject to a civil penalty not to exceed \$25,000 per day for each violation.”² The maximum penalty the court could have imposed was \$46,062,500 for the

1,825 violations. Federal courts are split, however, on how to assess the appropriate penalty. Some U.S. District Courts and the Eleventh Circuit, use the “top-down” method of penalty calculation, in which the court begins the penalty calculation at the statutory maximum and adjusts downward considering mitigating factors under the CWA.³ Other courts use the “bottom-up” method of calculation, in which the court begins the calculation using the defendant’s economic benefit of the noncompliance, and adjusts upward or downward considering mitigating factors.

The court found the Eleventh Circuit’s reasoning persuasive and determined “[i]n deciding upon the penalty to be assessed against a defendant who has violated its NPDES permit, the point of departure for the district court should be the maximum fines for such violations. . . .”⁴ Starting with a maximum penalty of over \$46 million, the court then considered the five mitigating factors, as laid out by the CWA, to determine the appropriate fine.



Seriousness of the Violations. The court found that Gulf Park’s discharge was serious solely by virtue of its duration: daily, uninterrupted violations for over twelve years during which Gulf Park refused to connect to the Regional Authority. The defendants countered that the violations were not serious because of the presence of other pollution sources on the Gulf Coast. Quickly dismissing this argument, the court found that even though the plaintiffs have no respon-

see Top-Down pg. 3

Standing (cont. from pg. 1)

efforts to conserve water, the Sierra Club brought a series of lawsuits attempting to further regulate water usage.³ In suing the Department of Agriculture (USDA), the Sierra Club asserted that the agency failed to properly consult with the U.S. Fish and Wildlife Service (FWS) regarding the endangered species and failed to develop and implement programs to protect them. After the trial, the district court ordered the USDA to develop conservation programs and to consult with the FWS about aquifer-dependent endangered and threatened species. The district court noted that the USDA had unquestionable authority to target monies for areas such as the Edwards Aquifer.

The USDA appealed arguing that the Sierra Club lacked standing, that the cause of action was not supported under the Endangered Species Act (ESA) or Administrative Procedure Act (APA), and that the USDA had performed its ESA duties.

Standing

On appeal, the Fifth Circuit first reviewed the Sierra Club's standing to sue. The Supreme Court has determined that to have constitutional standing to sue, the Sierra Club must show: (1) an injury in fact, i.e., a harm suffered that is concrete and actual or imminent, not conjectural or hypothetical; (2) causation, i.e., a fairly traceable connection between the plaintiff's injury and the defendant's conduct; and (3) redressibility, i.e., a likelihood that the requested relief will redress the injury.³

The Sierra Club met the first

prong of standing since, as admitted by the USDA, the aquifer-dependent species were in substantial, imminent risk of injury, a cognizable injury under the ESA.

The USDA, however, argued that the Sierra Club failed to meet the second prong - that the agency's failure to consult with the FWS and develop conservation programs caused the alleged injury. Rather, the USDA claimed the injury was caused by the independent actions of third party farmers over whom the USDA has no coercive control. The court disagreed and pointed to three pieces of evidence that causation existed.

First, the court pointed to a 1995 study partially conducted by the USDA that proposed a program to provide financial assistance to farmers for the installation of conservation measures. This program would have led to 38,000 acre-feet of irrigation water saved in an average year. Second, a USDA Biological Evaluation concerning irrigation water stated that this 38,000 acre-feet represents a significant percentage of the total Edwards Aquifer irrigation pumping. Finally, the court found that the FWS "categorically disagreed with the USDA's statement that a 20% decrease in Edwards irrigation pumping would have no significant effect on [aquifer]-dependent species."⁴ With this evidence, the court found that the USDA's failure to adopt a conservation or assistance program was fairly traceable to the Sierra Club injury, meeting the causation requirement for constitutional standing.

In deciding whether the

requested relief by the Sierra Club would redress this injury, the court turned to section 7(a)(1) of the ESA which states that "federal agencies shall, in consultation with . . . the Secretary [of Interior], utilize their authorities . . . by carrying out programs for the conservation of endangered species and threatened species."⁵ The court admitted that section 7 appears to require only a generalized duty to confer and develop programs for endangered and threatened species, not with respect to any particular species. But, in looking at the ESA as a whole, the court found a more specific duty.

The language of the statute calls for agencies to use all of the methods and procedures which are necessary to bring any endangered or threatened species to the point at which the measures are no longer necessary.⁶ The court then relied upon the Supreme Court's examination of the ESA in *TVA v Hill*, a landmark ESA case which held that Congress was clearly concerned with the conservation of *each* endangered and threatened species.⁷

Finally, legislative history of the ESA revealed a concern for specific species to see that they are not driven to extinction.⁸ Given the plain language of the statute, its legislative history, and U.S. Supreme Court rationale, the court concluded that Congress intended to impose an affirmative duty on every federal agency to conserve *each listed species*. In so concluding, the court found that the USDA procedures could protect Sierra Club's threatened interest.

Judicial Review

The USDA then argued that neither the ESA nor the APA supported the Sierra Club's cause of action. Relying on the recent Supreme Court decision in *Bennett v. Spear*, the USDA claimed that the ESA citizen suit provision cannot be used to challenge the failure of an agency to follow the requirements of section 7. The Fifth Circuit dismissed the argument as a misinterpretation of the reach of *Bennett* finding that the ESA provides for suits against the Secretary to compel performance of a non-discretionary duty.

In addressing the APA provisions, the court again found support for Sierra Club's action. The USDA claimed its actions are unreviewable because there is no applicable law to review relying on its own argument that § 7(a)(1) of the ESA does not impose a duty on federal agencies to consult and develop conservation programs for endangered species. Alluding to its finding of an affirmative duty on the USDA earlier in the opinion, the court dismissed this argument, recognizing there is "more than enough law against which a court can measure agency compliance."

Finally, the USDA argued that it has unreviewable discretion in developing programs for these species. The court turned to the Supreme Court holding that it is "rudimentary administrative law that discretion as to the substance of the ultimate decision does not confer discretion to ignore the required procedures of decision making."¹⁰

USDA Programs

The court then turned to Sierra Club claims under the Agriculture and Water Policy Coordination Act, related provisions that establish a USDA Council on Environmental Quality, and the Bankhead-Jones Farm Tenant Act, statutes that require the USDA to develop and implement programs to protect waters from contamination and prevent environmental problems that may result from agricultural production as it relates to the aquifer-dependent species. The Fifth Circuit first addressed whether the Sierra Club had standing to sue on these claims. The Court found the Sierra Club did not offer evidence showing its injury was traceable to the USDA's failure to implement

these statutes or how implementation would redress the injury. Thus, without standing, the court reversed the lower court's judgment to favor the USDA.

Conclusion

The Fifth Circuit successfully maneuvered through the Supreme Court's two decades of rulings on the Endangered Species Act and constitutional standing. In applying the Court's reasoning and fair readings of the statutes at hand, the Fifth Circuit may have brought a closure to the struggles for power and protection at the Edward's Aquifer. ✓

NOTES

1. The species are the fountain darter, San Marcos gambusia, San Marcos salamander, Texas blind salamander, and Texas wild rice. See 50 C.F.R. §§ 17.11, 17.12.
2. See *Sierra Club v. Glickman*, 156 F.3d 606, 610 (5th Cir. 1998).
3. See box below for Supreme Court cases.
4. *Sierra Club v. Glickman*, 156 F.3d at 614.
5. 16 U.S.C. § 1536(a)(1) (1998).
6. 16 U.S.C. at § 1532(2) (1998).
7. *TVA v. Hill*, 437 U.S. 153 (1978).
8. See Statement of Representative Dingell, 119 Cong. Rec. 42913 (1973), as cited in *TVA v. Hill*, 437 U.S. at 183-84.
9. *Sierra Club v. Glickman*, 156 F.3d at 619.
10. *Bennett v. Spear*, 117 S.Ct. at 1166.

Constitutional Standing at the Supreme Court

For recent Supreme Court analysis of constitutional standing, see the following cases.

***Lujan v. Defenders of Wildlife*, 504 U.S. 555 (1992).** The Court held that parties did not have standing to challenge a regulation interpreting the ESA without an actual or imminent injury. The Court denied standing on a number of proposed theories including an ecosystem nexus, animal nexus, vocational nexus, and that the ESA allows all persons to sue.

***Bennett v. Spear*, 520 U.S. 154 (1997).** The Court held that a party challenging a federal agency's restrictions imposed to protect endangered species did have standing under the zone-of-interests test even though the plaintiffs sought to prevent application of environmental restrictions rather than to implement such restrictions.

***Steel Co. v. Citizens for a Better Environment*, 118 S.Ct. 1003 (1998).** The Court determined that a party did not have standing to sue under the Emergency Planning and Community Right-To-Know Act because no relief sought was likely to remedy the alleged injury as the relief would not reimburse the organization for losses or eliminate effects of late reporting. The Court declined to reach the merits noting that "federal courts ought to be certain of their jurisdiction before reaching the merits of a case."



Supreme Court Decides Ownership of Historic Ellis Island

State of New Jersey v. State of New York, 118 S.Ct. 1726 (1998).

Tammy L. Shaw, 2L

In May, the Supreme Court decided a longstanding dispute over the ownership of filled portions of Ellis Island, the historic immigration site comprised of lands claimed by both New York and New Jersey. New Jersey petitioned the Court over the boundary and ownership dispute in 1993 after the Second Circuit Court of Appeals applied New York tort law on filled portions of the Island. After arguments from both states and recommendations by the appointed Special Master, the Court held that New Jersey has sovereign jurisdiction over the filled portions of the Island, measured by the low water mark of the original three-acre Island, leaving New York with jurisdiction over the original three-acre area of the Island.

Ellis Island: From 3 to 24 Acres

The dispute over claim to ownership of Ellis Island is not a new one. A land grant from the Duke of York in the late 18th century divided the areas of present day New York and New Jersey, including Ellis Island, between two proprietors and the ownership dispute continued long after the territories passed out of private ownership. In 1834, the states made an early attempt to settle the dispute with a compact that set the boundary line between the States along the middle of the Hudson River. It also carved out Ellis Island (then 3 acres) as a part of New York despite its location on the New Jersey side of the river. The states agreed that New York had sovereign authority over the Island and that New Jersey retained sovereign rights over submerged lands on its side of the boundary line.

New York had ceded jurisdiction over the Island to the United States in 1800 for the purpose of defense and fortification of the city. The U.S. maintained a military presence on the Island until the late 1880's and in 1891, the United States government began to use the Island to receive immigrants. As immigration into the

U.S. increased, the need for larger facilities prompted the government to begin filling in around the Island's shoreline, slowly adding 24.5 acres to the original Island. In 1954, immigration was diverted from the Island and it was developed as a national historic site under the direction of the National Park Service.

New York and New Jersey continued to assert rival claims of sovereign authority over the filled portions of the Island throughout the 19th and 20th centuries for taxes generated from concessions at the Island's museum and for the less tangible benefit of laying claim to the unique history of the Island. In the years that it served as the gateway to the United States, nearly 12 million immigrants came ashore on Ellis Island.

The Disputed Claims

In the present case, New Jersey sued for a declaration that the measurement of its boundary should include submerged lands to the high water mark of the original Island and for a permanent injunction prohibiting New York from enforcing its laws on the filled portions.

New York countered that the compact of 1834 provided for New York authority over the filled portions of the Island. New York explained that the compact was silent on the subject of the then common practice of filling in the shallow areas around the Island and that this silence indicated the drafters' assumption that any enlargement of the Island would subject the filled portions to New York jurisdiction. New York also asserted two affirmative defenses, claiming that it had acquired jurisdiction over the filled portions of the Island by prescription (the doctrine of continual usage) and that New Jersey was barred from challenging this assertion by laches (the doctrine of delay). The Court appointed a Special Master to gather evidence and make recommendations toward resolution of this case.

After taking evidence, the Special Master concluded that the filled portions of the Island are under the sovereign authority of New Jersey by virtue of the compact of 1834. He also concluded that New York's

authority over the original area (3 acres) of the Island should be measured to the mean low water mark of the original island land mass. The Special Master further concluded that the Court should adjust the boundary line between the two states to place all of the main buildings associated with the historic immigration facilities under the authority of New York. Both states filed exceptions to these findings.

The Court's Holding

The Court agreed with the Special Master's finding that New Jersey has sovereign authority over the filled land added to the original Island and that boundaries established by the compact of 1834 should remain as measured from the low water mark of the original Island. The Court held that the mean low water mark is the most appropriate measurement for this boundary based on common law precedents and the intent of the 1834 compact.

The Court dismissed New York's defenses finding that the state failed to meet its evidentiary burden that it acquired this portion of the Island through continual use. In dismissing New York's claim of delay against New Jersey, the Court noted that the long and varied history of the Island made it unclear that New Jersey had acquiesced its claim of sovereignty or that New Jersey could have known that New York was asserting its claim of sovereignty over the filled portions of the Island.

Finally, the Court further held that New York retains jurisdiction over the original 3 acre portion of the Island, as stated in the compact of 1834. The Court declined to adjust the original boundaries as the compact of 1834 that set these boundaries was ratified by Congress, leaving the Supreme Court no authority to change it.

Poseidon's Call for Help Worth Millions

Margate Shipping Company v. M/V JA Orgeron,
143 F.3d 976 (5th Cir. 1998).

Kristen M. Fletcher, J.D., LL.M.

The Fifth Circuit recently decided a case about the destiny of *Poseidon*. Named for the God of the Sea, the barge *Poseidon* was carrying a valuable external fuel tank for NASA's space shuttle when it found itself in the rough seas and winds of a more recent "god of the sea," Tropical Storm Gordon in November, 1994. As a result of a valiant rescue of *Poseidon* and her accompanying vessel, the *Orgeron*, Margate Shipping received a salvage award of \$6.4 million, the largest maritime award in history. The case reached the Fifth Circuit on appeal to contest the award amount.

The facts behind the two-day rescue effort are as follows. On November 13, *Poseidon*, pulled by her tug escort, *Orgeron*, rounded the southern tip of Florida in the voyage from Martin Marietta's assembly plant in Louisiana to Kennedy Space Center on Cape Canaveral. Though they met with increasingly severe winds and heavy seas generated by the tropical storm, NASA requested the boats continue. The *Orgeron* eventually found itself without power and adrift, in danger of losing both her own crew and the NASA fuel tank. With the Coast Guard unable to assist, the *Orgeron's* captain was ready to release the barge for the safety of the crew when *Cherry Valley*, a 688-foot oil tanker owned by plaintiff Margate Shipping and carrying nine million gallons of heavy fuel oil, answered the cry of help. *Cherry Valley* managed to pull the tug and barge out of shallow waters but still had to ride out the sixty knot winds and fifteen to twenty foot seas of the storm. After endangering its cargo and its crew, the Margate anchored in deeper waters. After holding there for two long days, another tug was able to relieve *Cherry Valley* and *Poseidon* finally finished its voyage to Cape Canaveral.

The court determined that the lower court properly applied the maritime law "Blackwell factors" when determining the value of a salvage award. In the case, the lower court considered the labor expended by *Cherry Valley*, its promptitude, skill and energy, risk incurred in the rescue effort, the value of *Cherry Valley* as the property which carried out the rescue, the degree of danger from which the *Poseidon* and the fuel tank were rescued, and the value of the property saved. The Fifth Circuit agreed that *Cherry Valley's* salvage efforts earned the highest possible award but lowered the total award to \$4.125 million as a result of a reduction in the value of the NASA fuel tank. ♡

Top-Down (cont. from pg. 3)

sibility to show actual harm to the environment, evidence shows that the “defendant’s discharges constituted both an actual and a potential threat to the public health and the environment.”⁵

The defendants then argued that the discharge from Gulf Park had no more impact on the receiving waters of the Mississippi Sound than the discharge from the Regional Wastewater Authority to which Gulf Park was required to connect because the numerical discharge parameters on the permits were the same. The court found the discharges distinguishable because Gulf Park’s permit was for disposal onto land and the Authority’s permit was into water. In addition, Gulf Park was discharging directly to the Sound while the Authority’s disposal was more than ten miles from the Sound. Finally, the quality of Gulf Park’s discharge is noticeably more polluted according to testimony from an Environmental Protection Agency Inspector who found “solids leaving the plant, debris floating in the effluent, excessive residual chlorine, and broken and malfunctioning equipment.”⁶

Finally, the court considered the health risks of the violations to determine the seriousness. Evidence revealed raw sewage bypasses into the Sound, increasing risks of numerous illnesses, closure of recreational areas, and contamination of oyster beds along the shore from Ocean Springs to Pascagoula. Thus, the violations were serious and this factor did not allow for mitigation of the maximum fine.

Defendant’s Economic Benefit of Violations.

The court noted that a “defendant should not be placed in a better position, due to its failure to comply with the law, than it would be in if it had made the necessary expenditures to comply.”⁷ Recognizing that the defendant can benefit from delaying the expenditure of funds on compliance, avoid some costs altogether, and obtain an advantage over competitors, the court found that the defendants’ economic benefit was \$600,000 and as a result, found that this did not mitigate the fine.

History of Violations. In reviewing the history of violations factor, courts generally consider the duration of current violations, similar violations in the past, and the duration and nature of such violations.⁸ With a twelve year history of present violations and a refusal to comply until faced with a contempt motion, the court quickly determined the defendants’ penalty

could not be reduced by this factor.

Good Faith Efforts to Comply. The court searched through twelve years of history to find good faith efforts by Gulf Park. While the court found evidence that Gulf Park ignored a Chancery Court order in 1995, failed to timely pay the necessary connection deposit to the Regional Authority, and knowingly did nothing to exhibit compliance, it balanced these violations with improper charges against Gulf Park by the Regional Wastewater Authority. The Authority had imposed a 10% surcharge in addition to the normal rates and required a considerable connection fee. While not excusing Gulf Park’s failures, the court did determine that this factor mitigated the final penalty.

Economic Impact of the Penalty on the Violator. The final mitigating factor is to consider whether the defendants have the ability to pay and what impact the penalty will have on the ability to conduct business. Inconsistencies, misstatements, mistakes, and erroneous figures on the part of the defendants led the court to appoint a Special Master to study Gulf Park’s ability to pay. After evidence of low cash flow and bargaining power, the court held that this fifth statutory factor weighed in favor of a significant reduction in the amount of the penalty, leaving the defendants to pay \$1.5 million.

In opting to use the top-down methodology, the court showed its preference to use the maximum level of penalty. It tempered this with its concern that this method not dissolve the defendants’ ability to continue business shown in its favoring of the fourth and fifth statutory factors of the CWA allowing reduction of the original \$46 million fine. ✓

NOTES

1. Chief of the Water Division of the Mississippi DEQ, testified that in his 21 years at DEQ, this was the only case his office had to refer to the United States for civil enforcement. *U.S. v. Gulf Park Water Company*, 14 F.Supp. 2d 854, 864 (S.D. Miss. 1998).
2. 33 U.S.C. § 1319(d) (1998).
3. The 11th Circuit uses the top-down method and a 5th Circuit opinion favors that method, as well. *See Atlantic States Legal Foundation v. Tyson Foods*, 897 F.2d 1128 (11th Cir. 1990); and *United States v. Marine Shale Processors*, 81 F.3d 1329 (5th Cir. 1996).
4. *U.S. v. Gulf Park Water Company*, at 858, quoting *Tyson Foods*, 897 F.2d at 1137.
5. *U.S. v. Gulf Park Water Company* at 860.
6. *Id.* at 861.
7. *Id.* at 862.
8. *See U.S. v. Smithfield Foods*, 972 F. Supp. 338, 349 (E.D. Va. 1997).

Turtles (cont. from pg. 1)

However, female sea turtles avoid areas where the beachfront lighting is most intense, resulting in aborted nesting attempts. Also, the hatchlings become disoriented by the artificial light which fatally leads them away from the sea and into busy roadways. The beachfront driving also prevents adult turtles from coming ashore to deposit their eggs and automobiles may run over the hatchlings or create deep ruts in the sand which trap the hatchlings. These dangers contributed to the declining populations of the loggerhead and green sea turtles along Florida's coasts. As a result, the Fish and Wildlife Service (Service) listed the loggerhead sea turtle as threatened and the green sea turtle as endangered under the Endangered Species Act (ESA).

Volusia County Takes Action Under the ESA

The ESA protects listed species such as the sea turtles by prohibiting harm to the animal and by protecting the species' critical habitat. "Harm" includes "significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering."⁴

For the loggerhead and green sea turtles, beachfront driving and artificial lighting could jeopardize the recovery of the species. To allow these activities in nesting areas, the ESA required Volusia County to develop a Habitat Conservation Plan to provide certain protections to conserve the species and its habitat. After developing the habitat conservation plan, Volusia County applied for an incidental take permit so that the accidental harming of a sea turtle as a result of a permitted activity would not violate the ESA.

On November 21, 1996, the Service issued an incidental take permit to Volusia County which authorized accidental takes of sea turtles due to beach driving under "Condition F." The permitted activities included driving by emergency and safety vehicles as well as some vehicles operated by the general public. The incidental take permit also provided for mitigation measures such as public awareness programs, turtle-friendly lighting, and lighting maintenance guidelines. These measures, established in "Condition G," included plans for reducing the adverse effects of the artificial lighting along the beachfront. In June of 1995, when Rita Alexander and Shirley Reynolds became aware

see Turtles pg. 10

Attention Alabama Boaters

Boat operators in Alabama are reminded by the Alabama Marine Police they will be required to have an operator's license by April, 1999, to operate a motor boat on any of the state's waterways. This includes personal watercraft.

The requirement was passed by the Alabama Legislature in April 1994 and allowed for a five-year phase-in period for compliance. The minimum fine for operating without a license is \$100.

PRICING THE PLANET

This summer, a team of scientists from around the world teamed up to estimate what might be called the world's Gross Natural Product, based on the services provided by nature.

They valued our marine resources as follows.

TOTAL COASTAL AREA

Includes estuaries, coral reefs, shelf & seagrass/algae beds

*Global Value: *12.568 trillion*

*Open Oceans: *8.381 trillion*

*Seagrass/Algae Beds: *3.801 trillion*

*Coral Reefs: *375 billion*

*Tidal Marsh/Mangroves: *1.648 trillion*

*Shelf: *4.293 trillion*

*Estuaries: *4.110 trillion*

Turtles (cont. from pg. 9)

that Volusia County was not protecting the turtles from beach driving or artificial beachfront lighting, they filed suit on behalf of the turtles. The United States District Court for the Middle District of Florida granted the Turtles a preliminary injunction to halt the beach driving, but denied preliminary relief regarding the artificial lighting indicating that the Turtles did not prove that lighting was "reasonably likely" to take sea turtles.⁵ The Turtles appealed this decision to the Eleventh Circuit.

Eleventh Circuit's Holding

In the appeal, the Turtles assert that Volusia County's incidental take permit authorizes incidental takes of sea turtles from beach driving by emergency and safety vehicles but not takes resulting from artificial beachfront lighting. The Turtles posit that the Service's permission must be explicit and that no inferences may be drawn in a permit that does not specifically allow takes through artificial lighting.

Volusia County counters that its authority to take sea turtles through lighting is implied under the permit even though the permit alludes to artificial lighting as a mitigation measure only. Volusia County asserts that its exhaustive studies of the effects of artificial light on sea turtles are sufficient to allow incidental takes and that the Service anticipated that the county would not be liable for incidental takes resulting from the artificial beachfront lighting.

The Eleventh Circuit ruled that the county's incidental take permit does not authorize it to take protected sea turtles through artificial beachfront lighting because the lighting is solely a mitigatory measure. The court points out that all activities which may result in incidental takes are established under Condition F of the permit. If the Service intended to allow Volusia County to take sea turtles through the use of artificial beachfront lighting, then it would have granted such authority in Condition F. Because the lighting is included only under Condition G, Volusia County does not have the authority to take sea turtles through artificial lighting. The court stated that the ESA's "text and the Service's regulations provide every indication that incidental take permission must be express and activity-specific."⁶ Therefore, the incidental take permit does not authorize (expressly or impliedly) takes via activities listed only as mitigatory measures.

Who can sue and who can be sued?

The Eleventh Circuit also held that Volusia County could be sued for takes which occurred in the non-party municipalities of Daytona Beach, Daytona Beach Shores, Ormond Beach, and New Smyrna Beach. Volusia County argued that because these municipalities exercised some control over beachfront lighting within their respective areas, the municipalities should be sued individually. However, the court found that Volusia County had sufficient authority to impose county-wide lighting restrictions. Since the district court was capable of redressing the harm while respecting Volusia County's regulatory authority over the non-party municipalities, Volusia County could be sued for takes occurring in those municipalities.

Finally, the Eleventh Circuit determined that the plaintiff Turtles should be allowed to add the endangered leatherback sea turtle as a party. It reasoned that although the leatherback was mentioned in only one part of the notice to sue, the letter in its entirety did provide sufficient notice that the lighting also impacted this turtle. In addition, the addition of the leatherback as a party does not cause an undue delay or great expense to Volusia County. Thus, the district court abused its discretion when it denied the Turtles the opportunity to amend the original complaint to include the leatherback sea turtle.

Conclusion

Volusia County moved for a rehearing which was denied by the Eleventh Circuit.⁷ The original decision stands and clarifies that incidental take permits under the ESA must be explicit when permitting activities that will harm an endangered species. ✓

NOTES

1. *Loggerhead Turtle v. County Council of Volusia County, Florida*, 148 F.3d 1231 (11th Cir. 1998).
2. *See Loggerhead Turtle v. County Council of Volusia County, Florida*, 896 F. Supp. 1170 (M.D. Fla. 1995).
3. An endangered species is in danger of extinction throughout or a significant portion of its range, 16 U.S.C. § 1532(6) (1998); a threatened species is likely to become an endangered species within the foreseeable future, 16 U.S.C. § 1532(20) (1998).
4. 50 C.F.R. § 173 (1997).
5. *Loggerhead Turtle*, 896 F.Supp. at 1181, 1183.
6. *Id.* at 1242.
7. Telephone Interview with Eleventh Circuit Court Clerk's office (November 20, 1998).

1998 WATER LOG READER SURVEY

Why do you read WATER LOG? How could it serve you better? Your opinions and ideas are important to us. Please take a few minutes to respond to the following survey so that we may serve you in the future.

1) How long have you been a subscriber to WATER LOG?
_____ years

2) WATER LOG is published four times a year.
How many issues do you read annually?

- All four Two None
 Three One

3) Which affiliation best describes you? Please check all that apply.

- Mississippi-Alabama Sea Grant Private Sector
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4) Which discipline describes your work and interests? Please check all that apply.

- Law/Policy Pure and Applied Sciences
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 Social Sciences

5) How does WATER LOG contribute to your work and interests?

- Educational Tool Managerial Tool
 Policy/Law-Making Tool Other: _____
 Informational Tool

6) What forms of communication/media do you use to stay informed?

- E-Mail List-Serve
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7) Please rank what ocean and coastal law topics are most important to you. (1=most important)

- _____ Issues affecting Gulf Coast
 _____ Issues in Mississippi and Alabama
 _____ Federal/State Legislation
 _____ Recent Environmental/Natural Resources Case Law
 _____ Coastal Zone Management
 _____ Conservation
 _____ Aquaculture
 _____ Fisheries Management
 _____ Recreation
 _____ International Law & Policies
 _____ Public Trust
 _____ Enforcement of Environmental Laws
 _____ Wetlands Laws/Regulations
 _____ Submerged Lands
 _____ Land Use
 _____ Marine Policy
 _____ Marine Law & Policy Training
 _____ Ports and Marine Transportation
 _____ Offshore oil & gas resources
 _____ Ocean dumping and pollution
 _____ Exotic Species
 _____ Water Quality
 _____ Other: _____

8) What topics should WATER LOG devote more space to in future issues?

9) How does WATER LOG rate in the following areas:

	Excellent	Above Average	Average	Below Average	Poor
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Relevancy of Topics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Timeliness of Issues Covered	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thoroughness of Articles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Scope of Topics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overall	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Continued on flip side.

Continued from other side . . .

11) What suggestions do you have for improving WATER LOG?

12) Please list any corrections to your name and address label.

Address Changes Requested



The WATER LOG staff sincerely thanks you for the time you have taken to complete this survey. Your confidential responses will be used to guide us in maintaining and improving WATER LOG to keep you informed of marine and coastal law issues.

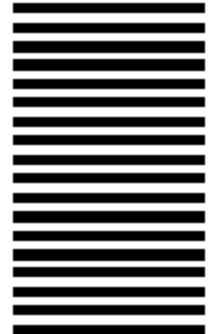
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1998 Federal Legislative Update



Kristen M. Fletcher, J.D., LL.M. and Brad Rath, 2L

The following is a summary of federal legislation related to coastal, fisheries, water, and natural resources enacted during the second session of the 105th Congress.

105 Pub. L. 156 Environmental Policy and Conflict Resolution Act of 1998

Establishes the United States Institute for Environmental Conflict Resolution to provide assessment, mediation, and training to resolve environmental disputes involving agencies and instrumentalities of the U.S.

105 Pub. L. 178 Sportfishing and Boating Safety Act of 1998

Amends 16 U.S.C. § 777 to include: outreach and communications efforts for safety in fishing and boating; a "National Framework" survey to assess public access needs; and, funding to improve boating safety.

105 Pub. L. 174 Emergency Appropriations Bill for 1998 Fiscal Year

Provides additional funding for Royalty and Offshore Minerals Management to meet increased demand and workload requirements stemming from higher than anticipated leasing activity in the Gulf of Mexico.

105 Pub. L. 199 National Drought Policy Act of 1998

Establishes a commission to assess needs in drought emergencies and review existing laws and programs to form a comprehensive national policy for drought mitigation, prevention, and response.

105 Pub. L. 214 Tropical Forest Conservation Act of 1998

Amends the Foreign Assistance Act of 1961 to protect the tropical forests of developing countries through debt reduction.

105 Pub. L. 239 Marion National Fish Hatchery and Claude Harris National Aquaculture Research Center Conveyance Act

Conveys the Marion National Fish Hatchery and Claude Harris National Aquaculture Research Center (Marion, Alabama) to Alabama as part of the state's fish culture program.

105 Pub. L. 242 National Wildlife Refuge System Volunteer and Community Partnership Enhancement Act of 1998

Encourages the assistance of volunteers to assist the Fish and Wildlife Service in the management of refuges and promote education and public awareness of the National Wildlife Refuge System. The Act allows community partnerships to promote habitat maintenance, restoration, research, and to increase awareness.

105 Pub. L. 245 Energy and Water Development, 1999 Appropriations

Appropriates funds for the collection and study of basic information concerning river and harbor, flood control, shore protection, and the furtherance of the following projects: Tampa Harbor, Alafia Channel, FL; Panama City Beaches, FL; Lake Pontchartrain, LA; Jackson County, MS; and, Pascagoula Harbor, MS.

105 Pub. L. 258 Ocean Shipping Reform Act of 1998

The Act amends the Shipping Act of 1984 and promotes competition in international shipping and growth of United States exports. Sections 104 and 106(b) provide guidelines for ocean common carrier agreements and service contracts. Also, Section 116 outlines the responsibilities of ocean transportation intermediaries.

105 Pub. L. 265 Great Lakes Fish and Wildlife Restoration Act of 1998

The Act provides for the implementation of the suggestions of the United States Fish and Wildlife Service contained in the Great Lakes Resources Restoration Study which focused on the fishery resources of the Great Lakes Basin. Section 1005 details the process by which proposals are reviewed and implemented.

105 Pub. L. 280 Cape Cod National Seashore Land Exchange

Provides for a land exchange involving the Cape Cod National Seashore and extends the authority for the Cape Cod National Seashore Advisory Commission.

105 Pub. L. 312**Title I: Migratory Bird Treaty Reform Act of 1998**

Eliminates strict liability for baiting migratory birds and facilitates acquisition of habitat.

Title II: National Wildlife Refuge System Improvement Act of 1998

Adds approximately 37 acres to the Upper Mississippi River National Wildlife and Fish Refuge and amends the standards for violation within a refuge.

Title III: Wetlands and Wildlife Enhancement Act of 1998

Reauthorizes the North American Wetlands Conservation Act, the Partnerships for Wildlife Act and amends membership of the North American Wetlands Conservation Council.

Title IV: Rhinoceros and Tiger Conservation Act of 1998

Amends the Rhinoceros and Tiger Conservation Act of 1994 (16 U.S.C. § 5302) by prohibiting any person (including an individual, corporation, partnership, government, or state) from the sale, importation, and exportation of products derived from any species of rhinoceros or tiger.

Title V: Chesapeake Bay Initiative Act of 1998

Provides support to conserve, restore, and interpret resources within the Chesapeake Bay Watershed, enhance public education, and create a network of Chesapeake Bay Gateways sites and Chesapeake Bay Watertrails.

105 Pub. L. 328 Fish and Wildlife Revenue Enhancement Act of 1998

Amends the Fish and Wildlife Improvement Act of 1978 (16 U.S.C. § 742l) to make proceeds from sales of abandoned items derived from fish, wildlife, and plants available to the Service to cover certain costs.

105 Pub. L. 384 Governing International Fishery Agreement with Poland

Approves an international fishery agreement between the United States and the Republic of Poland; reauthorizes the Northwest Atlantic Fisheries Convention Act of 1995 (16 U.S.C. § 5610); reauthorizes the Atlantic Tunas Convention Act of 1975 (16 U.S.C. § 971); and, authorizes Washington, Oregon, and California to adopt laws governing fishing and processing in the EEZ adjacent to that State in any Dungeness crab fishery which has no fishery management plan. ✓

APPROPRIATIONS

105 Pub. L. 277 Omnibus Consolidated and Emergency Supplemental Appropriations Bill for Fiscal Year 1999

The following is a summary of relevant provisions from this year's appropriations bill, numbering over 2,200 pages, focusing on sections which condition appropriations and create or amend other acts.

Division A - Omnibus Consolidated Appropriations

§ 123 Commercial Fishing in Glacier Bay National Park

Calls for development of a management plan for the regulation of commercial fisheries in the marine waters within Glacier Bay National Park including permit system, gear, date, and species restrictions.

§ 130 Fisheries Finance Program Account

Provides for loans under the Merchant Marine Act of 1936 provided that none of the funds may be used for loans for any new fishing vessel that will increase the harvesting capacity in any United States fishery.

§ 150 Duck Hunting Season

Extends duck hunting season in Mississippi and, in other states, at the request of a state represented on the Lower Region Regulations Committee of the Mississippi Flyway Council.

§ 411 Commission on Ocean Policy

Provides funds for the Commission on Ocean Policy, if and when created.

§ 573 Greenhouse Gas Emissions

Limits spending for activities related to the Kyoto Protocol.

§ 612 NOAA Fleet Replacement and Modernization Program

Withholds funds for the NOAA Fleet Replacement and Modernization Program so that NOAA may develop a modernization plan for its research vessels and opportunities for contracting for fisheries surveys.

§614 Land Acquisition and State Assistance

Funds the Land and Water Conservation Fund Act of 1965 but conditions acquisition at Everglades National Park on matching state funds and management of the lands in perpetuity for the restoration of the Everglades.

§ 617 Atlantic Mackerel and Herring Fisheries

Limits use of funds to issue or renew fishing permits in Atlantic mackerel and herring fisheries.

§ 730 Wetlands Reserve Program

Limits funds according to number of acres enrolled in 1999 Wetlands Reserve Program.

§ 901 Whale Conservation Fund Act of 1998

Provides for a National Whale Conservation Fund under the National Fish and Wildlife Establishment Act to carry out projects that address conservation needs of whales.

Division C - Other Matters

Title II American Fisheries Act

Amends 46 U.S.C. § 12102, *et. seq.* to:

- Establish new standards for eligibility for fishing endorsements, effective October 1, 2001;
- Set allocations, boat buyout provisions, inshore fee systems, replacement vessels terms, and requirements for fishery cooperatives for the Bering Sea Pollock Fishery, and
- Establish conservation measures for specific fisheries. ✓

Floating Above the Volcanoes

NOAA's Teacher-at-Sea Program

John A. Duff, J.D., LL.M., M.A.

As long as humans have sailed the oceans, they have focused their attention on the state of the seas that they could feel and see. Even today, most who make their living or make their way across the oceans know precious little about the activity that is taking place below them. In addition to the myriad marine life that inhabit the seas, the earth itself is going through a continuous regenerative process. New crust is formed and the seafloor spreads as old crust is driven back under the shifting plates of the planet.

In the mid-1980s scientists discovered significant volcanic and hydrothermal vent activity off the coast of Washington and Oregon in the vicinity of the Juan de Fuca ridge, a submerged mountain range-like area that includes an enormous caldera of a long dead underwater volcano. Over the course of the last thirteen years, NOAA research ships have served as the platforms used by scientists to explore these areas to examine new volcanic activity and assess the very nature of the earth's fundamental workings. The NOAA VENTS Program is an ongoing study of the hydrothermal plumes and the associated physical, geological, chemical, and biological processes taking place thousands of feet below the surface of the ocean.

In July, an oceanographic expedition conducted from the NOAA research ship *Ron Brown* served as the floating laboratory for NOAA's VENTS '98 operations. As a participant in the NOAA Teacher-at-Sea Program, I joined the crew of the *Brown* to take part in the effort designed to take the pulse of the hydrothermal activity along the Juan de Fuca Ridge.

Chief Scientist Ed Baker of the Pacific Marine Environmental Laboratory coordinated the effort and explained succinctly, "basically we're trying to learn how the ocean and the earth's crust interact."

The efforts to learn more about these interactions include the deployment and retrieval of a wide range of scientific equipment designed to record the seismic activity, the speed and direction of the deep sea currents, the temperatures, and the chemical composition of the hydrothermal vent areas. In February, the area experienced significant volcanic activity and this mission would be the first opportunity to recover instruments in place at that time.

Retrieval of these instruments is a combination of science, luck and skill. Instruments deployed earlier were marked and mapped so that upon returning, the ship could come within a few hundred meters and thousands of feet above to retrieve them. An electronic transceiver is lowered overboard to "talk" to the coupling device on the mooring line. Once the shipboard device locates the instrument line, a signal is sent to release the buoyed mooring line from the weight anchoring it to the seafloor. If the device has not been compromised by the seismic activity in the area or any of a dozen other possible problems, the release begins its slow ascent to the surface. At this point, it becomes a contest between crew members as to who can first spot the buoy as it pops to the surface with its prize attached.

Most of the data from those instruments would not be analyzed until the crew got back into port, but the onsite monitoring efforts of the mission allowed us to take a "look" at the activity that was taking place



Dr. Sharon Walker, Dr. Ed Baker, and John Duff review maps on the Ron Brown to locate hydrothermal vents.

Photo courtesy of John A. Duff

thousands of feet below us as we towed instruments over the area. A conductivity-temperature-depth instrument (CTD) equipped with a series of torpedo shaped tubes was lowered by a cable tow within a few



Release of the CTD from the Ron Brown.

Photo by John A. Duff

meters of the ocean's bottom and each bottle could be "triggered" to collect water samples at given points. The locations could be selected by an operator monitoring readout that communicated water temperature, salinity, and particulate matter in the water column. Upon retrieval, the contents of each bottle were

tapped to collect samples of dissolved helium isotopes, pH level, salinity and other chemical and biological compositions.

As a part of the scientific crew, I was able to take the controls on the CTD operation. I issued instructions to the winch operator as to speed and depth of the CTD. Traveling at about two knots per hour with three thousand feet of cable played out towing a device over submerged valleys, ridges and the occasional underwater mountain is akin to flying over a mountain range trailing a piece of heavy duty scientific equipment far below and behind. The challenge is to get within a few meters of the bottom in order to collect samples without slamming the device into an underwater mountain or bouncing it off the seafloor.

My duties on the second half of the cruise moved onto the deck of the ship where I helped to rig the CTD with its bottles, guide the device on and off the ship and collect water samples. As I peered over the CTD as it was deployed into the sea, I noticed the mouths of the tubes opened wide like a nest of hatchlings eagerly waiting to be fed - an interesting metaphor for the scientists eager to see what scientific nourishment might be gleaned from the effort. ✓

Teacher - at - Sea Program

Now in its eighth year, the Teacher-at-Sea Program enables teachers to enrich their classroom curricula with a depth of understanding made possible by living and working side-by-side, day and night, with those who contribute to the world's body of oceanographic knowledge. "The best way to understand environmental science is to work with those who practice it every day," notes Rear Admiral William L. Stubblefield, director of the Office of NOAA Corps Operations, which coordinates the Teacher-at-Sea program. "Teachers who have actually gained hands-on experience aboard our NOAA ships will go back into their classrooms in the fall much better equipped to get their students excited about learning through personal anecdotes, pictures, a better curriculum, and a broader perspective."

To participate in the program, teachers must be willing to submit a detailed report of the cruise and ideas for implementation in the classroom and an article for publication or conduct a presentation at an educators' conference. Although the program itself is free of charge, teachers are responsible for paying their own transportation to the ship's departure points though a school board or administration may pick up the costs.

Teachers can request applications for the 1999 Teacher-at-Sea Program by calling: (757) 441-6800; e-mailing: Wanda.Campbell@noaa.gov, or writing: NOAA Atlantic Marine Center, 439 York St., Norfolk, VA 23510. Applications are due between January 1 and March 8, 1999 and are rated by a review panel on how they intend to incorporate their experiences into their classroom curricula. Successful applicants can choose from several research missions ranging from one to three weeks on the East, West or Gulf coasts, and only have to pay for their transportation to and from the ship. The program costs taxpayers nothing, but ultimately many people, including students, gain a greater awareness of the need to understand and protect the ocean and its resources.

For more information:

NOAA Corps, Office of NOAA Corps Operations, and fleet: <http://www.nc.noaa.gov>

NOAA VENTS Program: <http://www.pmel.noaa.gov/vents/objectives.html>

The *Ron Brown*: <http://www.pmc.noaa.gov/rb/index.htm>



BOOK REVIEW

Deep-Ocean Journeys, Discovering New Life at the Bottom of the Sea

By Cindy Lee Van Dover

Addison-Wesley, Massachusetts 1996

Price \$12.00 Pages 172

Kristen M. Fletcher, J.D., LL.M.

Elizabeth B. Speaker, 3L

*It is said that the seafloor is a desert, a vast and
uniform wasteland, all but devoid of life.
Textbooks on the shelf in my laboratory say so.
But I know that is not true.*

With these words, author Cindy Lee Van Dover leads readers of *Deep Ocean Journeys* into just that — a journey through her life as a scientist, a pilot who maneuvered a submersible across the seafloor, a woman who found inspiration as well as science at the bottom of the ocean.

As the first female pilot of *Alvin*, the submersible used to conduct research at great ocean depths, Van Dover ventured miles below the surface of the sea study the vast array of marine species and ecosystems found in the deep sea, especially at recently-discovered volcanic vents. *Alvin* and the Woods Hole Oceanographic Institution were the keys to unlocking the mysteries about these new communities because “[a]ll of the ecological rules were undefined.” Van Dover explains, “For those of us lucky enough to be involved in this research, it is like discovering life on another planet and having the privilege of being among the first to study that life.”

Van Dover eradicates the myth that the deep ocean floor is flat, dark and uninhabited. Rather, from the pilot’s seat, Van Dover found that the “seafloor can be surprisingly rich in visual textures” with mountains, valleys, rifts, and vents which are akin to volcanoes on land. “Exploring the summits of submarine mountains, I have encountered inverse ‘timberlines’ — only the peaks were populated by stands of shrub like coral.” Species include sea cucumbers, corals, seapins, spiders, and various species of crabs, tubeworms, mollusks and shrimp along with organisms never before viewed by

humans. Interestingly, some of the species survived the trip back to the surface through the vast changes in pressure, light and temperature. “I have seen knots of sea spiders come back alive and squirming in the bottom of the collection box; I have reached for slimy sea anemones that slipped out of my hand like soap; I have felt sorry for the captured ugly fish, all wrinkled and squinty-eyed and dead.”

When Van Dover reaches the deep sea vents, she notes that the temperature can vary tremendously. The vents bring water and sulfur up from the bowels of the earth. “These hot springs easily rival their terrestrial analogs in power and spectacle. Pressure keeps the hot water from steaming or boiling; it becomes superheated, reaching temperature of 350 degrees Celsius and more. Venting water, emerging clear from the sea floor, quickly turns into turbulent plumes of ‘black smoke’ as dissolved minerals form particles on mixing with seawater.” After describing the types of bacteria and rich chemical compounds that exist at sea vents, Van Dover theorizes that “[d]eep sea vents may have been the site where life originated on this planet.” Her audience is sometimes interested in other aspects: she is asked “But do they turn pink when they’re cooked?” as she attempts to describe the gray-beige shrimp living at hot springs deep in the Atlantic Ocean, a reasonable enough question since they crowd around plumes of black, with 350° C water pouring out of sulfide chimneys of the sea floor. (The answer is no.)

Van Dover’s technical yet captivating descriptions of the seafloor communities she found culminate in her warning of the need for responsible stewardship. She worries that “we could screw it up badly. . . we will turn vents into tourist attractions until we kill off all the tubeworms. In their place, [tourists] will see purple placards with a raised impression of a tubeworm. Simple text written at a third-grade level will tell of what wonders used to be present and reminisce about the past. . .” ✓

Lagniappe *(a little something extra)*

Around the Gulf . . .



This fall, the **Biloxi Bay Resort Group** proposed a \$1.3 billion resort for the city of Biloxi, including a 542-acre man-made island, revamping of Deer Island, three hotels, an 1,800-acre boat slip marina, 50-acre theme park, and a 200,000-square foot entertainment, dining, and shopping complex.

Manatees seeking the warm waters of Kings Bay, Florida, gained an **emergency sanctuary** this October when the Fish and Wildlife Service determined the continuous human harassment threatened the creatures. Located at Three Sisters Spring, the sanctuary will be a temporary retreat for manatees during winter months.

In August, the Clinton Administration added the **Lower Mississippi River** in Louisiana to the list of "Heritage Rivers," promising federal assistance to protect and restore the waterway.

Texas Sea Grant and Texas A&M University scientists have discovered **genetic similarities** between humans and dolphins noting that the genomes are basically homologous. Scientists hope that their studies will indicate when dolphins and humans embarked down different branches on the evolutionary tree.



Around the Nation and the World . . .



The National Undersea Research Center for the North Atlantic and Great Lakes has teamed up with the American School for the Deaf in Hartford, Connecticut, to teach marine sciences to deaf students using **underwater acoustics** and SONAR technology to distinguish ambient noises in Long Island Sound and the Gulf of Maine from the sounds of aquatic animals and human activities.

In October, the Earthjustice Legal Defense Fund and the U.S. Army Corps of Engineers in Seattle, Washington, settled a lawsuit in which the Corps agreed not to dump dredge spoils at the mouth of the Columbia River in **Dungeness crab** habitat.

The California Coastal Commission unanimously approved construction of an experimental **artificial reef** off of El Segundo designed to improve the waves to enhance surfing and restore an eroding coastline.

In September, a fish known as a "**living fossil**", the coelacanth, made its second appearance this century in waters off Indonesia, surprising scientists that knew the fish only as a fossilized relic from the dinosaur era. Scientists say that the fish lives in caves about 600 feet deep along the sides of underwater volcanoes. Its fleshy fins resembling human limbs led to speculation of ancestral relations to land vertebrates.

November 21st was designated as the first "**World Fisheries Day**" by the World Forum of Fish Harvesters and Fish Workers. United States delegates suggested that U.S. fishermen celebrate by contributing a portion of their catch to charitable organizations in their communities.

The Oregon Sea Grant and Women's Coalition for Pacific Fisheries have announced the **Heads Up!** web site, an interactive bulletin board for industries, fisheries agencies, and interested parties to exchange up-to-date information about everything from regulatory changes to resources. Visit it at <http://www.heads-up.net/>.

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