## THE WETLANDS: A STUDENT'S VIEW

By

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BOOK I MARINE DISCOVERY SERIES

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The sun was shining hot against the windows of room 250. It was uncomfortable in the classroom, and Mr. Jacobs found it very hard to teach the twenty-seven Biology I students and hold their attention during the last fifteen minutes of seventh period. Some of the students gazed dreamily outside at the traffic; others stared down at their textbooks, looking at some creature with tentacles, spots, and strange features.

"Some of these animals begin in the wetlands," Mr. Jacobs said wearily.

"Where?" It was Billy Cameron. Billy liked to ask questions, but he also liked to argue when he could. That was one of the teacher's problems. He had not been able to work with Billy or get him to do the high level of work he was capable of doing. He had tried to get him to do better work--to motivate him--but nothing so far had been successful.

"The wetlands."

"Where's that?" Billy questioned.

"Well, you know where they're planning the new condominiums near the bay? They plan to have almost a hundred units, and you know there's been so much opposition to it?"

"Yes, I know where you mean."

"Well, the reason there's been so much resistance is that the development will destroy some of the wetlands."

"But, Mr. Jacobs, that's just swamp," Billy laughed. "Who cares about swamp?"

"All of us **should** care," the biology teacher said quietly.

"Well, I don't." The class roused long enough to laugh mildly.

"I'll give you a chance to find out why you should care, if you'll take it," Mr. Jacobs laughed too. "I'll give you extra credit for a good report on the wetlands and their importance and the need to protect



them. Will you do it?" There was a challenge in what he said. He hoped Billy would accept it.

Surprisingly, Billy nodded. "Anything for extra credit," he smiled. Mr. Jacobs nodded. Maybe Billy would do it--and maybe not. He would have to see it to believe it, though.

That was how Billy Cameron began his study of the wetlands. It was his acceptance of Mr. Jacobs' offer, which he recognized as more than an opportunity to raise his grade. It meant in a way that the teacher believed in him, believed he could do it. And by the time it was over, he had surprised not only Mr. Jacobs but himself and everybody else in the class. No one was really prepared for the kind of effort Billy put into the project; and no one, least of all himself, had expected the "extra credit" work to become so involved.

Billy began by visiting the area near the bayshore where the new condominiums were planned. He had laughingly called it "swamp," but he soon found out that was not really true. As he stood looking across what he would later call the "wetlands," he was for the first time aware that it was not the lifeless, dull, uninteresting place he had imagined it to be. On the contrary, it was full of life--and beautiful in a way that he had not seen before, no matter how often he had driven nearby.



"It's all in the way you look at it," he said to himself, realizing that the thought was not particularly original, but certain somehow that he had hit upon something important.

The water was tranquil as it rippled in the wind. The clumps of cord grasses and sedges wove colorful patterns in the low sunlight. There were graceful wooded areas along the shore. Birds flew from the low vegetation and darted into the trees and swooped down to the water. He watched as one of them caught a small fish and triumphantly flew away. He heard noises that he could not identify and saw fish jump out of the water, leaving diamond drops of spray; a crab scurrying from the water to higher ground; and an alligator moving lazily from the shore.

Lake Graveline near Ocean Springs, Mississippi

Billy observed these sights for a long time. When he finally left to get into his car and drive home, he had made up his mind. Mr. Jacobs would get more than he bargained for in this "extra credit" assignment.

For the next two of three weeks, Billy became a regular visitor at the school and the city libraries, to the librarians' surprise and pleasure. He checked out everything he could find about the wetlands and, still not satisfied, he visited with local fishermen his father knew; made trips to city hall to talk with the mayor's assistant; and made several telephone calls to marine resources personnel.

And finally he knew that he was ready.

"I want to make my report on the wetlands," he told Mr. Jacobs on a Monday. "But I don't want it to be just a report. I'd like to bring some of the other kids into it, if that's all right."

"How?" Mr. Jacobs was surprised. This was not the Billy Cameron he knew. "Any ideas?"

"Sure. A panel. Get some of the others to ask questions. We'll have a regular panel. It will be kind of like 'Meet the Press'," he laughed. "You help them prepare, okay?"

"I'll do it," the teacher smiled. It was more than he had planned and it could turn out to be the spark that would renew the students' interest. There were several very smart students in the class, none of whom had done really outstanding work so far. They would enjoy putting Billy on the spot.

The class waited for "Billy's Project." They were expecting it to be fun and games on the Tuesday



afternoon when Mr. Jacobs called the panel up and made a show of introducing them. But the teacher was serious, and they took their cue from him. He called the names quickly: "Jeanine Ingerson, Alex DeGere, Walter Mattusich," he said, indicating their places. "And our special guest, Billy Cameron. Mr. Cameron will make a brief statement and then the panel will fire questions at him. He has promised to try to answer everything, and we'll try to put him on the spot. All right, class. Mr. William Cameron." Billy rose slowly and took his position behind the lectern. He was only a little nervous.



"I'm here today to discuss the wetlands," he said. He seemed very serious and the class was quiet, waiting for him to begin, though Mr. Jacobs knew that some of them were ready to laugh, given half a chance. He was surprised to find them so attentive. "Some of you may not know what the wetlands are, so I'll discuss that first, and then I'll tell you why it's so important to protect them."

paused only He а moment. "Wetlands is a broad general term scientists use to describe swamps, bogs, marshes, or bayous. Wetlands also include ponds and sloughs. Most people just take these things for granted; they don't see much value in keeping them. And so over the years, they get rained and filled and paved over. Sometimes they turn into garbage dumps. As much as 200.000 to 300.000 acres of wetlands in this country

are destroyed every year," he said emphatically, sure of his figures and sure of himself.

"The wetlands take in shoreline areas and wooded marshes or swamps. They're characterized by changing levels of water and aquatic plants that are adapted to live in the water. Along our coast we have coastal wetlands dominated by salt tolerant plants that can live in these low areas which are covered by the tides.

"The wetlands have been described as the least appreciated and least understood natural resource in our country. Coastal wetlands are an important part of the estuarine environment and play a significant role in the life cycle of marine animals. They are fantastically productive and serve as areas for fish and shellfish, birds and wildlife. They provide hunting and trapping areas without equal as habitats for waterfowl, alligators, and fur-bearing animals. Wetlands also act as buffer zones; that is, they protect inland areas from storm damage. They're also giant water filter systems. All of us know about the dangers of pollution, but I'll bet you didn't know that the wetlands help to filter out water pollutants, acting as a natural purification system. Wetlands produce a tremendous amount of plant material which serves as a food base for marine life. They act as spawning grounds and as nursery grounds for shrimp, crabs, and oysters.

"They're also beautiful," he smiled at the class, "though you might not think so at first glance. I wanted to introduce this discussion by giving you some background information about the wetlands. I think we'll get more specific with the questions," he nodded toward the panel, "and I think I'm ready for them." He sat down, facing the other students.

"The panel is ready with questions," Mr. Jacobs said. "We'll start with Jeanine."

"How big an area are we talking about?" Jeanine asked quickly.

"Well, along the Mississippi Coast, there are over 66,000 acres of tidal marsh.

At one time the state had more. In fact, scientists estimate that Mississippi has lost about 10,000 acres of coastal lands. The whole country has lost almost half of its 127-million acres of wetlands in the lower forty-eight states."

"So much?" Jeanine asked. "Is that bad? And if it is, why did it happen?"

"Well, in the beginning the wetlands were mostly regarded as wastelands. In fact, these areas were exploited rather than protected. They were drained for new housing, filled in for farming, used for refuse dumps, cleared for highways, dredged for navigation channels--reclaiming the land, people called it. In the mid-1900s, the Swamp Lands Act was passed by Congress and that prompted 'development' of the wetlands. It was destruction in most cases rather than development."

"Is there any legislation on the books to protect the wetlands?" Alex questioned.

"Yes, many states, including Mississippi, have passed wetlands laws to protect these important estuarine resources," Billy said. One or two of his friends smiled behind their hands at his easy and familiar use of the term. Not long ago he wouldn't have known an estuarine resource from an elephant, they thought. Billy continued, ignoring the smiles. "Recent court decisions have also set up the grounds for protecting the wetlands; the courts say that such protection of the wetlands is a valid state power. And the United





States Army Corps of Engineers has broadened its control over dredging and filling, based on federal court decisions."

"I'm still not sure why the wetlands are so important," Walter interjected. "You need to be more specific."

"I have lots of facts and figures," Billy responded. "For example, I found out that the wetlands can produce as much as ten times more plant material on an acre-by-acre basis than some of our most productive farmlands. One estimate has said that seventy percent of the fish--by weight--of all fish taken in the Gulf depend on estuarine environments. Another estimate stated that about two-thirds of all the commercial fish and shellfish depend on wetlands for at least part of their life cycles. The wetlands filter out pollution that would literally destroy oyster reefs. Speckled trout and flounder

and redfish use the shallow water wetlands for food and protection. Pollutants like dissolved chemicals are sometimes changed into nutrients, food sources for vegetation, in the wetlands. The marshes generate oxygen. They're also refuges for waterfowl and wildlife. They slow downstream water flow and help prevent flooding. They're worth--they're invaluable to us all!"

"Hold it a minute," Alex interrupted. "If it's so obvious, why doesn't everybody rush out and try to protect them? Why are you right and so many other people are wrong?" Alex looked around to see whether the others had heard him put Billy on the defensive.

But Billy was not defensive at all. He was calm and reasoned.

"It's not that I'm right and they're wrong," he said. "It's just that a lot of people are not informed; they just don't know. The wetlands are valuable to everybody, but sometimes the individual property owner doesn't see it that way. He thinks he can get a quick return by filling them in--or dredging them--or dumping garbage on them. I'm talking about their values to all of us, no so much to the single owner, although he could get a better return from them with good management techniques."

"Like what?"

"Like working with conservation groups or hunting clubs; through assistance from government agencies; federal assistance; state and local land acquisition programs; better fishing; protecting property from erosion--"

"You mentioned shrimp," Walter Mattusich said. "How do shrimp need the wetlands?"

"I'm glad you asked," Billy said quickly, eager to respond. "Most of us know a little about shrimp because we live on the coast. But we don't know much about how the shrimp grow. I've done a lot of reading about that. The adult shrimp spawn in the deep waters of the Gulf, anywhere from twenty to two-hundred and forty feet deep. You might not know that the female shrimp lays as many as a million eggs or more. After the eggs sink toward the bottom, they hatch within twenty-four hours. They're at the mercy of the currents in the earliest stages; they don't even look like shrimp at all--more like mites, I read--and favorable currents carry the larvae toward the estuaries. When they reach the postlarval stage, they begin to look like adult shrimp, but they are still small. As they grow, they continue to move toward our coastal bays and bayous, where the water is less salty. Here they develop in the warmer, brackish water and change into juvenile shrimp. During this part of their life cycle, the shrimp depend on the wetlands for food and protection. If it were not for these wetlands areas, we wouldn't have commercial shrimping at all. Survival depends on the natural balance of things, like the wetlands, the salinity of the water, and even the temperature. If the water is too fresh, they won't even enter the estuaries. It's a complicated natural process. If we aren't more careful, one day we'll look up and there won't be any wetlands left."

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"Does all of this really affect people like us, like the class?" Jeanine asked. "It's hard to get people interested in something that doesn't affect them directly, isn't it?"

"Yes. But I've done some research on that, too. And let me get more personal here. You, Walter, your Dad enjoys fishing; so do you. And you own a boat you use for shrimping when the season opens. Five of you live near the bay, protected from flooding by the wetlands to the south and east. John, your parents have a seafood market, don't they? And Cee-Cee and Tony work at the marina. And Alex and Steve and Charlie go hunting and they enjoy it. And Ike and Andy, both of their fathers are commercial fishermen and depend on good catches of shrimp, oysters, and crabs. Laura, you work in the seafood factory, in the office, every day. Tim, you and Dorothy plan to be marine biologists, I think, and--"

"Hold it!" Jeanine said. "I get the point."

"I wish everybody did," Billy retorted. "I just have a few more things to say.

"First, I've tried to make the point that the wetlands are among the most productive areas in the world. They're full of life, and they nurture life. For years, people have misused these areas, destroying them forever in the process. Man has to use his environment--that goes without saying--but he must use it so that he doesn't destroy it. There are things all of us own together, not just one man or one factory or one corporation, but all of us. And all of us have an interest in the preservation and protection of the wetlands. I hope that we'll act before it's too late.



The bell rang and Mr. Jacobs thanked the panel and Billy before dismissing the class. He was proud of what Billy had done. It had been a good class, a good day. Somehow, he thought, it was days like this one that made him glad he was teaching the Biology I class in room 250. Billy Cameron had done a good job.

He reached for his grade book.

"Extra credit," he said softly to himself, smiling as he looked down at the list of names.

"Good job, Mr. Cameron," he said. "Very good job."

"You know, all of this began because I asked Mr. Jacobs why we should care about those 'swamps.' Now I know. I hope you do, too." He looked at the class slowly. He didn't know whether he had been convincing, but he had at least given them some things to think about. They were quieter; he hoped that they were thinking.

Maybe they would go home and say something about it that evening at dinner, or one day they would remember when someone else came along and needed their support to help preserve the natural beauty and the vitality of the wetlands. Maybe one day--



A young lady knitting on a net



# A GLOSSARY FOR ELEMENTARY STUDENTS

absorb	to take in; to soak up
acquisition	something received or acquired
bayou	small stream in the coastal area
bog	wet, spongy ground, with soil composed of decaying vegetation
buffer	something between, protection
commercial	of business or trade
condominium	apartment houses where people own the apartments
corporation	large business
crustacean	sea life form, usually with an exo-skeleton (outer shell) covering the body; for example, crabs or shrimp
current	movement of large water flow
cycle	occurring over a period of time
detritus	dead of decaying plant material, with bacteria
dredge	removing sediment or sand from water bottom
ecology	the study of the relation between organisms and their environment
environment	surroundings
estuary	where fresh waters meet salt waters
filter	removing impurities
generate	to bring into being
habitat	place where things live
interject	to come between
juvenile	immature stage
larvae	immature life forms
marina	place where boats dock
marsh	low, wet land
navigation	guiding across the sea
nurture	to help something grow and develop
panel	group of people
pollutant	elements, compounds, or any other matter introduced into places where living organisms are harmed, causing slow growth, prevention of growth, alteration of growth, or death
postlarval	after the first most immature stages
preservation	to keep alive or in the same shape
refuge	shelter or protection from danger
resources	natural means for supporting life
salt tolerant	able to live in saline conditions
spawn	to produce offspring

definite
to hold firm
tract of wet, spongy land
manner or method
flexible arm-like extensions of certain marine organisms (like a jellyfish)
of the tides
peaceful
plant life
life, liveliness
low land, influenced by water