

THE TIDES THAT TURN

By FRANK BRIGGS, *Assistant Secretary of the Interior*

Recently I sat on the beautiful Atlantic beach and watched the surging waters of high tide with white crests on every dancing wave. I sat there and marvelled—everything seemed calm—everything seemed serene. From all angles, the big ocean was a scenic masterpiece.

BUT THEN THE TIDE WENT OUT.

Gone were the sparkling waters, the dancing waves and the white crests! Gone were the beauty, the calm, the scenic picture and in their places were debris, rubbish, filth and stench.

As I got in my car and started home I thought of the wonderful ribbons of highways in the Nation, how well they serve those bent on business or relaxation, their value, economically and esthetically

AND THEN AGAIN THE TIDE WENT OUT and I saw 37,000 human beings dead on the roads each year, nearly 400 killed on this, a holiday.

I drove past an area which three months before had been beautiful with native trees, wild flowers and here and there a bit of wildlife. But here again, **THE TIDE WENT OUT**; the bulldozer had moved in.

Then I pondered how many times in the world of fish and wildlife the tide has gone out and left behind a litter of waste and ruin.

There had been the rippling streams and the happy fishermen—but man-made pollution poured in and **THE TIDE WENT OUT.**

There were the carefree birds chirping in the trees along the streets and roads, passing their happiness on to you and me—but the spray machine came in—**AND THE TIDE WENT OUT**, leaving in its wake countless numbers of birds which would flit and chirp no more.

I recalled a trip I took down South about two years ago. Over the low, indistinct far bank of the bayou stretched a beautiful fresh water marsh as far as eye could see. I could see white egrets, little blue herons and rails industriously seeking their food. Here and there pools opened up with one or more muskrat houses mirrored on their surfaces. I could see a long black log in the foreground which suddenly moved revealing a basking gator. The water turkey was busily swallowing a newly caught fish. Now he perched with his wings widely stretched to dry in the warm sun. At first he seemed all silver, then a white cloud came by and he changed to a dark, purplish blue.

Today, the picture was different. **THE TIDE HAD GONE OUT.** The marsh had disappeared. In its place was a forest of oil derricks, row upon row, methodically spaced. Faulty joints and rusted pipes were leaking crude oil over what had been a virginal marsh. Crude oil and rainwater stood everywhere in surface pools. Not a bird was in sight. And I thought, "When will man learn to develop the earth's natural resources in harmony with each other?"

I drove in Missouri just about a year ago and the signs of autumn were beginning to tint the landscape. Black-eyed Susans enlivened the changing green of the meadows. Along the ditch banks and highway rights-of-way were arrayed ranks of blooming sunflowers with their rich, orange discs turning slowly from East to West all day following the path of the sun. Abundant crops were in the final stage of harvest.

BUT THEN THE TIDE WENT OUT. What is left? Today, the depth of my vision is limited to a series of irregular ridges, 20 to 30 feet high, of sterile yellow and blue clay and shattered shards of gray slate seamed with the yellow of iron pyrites. The rich black topsoil, which was originally 20 to 30 feet deep and which could raise 80 bushels of corn per acre, now lies at the bottom of this sterile land mass which covers acres of what could have been marvelous farms teeming with farm game. Why shouldn't operators of strip mining correct the evil they have created? Why should it not be part of the operations to re-deposit the soil in its original sequence and restore valuable cropland needed in the future for the maintenance of our civilization?

When the hardy, white wood rangers crossed the Appalachians they found the Senecas, Ottawas, and the Wyandottes generally dependent upon a combination of marsh and woodlands for their winter meat. Even the first white settlers respected the Indians' priority or shrank

from the hard work of trying to subjugate these wetlands when there was still so much unappropriated black soil forest land which could be cleared and cultivated.

BUT THEN THE TIDE WENT OUT. Great power-driven, earth-moving machines like the dragline and the steam shovel came into use in the 1890's. Without any preliminary soil tests great ditches were driven through the central axis of the swamp and large collecting laterals stretched out from the center ditch like the bones of an exposed mastodon.

This skeleton of ditches forecast the doom of the 100,000 acres of marshland if man had but read the scroll correctly.

After the ditching, fire was used to destroy the forest for quick reclamation but the fire also burned into the peat and pitted it so effectively that many acres could not be farmed.

The first grain crop exhausted the nutrients of the soil, so the area was abandoned and lapsed into a "Hell's half-acre." After successive peat and forest fires the area now stands a desolate and forbidding landscape. Repeat this an endless number of times on a smaller or larger scale and you have the result of a lot of our early drainage schemes.

So many times the tide goes out and discloses ruin and desolation—dead and dying waterfowl, their plumage lost in a mass of tarry oil, their feathers matted, their ability to fly or to swim gone; fish killed by pollutants; animals slaughtered needlessly. So many marshlands lashed by canals with spoilage ruining that which survived the digging—so many million potholes drained without valid reason—so many draglines used where traplines should have been operated. Pollution in so many forms—domestic sewage, industrial wastes from canneries, factories, paper mills and mines; smoke and gas fumes; radioactive fallout, slit from eroding farms—all the unmistakable forms of a fast receding tide.

In almost every instance man must take the responsibility for the foul mess we see when the tide goes out. What, then, can man do for correction?

First and foremost, we in the conservation field should do a little soul searching and ask ourselves some questions, such as—

Are we keeping abreast of agriculture and industrial progress to the extent that we can protect our wildlife potentials as civilization marches on?

Do we believe enough in ourselves and sufficiently in the idea of conservation to attack sometime seemingly hopeless situations and tell ourselves that wildlife values can be protected or created if we just work hard enough?

Thousands of mistakes have been made in the past. Most of those were not the fault of the conservationist. But any mistakes in the future will be upon our shoulders and we had better take inventory to see whether or not we have the will to assume our responsibility.

In my twenty-odd years of experience in Fish and Wildlife services, I have never seen a time when the climate in Washington was any better or any clearer for conservation of resources and acknowledgment of wildlife values than it is right now. President Kennedy left no doubt in any mind as to where he stands on conservation when he delivered his natural resources message to the Congress. Secretary Udall, himself an ardent conservationist, has directed those of us in charge of natural resources to leave no stone unturned to save everything of value for the future and very aptly has said, "What we save today may be all that we will ever save." The Congress has shown its appreciation of our problems and has given us an attentive ear on all of our solicitations. I say, the climate was never better for us to act.

The situation is not all hopeless. We look at various parts of the country and we find thousands, yes, tens of thousands of citizens, looking for a place to fish and finding none.

AND THEN THE TIDE COMES IN.

And we find more than 200,000 fishing lakes and farm ponds created by States and farmers where there were none before, and we find those tens of thousands now casting their lines where none had cast their lines before.

We look around and we see hundreds of good fishing waters ruined by rough fish or by excess aquatic vegetation, and thousands of anglers

longing for some place where they can really spend a day at old-time fishing. AND THEN THE TIDE COMES IN. And we find that those hundreds of fishing areas which have been ruined by faulty management or no management at all have been reclaimed and once again the fish are biting and the world looks bright.

We look and see the Nation's deer hunting apparently on the way out, these magnificent animals seemingly destined to become oddities seen only in parks or zoological gardens. Things look bad for the deer AND THEN THE TIDE COMES IN and we find that there are more deer now than ever before and that by proper management these species can be on the earth as long as man. We see the buffalo dwindle from millions to a frightened handful hiding away in nooks and crannies of inaccessible places.

AND THEN THE TIDE COMES IN and we find that the bison has been saved for posterity, not in the millions, but in sufficient numbers to assure that never again will that fine animal be found with his back to the wall fighting a losing battle for survival.

Thirty years ago the waterfowl of North America were in trouble. They had been slaughtered spring and fall, winter and summer. They had been hit with drought and blizzard, their habitat had been lost to them by millions of acres. AND THEN THE TIDE CAME IN, and the American people awakened and now we have a fine national and State refuge system, an enlightened public and more than a fighting chance to protect this resource and assure its continuance for future generations.

We have just finished our second in a series of conferences with Canadian wildlife and agricultural interests on the problem of production of ducks, especially in the prairie provinces. We have found a mutual interest, a mutual desire, and we believe that we will find a mutual solution for the production problem.

Let's look over some of the tools we have at our command. We have an ever-increasing number of fish and wildlife scientists on Federal, State, and private levels. We have a growing volume of scientific evidence which is helping us meet the many problems. We have such things as Federal Aid which is helping States do a great job in the restoration of fish and game; we have Federal and State organizations which are making good headway in keeping abreast of industrial and agricultural development. Our own Fish and Wildlife Service makes hundreds of studies each year on the effect of small and large watershed developments, flood control plans and reclamation and power projects. Congress has helped with the Coordination Act and the various States are in shape administratively and financially to do a better job than was thought possible three decades ago. We are in shape to carry on.

Let's line up some of the problems we have today and see what we can do about them—pesticides, pollution, oil pollution, drainage, bulldozer activities and the rest.

To aid in clearing the debris left by the tide of ill-advised spray programs there are four remedial measures.

First, and most important, is an aroused public opinion alerted by such episodes as spray residue on cranberries and the fire ant program in this very region.

Second is the Miller Pesticide Amendment of 1954 to the Federal Food, Drug and Cosmetic Act, which establishes and enforces tolerance limits for spray residues on food products in interstate commerce.

Third is the trend among manufacturers of agricultural chemicals to seek spray materials for individual diseases or pests rather than to continue reliance on broad spectrum chemicals, each of which kills many forms of wildlife.

And, *fourth* is the recently formed Federal Pest Control Review Board which acts as a monitor on all Federal pesticide programs with special reference to the prevention of damage to wildlife. This board consists of two representatives of each of four Departments—Agriculture; Defense; Health, Education and Welfare; and the Interior.

The combined action of these four factors is already beginning to "clean the beach" and should exert a cumulative effort in the immediate future.

As in the case of pesticide evils, one of the best remedies in an aroused public opinion and the recent compilation of fish losses due t

pollution should provide some ammunition for thoughtful citizens. A report by the National Institutes of Health has a long list of unpardonable incidents.

Another remedy against certain types of pollution is the enactment and the enforcement of laws or regulations. Yet it is amazing the resistance there is to laws which aim either at authorizing ways to rid our resources of pollution or to finance projects to abate pollution.

A good, old-fashioned educational campaign such as the one directed against the litter bug would be effective to an extent and the installation of anti-pollution devices or changes in operations to prevent or lessen pollution is entirely possible but the bill would have to be paid in the long run by the consumer. In so many instances it would cost the consumer less to pay to correct than it would to assume the losses from pollution.

Drainage and drought have ruined or obliterated thousands of potholes and marshlands once productive of waterfowl, muskrats and other wildlife. These potholes have ebbed and flowed so to speak through drought and rain. Then man came along with his program of drainage and that program had a big, big start before other men came along with another program to acquire potholes areas and hold them for waterfowl. But late as it is, and shaky as was the start, the start has been made and a positive program of acquisition and leasing, accelerated by the increase in the cost of the duck stamp and by Federal legislation providing 105 million dollars on a loan basis, will save a lot of pothole area for posterity. Congress has stepped onto the beach again with a drainage bill that will do much. It has passed the House and we believe it has an excellent chance of passage early in the new session. Private organizations, various duck clubs, and State Conservation Departments can and are doing their part. Research can develop ways of creating productive waterfowl areas in wastelands, and better managing our still-remaining wetlands will help keep the waterfowl resource abreast of the demand.

Public assistance to private owners of some wetlands may serve to keep the marshes from being drained, at least until the need of agricultural food production increases beyond the present ability of improved agriculture to provide. There are other problems to be sure but there are other solutions for them.

Let's stop a moment and view some of the white crests of waves presently riding the tide.

The Atlantic Flyway Council has recommended the acquisition of 29 waterfowl areas in the Southeast, totaling 280,000 acres. Seven of these areas have been or will be studied in detail and presented to the Migratory Bird Conservation Commission for consideration before the end of 1962. These seven areas total 90,000 acres. The Mississippi Flyway Council gave priority rating to seven areas totaling 83,000 acres in the Southeastern States. Studies on five of these totaling 53,500 acres will be completed in 1962. Acquisition has already been started on three of the 12 areas. With the additional funds to be made available through the loan bill, the acquisition program will be accelerated. When the tide goes out, this program will be substantially completed.

Reactions to the early results of the Foreign Game Introduction Program are somewhat varied. We have a feeling of optimism from the apparent establishment of blackneck-ringneck crosses and back crosses in Virginia in areas where the ringneck releases failed. This development may lead to extending the range of the pheasant further into the Southeast. Early successes of the black francolin in several Southeastern States give some reason to be hopeful that this species may also become established and add a valuable increment to our hunting fauna. Success with game farm production of the red junglefowl in Oklahoma, the kalij pheasant in Virginia, and the bamboo partridge in Missouri gives us further reason to be optimistic. Less favorable early results with the Reeves pheasant do not as yet rule this species out as a prospective new game bird in some wooded areas.

We are hopeful that from this array of new birds at least one will be successful to the extent that it will provide additional hunting without interfering with native species or becoming pests in agricultural lands. From our studies in their native ranges, we are fairly sure that neither of these unfavorable developments will occur. We must point out, how-

ever, that the production of broods in the wild is not enough to assure us that a new species will become established in its introduced range. It merely means that the first requisite has been met. We shall be highly interested in developments in the next few years. In this case, the tide is "in"; we shall await the scene left when the tide goes out!

The problem of managing and controlling exotic nutria has cropped up in several Southeastern States in recent years. Nutria have not only been destructive to crops, particularly rice and sugarcane, but have also seriously competed with muskrats and waterfowl in some places where they have become established. Areas of Louisiana are the most seriously affected, but nutria are also a problem in Mississippi, Texas, Florida, North Carolina, and even to some extent in Maryland and Virginia and other States. The Bureau of Sport Fisheries and Wildlife has funds this year for employment of a man to work with State organizations in the South to develop control methods. He will soon be hired and stationed in Louisiana. He will concentrate on that area, but will in time be available to other South Atlantic and Gulf locations. There seems to be no quick and easy answer to this problem, but it will be vigorously attacked.

The Bureau of Sport Fisheries and Wildlife has proposed the establishment of the Eufaula National Wildlife Refuge at the Walter F. George Project of the Corps of Engineers. The Corps of Engineers is now constructing this project on the Chattahoochee River for navigation, hydroelectric power and other purposes. The reservoir will have a surface area of about 46,000 acres.

The Chief of Engineers has approved our recommendation for modification of the Walter F. George Project to permit acquisition of an essential acreage for development of a refuge. The Chief of Engineers' report is being reviewed and we expect it to be transmitted to the Congress for its consideration early in the next session. A bill has been introduced in Congress which would authorize the proposed project modification.

The proposed refuge will be about 10,755 acres in extent. A major portion will lie in Alabama, with important acreages in Georgia. Part of the surface of the reservoir will make up a large part of the refuge but a moderate acreage will be acquired to supplement food production areas.

Perhaps the tide can be as we make it. It will come in and go out today, tomorrow and for all tomorrows to come. Let us remember—the high tide of today may be the low tide of tomorrow. We cannot stop it but we can control that which it leaves behind. We have chosen so many times to so conduct ourselves that WHEN THE TIDE WENT OUT there was debris, rubbish, filth, and stench of our own making. Thank God, there were other times WHEN THE TIDE CAME IN that we found clean water, green fields, good fishing and fine hunting. The tides of tomorrow will reflect our actions of today. In plain, old-fashioned Missouri language, "Boys, it's our move."

CONTROLLED BURNING STUDIES IN LONGLEAF PINE-TURKEY OAK ASSOCIATION ON THE OCALA NATIONAL FOREST

BY RICHARD F. HARLOW¹ AND PAUL BIELLING²

This study measures the effects of one, two, three, and four-year-old burns, and burning three years in succession in longleaf pine-turkey oak association. Its main objective is to demonstrate the advantages of burning as a tool in deer and quail management.

The Ocala National Forest is located in central Florida, 15 miles east of Ocala, Marion county, and comprises 440,000 acres. Although the predominant vegetative type is the sand pine-scrub oak association (*Pinus clausa-Quercus* spp.), the longleaf pine-turkey oak (*Pinus palustris-Quercus laevis*) vegetation constitutes an appreciable proportion of the total area (12 percent), Strode (1954), as well as of the State of

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