Wildlife 2060:

What's at stake for Florida?



Florida Fish and Wildlife
Conservation Commission

MyFWC.com

Wildlife 2060: What's at stake for Florida?

Florida's natural lands and waters are at the core of our state's prosperity, bringing billions of dollars in economic benefits to our state every year.



Source: Florida 2060: Population Distribution Scenario for the State of Florida

Our forests, rivers and creeks, and coastal waters are invaluable to fish and wildlife, and to our own quality of life.

But recent predictions indicate that our state's human population may double to 36 million in the next 50 years. If that happens, as a study published by 1000 Friends of Florida suggests (see maps at right), about 7 million acres of land could be converted from rural and natural to urban uses. If we develop—as we have in the past—roads, shopping malls and subdivisions will replace the rich diversity our landscape currently offers. Development also will impact our coastal waters and coral reefs.

We have prepared this report to help you understand the changes that may occur in Florida's fish and wildlife—and in our own lifestyles—if the state's population doubles.

In the years to come, leaving the work of conservation and management to just a few won't be enough. We will need fresh, effective strategies, including smart growth initiatives and green infrastructure planning, to direct and shape the growth that is coming our way. By encouraging development that is economically sound, environmentally sensitive and community-friendly, instead of allowing haphazard sprawl, we can keep the Florida we love.

In the following pages, you will see predictions of what might come to pass and read stories about just a few of the many Floridians, both in the private sector and working for government, who have dedicated themselves to conserving our fish and wildlife resources.

What does the future hold for Florida's fish and wildlife? That's up to all of us.

Kenneth D Haddad

Ken Haddad
Executive Director
Florida Fish and Wildlife
Conservation Commission



Recreational Boating & Fishing Foundation

This report and supporting material can be found at MyFWC.com/wildlife2060.

Wildlife 2060: What's at stake for Florida? is based on projections and analysis by FWC's 2060 team and many scientists throughout the agency.

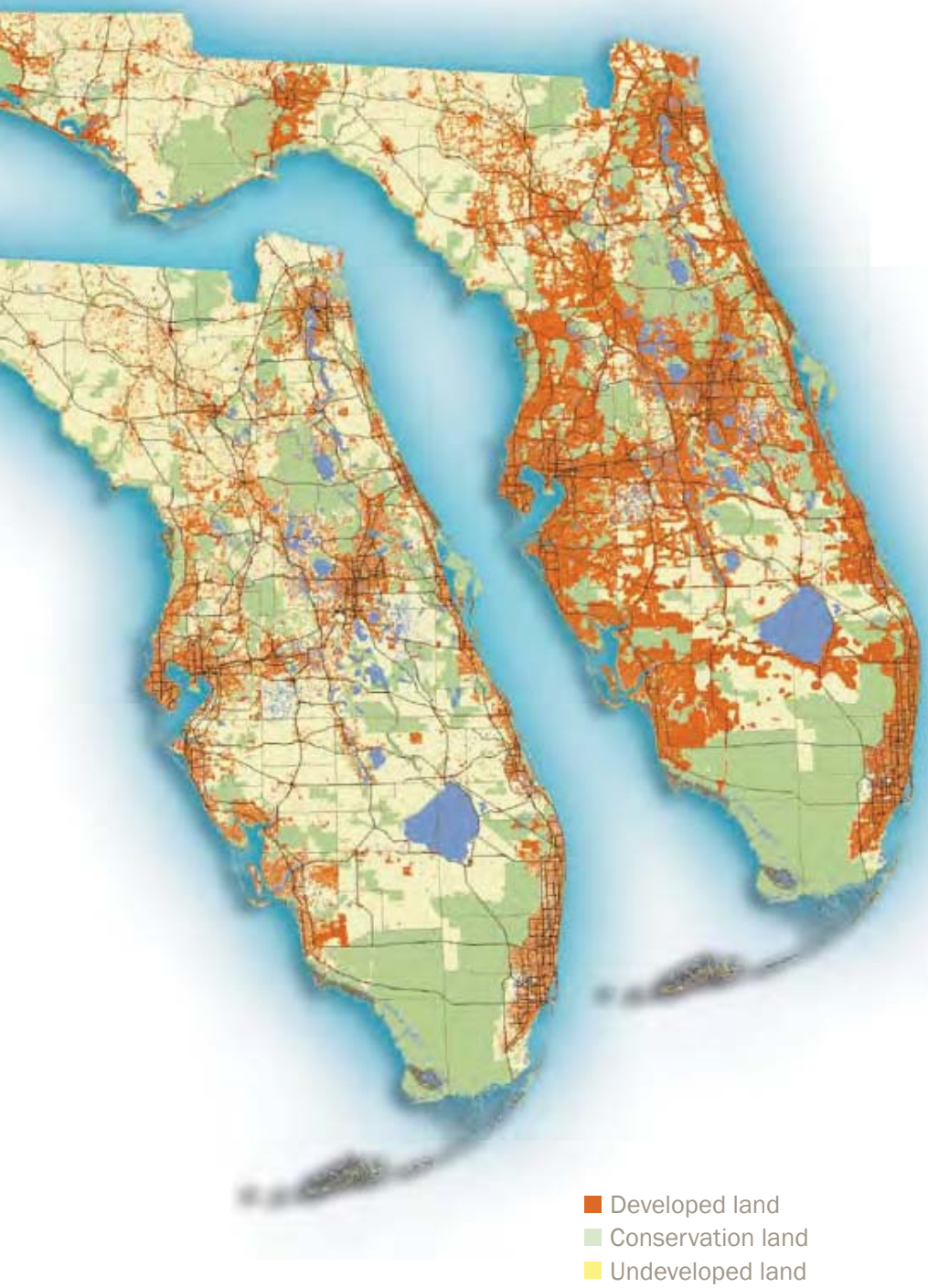
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August 2008

Projected land use in 2060





Robert J. La Follette

These maps show Florida as it is today and how it could look in 2060, *if its population doubles, as predicted, to nearly 36 million residents.*

Florida's balancing act

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Wildlife need wild lands

Over the next 50 years, unprecedented human population growth is predicted to reshape the face of our state. Where nature once ruled, urban development will reign.

If Florida's population doubles during the next five decades, as *Florida 2060: A Population Distribution Scenario for the State of Florida* predicts, about 7 million additional acres of land—equivalent to the state of Vermont—could be converted from rural and natural to urban uses. Nearly 3 million acres of existing agricultural lands and 2.7 million acres of native habitat will be claimed by roads, shopping malls and subdivisions.

The addition of 18 million new residents to Florida will intensely heighten the competition between wildlife and humans for land and water resources.

More than 1.6 million acres of woodland habitat may be lost and wetland habitats will become more and more isolated and degraded. For the most part, the animals and fish that currently live in these habitats will disappear.

Statewide, the landscapes where black bears and wild turkeys live may decrease by more than 2 million acres. Gopher tortoises may lose a fifth of their existing range.

Most at risk will be the hundreds of animals limited to small geographical areas. Known as endemic species, some examples are the Florida scrub-jay, the Florida burrowing owl and a roster of lovely plants restricted to tiny habitats in Central Florida—scrub blazing star and pygmy fringe tree, among them. Under the 2060 scenario, Florida scrub-jays will shrink in number as their habitat dwindles by 64 square miles—a landmass more than three times the size of the island of Manhattan. Florida burrowing owls, already a species of special concern, will lose an additional 25 percent of their current habitat.

Some of our best strategies to give large animals and sensitive species a chance to exist include:

- acquire and protect large parcels of conservation lands
- promote compatible agricultural activity such as cattle ranches and timber operations
- develop alternative protection techniques, such as conservation easements and tax incentives
- ensure thoughtful, large-scale land-use planning, development design and meaningful

How many acres of habitat might these animals lose by 2060?



1.9 million acres
Bald eagle



2.3 million acres
Florida black bear



200,000 acres
Florida burrowing owl



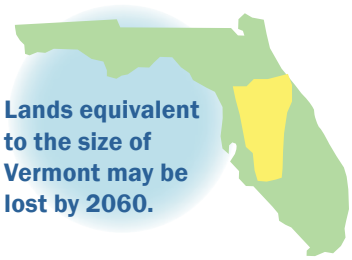
300,000 acres
Florida panther



700,000 acres
Gopher tortoise



200,000 acres
Wood stork



mitigation agreements are put in place to preserve our precious fish and wildlife habitats.

Soon, the ultimate footprint of development in Florida will be set in asphalt and concrete. The choice is ours: Do we want to see a continuous expanse of subdivisions spread from coast to coast, or vibrant communities linked by a green infrastructure that protects open space, farmland and wildlife? ■



Photos, pages 4 and 5: David Moynahan, Milt Fox, Robert J. La Follette, Kate Boulos, and VISITFLORIDA

2.1 million acres
Wild turkey

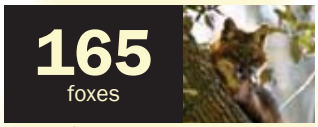
When Florida loses one black bear's home range (25,000 acres), we also lose the homes for:



25,000 acre average home range



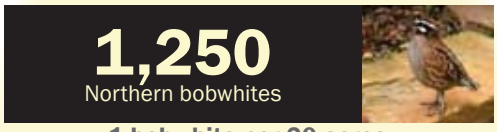
1 bobcat per 410 acres



1 fox per 150 acres



1 deer per 43 acres



1 bobwhite per 20 acres



1 cardinal per 12 acres



assuming a spacing of 20' x 20' or 100 per acre



assuming 275 million insects per acre

Development of 2.7 million acres *of native habitat will result in significant losses for Florida's biodiversity.*



Habitat loss is driving *a statewide decline of gopher tortoises (below). These animals were listed as a threatened species in 2007 by the FWC. The Commission's goal for gopher tortoise conservation is to protect a total of nearly 2 million acres of suitable habitat. But instead, if development proceeds as anticipated, a fifth of this animal's present range may be converted to urban uses.*



David Moynahan

Working for wildlife: Landowners get it right

"I've got serious concerns about overdevelopment in our state," said Watermelon Pond landowner Kate Boulos, a native Floridian. "But through the Landowner Assistance Program of the Florida Fish and Wildlife Conservation Commission (FWC), I have seen my own property transformed into lush open fields and forests that attract quail, cavity-nesting birds, bald eagles, turkeys and many other kinds of wildlife in greater and greater numbers."

"In the years to come, we simply aren't going to be able to afford to buy all of the land that needs protecting," said FWC biologist Scott Sanders. "We'll be more effective if we assist folks who own key wildlife habitats to manage and protect their own land."

The agency's Landowner Assistance Program does just that: partnering with private owners to achieve conservation benefits on private lands. Two habitats particularly at risk due to urban development are in the spotlight: sandhill and scrub.

"In North Central Florida, we've identified the Watermelon Pond focal area in Levy, Alachua and Gilchrist counties," said Chris Wynn, who coordinates FWC's statewide Landowner Assistance Program. "We're concentrating on about 28,000 acres of really important sandhill habitat that's anchored by several important chunks of public land, including the Goethe State Forest."

Some of the Watermelon Pond landowners are interested in hunting and want help managing their land



Faye Gibson

Landowner Kate Boulos *pauses with two of her setters on the Watermelon Pond acreage she manages in Alachua County with advice from the FWC Landowner Assistance Program.*

Endangered again? *Bald eagles have done so well in recent years, they have been removed from the endangered list. But if the state's human population doubles, eagles could lose ground. That's because only 40 percent of Florida's 1,248 bald eagle nests are on protected public lands. Smart growth strategies can help protect eagles and other Florida wildlife.*



David Moynahan

for deer and quail. Others want to encourage wildlife, such as box turtles, fox squirrels, woodpeckers or songbirds.

All acknowledge the common thread they share—the stewardship of declining habitat.

"When we get together with the landowners, we talk about why this particular habitat is valuable to wildlife," Wynn said. "We demonstrate how to plant longleaf pines and how to use herbicides carefully where necessary. We also teach the art of prescribed burning.

"Then we'll visit their individual properties and suggest what they could do to improve their habitat. If they're agreeable, we write up a contract, typically including a 50:50 cost share," Wynn said. "The landowners bring their lands, time and energy to the table. We provide information, technical assistance and some financial help." ■

Floridians at work

When the people of Florida know and value local native species and communities, they take steps to protect local ecosystems. Since 1972, residents in 30 Florida counties have voted to tax themselves to preserve important local landscapes, raising more than $2 billion to purchase approximately 375,000 acres of conservation lands.

Islands in an urban sea

More than 2 million of 7 million acres projected to be developed by 2060 lie within a mile of existing public conservation lands.

So, even though we've protected several million acres of wildlife management areas, parks, forests and preserves in Florida, these lands will become increasingly isolated from one another.

For wildlife, this means their remaining habitats will come to be islands within an urban sea. And these disconnected fragments of habitat will support reduced populations of animals and plants more vulnerable to extinction as their genetic viability declines.

Along with projected development, comes new roads that will splinter and dissect the Florida landscape. Animals with large home ranges, such as panthers or black bears, will find themselves more and more at risk.

What else will happen to wildlife as habitats are isolated by development?

It will become much more difficult for land managers to maintain healthy habitats through natural ecological processes, such as prescribed fire. Towns and roads stop fire from moving across the landscape as it once did, and fewer prescribed burns will make it more difficult to renew the landscape in a safe, controlled fashion.

Nonnative and invasive species establish themselves more easily along the disturbed edges of habitat fragments. Hundreds of these invasive species already infest more than a million acres of Florida's natural areas. Land managers already battle melaleuca, Brazilian pepper, Japanese climbing fern, Chinese tallow tree and others that crowd out

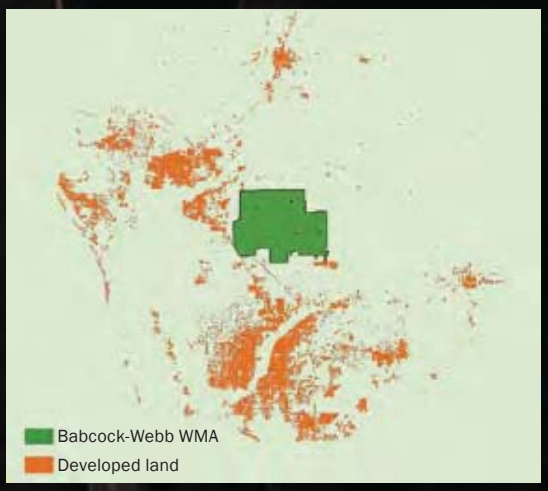
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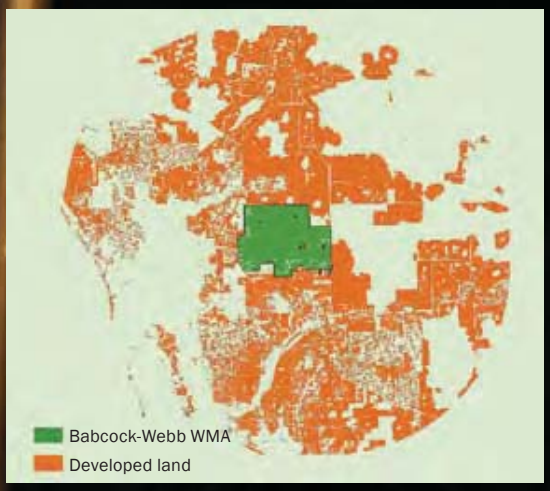
As development surrounds conservation lands, *and new roads splinter the landscape, wide-ranging animals like the Florida panther may be unable to move safely between shrinking patches of habitat.*

Tim Lewis

Development ringing Babcock-Webb Wildlife Management Area in Charlotte County, now and as projected to occur in 2060 (maps at right).



Babcock-Webb Wildlife Management Area, 2004



Babcock-Webb Wildlife Management Area, 2060

Green infrastructure is open space managed for conservation, recreation or compatible agriculture. Florida's green infrastructure connects public and private lands; some parcels are as big as a watershed, others as small as a footpath.

continues from page 8

native species and smother their habitats. We can expect to see many more invaders as the fast pace of development increasingly fragments our state's green infrastructure.

Overall, land managers expect that both freshwater and terrestrial systems will have to be even more actively managed by 2060 than they are now. Lake drawdowns, chemical and mechanical invasive plant control, prescribed fire and moving wildlife around to combat genetic inbreeding will help, but at great cost.

Effective land management requires a commitment to sufficient funding. The cost of prescribed fire, invasive plant management and lake drawdowns should be thought of no differently from the cost of the upkeep of other public infrastructure, such as roads, buildings and bridges. But a 2005 study of a selection of public lands found that while 96 percent of our public lands are open for public access, funding for land management is at 56 percent of need, and land management staffing is at just over half of need.

It just makes sense to protect what we can of Florida's remaining natural areas and minimize the effects of habitat fragmentation. Connecting large areas of conservation lands by protecting a series of natural or compatible agricultural areas makes a more functional landscape overall and will help our wildlife thrive in the future. ■

Working for wildlife: Brevard connects the pieces



David Moynahan

Brevard County made conservation history in 1990 when voters supported a bond referendum to purchase environmentally endangered lands in the county. Since that time, the Brevard County Environmentally Endangered Lands Program has protected more than 13,000 acres of threatened habitat.

Brevard is dedicated to protecting what's left of its natural biodiversity, using science to guide its land selection process.

This is good news for Florida scrub-jays, azure-feathered birds that are on a collision course with development in Florida.

Most individual Florida scrub-jays never fly more than a mile from their birthplace. Moreover, these birds can only live in rare oak scrub, a fire-dominated shrub community unique to Florida and found only on well-drained sandy soils. In Brevard County, nearly 70 percent of scrub habitat has been lost to agriculture and commercial and residential development, as the area's human population skyrockets. What scrub parcels remain are highly fragmented and of poor quality due to the suppression of natural fire. The scrub-jay's biological needs and Florida's development trends are directly at odds.



Peggy Greb, USDA Agricultural Research Service

More than a million acres *of Florida's natural areas are infested by invasive nonnative plants such as Old World climbing fern, kudzu and hundreds of others.*

Yet biologist Dave Breininger, a long-term member of the county's Science Advisory Committee, is optimistic about the fate of scrub-jays in Brevard. Breininger and his fellow scientists meet at least once a month to guide the county's land acquisition priorities.

"We have spent an incredible amount of time forming our perspective on what are the most important sites to protect in our county to preserve biodiversity," said Breininger. Brevard based some of its early thinking about conservation priorities on the FWC's 1994 *Closing the Gaps* report.

"We brought in the regional perspective of our local naturalists, scientists and biologists to develop a really viable local plan for protection and acquisition," Breininger said.

"You can't look at sites independently of one another," Breininger said. "You have to think about which are the critical landscapes so you can have a system of reserves large enough and connected enough to support rare creatures like scrub-jays."

Will scrub-jays survive in bustling Brevard?

Breininger thinks so: "We can maintain the jays, as long as we're able to continue burning," he said. "These are small landscapes we are protecting, and we will have to manage them very carefully."

With its partners, Brevard's Environmentally Endangered Lands Program has acquired more than 10,000 acres of scrub and surrounding habitat; there remains an additional 16,000 acres to complete the project. ■

Crowding coastal wildlife

Florida's tidal shoreline is so enduring that some of the earth's most ancient creatures, sea turtles, have evolved to make their nests on our state's sandy beaches. In fact, more sea turtle species (five) nest in Florida than any place else on the planet.



Robert J. La Follette

More than 26 million people *may crowd Florida's coasts by 2060.*

For more information visit MyFWC.com/wildlife2060

Our shoreline also is ephemeral. Its nature is to shift, roll over and rebuild, in response to the rhythms of the seas.

Florida's coral reefs and keys, barrier islands and sugar-sand beaches, mangrove forests, salt marshes and fertile estuaries powerfully lure residents and tourists alike to linger. Seventy-two percent of Florida's estimated 18 million residents live or work in coastal areas. The population of our coastal counties is predicted to double from 12.3 million to more than 26 million by 2060.

Loving our beaches to death

And, once we have established a foothold in this paradise, we want to stay put.

Development often occurs very close to the dunes that buffer the coast from storms, interrupting the natural cycle of erosion and rebuilding. The result is often an expensive cycle of beach renourishment and seawall construction. In fact, seawalls now extend along an estimated 14 to 20 percent of sandy beaches, eliminating vital wildlife habitat.

Nesting shorebirds, sea turtles, migrating manatees, fishes and the habitats they all depend on are increasingly pressured by a tide of beachgoers and boaters.

For example, 27 of Florida's 35 coastal counties offer nesting beach habitat for sea turtles. The majority of these beaches already are affected by nearby development. Some human impacts, such as beach lighting, can be managed. More permanent changes, such as coastal armoring, are more difficult to mitigate and result in a loss of nesting habitat.

Unpredictable natural events in coastal ecosystems, such as hurricanes or red tide, can exacerbate impacts from human activities. In 2005, the Gulf of Mexico experienced the worst red tide outbreak in 34 years, resulting in economic and wildlife losses, including dead manatees, dolphins, sea turtles and millions of pounds of dead fish washed ashore.

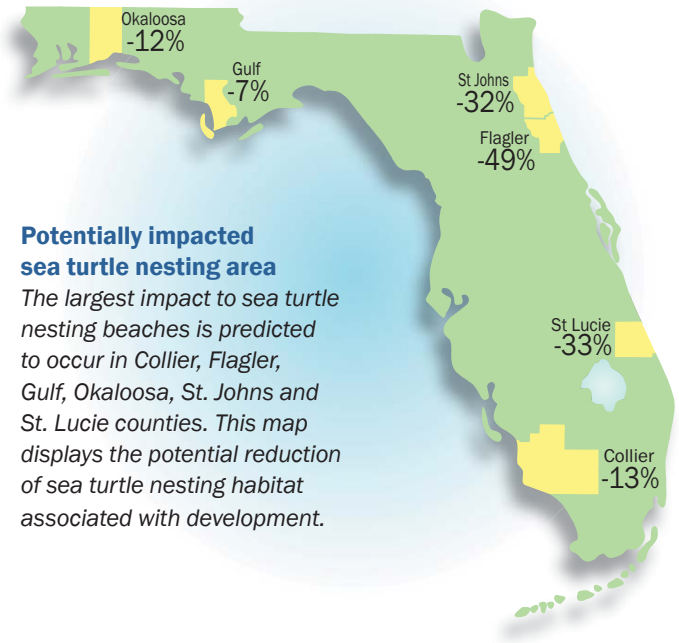
But the greatest challenge by far for our gently sloping coasts may be the rate and magnitude of climate change. Although we cannot accurately predict how much sea level will rise,



Faye Gibson

it will bring dramatic changes to Florida's coastal habitats, significantly affecting both the state's natural habitats, and its fish and wildlife populations.

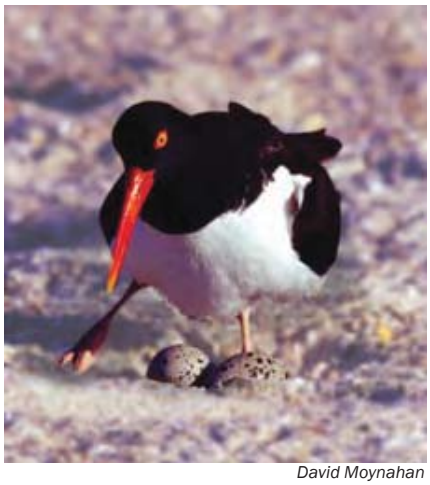
Our challenge, then, is to balance the protection of our wondrous coastline—the state's economic engine, after all—even as ever more people come to live and work close to its edge. ■



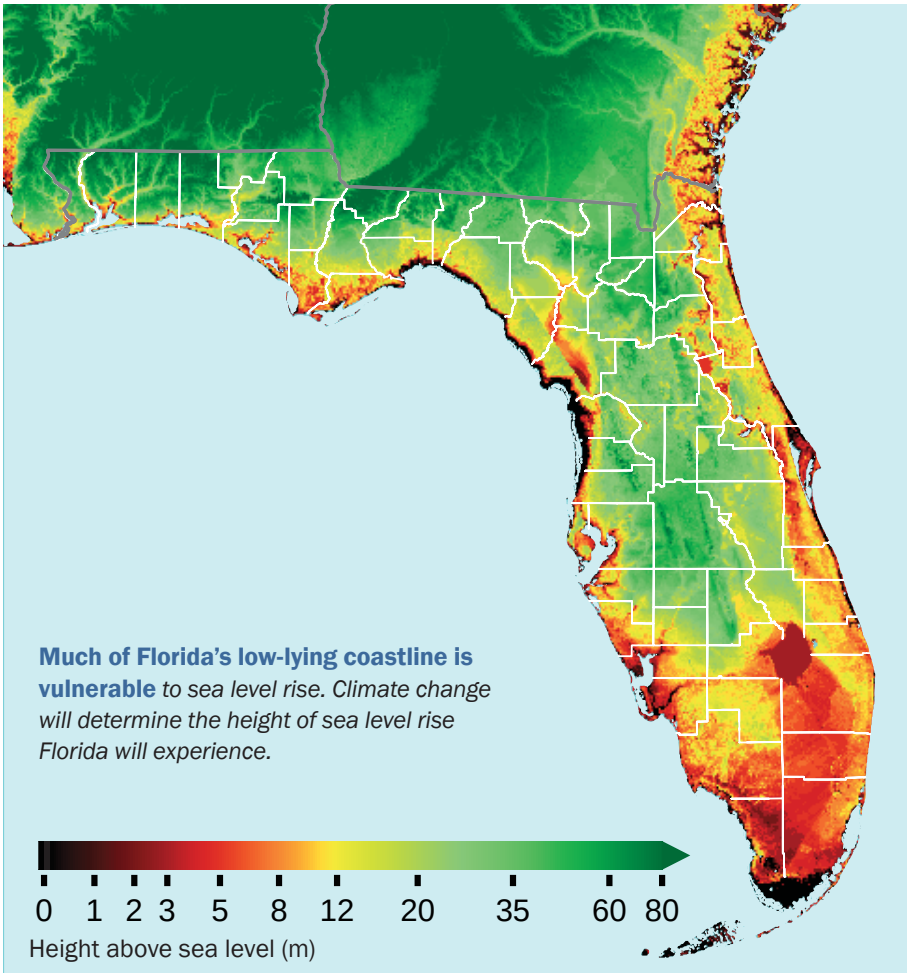
Potentially impacted sea turtle nesting area

The largest impact to sea turtle nesting beaches is predicted to occur in Collier, Flagler, Gulf, Okaloosa, St. Johns and St. Lucie counties. This map displays the potential reduction of sea turtle nesting habitat associated with development.

Rising sea levels *will threaten the coastal habitats of many species. With significantly fewer sandy beaches, rare and beautiful shorebirds such as the American oystercatcher may have no place to nest, lay eggs and raise the next generations.*



David Moynahan



Much of Florida's low-lying coastline is vulnerable *to sea level rise. Climate change will determine the height of sea level rise Florida will experience.*

Robert A. Rohde



Tampa Bay Estuary Program

Working for wildlife: What they are doing to save Tampa Bay

"Here's what gives me hope: seeing how much people really care about Tampa Bay," said Nanette O'Hara, public outreach coordinator for the Tampa Bay Estuary program. "I have 300 people in our volunteer database, some of whom have never missed a workday since 2001."

The Estuary Program, a regional alliance of residents, industry and government at many levels, is changing the face of Tampa Bay for the better.

Often working with local parks and Tampa Bay Watch, O'Hara focuses her eager workforce on shoreline and upland restoration that directly improves the water quality of Tampa Bay. Over a period of years, volunteers have succeeded in creating the first park in Hillsborough County that is free of invasive plants. "That's a lot of backbreaking labor, sweat equity and commitment," O'Hara said.

Most importantly, though, has been the residents' insistence on



Key West: Sandhill Key, August 19, 1993, a healthy reef Reef Relief



Key West: Sandhill Key, August 19, 2001, a dying reef Reef Relief

For more information visit MyFWC.com/wildlife2060

Coral cover has declined from 12 percent to 6 percent *in the Florida Keys reefs since 1996, according to FWC's Coral Monitoring Team. Sixty percent of the world's coral reefs may die by 2050 if current levels of pollution, and stressors such as bleaching and hurricanes, continue unabated (Coral Reef Task Force, 2000).*

dramatically improving the Bay's overall health.

"People said they wanted Tampa Bay to look like it did in the 1950s, in terms of water quality and sea grass cover," O'Hara said. "Our scientists agreed that was an achievable goal."

And that restoration has come to pass. Surveys have recorded some 6,000 acres of new or expanded sea grass beds in the Bay since 1988, some in areas like Hillsborough Bay where they hadn't been for decades.

The Tampa Bay Estuary Program finances cutting-edge research into key problems impacting the bay; sponsors demonstration projects to test innovative solutions to these problems and provides "mini-grants" to community groups to engage the public in bay restoration. The program also develops educational programs targeting key segments of the Bay community—including teachers, boaters and homeowners.

As of 2005, it was estimated that 2.4 million people lived in the three counties directly bordering Tampa Bay—Hillsborough, Manatee and Pinellas. That number is expected to grow by more than half a million by 2015. With a total land area of 2,072 square miles, this is an average increase of more than 240 people per square mile.

"Every new person moving into our area has an impact," O'Hara said. "One of our primary jobs is to teach people how to reduce that impact." ■



Keith Ryan



Enough water to go around?

A generous 55 inches of rain soaks the Florida landscape each year, recharging our aquifers (the source of 92 percent of our human drinking water) and sustaining the flow of our rivers and springs.

But it doesn't all come at once. More than half the year's rainfall may arrive in just two hot summer months. In the fall and winter, water levels fall, flows dwindle.

From freshwater mussels to delicious blue crabs to long-legged wading birds, many Florida creatures depend on the distinct wet and dry seasons that have characterized Florida's weather patterns for thousands of years. They rely on not just a consistent amount of water in their wetland habitats. They also require depths and salinities timed and delivered as nature intended. During periods of high flow, streams and rivers sometimes crest their banks, allowing fish and crustaceans to shift temporarily into newly-flooded habitats to feed, breed, and avoid predators. At dry times, birds feast on the fish concentrated into shrinking pools. Without these alternating wet and dry periods, many plants and animals cannot reproduce, or even survive.

Enter into this equation a single species, *Homo sapiens*. Florida's human population uses nearly 7 billion gallons of fresh water a day for drinking, watering lawns, industry and agriculture. Agriculture uses more than half of this fresh water each day—about 4 billion gallons.

Already, parts of South and East Florida drink more groundwater than the rain replenishes. Saltwater intrusion, dried-up lakes and an increased number of sinkholes are a few of the symptoms of over-tapped aquifers.

Our water woes will be intensified by predicted dramatic growth in Florida's human population.



Thomas J. Dunkerton

For more information visit MyFWC.com/wildlife2060

Florida has lost more wetland acres *than any other state. Millions of acres were filled in or paved over by the late 1980s, when protections were strengthened. But if our population doubles by 2060, many more wetlands will be isolated or degraded by surrounding development. Many thousands of white ibis, wood storks and other wading birds will disappear as their nesting and feeding habitat is lost.*

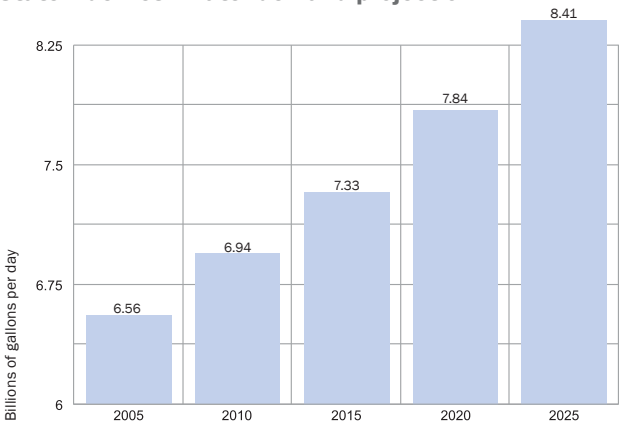
Now the fourth-most populous state in the nation, Florida in the next decade is predicted to grow another 21 percent, exceeding 21 million residents. Total demand for water is projected to reach nearly 8 billion gallons a day—at least 1 billion gallons more than at present. Moreover, models predict that as global climate patterns change, there will be less rainfall in South Florida, where the majority of humans reside, and more in the northern region of the state.

How will there be enough water to go around in 2060, if our human population expands by an additional 18 million as projected?

As competition among users heightens, it will become more important to protect water for people, agricultural and other businesses—and for fish and wildlife. Wide public support for Everglades restoration and many other smaller scale projects makes clear that most Floridians want to conserve water for the environment as well as for people.

We must continue to establish minimum flows and levels for lakes, rivers and springs, below which significant harm to the water resources or ecology of these areas would result. This will become ever more essential as pressure mounts to withdraw more and more surface water for industry and urbanization. It will take all of us to protect Florida's fabulous storks, spoonbills, manatees and largemouth bass as more and more fresh water is appropriated for human needs. ■

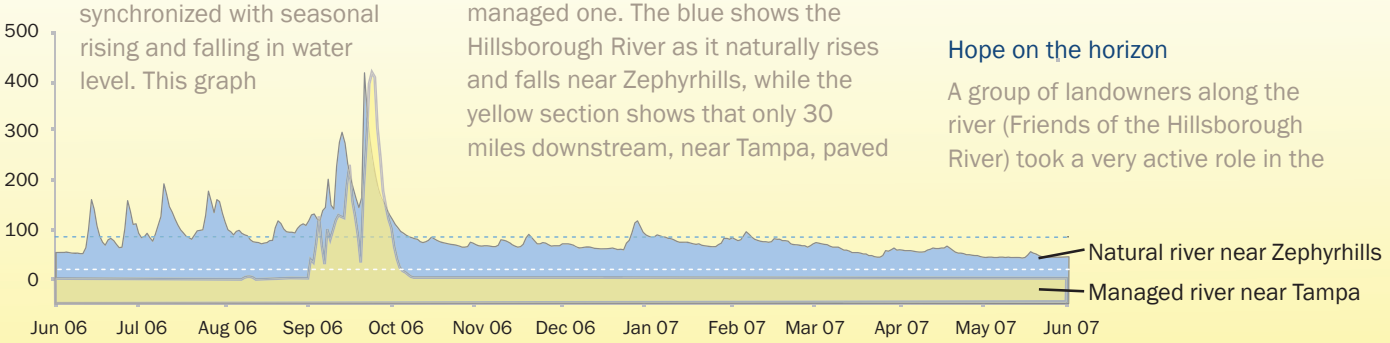
Statewide fresh water demand projection



Florida's demand for fresh water *will increase by at least a billion gallons per day over the next 10 years. That's enough to fill a swimming pool every two seconds all day . . . every day.*

The rise and fall of the Hillsborough River

The fish and wildlife in Florida's rivers and streams are well synchronized with seasonal rising and falling in water level. This graph illustrates the difference in flow between a natural river and a managed one. The blue shows the Hillsborough River as it naturally rises and falls near Zephyrhills, while the yellow section shows that only 30 miles downstream, near Tampa, paved surfaces and dams have significantly altered the river's flow.



Hope on the horizon

A group of landowners along the river (Friends of the Hillsborough River) took a very active role in the

Working for water: It's more than a local story

"Our job is to talk to whoever will listen about the protection and preservation of Florida's most endangered and precious river and bay—the Apalachicola and its tributaries," said Andy Smith, executive director of Apalachicola Riverkeeper. "We use water quality data and technical information to educate and empower citizens."

"The Apalachicola is recognized as a national ecological treasure," added Dan Tonsmeire, who holds the title of Riverkeeper for the 1,200-member organization. "The protection of endangered fish and mussels in the Apalachicola River, and the seafood industry in Apalachicola Bay, is well understood by the local community. Harvesters and wholesalers of highly-prized Apalachicola Bay oysters are especially concerned about the connection between the river and the bay."

"We are a hands-on organization," Smith said. "We are all about getting into the water, doing some positive



establishment of minimum flows and levels (MFL) for the river. Through persistent work with the water management district, water utility and county, they were able to have the MFL revisited and increased. Millions of gallons of fresh water that were diverted from the river now will be returned to augment its flow. Such citizen initiatives can achieve powerful results for fish and wildlife. ■



FWC

Springs are crystalline conduits to Florida's groundwater aquifers—and essential to our drinking water and the habitat for many kinds of fish and wildlife. But we are withdrawing water from aquifers faster than it can be replenished. Decreased flow at many springs is stressing sensitive, spring-dwelling striped bass and other animals and plants.

Richard Bickel



restoration that everyone can see, leaving a lasting physical legacy."

Apalachicola Riverkeeper's staff and hard-working volunteers monitor Franklin County's important nesting shorebird colonies and assist with sea grass restoration on Lanark Reef. They also participate in periodic coastal and river cleanups, operate the Riverkeeper's tiny storefront in Apalachicola and fly with nonprofit Southwings to document changes along the coast. One of the group's most exciting projects currently is to convince a string of waterfront landowners to install wave-breaking boulders, a coastal restoration alternative much more wildlife-friendly than seawalls.

"Riverkeeper runs on the passion of our members and volunteers," Tonsmeire said. "We all love this place. This river. This bay."

There are 157 similar Riverkeeper or Waterkeeper nonprofit organizations around the nation. Apalachicola's group is one of four in Florida. ■

Too close for comfort?

Florida's wildlife and human populations are encountering one another more often than ever.

You might even say we're on a collision course—with alligators, black bears, sandhill cranes, Florida panthers, raccoons and many others. It's not only the increasing numbers of roads and vehicles (and structures like cell phone towers) that are directly killing our wildlife. It's also that we are moving into their territories and taking over the places they used to live—their habitats, their homes. The problem is made worse by unplanned development that lacks rural buffers between wildlife-rich areas and suburban homes.

Where did the wildlife go?

Evicted animals don't always go easily. Sometimes they try to continue to share back yards and subdivisions that have replaced their forest and wetland homes. Sandhill cranes, alligators and other species, such as raccoons, opossums and deer can adapt to and even thrive very close to our residences—if we allow them.

Many Floridians, especially new residents, are inexperienced with wild animal neighbors or scared by their presence. Their



concerns include property damage, the possibility of disease or predation on pets or livestock.

Sometimes development results in uncomfortably close quarters for wildlife and humans, but it can also result in too little connection. Most people want and need contact with the natural world. For example, in 2001, nearly 2 million Floridians reported feeding birds in their yards.

But when local populations of wildlife are displaced from suburban areas, people become more isolated from the natural world, and less caring. Entomologist Robert M. Pyle calls this the extinction of experience and said, "When a creature dies out within your 'radius of reach'—the area to which you have easy access—it might as well be gone altogether because you will not be able to see it as you could before." More than 90 percent of Floridians now live in urban areas; we hear bird songs and frog calls far less frequently than leaf blowers and air conditioners.

The *Florida 2060* report projects that within the next 50 years, Florida's human population will more than double. Without any changes in our land-use policies, the additional acreage converted to urban use also will more than double. This means not only loss of habitat and wildlife, but more encounters with wildlife that we don't choose in this increasingly crowded world.

How will we balance our love of Florida's diverse wildlife and their need for habitat? ■



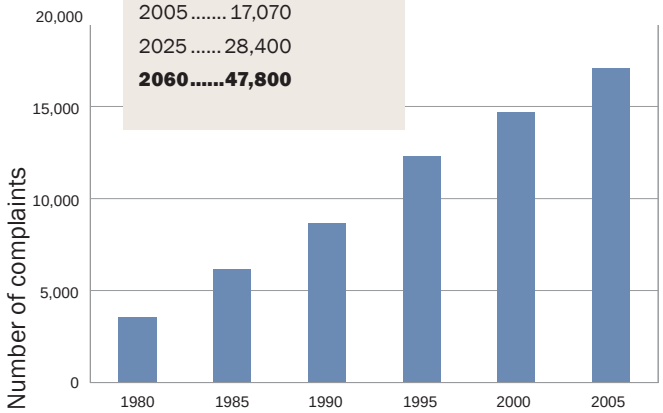
Richard Leighton

Complaints about alligators are on the rise

People and alligators are encountering each other more and more frequently in Florida. Human population growth and the remarkable recovery of the state's alligator population are leading to steadily increasing complaints. If complaints continue to increase at the same rate, they could more than triple by 2060. ■

Based on current trends, complaints about alligators will continue to increase:

1980.....3,572
2005.....17,070
2025.....28,400
2060.....47,800



Hope on the horizon

Defenders of Wildlife, FWC and others have teamed up to help Floridians living in panther country—and in turn, help save the last remaining Florida panthers. Local families and volunteers in Collier County came together in 2007 to build predator-proof pens to protect livestock and pets from panthers.

As development continues to boom in Florida, panther/human conflicts are on the rise. These new pens help keep communities safe while significantly reducing pressure on the big cats living nearby. ■

Working for wildlife: Community bear management



Milt Fox

Feeding of bears, *whether intended or unintended, is the number one source of human/bear conflict. It's also illegal.*

What's at the heart of the conflicts between people and bears? Think food. Bears eat 8-10,000 calories each day, and more than 20,000 a day in the fall as they begin fattening up for the winter. It's easier (but unhealthier) for bears to get their calories from rich human food sources—garbage, pet food and bird feeders—than from acorns, berries and grubs.

Feeding of bears, whether intended or unintended, is the number one source of human/bear conflict. It's also illegal.

FWC biologists and partners across the state are learning techniques to minimize bear/people problems, including the development of local ordinances that require bear-resistant garbage containers. The FWC and partners have helped purchase dumpsters and trash cans for hot spots like Franklin County and Wekiwa Springs State Park. Ultimately, counties and schools statewide can help bears stay wild by requiring the use of these bear-resistant garbage containers and dumpsters. When bears learn that food is no longer available at trash sites, they stop coming.

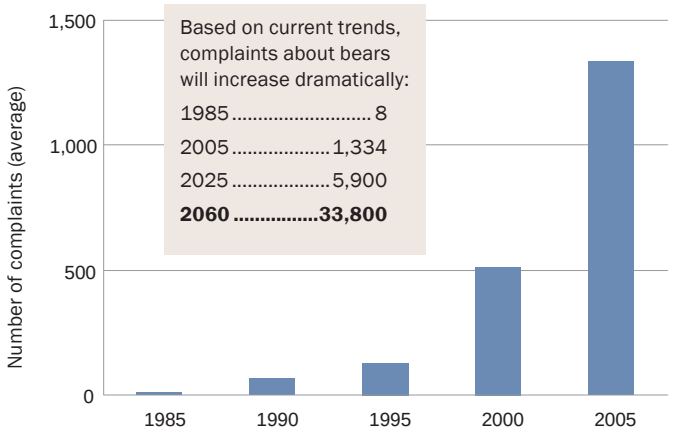
Florida black bears have come back from the edge of extinction in the past 20 or 30 years, increasing six-fold to 2,500-3,000 individuals—just in time to run afoul of the massive influx of new Florida residents.

The Central Florida counties of Seminole, Lake, Marion and Sumter report the majority of human/bear conflicts. But even the Panhandle's Franklin County has chronic and escalating issues with bears.

"Human/bear conflict management is new in the Southeast," said FWC biologist Mike Orlando.

"We are finding that community-based partnerships are the way to go," added Stephanie Simek, FWC's Bear Management Program coordinator. "Most people are willing to do the right thing if you help them understand what's at stake."

In this case, it is the peaceful coexistence of humans and the state's largest mammal. ■



Complaints about bears *are rising fast. As development continues to replace bear habitat and as bears rebound from historic lows, people and bears are coming into contact more and more. If current trends continue, complaints will increase to 5,900 by 2025 and will soar to 33,800 by 2060.*

Outdoor legacy at risk?

Easy access to land and water has long been one of the chief factors in Floridians' quality of life. For some, fishing, hunting or watching wildlife are pure pleasure; for others, it's a living.



Wayne Smaridge

For more information visit MyFWC.com/wildlife2060

No room at the ramp

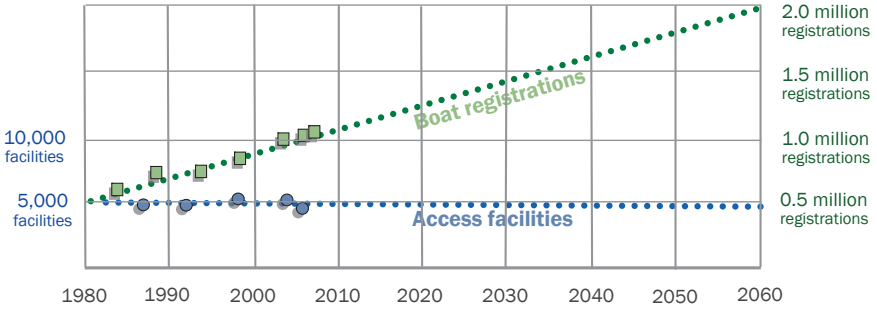
Whether you're a commercial fisherman, recreational boater or simply an angler who wants some weekend time on the water, you're probably feeling the congestion of too many boats and too little access to the water.

In many places, inland waters and boat launches are jammed.

And it's no wonder—more than a million registered boats (more than any other state) actively ply Florida waters. It's going to get worse. The number of trailered boats vying for existing boat ramps is estimated to double along with the human population between 2006 and 2060 from about 900,000 boats on trailers, to nearly 1.8 million.

Finding available and affordable waterfront property for new launching facilities is a tough challenge for state and local governments. Purchase of public access points to the Atlantic and Gulf has largely stalled under the pressure of rising land prices, increased insurance cost and the

Boat registrations will continue to rise *through 2060, but boating access points are not expected to keep pace. Many communities have nowhere left to build. In numerous locations, public access has declined as marinas and other access points are converted to private use. As a result, wait times can be expected to increase significantly.*



privatization of existing ramps and boat facilities that provide access.

Oysters versus yachts?

Times are tough for commercial anglers, as well. Working marinas and boatyards are giving way to luxury condo builders who want to offer boat slips to their new residents. We are losing traditional working waterfronts (think of historic Cortez in Manatee County, the Panhandle's oyster-rich town of Carrabelle or Mayport in Duval County), and with them, not only an important economic sector but



Florida's status as the top destination for *if we do not properly manage predicted growth.*



Captain Ed Olson and his father, Butch, represent five generations of commercial fishing Olsons.

Faye Gibson

Working for waterfront: Port Salerno

"All over the state, fish houses are going out of business," said Captain Ed Olson, a fifth-generation fisherman born and raised in Martin County's Port Salerno, a natural harbor at the intersection of the St. Lucie and Indian rivers. "We need a place to bring our product. Otherwise we can't keep our fishing alive."

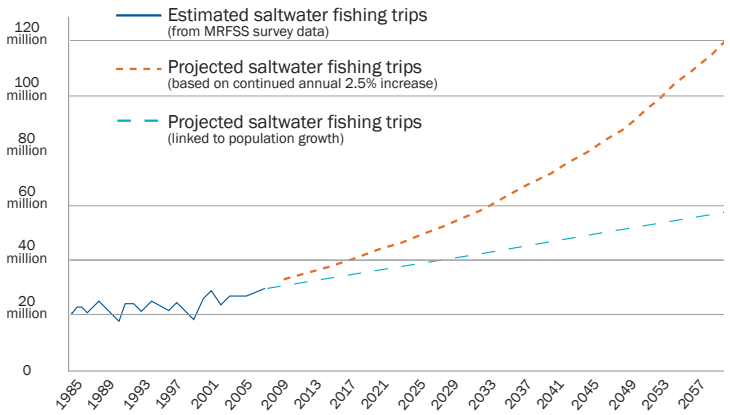
But the local economy has changed dramatically, shifting from one based on commercial fishing to a recreational fishery. Today, only one



Sandy Beck

bird watchers *nationwide will be challenged*

Saltwater fishing trips are projected to rise *dramatically as population increases in Florida.*



also part of our state's history and culture.

Let's go fishing

During the past decade, 1.4 million anglers enjoyed Florida's abundant and diverse freshwater fisheries; by 2060, estimates are that twice that many may compete for the same resources.

But urbanization, water supply development, and pollution associated with growth could radically impact the ability of Florida's freshwater systems to produce an adequate quantity

active fish house still operates in the port.

To preserve their way of life and livelihood, the commercial fishermen of Port Salerno dug deep into their own pockets and secured a long-term lease for a portion of the county-owned waterfront. They maintain the commercial docks to county code, and have incorporated themselves as a nonprofit entity. Thirty-four fishermen participate.

"We needed to be sure we'd have a place to offload and sell our fish, tie our boats, and work on our gear," said Olson. "This waterfront is our home."

Port Salerno provides an ideal harbor for fishermen working the Atlantic Ocean and is the principle reason Port Salerno was settled during the 1920s. At its height, the fishing industry supported eight wholesale fish houses here.

"Fishing is really in my blood," Olson said. "My grandfather moved here to Port Salerno from Norway in the early 1900s."

Captain Ed Olson and his father work out of two small skiffs, netting Spanish mackerel, mullet and sheepshead for the local wholesale fish market. They fish mostly inshore, year-round, tending their nets six to 10 hours a day, five or six days a week.

"I'd be lost without this work," Olson said. "When you've been fishing for a living all your life, you wouldn't know where else to start.

"That's why we've put so much time and effort into maintaining a good relationship with the county," Olson said. "We're dedicated to doing this right." ■



David Moynahan

Florida hunters like Cedric Hayes, *who has been hunting most of his life, worry that as much as 25 percent of the private lands currently providing hunting opportunities may disappear if the 2060 development projections are realized.*

Hunting in 2060: Will it break your budget?

The cost of a hunting lease on private lands is skyrocketing.

1985 ..... $2/acre

2007 ..... $15/acre

2060 ..... $300/acre?

of species such as the Florida largemouth bass, a popular sport fish targeted by anglers.

What does the future hold for Florida's saltwater recreational anglers? Saltwater fishing is one of our most popular and economically important outdoor activities. Occasionally, competition for "fishing space" is a problem, even today. Productive patches of ocean bottom may be nearly continuously fished by anglers pursuing grouper or snapper, thanks to modern electronics. The world famous Boca Grande tarpon fishery has already seen user conflicts and competition, and the debate is growing over the issue of protecting important marine areas from fishing pressure.

Combine the prospects of increasing fishing effort, the expected human population increase and impacts to important nursery habitat, and it's clear that management is likely to become increasingly restrictive. Catch-and-release fishing only, significant closed areas or seasons and increasing reliance on fish hatcheries may be required to maintain fishable populations.

As Florida grows, our anglers—both salt- and freshwater must prepare for more limited access to the sport they love, and increased costs to support management activities like habitat restoration, hatcheries, and resource protection.

Hunting for wild lands

Hunting—whether for deer, ducks, turkey or quail—is a sport best enjoyed with plenty of open space and elbow room. Nearly 6 million acres are currently available for hunting and other public access, yet Florida's hunters say they already feel the squeeze.

If the 2060 development projections are realized, Florida may lose 25 percent of the private lands currently providing hunting opportunities.

As Florida's population more than doubles over the next 50 years, public lands will be increasingly pressured by urban development. Buffering conservation lands from development will require everyone who enjoys our public lands—from bird watchers to bicyclists, and hunters to hikers—to work together to find solutions for sharing public access. ■



LAKEWATCH

Back cover photo credits: from left, Robert J. La Follette, Mary Wozny, Anne P. Birch and VISIT FLORIDA

For more information visit MyFWC.com/wildlife2060

These LAKEWATCH volunteers are working *to protect local wetland habitats. What can you do to help Florida's wildlife and wild lands?*

So, what does the future hold for Florida fish and wildlife?

It's really up to all of us to decide.

We can't stop growth in Florida. But we can set ourselves to the task of making sure the pattern of growth that does come has minimal impact on our natural lands, waters, fish and wildlife.

The future may seem overwhelming, but if we work together on smart growth initiatives, green infrastructure planning and other innovative strategies, we can help protect the state we love. We encourage you to get involved, joining forces with the Florida Fish and Wildlife Conservation Commission, and all agencies and organizations that share a common love of our state and its fish and wildlife.

Here are some places to start. Visit MyFWC.com/wildlife2060 for a more comprehensive list of the tasks at hand.

- Does your city or county have a local land acquisition program?
- Are roads in your community being designed and located to accommodate the needs of wildlife?
- Are you incorporating wildlife habitat conservation measures on your property?
- Does your community view the management of its green infrastructure in the same way it does upkeep and management of public roads, buildings or bridges?
- How does your community support prescribed burning of nearby public and private lands?
- How is your community conserving coastal forests, dunes, beaches and wetlands?
- How is your community safeguarding your region's water resources?
- Is your community protecting shoreline access and working waterfronts?
- What are you doing to ensure that future generations will benefit from the same robust fish and wildlife resources that we enjoy today? ■






"The **wildlife** and its habitat **cannot speak** . . . so **we must** . . . and **we will**."

— Theodore Roosevelt

Wildlife 2060:

What's at stake for Florida?

Floridians have long recognized the link between the preservation of habitat and species and their own quality of life.

Now, we face what may be the biggest challenges we have ever been given: How do we manage fish and wildlife to ensure their survival, and our enjoyment – all in light of what is predicted to be an explosion of human population in the next 50 years?

These challenges, while formidable, can be met if we all work together. Look inside to learn how you and your community can start helping today.

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Florida Fish and Wildlife Conservation Commission

MyFWC.com

Our mission: Managing fish and wildlife resources for their long-term well-being and the benefit of people.