

# The GCPO Monitor

## Newsletter of the Gulf Coastal Plains and Ozarks Landscape Conservation Cooperative



### The Wide-Angle View

A Message from the GCPO LCC Coordinator, Greg Wathen

#### **Landscape Conservation Cooperatives in the Southeast: Painting a Picture of a World That Makes People Want to Get There**

One of the reasons that I'm excited about working for the Gulf Coastal Plains & Ozarks LCC is that the Cooperative is something new, and thus, it opens the possibilities for new ways of thinking and innovation in the way we approach our conservation missions.

Richard Louv, noted author of *Last Child in the Woods*, wrote [in a recent essay](#), "environmentalism needs to hit reset." Louv's central point was, that we are in a wholly different time than when the environmental movement took off in the 1970's, and these

new times require new energy, new thinking, and new creativity. In essence, we need to “paint a picture of a world that people will want to go to.”

Louv’s message certainly resonates with me, and if nothing else, I think that the GCPO LCC, and LCCs in general, offer all of us an opportunity to envision that new conservation future. To help us start down that road, LCC’s from across the southeast have begun working on an initiative called a Southeast Conservation Adaptation Strategy. The basic idea is that we need to paint the picture of what the world should look like if we are going to ensure that fish and wildlife will still be around for our children and grandchildren.

Certainly, we’re all familiar with the challenges that confront us in the southeast, and they’re not small challenges by any stretch. Population growth alone, with all of its direct and indirect effects on habitat for fish and wildlife, is enough to worry about without piling on all those other challenges like climate change, energy development, and the list goes on. Nevertheless, the opportunities for us to succeed are there for us to grab, especially if we as a conservation community consciously decide that it’s important. The Southeast Conservation Adaptation Strategy, if nothing else, envisions the conservation community coming together to paint that vision for the future.

This month, at the Southeastern Association of Fish & Wildlife Agencies Annual Conference in Nashville, TN, the SEAFWA Directors will be considering whether to offer the support of their agencies in the development of a Southeast Conservation Adaptation Strategy. If the Directors agree to continue moving forward with the initiative, then it’s my expectation that the GCPO LCC will take a lead role, along with our other southeastern LCCs, in formulating that vision of a future conservation landscape. That will entail a tremendous amount of work, for sure, but we have the tools, we have the energy, and most importantly, we have the partners and new thinking that will enable us to be successful in developing that new vision. As Richard Louv writes, we need to “imagine a society in which our lives become as immersed in nature as they are in technology, every day, where we live, work, learn and play.”

That definitely sounds like a world where people will want to go.

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**Numbers that describe the GCPO LCC (below)**

*(NOTE - links to full articles in this newsletter are accessible only to GCPO LCC members. Access to the complete archived version of the newsletter is available on the [Gulf Coastal Plains & Ozarks LCC homepage](#). Or, [Apply for GCPO LCC membership](#). Membership includes newsletter subscription.)*

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## **The Meander**

Profiling one of us - the many people and organizations that make up the far-flung Gulf Coastal Plains and Ozarks LCC



### **The Southern Aquatic Resources Partnership Testing a “Joint Venture” Model for Fish Conservation**

“We definitely would like to see more aquatic participation in the LCCs. SARP staff has worked very hard to make that happen. I think to this point in time our level of participation has really been a matter of capacity,” said Scott Robinson recently to LCC staff. Robinson is Coordinator of the [Southeast Aquatic Resources Partnership](#), or SARP, which encompasses 14 states that fall within five Landscape Conservation Cooperatives.

“We have the same footprint as the Southeast Association of Fish and Wildlife Agencies (SEAFWA), since we were spawned by them.” SARP is also one of the key partnerships that serves on the Gulf Coastal Plains and Ozarks Advisory Council.

Gary Myers, former director of the Tennessee Wildlife Resources Agency and the original mind behind a host of conservation initiatives in the South, helped to get SARP started in parallel with the [National Fish Habitat Action Plan](#) (NFHAP). The NFHAP is a national assessment of aquatic habitats across the country, completed in 2010 by the National Fish Habitat Board, which has established 17 fish habitat partnerships around the country, including SARP.

“The National Fish Habitat assessment provides information at a scale that’s very usable,” explains Robinson. “In most instances, we’ve had to consider data available nationally to be consistent.” The national assessment includes a limited number of variables available nationwide, including road crossing density, cattle density, dams, human population density, land use, mines, and percent forested land. “It goes all the way down to the stream segment, which is as detailed as you can get using GIS without ground truthing,” says Robinson.

### **SARP Focal Species and Threats**

“One of our functions is to coordinate with other regions on river and stream habitats that go beyond our boundaries. We also encourage partners to standardize data within their region.” Focal species for which SARP is planning include black bass (the riverine species of bass), Guadalupe bass in Texas, Shoal and Suwannee bass in Georgia and Florida, Red-eye Bass in SC, and Shoal Bass in FL and AL. “We use them as keystone species,” explains Robinson. “By conserving their habitat, we’ll help many other species that may not be as visible or fished for, such as sturgeon, striped bass, American eels, or herring and shad.”

The major threats facing fish and riverine habitats in the region sound familiar: changes to hydrology caused by dams, withdrawals, levees, irrigation, and ground water pumping; also changes in the frequency and duration of precipitation events. One of SARP’s most important projects is the [Southern Instream Flow Network](#) (SIFN), established to help build partners’ capacity to understand and address instream flow issues. “State agency staff, the feds, and university researchers have been working to develop flow ecology relationships. For example, if we change flow in a stream by 20%, how much will it impact fish? We make predictions that can inform appropriate regulations for flow regimes. It’s mainly states’ responsibility to regulate flow and water withdrawals. SARP is trying to develop the scientific information the states need to properly manage water use.”

### **Bringing the Joint Venture Concept to Aquatic Habitat Conservation**

Given the plethora of overlapping partnerships, jurisdictions and conservation efforts within the GCPO LCC region, it’s useful to know that SARP and other Fish Habitat Partnerships around the country are roughly the fish equivalents of Joint Ventures. “In

fact,” says Robinson, “the National Fish Habitat Action Plan, which is about 10 years old, piloted the first five Fish Habitat Partnerships around the country about five years ago. The NFHAP was modeled after NAWMP, the North American Waterfowl Management Plan, and the wildlife conservation act that funds JVs.”

SARP was one of the original five partnerships. They developed in parallel with agency conservation efforts and NFHAP, and include many of those same partners “The SARP analogy with the Joint Ventures is pretty accurate because we’re trying to bring the concept to aquatics: how to characterize habitats, quantify habitat types, and set goals for improving habitats, eventually getting down to species population goals.”

### **Keys to Habitat Restoration Success**

SARP periodically advertises Requests for Proposals for fish habitat projects, which are funded by the Fish and Wildlife Service and National Fish and Wildlife Foundation through the National Fish Action Plan. NOAA is a regional partner in many of these projects, for example those that focus on anadromous species or coastal habitats.

“The projects we fund are primarily ‘in-the-water’” Robinson says. “Restoration of marshes, riparian and instream habitats; projects to restore stream banks and native vegetation; and oyster reef projects in saltwater and coastal habitats. We’ve been most successful in improving reservoirs by planting native aquatic vegetation.

“A particularly great project we funded was restoration of islands on Lake Oconee in Georgia.” The island’s last natural shorelines were eroding, so the project stabilized the shoreline, planted native emergent vegetation, and further out into the water added eel grass and fish habitat structures. “It was a great project that brought out all sorts of partners,” continues Robinson. “We initially put about \$100,000 into it, then the partners got another grant from EPA to continue and expand it. I believe our success came from the people around the reservoir who cared about the area, and it was obvious what needed to be done. We got lots of energetic volunteers, and we were able to see results quickly.”

### **Cooperative Conservation**

The Gulf Coastal Plains and Ozarks LCC Interim Steering Committee and partner organizations are committed to expanding and diversifying the ISC membership to represent expertise in all taxa. Within the fisheries community, there are associations such as the Southern Division of the American Fisheries Society that has a lot of active committees, and coastal groups such as the Gulf of Mexico Alliance. “But they’re not structured like JVs,” Robinson says. “It comes back to having capacity. We don’t have the JV structures, and fish habitat partnerships are young and without dedicated operational funding. The LCCs provide a good forum for learning from other disciplines. It gives us a good opportunity to interact and share techniques and data. We regularly interact with fellow fisheries colleagues, but we don’t have much opportunity to interact with more terrestrial-based partners. And the opportunities for cooperative conservation

will be significant once we have identified common priorities.”

One promising area for collaboration is in restoration and management of riparian habitat. SARP has undertaken an assessment of riparian habitats and land use across the region. “We’re starting to look at the relationships between riparian condition and other aspects of fish habitat, and we’re seeing strong relationships there. This represents a great opportunity for cooperative conservation because riparian habitat is so important to everything.”

“Bottom line,” concludes Robinson, “We’ve gone into LCCs full throttle and want to continue to do that. We recognize the importance.”

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## **From Under the Scope:** The View of the GCPO LCC Science Coordinator on Partnerships

People often ask me what exactly it is that I do as GCPO LCC Science Coordinator. My quick answer is: ‘I leverage science and technology on behalf of the Partnership to help it achieve its mission – namely, defining, designing, and delivering a landscape capable of sustaining natural and cultural resources now and into the future.’ That answer is kind of brief but usually unsatisfying. So if I haven’t completely lost someone’s interest by that point (you’re still reading, right?), I use a project I’m working on to demonstrate what exactly ‘leverage science and technology’ means.

In this and forthcoming issues of The Monitor, we will have a regularly recurring feature, “The Tidal Exchange,” that describes a project in which the LCC is involved. Although the primary purpose of these stories is to showcase some of the amazing work being done by partners as part of the GCPO LCC, their secondary function is to provide clarity on the types of activities the LCC does and doesn’t do and the roles that a Science Coordinator plays. My hope is once you know more about these things, you will be better able to use the LCC network and Conservation Science staff as a tool to effectively address the right questions at the right scale for the right reason.

### **How an LCC Partnership Project Works**

The alligator gar project featured on the next few pages highlights a few key characteristics of how we see the GCPO LCC Partnership operating. First and foremost, I hope you note that the Cooperative is working with and through the Alligator Gar Working Group of the Southern Division of the American Fisheries Society. An overarching philosophy of LCCs is to find ways to complement the critical roles that existing partnerships already serve – not duplicate or usurp their efforts.

The collaboration between the LCC and the Alligator Gar Working Group is the kind of interaction that always works best: a mutually beneficial relationship. The Cooperative benefits by gaining the insights of the Working Group on what defines a sustainable landscape for alligator gar, which is an important umbrella for a suite of other species that are dependent on active floodplains connected to large river systems. This perspective complements that for birds and bears put forth by other partnerships for this region (specifically, the Lower Mississippi Valley Joint Venture and the Black Bear Conservation Coalition). Without an aquatic perspective, the integrated vision for a sustainable landscape in the Mississippi Alluvial Valley would be incomplete.

Score one for the LCC!

Likewise, the Working Group benefits by tapping into the technical modeling capacity, geospatial technologies and datasets the LCC can access, and raising the visibility of Alligator Gar habitat uncertainties to attract external funding. Score three for the Working Group! These type of 'win-win' situations are exactly the kind of opportunities the GCPO LCC is capitalizing on to pave the way for a conservation "blueprint" that all partners across the region can embrace.

### **Defining What System Sustainability Means**

A second key point is the recognition of the assets brought to bear by the Partnership in this project. While the LCC Conservation Science staff invested the time and attention of its Science Coordinator to this effort (largely in the roles of modeler and facilitator), the LCC itself is much larger than just the staff. Indeed, partners from both the Fisheries and National Wildlife Refuge System programs within the US Fish and Wildlife Service, state agency personnel, and the Army Corps of Engineers contributed their staffs' time and attention to this work as well. When funds were needed to address the uncertainties in the model, the group looked not just to the LCC as a cash cow to be milked for research dollars but to all available sources. Dollars and capacity to get the project done eventually materialized from the Refuge Inventory & Monitoring Program, USGS, and the Southeast Aquatic Resources Partnership (SARP) – also partners within the LCC.

As you read the following article, keep in mind these roles and relationships, but don't get the wrong impression. We are not advocating looking to the LCC for every ecological modeling need we have as a conservation community. Nor are we hoping folks will turn to the LCC to find the funds to address every research need. What we hope is that folks will look to the LCC for help defining – through partnerships on specific projects – what system sustainability means from multiple resource perspectives and how these perspectives come together. With a broad base of support, we can collectively leverage the technical, financial, and personnel resources to tackle any problem – from identifying priority areas for alligator gar restoration to figuring out how best to address climate change and other large-scale stressors like urbanization.

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## The Tidal Exchange

News from partners and partnerships within the Gulf Coastal Plains & Ozarks region



### A Great LCC Fish Partnership

**Fish Biologists Work with GCPO LCC Staff to Identify Alligator Gar Priority Areas**

“The Alligator Gar is a toothy, slimy, scaly fish, and I think they’re the coolest thing in the water!” says Dr. Allyse Ferrara, gar biologist at Nicholls State University in Louisiana. Ricky Campbell, fisheries biologist at Private John Allen National Fish Hatchery in Mississippi, says, “The gar is a real docile animal, more docile than its appearance.” Recently ranked by the public as one of the 150 ugliest animals on the planet, the Alligator Gar has long been misunderstood. . .

### From Trash Fish to Apex Predator

Historic records show Alligator Gar - which can live 30 to 50 years - grow to 10 feet. A large gar weighs in at over 200 pounds, has fierce teeth, and scales of bony armor. Long a victim of “whack and stack” predator eradication programs, the Alligator Gar was said to eat up to twice its weight each day and to dine solely on prized game fish such as Largemouth Bass. “Growing up as a child, I would snap the snouts off of any gar I caught and throw them back in,” says Lee Holt, fisheries biologist with the Arkansas Game & Fish

Commission. “We always thought gar were not good for anything and did not know any different.”

Radio telemetry and food preference research conducted by the [Alligator Gar Technical Committee](#) over the past decade has helped correct this mistaken view of the gar and begun to shed light on the vital role that Alligator Gar play in the ecosystem. According to Holt, “Only one species is big enough to potentially help us control the invasive Silver and Bighead Carp: the Alligator Gar.” The gar even seems to prefer schooling fish like the carp. Ferrara explains, “Carp and tilapia populations are highly fecund and have gone crazy. Carp tear up spawning beds of other fishes, compete for food, and can tear up commercial fishing gear. We need large predators to consume them.”

### **A Perfect Focal Species for the Lower Mississippi River**

Alligator Gar in many ways are a perfect focal or indicator species for the Lower Mississippi River ecosystem. One of the largest freshwater fishes in U.S. waters, alligator gar are dependent upon unobstructed tributaries, and active shallow water floodplains to spawn from April through June. As a result Alligator Gar are declining throughout much of their former range, and are considered extirpated or extremely rare in six of the 14 states they once inhabited.

Though much is unknown about the species, its decline is likely linked to the familiar list of ills affecting the Lower Mississippi: fragmentation of river-floodplain corridors, impoundments, channelization, wetland loss, and urbanization. Yet this close linkage to seminal issues within the Gulf Coastal Plains and Ozarks geography also offers fertile ground for intense collaboration.

### **Special Nets, Spawning, Staging and Floods**

The Technical Committee, working through the Southern Division of the American Fisheries Society, is considering ideas and techniques to better manage the Alligator Gar. A definitive plan, however, requires far more detailed information about the gar itself and what lies hidden beneath the murky surface of the region’s rivers. In other words, what kind of habitat does the Alligator Gar prefer?

To answer that question requires catching some spawning gar, and everyone agrees that Ricky Campbell is the go-to guy for doing just that. The specialized gill net used to catch the big fish even bears his name, from the time he spent working with [Miller Net Company](#) to create a no-bycatch net strong enough to hold a thrashing gar.

“We have a large self-sustaining population on [St. Catherine Creek National Wildlife Refuge](#) in Natchez, Mississippi,” says Campbell. “For two years Glenn Constant and other fishery biologists with the USFWS Baton Rouge Fish and Wildlife Conservation Office have been getting telemetry data from fish with transmitters, and we’ve seen where they go and how they interact with the rising river during flood events. We’ve found that they like coming back to St. Catherine Creek. They stage in one part of the refuge and

move to another part and hold there. One area, the 'Blue Hole,' is no more than three to four acres but real deep. They go into that hole and stage before spawning."

### **Leveraging Technology to See the World through a Fish's Eye**

The Alligator Gar Technical Committee is an enthusiastic partner of the Gulf Coastal Plains and Ozarks LCC. Holt says, "The LCC can help us better study and design conservation for the Alligator Gar." Initially, the research team worked with John Tirpak, the LCC Science Coordination, to develop an alligator gar habitat model, and they realized some pieces were missing: the depth and duration of the waters that attract gar as well as their temperature during spring spawning. Spawning habitats appear to be most limiting to the gar. They then succeeded in obtaining a grant from the FWS Refuge Inventory & Monitoring program to do an analysis of Landsat imagery and LiDAR data (LiDAR, or Light Detection And Ranging, is a remote sensing technology that uses laser light to produce extremely fine-scaled and high resolution depictions of elevation and bathymetry). The Southeast Aquatic Resources Partnership stepped up to fund the in-situ data loggers that have been placed around the refuge to collect temperature information in-stream as well as in areas that are expected to flood.

Glenn Constant is the fisheries biologist at the US Fish and Wildlife Service office in Baton Rouge leading this project. He explains that to "see under the water," they need all three forms of data: LiDAR, Landsat satellite imagery, and water quality information from instream data loggers. "Satellite imagery can tell you a lot about habitats on land," explains Constant. "But for fish like the gar that depend on shallow floodplain habitats, a few inches of depth here and there can make a big difference. Unfortunately, we can't get that from satellite imagery, but we can get it from LiDAR. When we link those two types of data with measurements of temperature and turbidity, we can start to get a real feel for what habitats the alligator gar prefers."

The good thing about the LCC," exclaims Campbell, "is all these projects can be bundled together and put into a super huge database of information that informs everyone." Working through the GCPO LCC's Alligator Gar Working Group, state and federal biologists have come together to develop a spatial model for all Alligator Gar habitat on St. Catherine Creek National Wildlife Refuge.

### **The GCPO LCC Role: Modeling and More**

"The LCC is helping us to develop an updated map of where the fish are now, and just as important, where the best areas for reintroduction are located," says Holt. "The St. Catherine Creek spatial model will help us to identify other areas suitable for restoration work throughout the floodplain, since the LCC Science Coordinator, John Tirpak - working with the Army Corps and other partners - also has bathymetry data in addition to LiDAR," says Holt. "In effect, we'll be looking underwater at the entire basin, viewing the habitat with a fish's eye."

In addition, St. Catherine Creek manages moist soil units for waterfowl, and these are the

same areas that often flood. When alligator gar lay their eggs, they hatch within 72 hours. The hope is that this study will show managers how to benefit both waterfowl and gar by maintaining the appropriate duration and levels of water on the refuge.

“The Technical Committee serves as a platform for our constituents, and by sharing data we can piggyback on the mapping and GIS resources and modeling expertise of the LCC, including a study with the Army Corps of Engineers that is assessing the effects of dike notching along the lower Mississippi River too.” In the past, perpendicular dikes were built into the river to promote scouring that would maintain the depth of the mainstem channel. However, these dikes can also slow down water flowing into the river, filling secondary channels. Notching dikes helps recreate secondary channels that have been lost from these past engineering approaches. These secondary channels are used by gar as well as other high priority species like pallid sturgeon, fat pocketbook mussels, and least terns (look for a story on this project in a future newsletter).

“Our conservation vision is to partner with the LCC to create an Alligator Gar aquatic species model, akin to similar models produced to guide reforestation for migratory birds and the Louisiana Black Bear corridor. Our researchers and partners have a big mosaic of different pieces of the puzzle that we need to start putting together, and the LCC is helping to guide us. The LCC is one of the attachment points for all this other information and a means of injecting it into what others are doing.”

### **A Fighting Chance**

While some states are trying to bring back Alligator Gar, and others are motivated to protect the small populations they still have, both Louisiana and Texas still harbor sizable gar populations. The Texas Parks and Wildlife Department’s goal is to “study and manage Texas Alligator Gar populations to sustain excellent fishing opportunities for this species for present and future generations to enjoy.”

A record-breaking 327-lb gar harvested in Lake Chotard, Mississippi in early 2011 is evidence that large gar are still swimming in many Lower Mississippi waters. Improvements in habitat and restoration of populations offer anglers hope that they can continue to challenge that record. But the greater hope is that this huge fish will continue to put up a great fight, not only for the sport fisherman, but for the survival of its kind and the South’s iconic bottomlands - so crucial for gar reproduction.

### **Sources, in addition to interviews**

David L. Buckmeier. 2008. [“Life History and Status of Alligator Gar \*Atractosteus spatula\*, with Recommendations for Management.”](#) Heart of the Hills Fisheries Science Center, Texas Parks and Wildlife Department, Inland Fisheries Division. Accessed 9/23/2011.

Texas Parks and Wildlife Department. Aug. 11, 2011. [News Release: Alligator Gar Research in Texas Helps Protect Trophy Fishery.](#) Accessed 9/25/2011.

## One Minute for the Monkey

A very brief survey monkey poll, to help us be scientific about communication!

### How is the GCPO doing?

Click here to answer this less-than-one-minute survey:

<https://www.surveymonkey.com/s/RT6N29W>

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## Getting to Know Your LCC Staff

Dr. Mike Osland and Mary Ellison at the National Wetland Research Center

**1. The LCC is a concept that is so big, with the lofty goals of conducting science-based landscape conservation planning to increase the effectiveness of the many different partner organizations involved. Can you tell us what you currently see as the role of the LCC partners in this cooperative effort?**

**Mike:** Each LCC partner brings a unique capacity and conservation perspective to the cooperative. The role of the partners, as I see it, is to (1) identify and articulate shared landscape-level conservation priorities; and (2) leverage the cooperative's capacity to address these shared priorities.

**Mary:** The primary role of the partners, as I see it, is to act as communicators. The LCC partners include a diverse group of people with interdisciplinary backgrounds, and communication between the partners about the various ongoing projects is crucial for the LCC to be a functioning concept.

**2. How about your role as part of the LCC staff?**

**Mike:** I see my role as helping to provide science-based tools and information needed for conservation planning.

**Mary:** I am a Student Services Contractor at the USGS National Wetlands Research Center and my main role is to assist with research pertinent to the LCC. Lately, I have been downloading and processing daily and monthly downscaled future climate data for use in distribution models for coastal wetlands. In the future, I will be assisting with the

analysis of bathymetric data for a project assessing the impact of dike notches upon aquatic habitat in the Mississippi River.

### **3. Please tell us why you personally believe in this concept of Landscape Conservation Cooperatives?**

**Mike:** I believe in the value of collective landscape-scale conservation planning. The LCCs provide a mechanism for getting diverse partners together to address conservation issues at a regional level (a scale that is often larger than the scope of each individual partner organization). Also, I value the LCCs focus on future change- it's important that we plan for and effectively communicate the conservation implications of future change (e.g., land cover change, climate change).

**Mary:** The LCCs are a great opportunity to blend together a variety of disciplines and influence planning and restoration efforts. In the future, changing climate will continue to have an interdisciplinary effect, and I believe the LCCs are perfectly designed to mitigate those effects with an interdisciplinary response.

### **4. Finally, after your country, your family, and your life's purpose, tell us the three most important things in your life!**

**Mike:** With a baby and a 3-year-old, I have to mention my two sons here. I also enjoy various kinds of outdoor recreation (running, soccer, hiking, gardening, surfing, swimming).

**Mary:** Music, cooking, and - so I can enjoy my cooking without guilt - running, cycling, hiking, and general exercise.

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## **The Census**

### **A little box of statistics about the GCPO LCC**

#### **The GCPO LCC from underwater!**

- Number of states that participate in SARP, the Southeast Aquatic Resources Partnership: 14
- Number of states within the GCPO boundaries that are included in SARP: 11 out of 12 (Illinois not included)
- Number of GCPO states that either already have or are in the process of developing Aquatic Nuisance Species plans: all 12
- Number of native bass species with critical conservation needs that SARP is addressing through the Southeast Native Black Bass Initiative: 3 (Guadalupe, redeye and shoal bass)

- Number of Black Bass Initiative species whose ranges are in the GCPO: 2 (redundant and shoal bass)
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