The Shellcracker

FLORIDA CHAPTER OF THE AMERICAN FISHERIES SOCIETY

https://units.fisheries.org/fl/

April 2020

President's Message:

Ahoy there,

Here we are in uncharted waters. Isolating but not isolated. Too much coffee. Too much snacking. Too much distance. Frustrated that the needed physical hands on work is not available to engage the mind and body. Tired of sorting through old email that's been piling up for years. Tired of polishing that presentation that may not happen for some time. Tired of updating and rewriting procedures. Lots of blah.

Staring at screens of images, letters, and numbers that don't quite make sense given the circumstances and lack of a reference point or experience. When the computer gets bland, out comes the old school pad to write down and organize thoughts, obligations, and seemingly important but possibly trivial matters or data.

But wait, while these are trying times, we are most fortunate. Your officemates, lab partners, field buddies, associates, and lunchmates are very near. The old phone call may still work for many. Others prefer the new digital technology of text, email, facetime, skype, and many more ways to get in touch without any danger or even approaching new social distancing standards.

During this home office period, I like to break up time on the keyboard with different means of communication for those I'm currently working with on different projects. Learning a new habit of walking around while on the phone may help this otherwise sedentary lifestyle. Also, taking time to regroup and touch base with old friends that you haven't seen since the last bonfire social.

Now is the time. Remembering those projects and ideas that got put on the back burner. This may be the opportunity for what didn't have time for or wasn't a priority. Maybe dust off that old dataset and take another perspective on the analysis.

This is the place. Before this new workspace gets cluttered like my other one, I'm making the effort to organize and file those many notes physical and digital. Considering taking the laptop out on the porch or back steps.

Unplug. Breaktime is important. Walk away, browse the living space or yard. Also, a good time to touch base with other friends and family not job related.

Tipping Point. Do you have that idea that we really need? The restraining box walls are thinner right now because it's a very different landscape. A new space and time. The future is neither bleak nor gray but it will be different.

I want to look back on this time and not regret just holing up, surviving but drifting. I want to plot a course and take the effort to make it better for those nearby and distant. This is the time to make a difference for the better and looking out for one another.

Outside is blue sky and spring. Fish are spawning.

Looking forward to our next meeting that President-elect Dan Nelson says will be virtual (see inside).

Uncharted waters indeed,
Bob Heagey
Florida Chapter President

Getting in Touch

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Upcoming Events

April 23rd, 2020: Florida Chapter AFS session of Virtual AFS spring conference. (information included in this newsletter)

June 3rd, 2020: Florida Chapter AFS: Virtual Business meeting (more information to come)

Interested in contributing something to the Shellcracker? Email: Scott Bisping at *Scott.Bisping@myfwc.com* with any articles or information that you would like to be included in the next issue. The deadline for the next issue is June 15th, 2020, so start fishing...

Feature Article

Development of a Long-Term Aquatic Habitat Monitoring Protocol for Florida Lakes

By Kevin Johnson

With the Freshwater Fisheries Long-Term Monitoring (LTM) Program of the Florida Fish and Wildlife Conservation Commission (FWC) in place since 2006. LTM biologists identified the need for lake-wide and species-specific estimates of percent area covered (PAC) and percent volume infested (PVI) with submersed and emergent aquatic vegetation in LTM Program core and non-core lentic water bodies that are monitored for their sport fisheries and fish communities. For a mapping survey, percent area covered (or PAC) refers to the overall surface area that has vegetation growing, while percent volume infested [or PVI (or biovolume)] refers to the average percentage of the water column occupied by vegetation regardless of whether vegetation exists. These types of data and metrics may provide valuable information for identifying possible mechanisms behind observed changes in fisheries or fish communities. Correlating changes in whole-lake habitat data, primarily aquatic macrophytes, to changes in freshwater fisheries data has been successfully published in numerous manuscripts originating from Florida. Collection of these habitat data could also help to focus future research and/or management actions. Therefore, the objectives of this project were: (1) to use established protocols to determine submersed aquatic vegetation and point-intercept vegetation metrics for LTM Program lakes and lakes important to management partners, and (2) to develop a lake-wide habitat sampling protocol that will provide reliable estimates of PAC with emergent aquatic vegetation on these same lakes.

Mapping of submersed vegetation was accomplished using hydro-acoustic sensing. A boat equipped with a Lowrance High Definition Sonar unit, using sonar setting recommended by the BioBase company (Navico 2019a, 2019b), traversed evenly spaced parallel transects that ran perpendicular to the longest shoreline of the lake at a speed of approximately 6 miles per hour. Evenly spaced mapping transect lines (and point-intercepts) were created in ArcGIS and then loaded onto a Lowrance unit, with the spacing of transects as a product of the point-intercept sampling intensity at a particular lake. Acoustic sonar signal data were automatically transferred from the Lowrance unit to a SD card while traversing transects. The acoustic sonar signals recorded on the SD card were then uploaded to a website operated by the BioBase company. BioBase is a leading service provider for the automated processing, mapping, and storing of spatial aquatic data, including hydro-acoustic data. BioBase's website utilizes automated acoustic sonar signal processing software, along with a series of algorithms to provide estimates and maps of PAC and PVI at the whole-lake level on their vegetation mapping website (Valley et al. 2015, Figure 1).

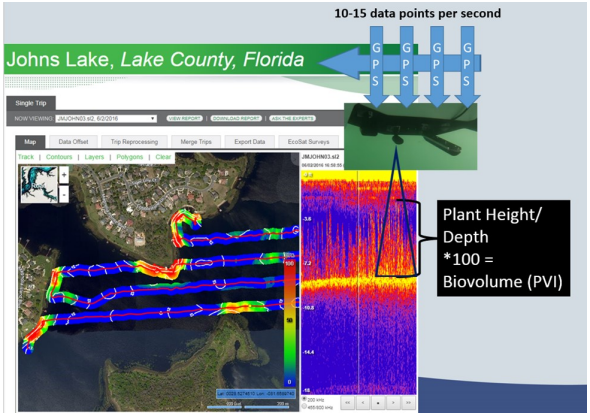


Figure 1. Visual example of how BioBase's algorithms calculated submersed vegetation PVI (percent volume infested or Biovolume) along a sonar recording, utilizing GPS (Global Positioning System) and the 200 kHz down-looking broadband sonar imagery.

Feature Article

Because it would be logistically impossible to run transects that completely cover the entirety of each lake, BioBase's algorithm has a merging function. This merging function allows an account user to perform a merge that interpolates and extrapolates vegetation data onto the unsampled areas between transects. This merging function allows for the creation of whole-lake estimates and maps of submersed vegetation PAC and PVI for all lakes mapped (Figure 2).

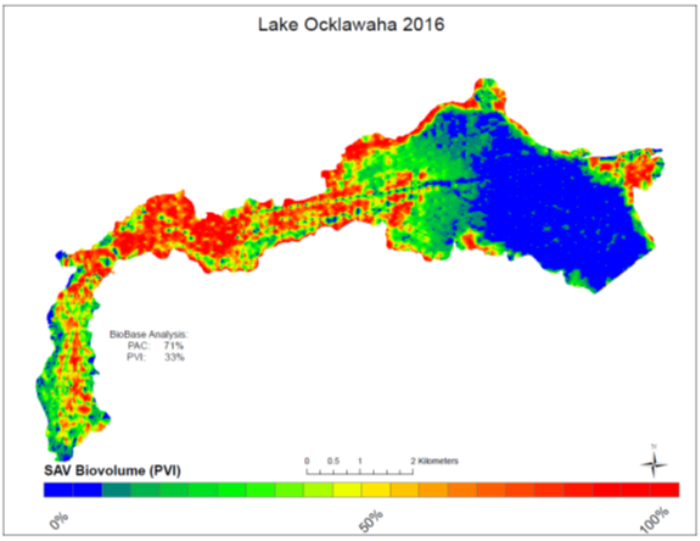


Figure 2. Map created from the whole-lake merged Lake Ocklawaha (Rodman Reservoir) 2016 submersed vegetation mappings displaying how submersed vegetation coverage [percent area covered (PAC)] can change from year to year. The Biovolume scale on the maps ranges from 0 [blue (no vegetation)] to 100% [red (vegetation occupying 100% to nearly 100% of the water column)].

We also incorporated point-intercept sampling along mapping transects to collect data on vegetation species richness, frequency of occurrence, and density. The point-intercept sampling method involved sampling aquatic vegetation presence or absence along a grid of evenly spaced sampling points using a vegetation rake (Madsen 1999). We documented the presence or absence, density, and type (submersed, emergent, or floating) of each vegetation species at each point. At each point, we also documented all vegetation types present visually within a 10-foot (3-meter) radius (Figure 3). Guidelines for point-intercept sampling intensity were developed by researchers at the University of Florida Center for Aquatic and Invasive Plants by intensively mapping lakes with varying sizes and submersed vegetation coverages to determine the relationship between transect/point-intercept spacing and resolution of the mapping data.

Submersed vegetation mapping started in 2015 and occurs between mid-May and early-November every year. Mapping efforts primarily focused on lakes that contained established submersed vegetation communities, with the objective of mapping during the summer to early fall months to provide a snapshot of PAC and PVI estimates collected during the vegetation growing season. Whole-lake submersed vegetation PAC and PVI data used by BioBase to create their maps can be downloaded from their website which allows for the recreation of these maps in ArcGIS. BioBase vegetation maps from the LTM core lakes and their corresponding point-intercept species data, were converted into ArcGIS maps and then into PDF formatted lake maps.

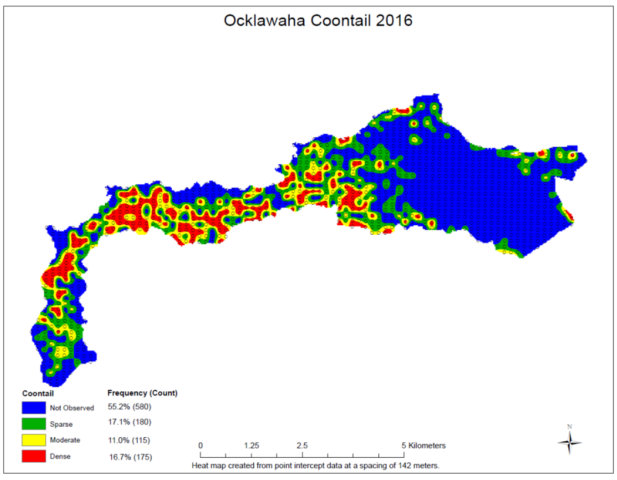


Figure 3. Maps created from the Lake Ocklawaha (Rodman Reservoir) 2016 point-intercept sampling displaying the locations where submersed vegetation species Coontail Ceratophyllum demersum was observed [indicated by a point-intercept location (circle) colored green, yellow, or red], how dense the Coontail was on the rake or visually at these locations, and the accompanying frequency of occurrence estimates.

Between mid-May and early-November 2015–2019 we mapped submersed vegetation and/or collected point-intercept data on 103 lakes statewide, 23 of which were core LTM lakes Fifteen core LTM lakes and 9 non-core LTM lakes that have been mapped all five years. The 103 lakes we mapped ranged in size from 3 to 18,623 hectares (8 to 46,018 acres). The PAC for the 103 lakes ranged between 0 and 100%. The PVI for the 103 lakes ranged between 0 and 78%.

We have been consulting with experts at the BioBase and Eomap (https://www.eomap.com) companies to develop timely and accurate methods for mapping emergent vegetation in lakes. Using GIS technologies, Eomap is a leading service provider of remote sensing and satellite derived aquatic information, including aquatic habitats. Therefore, in March 2016 we contracted with BioBase and Eomap companies to develop semi-automated methods in GIS software to map emergent vegetation using high resolution multispectral satellite imagery. The semi-automated methods focused on developing algorithms in GIS software that pick out and map the coverage of different vegetation species based on FWC field collected reference points and their respective spectral signatures in the satellite imagery of the vegetation at these points.

These developed methods were first tested on satellite imagery with 2-meter pixel size collected in April 2016 for Lake Tohopekaliga and East Lake Tohopekaliga and in July 2016 for Lake Tohopekaliga. Assessment points of the dominant vegetation species found in these two lakes were provided to BioBase and Eomap by FWC staff in order to "train" their algorithms. We then used additional assessment points to assess the accuracy of the vegetation classifications for these three maps, with the goal of achieving an 80% or greater overall vegetation classification accuracy. The overall accuracy for these maps ranged between 70 – 80%, which was at or near our goal, therefore we felt these methods for mapping emergent vegetation were promising. These methods were then tested on high resolution satellite imagery (2-meter pixel size) collected in the month of June for Lake Istokpoga (2017–2019), Lake Okeechobee north-west marsh (2017–2019), East Lake Tohopekaliga (2017 and 2018), Orange Lake (2018 and 2019), Lake Kissimmee (2018), Lochloosa Lake (2019), Lake Tohopekaliga (2019), Cypress Lake (2019), and Lake Hatchineha (2019).

As an example, a zoomed-in portion of the 2018 Lake Istokpoga emergent vegetation map is displayed in Figure 4. The overall accuracies for all the emergent vegetation maps for 2017, 2018, and 2019 ranged between 48 – 88%, however, most of the maps were at or near our goal of 80% or greater vegetation classification accuracy. About two-thirds of the assessment points for each class for each lake were used in the algorithm process, while the remaining one-third were used for the accuracy assessments, which in many cases did not leave many points left for the accuracy assessments, therefore some accuracy assessments were not considered to be very robust. Other factors that impacted our results were image quality/cloud cover issues, spectral similarity between vegetation classes, number of vegetation classes used in each lake's mapping, and quality (spectral contamination) of assessments points. To address these issues into the future we are considering changing the month of imagery acquisition, possibly combine vegetation classes with similar habitat functions and spectral similarities, and improve on the number and quality of assessment points for each vegetation class.

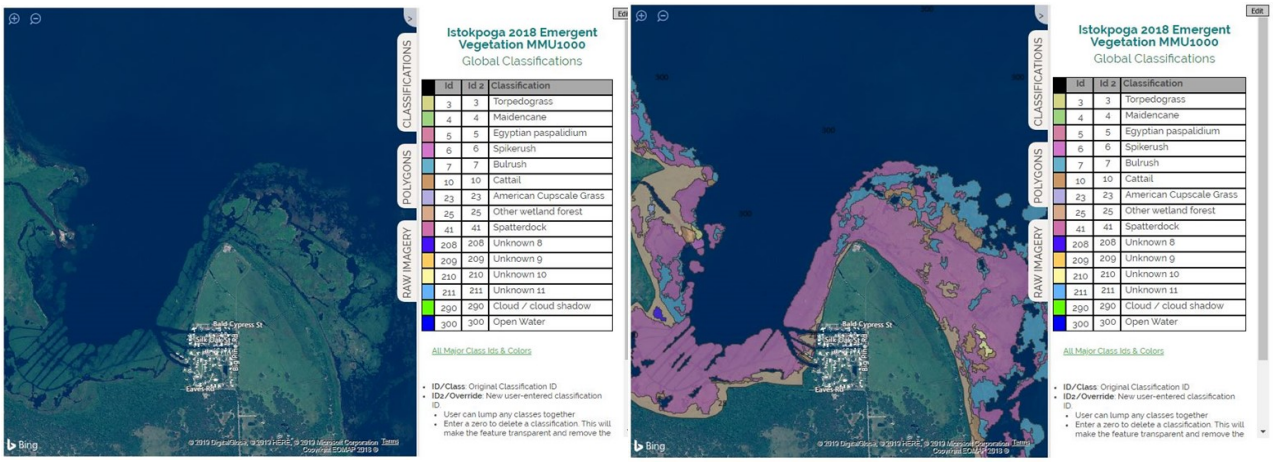


Figure 4. Zoomed-in portion of the map of emergent aquatic vegetation coverage from Lake Istokpoga, produced by BioBase and Eomap companies using high resolution (2-meter pixels) multispectral satellite imagery collected in June 2018, with a minimum mapping unit polygon size of 1,000 m^2 (0.25 acres).

Feature Article

References

Madsen, J. D. 1999. Point Intercept and Line Intercept Methods for Aquatic Plant Management. U.S. Army Engineer Research and Development Center APCRP Technical Note MI-02, Vicksburg, MS. pp 1–16.

Navico. 2019a. BioBase EcoSound user (operator's) reference guide and manual. Created by Navico, Inc. Minneapolis, Minnesota. https://www.biobasemaps.com

Navico. 2019b. BioBase EcoSound quick start reference and guide – standard operating procedure for Lowrance HDS and Elite Ti. Created by Navico, Inc., Minneapolis, Minnesota. https://www.biobasemaps.com

Valley, R. D., M. B. Johnson, D. L. Dustin, K. D. Jones, M. R. Lauenstein, and J. Nawrocki. 2015. Combining hydroacoustic and point-intercept survey methods to assess aquatic plant species abundance patterns and community dominance. Journal of Aquatic Plant Management 53:121-129.

American Fisheries Society
Florida Chapter

Virtual Business Meeting
Date: Wednesday, June 3rd
Time: TBD

Unfortunately, due to the COVID-19 pandemic, we canceled the 2020 annual meeting. However, we will hold a virtual business meeting on **Wednesday, June 3rd** to go over and vote on important chapter matters. All Florida Chapter AFS members should attend to keep informed and vote. This will be an online virtual meeting format and you will be able to attend at your home or office. The platform and link is yet to be determined. The chapter officers are working hard on the logistics of this meeting and will continue to update the chapter as information becomes available. Below you will find a draft agenda.

Starting June 3rd, we will hold a online silent auction with proceeds benefiting student travel grants. The continuing education workshop, originally to be held at the annual meeting, will be postponed until Summer 2020. We will update the chapter as more information becomes available.

Draft Agenda (04.20.2020)

1) Roll call: current officers, past presidents, and committee chairs
2) Approval of agenda for this virtual business meeting
3) Update on AFS and SD AFS business
4) Motion to approve minutes of 39th Annual Meeting (2019) as they appeared in the April 2019 Shellcracker
5) 2019 Treasurers Report
6) Committee Reports
    a. Membership
    b. Newsletter
    c. Website
    d. Raffle and Silent Auction
    e. Student Scholarships and Awards
    f. Student Subunit Report
        i. Sheepshead Shuffle announcement/reminder

7) Old Business
    a. Info from 2019 aquatic clean ups
    b. AFS 2017 Funds Ad Hoc Committee Announcement
    c. Donations to FFS and FYCCN
    d. Virtual AFS sponsorship – Hutton Jr Fish Bio Program $1500
    e. Best student paper winner

8) New Business
    a. Marketing and Membership Ad Hoc Committee
        i. Survey results
    b. Continuing Education Ad Hoc Committee
        i. Workshop plans TBD, likely in July
    c. 2021 FL Chapter Meeting

2020 Student Silent Auction

We would like to thank the people and businesses below who support FLAFS students and fisheries research through donations to our raffle and silent auction. Now more than ever, it is important to thank and support the business that support us. We also have a huge thank you for our volunteers who help us solicit donations: Kathy Guindon, Allison Durland Donahou, and Geoff Smith. We couldn't do it without them!

As with so many things, this year we're moving our silent auction online. It will feature getaway packages to some fantastic Florida destinations including St. Augustine and the Kennedy Space Center, art, and more. The auction will begin after our virtual business meeting on June 3rd and remain open for two weeks.

Thank you!
Amanda Croteau & Chelsey Crandall

Location	Donor
Alachua, FL	Scuba Monkey
Brandon, FL	The Aquarium & Fish Store
Coral Gables, FL	Bonefish & Tarpon Trust
Crystal River, FL	Crystal River Kayak Company and Dive
	GTF Rods
	Plantation Inn on Crystal River
	Ed's Tackle Shop
	Willow Creek's Secret Garden
	Bird's Underwater Dive Center
	Explorida Adventure Center
Fort Lauderdale, FL	Guy Harvey Research Institute
Fort Pierce, FL	Harbor Branch Oceanographic Insti-
Gainesville, FL	Gary's Tackle Box
	Aquatropics
	Swamp Head Brewery
	Debra Murie
	Best Western Gateway Grand
	Northwest Grille
	Northwest Seafood
	Wild Birds Unlimited
	43rd St. Deli
	Millhopper Ace Hardware
	Blackadder Brewing Company
High Springs, FL	Outdoor Life for Guys and Girls
	Rum 238
	Canoe Outpost
	Bev's Burger Café
Homosassa, FL	Riversport Kayaks
	Captain Rick Spratt

Location	Donor
Inglis, FL	Captain's Cove Outfitters
	Hook Line & Sinker
Ocala, FL	Miller's Boating Center
Port Canaveral, FL	Kennedy Space Center
	Port Canaveral Exploration Tower
Port Charlotte, FL	Kelly Reark Borza
Ruskin, FL	UF Tropical Aquaculture Lab
St. Augustine, FL	Oldest City Bait and Tackle
	Mangrove Surf Shop
	Island Life
	Courtyard by Marriott
	St. Augustine Paddle Sports
	Genung's Fish Camp
	Sea Hunt Scuba
	Old City Trolley
	St. Augustine Alligator Farm and Zoo
	St. Augustine Marina
St. Petersburg, FL	Canoe Country Outfitters
	Diane Rome Peebles
	Sweetwater Kayaks
Tampa, FL	Barrymore Hotel
	Zoo Tampa at Lowry Park
	Datz Restaurant Group
	Green Lemon
Georgia	Alan Collins
Traverse City, MI	Derek & Janell DeYoung
Earth City, MO	Spectrum Brands (Glofish)
Charleston, SC	Toadfish Outfitters

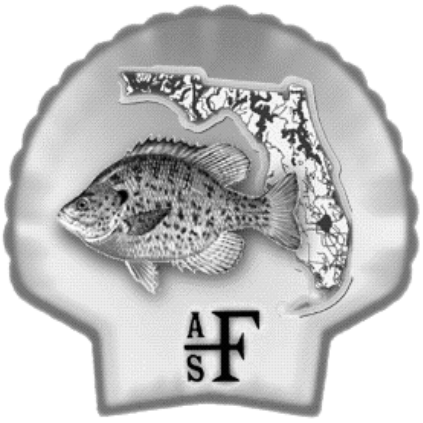
American Fisheries Society

Virtual Spring Conference

Tuesdays and Thursdays from 1pm–4pm
April 16–May 7

COVID-19 has caused enormous disruptions to everyday life. Among the many personal and professional challenges we face, one has been the cancellation of several AFS chapter and division meetings, including the Florida Chapter Annual Meeting. Fisheries scientists, managers, and students have constructed important talks to discuss their work with limited or no venue to disseminate the information. Many professionals and students have shifted their workspaces to home. Thus, an online forum for information exchange between presenters and online attendees will provide AFS members whose meetings have been canceled a virtual platform and audience to present talks. ***This is a distinct and separate event from the AFS Annual Meeting currently planned for August 30-September 3, 2020 in Columbus, Ohio.***

This virtual event (1) provides an opportunity for AFS members who prepared presentations but had their event canceled to share that information with a broad audience, (2) creates a solid science delivery event for AFS members (and others) to continue with the mission of AFS of sharing good science, (3) allows members to remain connected, share thoughts and concerns, and learn from and lean on each other in this challenging time.



The Florida Chapter: Session #3

Date: Thursday, April 23rd

Time: 1:00pm–4:00pm

Location: https://secure.fisheries.org/MemberResponsive/Events/New_Events_Display.aspx

****You must login using an AFS account, free accounts can be created here***

Unit	Online Presentation Date
Alaska Chapter (recordings)	April 16
Contributed Papers	April 21
Florida Chapter	April 23
Western Division/WA-BC	April 28 & 30
Western Division/Cal-Neva	May 5
Poster Session	May 6
Tidewater Chapter	May 7

****Please note, information and details are subject to change, for updated information on the virtual spring conference please visit: https://fisheries.org/events-page/virtual-spring-conference/***

Student Subunit Update

By: Allison Durland Donahou

Updates

Happy Spring! Hope everyone is doing okay during these trying times! If you need anything, don't hesitate to reach out – part of the purpose of this network is to assist with transitions (difficult or easy)! Due to the cancelation of the Chapter meeting (and lack of a Student Subunit meeting) we are extending the terms for the current Executive Committee of the Subunit until next year's Chapter meeting.

We missed you at the meeting this year, but we can still interact! Join us for the 4th Annual Sheepshead Shuffle to support student travel grants to AFS Parent Chapter and Southern Division meetings. We also post blogs year-round, so make sure to check these out at https://flafsstudentsubunit.wordpress.com to see what students were up to this past year. Every student who applied for a travel award submitted a blog and we are excited to share them with our FL AFS community!

Get Involved

Are you a student interested in promoting your research or developing your science communication skills? Become a contributor to our blog Reefs to Rivers (https://flafsstudentsubunit.wordpress.com) or send us pictures and have your research featured on our Instagram (www.Instagram.com/flafsstudent)

Contact us at flafsstudent@gmail.com for information on how you can get involved. Don't forget to follow our blog, Instagram, and Facebook (www.Facebook.com/AmericanFisheriesSocietyFlStudentChapter).

Do you use Amazon? By shopping with our Amazon Smile account, https://smile.amazon.com/ch/52-1208319, Amazon donates to FLAFS. Funds go to support student travel awards. Sign up today!