CAMEO

Citizens Archive for Mobile Bay Estuarine Organisms

Dauphin Island Sea Lab • Alabama •

A new citizen science program at DISL

Tina Miller-Way

Discovery Hall Programs, MS-AL Sea Grant Consortium

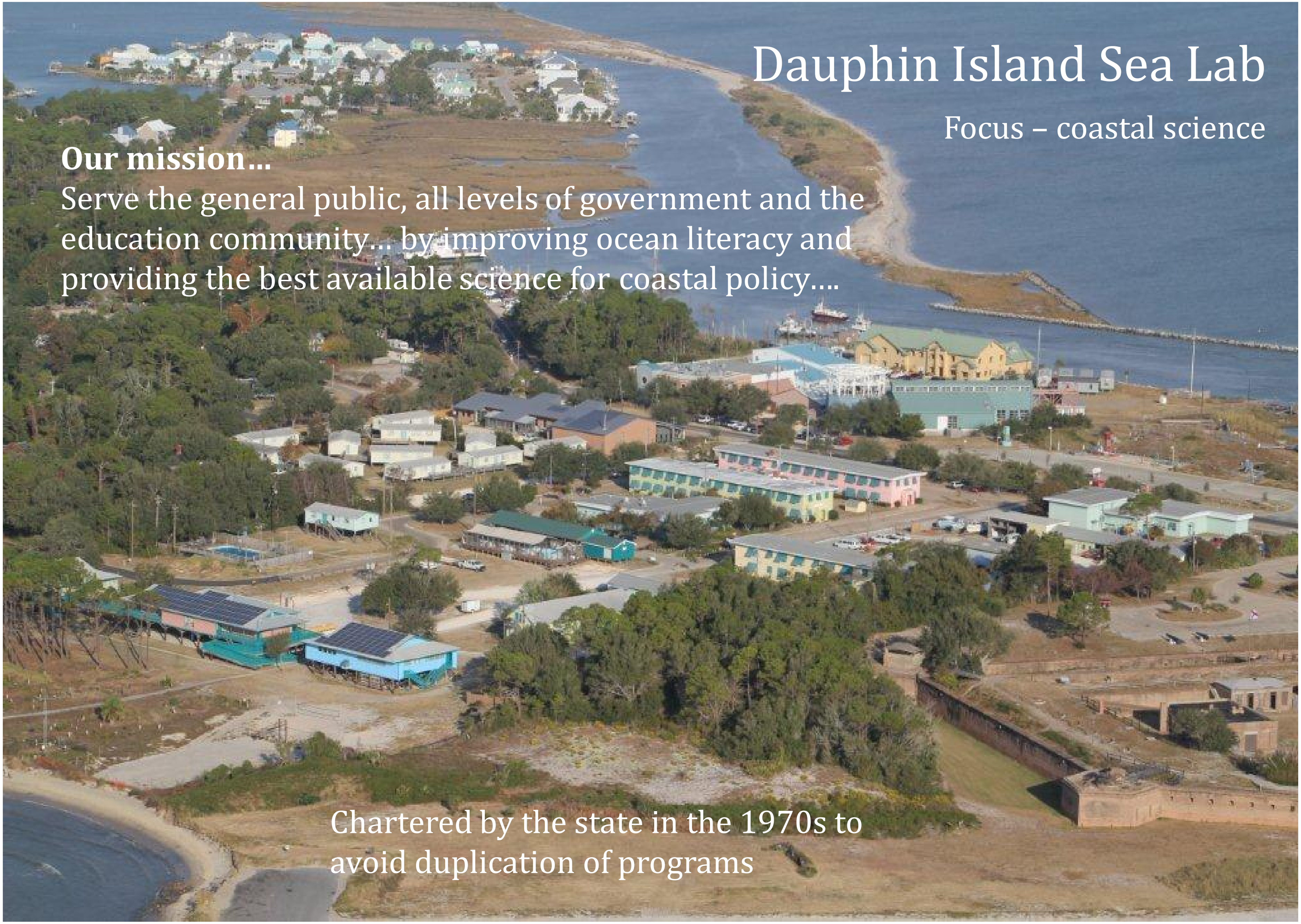
Lauren Still

CAMEO Training Coordinator

cameo@disl.edu

May 2020

State Lands Division, Alabama Great Seal


Dauphin Island Sea Lab
Focus – coastal science
Our mission…
Serve the general public, all levels of government and the education community… by improving ocean literacy and providing the best available science for coastal policy….
Chartered by the state in the 1970s to avoid duplication of programs

Why CAMEO?

- Need for long term data
  - Tropicalization
  - Oil spill impacts
  - Hurricanes
  - Eutrophication
  - *multiple stressors*
- Population dynamics of fisheries reflect these impacts

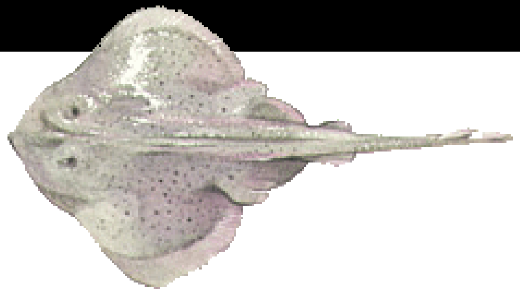
Monitoring programs – difficult to fund

Sampling is $$

Near Extinction of a Large, Widely Distributed Fish

Jill M. Casey and Ransom A. Myers*

Are extinctions of marine vertebrates as rare and unlikely as current data indicate? Long-term research surveys on the continental shelf between the Grand Banks of Newfoundland and southern New England reveal that one of the largest skates in the northwest Atlantic, the barndoor skate (*Raja laevis*), is close to extinction. Forty-five years ago, research surveys on St. Pierre Bank (off southern Newfoundland) recorded barndoor skates in 10% of their tows; in the last 20 years, none has been caught, and this pattern of decline is similar throughout the range of the species.



Casey & Myers. 1998. *Science.*

Tropicalization

Global Change Biology

Global Change Biology (2010) 16, 48–59, doi: 10.1111/j.1365-2486.2009.01889.x

Climate-related, decadal-scale assemblage changes of seagrass-associated fishes in the northern Gulf of Mexico

F. JOEL FODRIE*†, KENNETH L. HECK, JR*†, SEAN P. POWERS*†, WILLIAM M. GRAHAM*† and KELLY L. ROBINSON*†

*Department of Marine Sciences, University of South Alabama, Mobile AL 36688, USA, †Dauphin Island Sea Lab, Dauphin Island, AL 36528, USA

Abstract

o produce a poleward shift in the
s in fish assemblages within seagrass
tween the 1970s and 2006–2007, and
ing 2006–2007 we sampled seagrass
sly employed by R. J. Livingston in
970s. Comparisons between datasets
ing 2006–2007 that were completely
ne snapper), *Epinephelus morio* (red
Mycteroperca sp (grouper, non gag),
a tabacaria (bluespotted cornetfish),
bifasciatum (bluehead wrasse), *Abu-*
surgeonfishes) and *Sparisoma viride*
ge increases in abundance during the
teroperca microlepis (gag grouper,
105 ×), and *Nicholsina usta* (emerald
btropical species that now make up a
ges in the northern GOM than in the
in air and sea surface temperatures
on's samples and ours that correlate
ter fishes. Documenting these range
ences of global warming for endemic
rthern GOM.

phic range shifts, ichthyofauna, seagrass,

Abstract

Global temperatures are rising, and are expected to produce a poleward shift in the distribution of many organisms. We quantified changes in fish assemblages within seagrass meadows of the northern Gulf of Mexico (GOM) between the 1970s and 2006–2007, and observed changes consistent with this forecast. During 2006–2007 we sampled seagrass meadows using the same gears and methods previously employed by R. J. Livingston in coastal waters of northwest Florida throughout the 1970s. Comparisons between datasets revealed numerous additions to the fish fauna during 2006–2007 that were completely absent in the 1970s, including: *Lutjanus synagris* (lane snapper), *Epinephelus morio* (red grouper), *Chaetodon ocellatus* (spotfin butterflyfish), *Mycteroperca* sp (grouper, non gag), *Centropristis philadelphica* (rock sea bass), *Fistularia tabacaria* (bluespotted cornetfish), *Ocyurus chrysurus* (yellowtail snapper), *Thalassoma bifasciatum* (bluehead wrasse), *Abudefduf saxatilis* (sergeant major), Acanthuridae spp. (surgeonfishes) and *Sparisoma viride* (stoplight parrotfish). Several other species showed large increases in abundance during the interval between 1979 and 2006, including *Mycteroperca microlepis* (gag grouper, up $\sim 200\times$), *Lutjanus griseus* (gray snapper, up $\sim 105\times$), and *Nicholsina usta* (emerald parrotfish, up $\sim 22\times$). All of these are tropical or subtropical species that now make up a greater percentage of seagrass-associated fish assemblages in the northern GOM than in the past. Additionally, we observed regional increases in air and sea surface temperatures ($>3\,^{\circ}$C) during the ~ 30 years that separate Livingston's samples and ours that correlate with northern shifts in the distribution of warm-water fishes. Documenting these range shifts is a critical first step in investigating the consequences of global warming for endemic marine communities and fishery production in the northern GOM.

al., 2003); and poleward shifts in the range/
ution of species (Perry *et al.*, 2005). Over the
term, range expansions may increase local biodi-
y as poleward-advancing species outpace pole-
retreating species (Hickling *et al.*, 2006). Over
timescales, however, poleward range expansions
have consequences similar to those now being
ved with nonnative species invasions, modifying
dynamics of competition, predation, herbivory
arasitism (C. Sorte, personal communication).
re is a growing literature documenting cases of
or distribution shifts involving taxa as diverse as
(Perry *et al.*, 2005), planktonic forams (Field *et al.*,
and butterflies (Parmesan *et al.*, 1999). While these

Discovery Hall Programs at DISL

- Teach field based classes to K-12 students
- Classes include a research vessel cruise
- For last 5 yrs - avg 140 boat trips per yr
- If…
  - students do not have time or skills to collect data needed in time allotted
  - Data collection cannot detract from educational purpose of vessel trip (meeting educational standards)
- Need trained citizen scientists on board

We need you ☺!

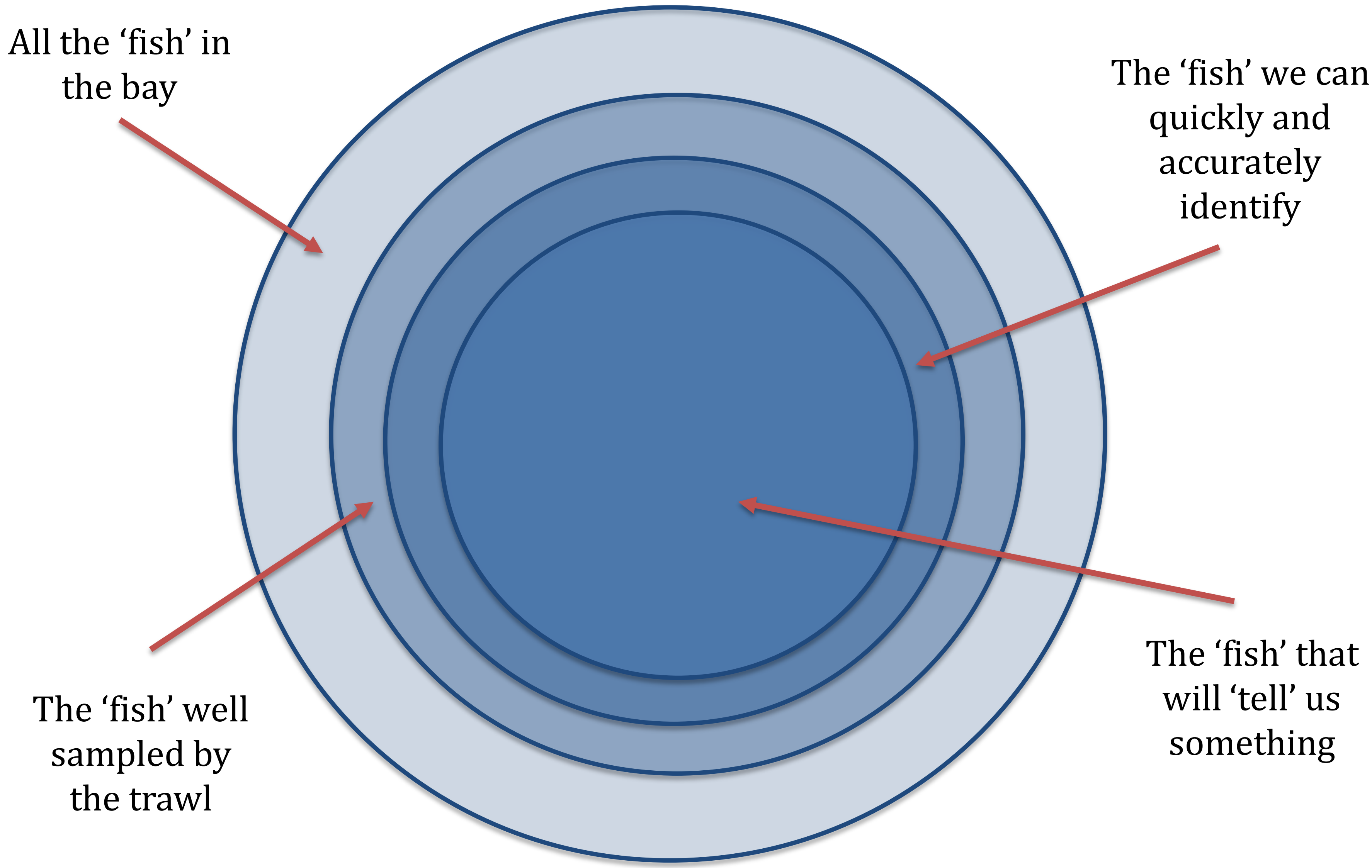
Good news and bad news…

- But not quite yet…, the bad news…
  - Due to COVID, we have suspended the program, not currently conducting boat trips for students
  - Hope to start up again in the fall
- Good news…
  - Plenty of time to consider getting involved
  - Time to sign up for Fall training dates

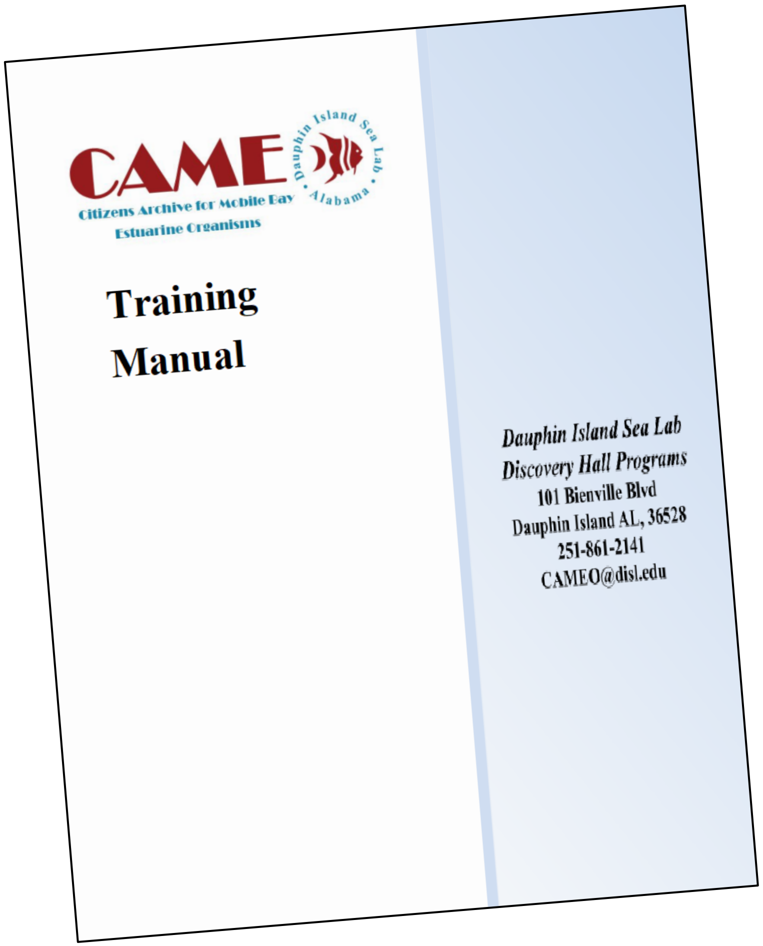
To find out more…

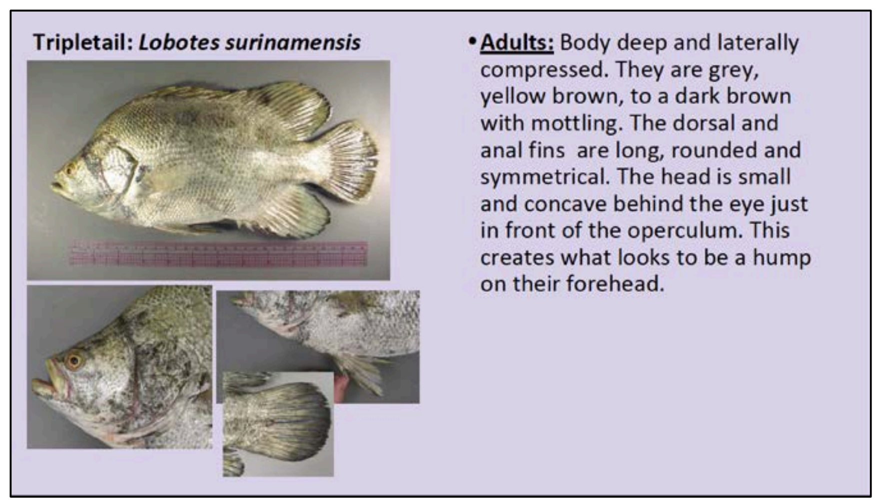
- https://www.disl.org/research/cameo-citizen-science-program
- Criteria
  - on webpage – 1° interest, mobility…
  - Need **not** know the fishes…
- Upcoming training sessions
  - Register thru google form, or email us
    - cameo@disl.edu
  - Does **not** obligate you to participate

What ‘fish’ do we sample?



Training materials…





Thank you for your time…

Email us with any questions.

Keep us in mind for your fall.