Planting Your First Crop

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Seed Advice

- Buy from more than one supplier and at different points in the season
- Know the spawn date
- Check counts right away
- Buy a bit more than you need to allow for loss
- Do not overbuy and get jammed up
- Be willing to discard extra
- Follow the regulations

- See Gef Flimlin's 'How to buy clam seed … without getting shucked'

Nursery Options for Seed

Nursery Stage

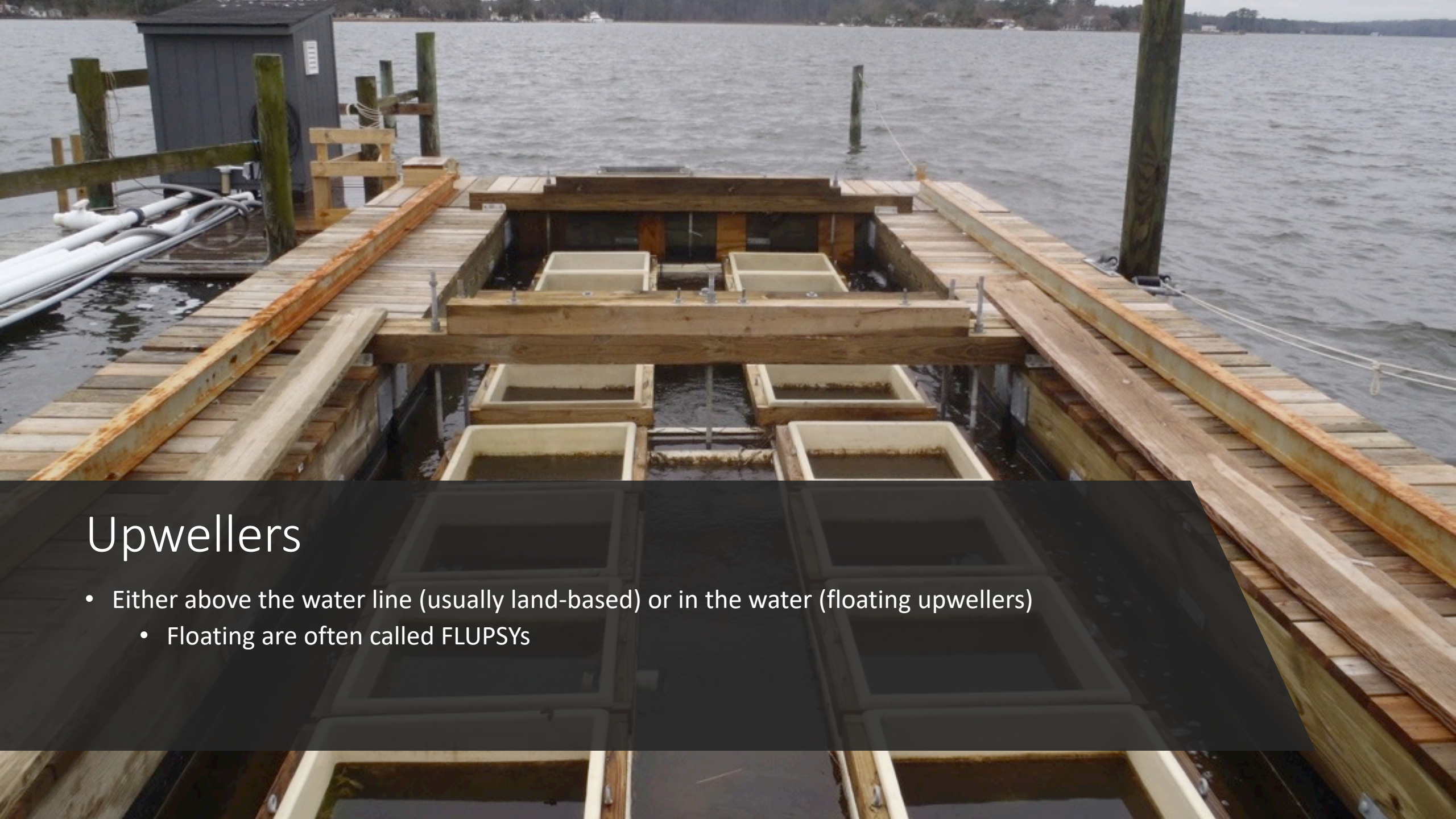
- Can get seed as small as retained on 0.75 mm mesh
- Can raise them at fairly high densities
- Very vulnerable to predators or loss due to sloppy handling
- For sake of discussion, nursery stage ends when seed are retained on 12 mm mesh (R12) and begin grow-out
  - (‘pepper flakes’ to ‘quarters’)

Nursery Options for Oyster Seed

- Upwellers
  - Very high densities of seed
  - Rely on forced high flow of seawater usually by a pump
  - Can get seed as small as 1 mm (retained on 0.75 m)

- Field containers/bags/baskets
  - Lower densities
  - Rely on passive flow of seawater
  - Can get seed as small as R2

OR purchase larger seed from a nursery operation



Upwellers

- Either above the water line (usually land-based) or in the water (floating upwellers)
  - Floating are often called FLUPSYs

Production in Upwellers

- With grading throughout season, can produce ~1 million seed retained on 12 mm mesh (R12)
- Cleaning seed and silos regularly
- Runs on axial flow pump so relatively low electric costs
  - High flow is key
  - Ideally 100 gpm per silo
- Purchased turn key ~$12,000

Upwellers above the water line

- Upweller silos can be built relatively inexpensively
- Still require regular maintenance of seed and silos

Photo by @gilliangrice

Upwellers above the water line

- Upwellers can also be put indoors/shelter
- Can be built out of fiberglass
- Note that silo shape varies

Bottle Nurseries

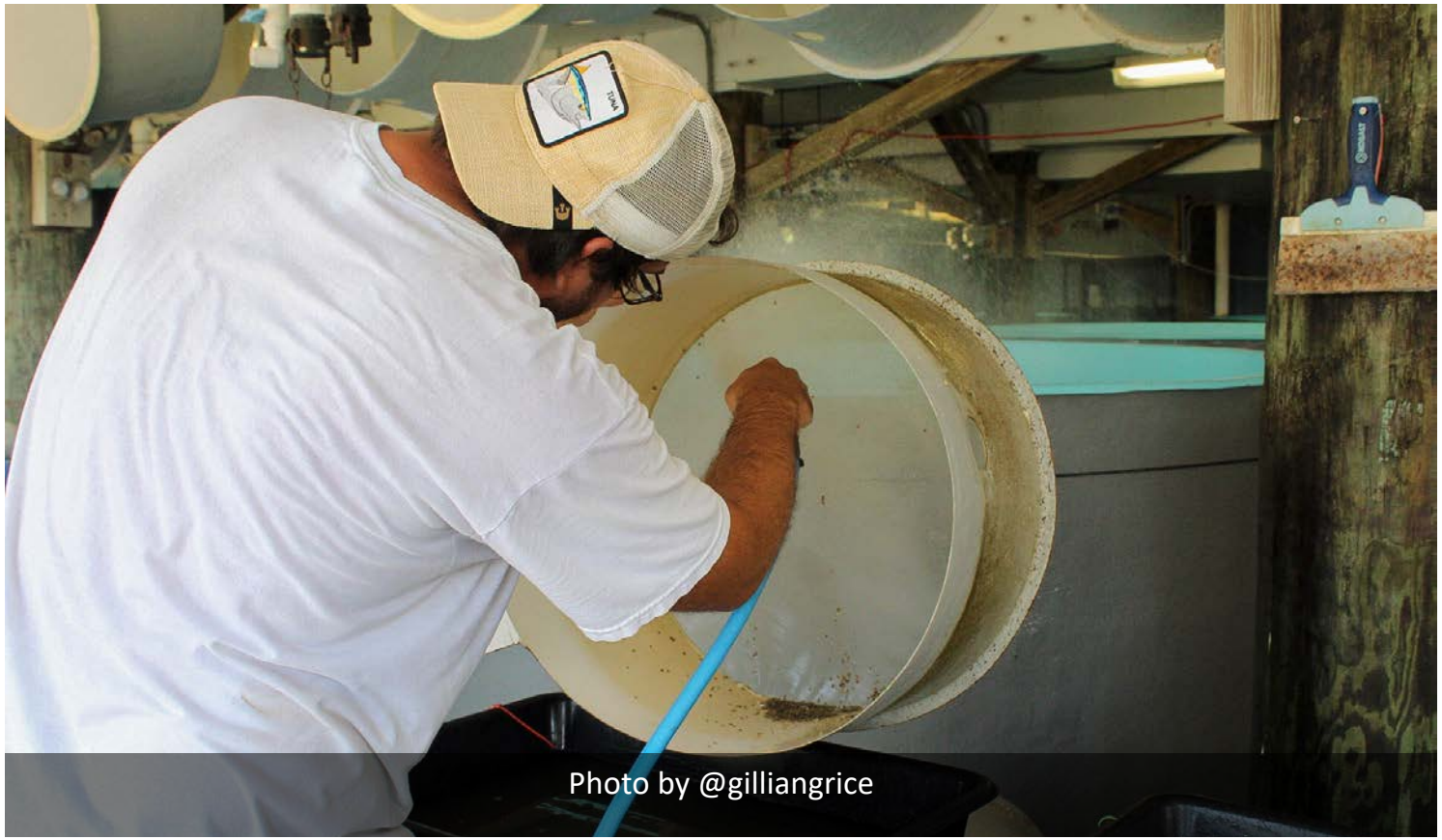


Photo by @gilliangrice

Upweller tending

- All upwellers have water (and food and oxygen) come up and go past the seed
- Require frequent tending since seed are at such high density
- Personally, I washed my silos & seed at least every other day

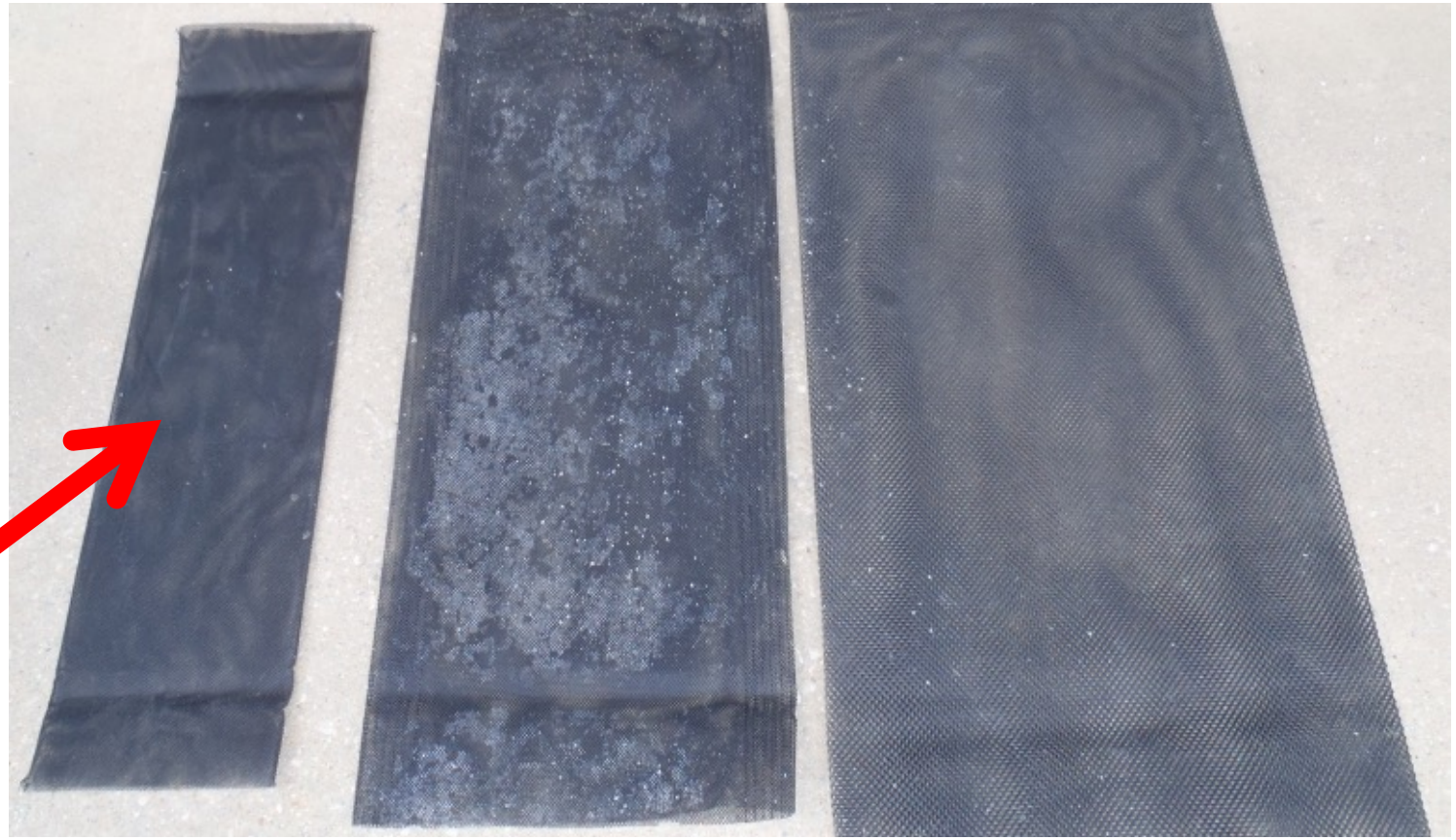
Upweller Videos

- Construction of ‘Supan Power Silos’ - https://www.youtube.com/watch?v=wcd6m6c51Gg
- Paddlewheel floating upweller - https://www.youtube.com/watch?v=z5oDgQG2I74

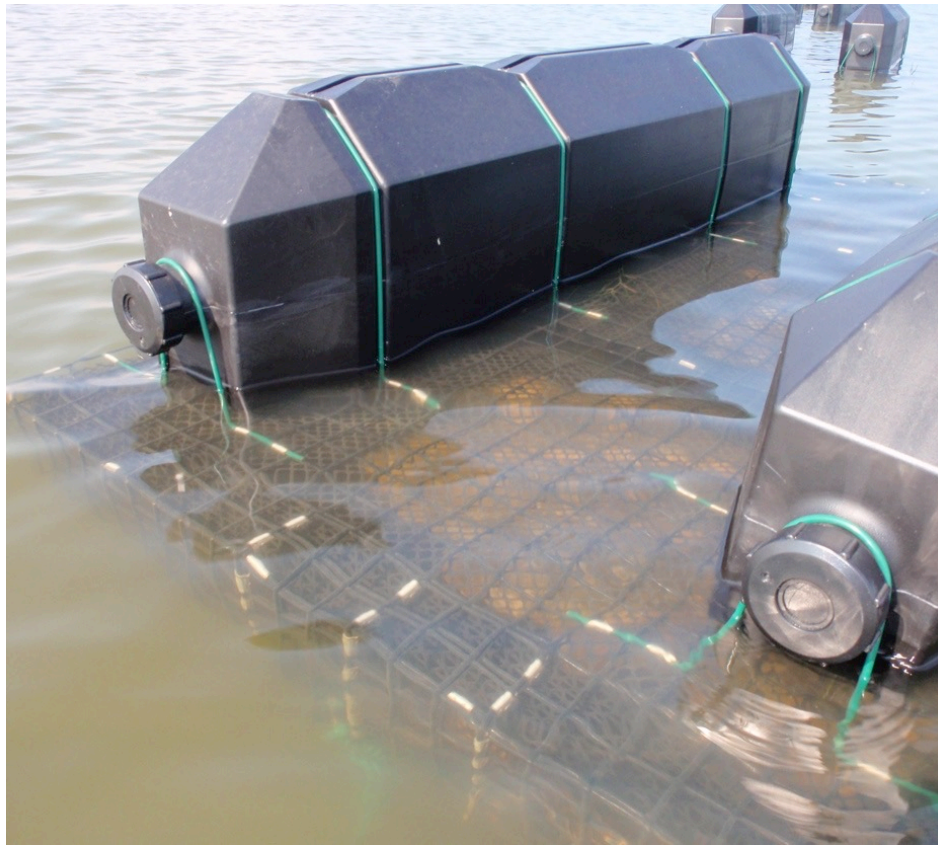
Field nursery

- Can opt to raise seed in the field in fine mesh bags
- Caveats!
  - Small seed are easy to lose out of even small holes
  - Fouling is much faster on fine mesh

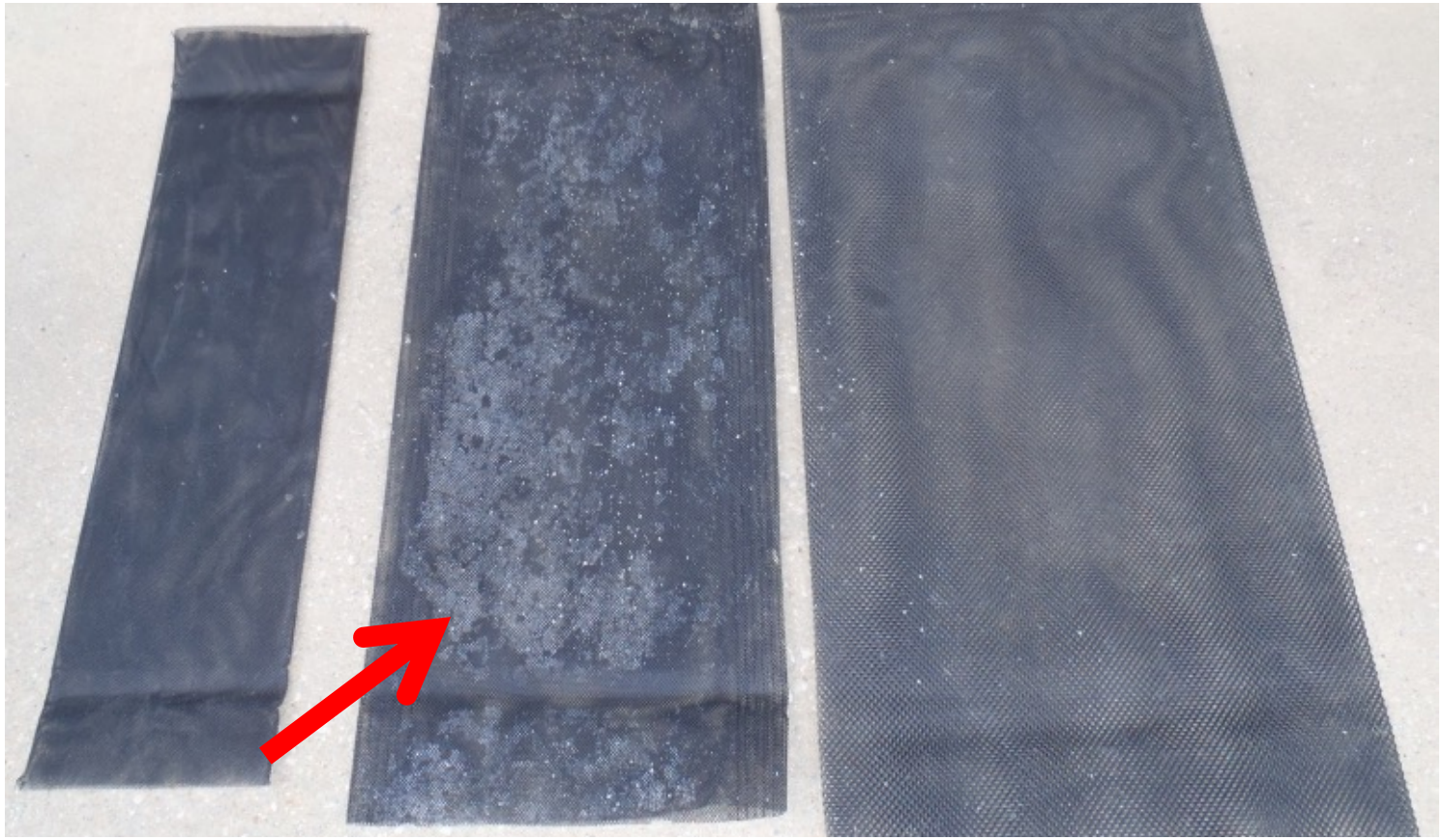
For field nursery, routinely grading and moving to new mesh



- For a May 1 spawn, we typically have seed that retain on 2 mm mesh by June 15th or so (6 wks)
- These go into a 1.5 mm mesh ‘sleeve’ @ 10,000 seed/sleeve using a floating flippable cage (e.g., OysterGro)
- Works with any container system though (e.g., ALS)



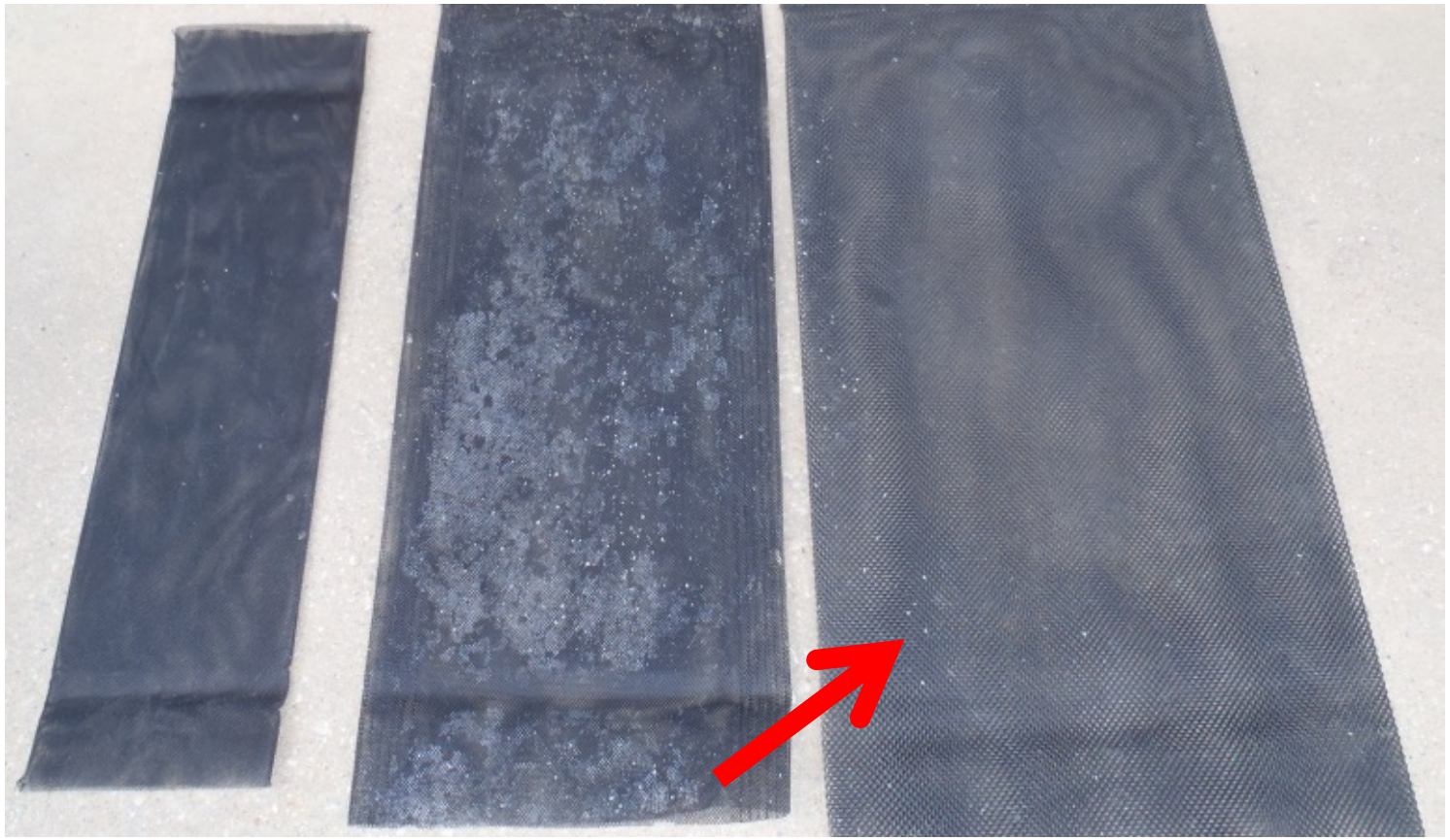
Those seed get deployed at your field site



Two weeks later …

- After about two weeks (July 1), the seed will mostly retain on a 4.5 mm mesh and go in a 2 ml bag @ 5,000 seed/bag

Two more weeks later …



- After about two weeks (July 15), the seed will mostly retain on a 6 mm mesh and go in a 4.5 ml bag @ 2,500 seed/bag
- Up to this point, zero maintenance between gradings and re-baggings

Splitting and Desiccation

- After about 2 more weeks (August 1), seed will have gotten larger, and can split the densities in half, so there are only 1,250 seed/bag
- At this point, we begin weekly desiccation of the seed

To grow-out

- By August 15-30, seed will retain on a 12 mm mesh, so these are put into 9.5 ml bags which can be used through grow-out if properly maintained
- Have decision if want to get the R12 seed at final grow-out density (150/bag) or keep them at higher densities (no more than 1,250 and can’t be kept there long)

For every 100,000 oyster seed

- June 15th – Need 10 1.5 ml bags, and 2 6-pack floating cages
- July 1 – Need 20 2 ml bags and 2 more 6-pack floating cages (4 total)
- July 15 – Need 40 4.5 ml bags and 3 more 6-pack floating cages (7 total)
- Aug. 1 – Need 40 more 4.5 ml bags (80 total) and 10 more 6-pack floating cages (14 total)
- [~$500-$600 worth of bags, or $5,000-$6,000 of bags for 1 million seed]

For every 100,000 oyster seed

By Aug. 15th – If going to final grow-out density (and assuming 96% survival/retention*), need 640 9.5 ml bags and 107 6-pack floating cages to get these seed to 150/bag (or 900/cage)

*Not likely but want to be sure have enough if survival is this high

Additional considerations for field nursery

- Total time tending seed is approximately 2-2.5 months
- Minimal maintenance between gradings
- Does require power washing bags after use

Comparing growth and survival

- Highly variable
  - Personally, I have seen sites where field nurseries outperform upwellers and other sites where upwellers outperform field nurseries
    - Differences in handling?
    - Differences in food in water?

- In my opinion, either method can give you very high growth and survival

Which option is for you?

- Upwellers
  - + Convenient
  - + Can control flow even in low flow environment
  - – Power bill
  - – Need to get upweller moved for storms
  - – Can be expensive to build

- Field nursery
  - + No power bill
  - + Keeping an eye on your site
  - + Only periodic maintenance
  - – Multiple bag sizes needed

What are the ‘right’ grow-out densities?

- Numbers may vary
  - Longline baskets often 75-100
  - Vexar-style bags often 150-200
  - Varies by growers, sites
  - Consider container volumes
- Rule of thumb is that if container is more than half full when turned on side, it is time to split
- Grow-out densities may be affected by wave exposure
- Density affects growth rate, survival, consistency, etc.
  - Find what works best for your gear at your site

Grading and Splitting

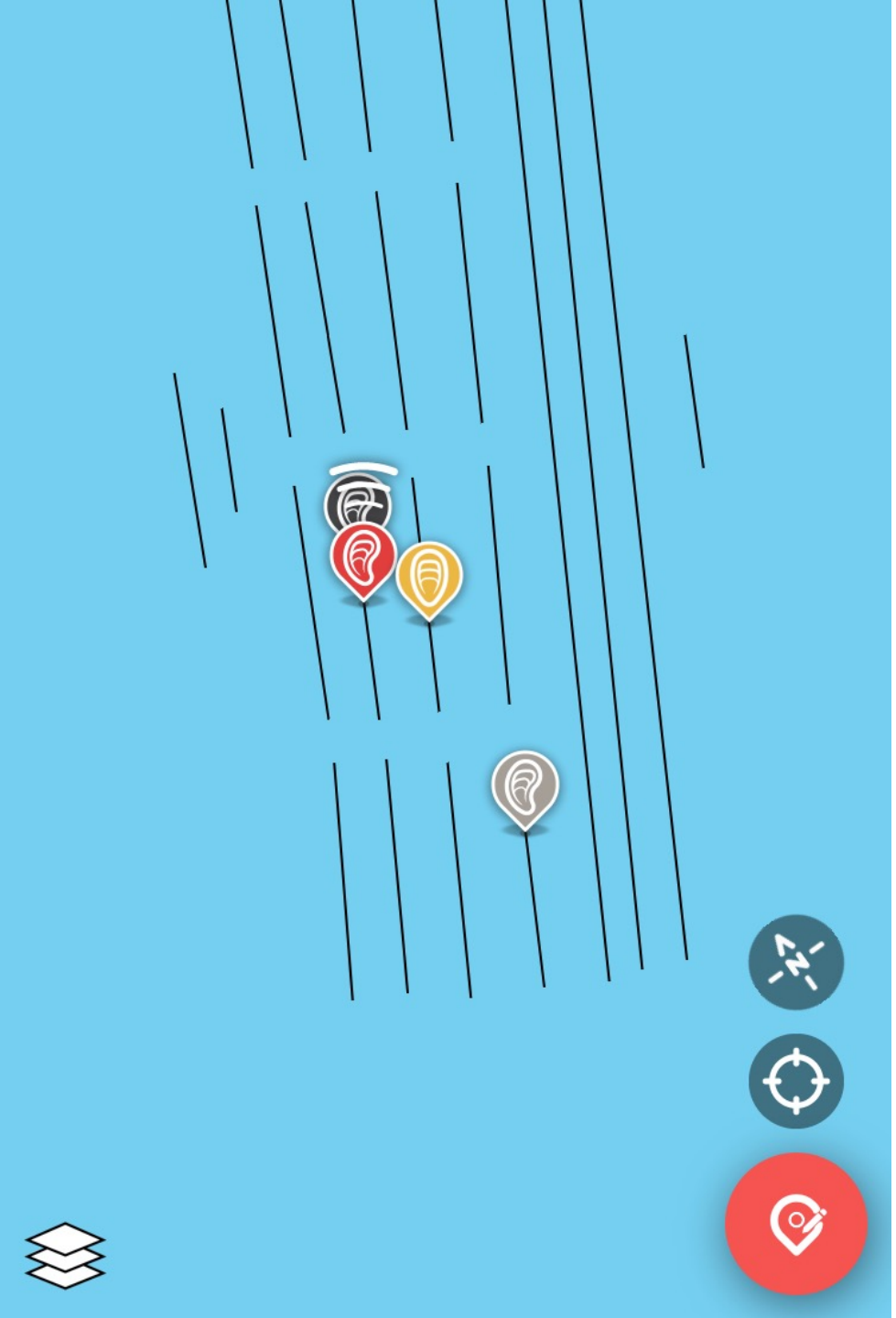
- Can be done by hand or by hand across screen
- Recommend a mechanical grader if crop is 100,000 or more
- Sort like sizes together
- Opportunity to split stocking densities as well
- Opportunity to check inventory

Inventory

- How many oysters do you have?
- What size are they?
- Where are they?
- How do different batches perform?
- What is the value of my crop right now?

Traditional Methods

- Whiteboard
- Notebook
- Excel (with some modern twists)
- Color-coded tags
- Memory



New Options?

- Apps/software
- RFID?
- GIS packages

Inventory Management

BETTER INFORMED DECISIONS ABOUT CROP MANAGEMENT

IMPROVED PRODUCTION

HIGHER EFFICIENCY

MORE ACCURATE VALUATION

BETTER PREDICTION TO MARKET

Second Crop and Onward

- Consider multiple orders of seed per year
  - Spread out harvest across year
  - Diversify
- Start to get sense of space/gear needs for seed

Questions or comments?

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