PROACTIVE MANAGEMENT TO MAKE SHELLFISH BMPS WORK FOR YOU

GEF FLIMLIN
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INTRODUCTIONS

- Gef Flimlin
- Sandy Macfarlane
- Kathy Rhodes

Your turn
BACKGROUND: BMPS

- Workshops throughout the east coast
  - Growers, regulators, resource managers, interested parties/stakeholders
- Identify issues and solutions
- Funded by both USDA/NRAC and NOAA Office of Aquaculture
Shellfish farmers shall make a best effort to:

- Follow all applicable regulations.
- Produce and handle products of the highest quality and ensure product safety.
- Minimize negative environmental impacts.
- Maintain the health of the farmed shellfish.
- Encourage other growers to adopt the shellfish code of conduct and better management practices.
MAJOR THEMES OF BMPS

- Gear operation and maintenance
  - Clean gear often to prevent accumulation of large amount of fouling
  - Be considerate when using machinery such as power washers and graders
  - Use appropriate methods for control of fouling – air drying, brine, fresh water dips

- User conflicts
  - Be a good neighbor
  - Use opportunities to educate public about business
  - Get involved with policy makers
MAJOR THEMES

- Permits/siting
  - Choose biologically, physically and socially appropriate sites
  - Educate other stakeholders about business before/during hearing process
  - Be visible on the water

- Environmental concerns
  - Keep gear neat and orderly; pick up loose gear as soon as possible
  - Carry absorbent materials to clean up any fuel or toxic substance spills
  - Minimize interaction with protected species
  - Document SAV before and during lease terms
QUESTIONS?

- What are your experiences?
- What have you learned about shellfish farming you would want to share?
- What do you know about 3rd party certification?
- What’s the next step?
WITH ALL THAT, WHY ISN’T IT ENOUGH?

- A BMP Manual is just a general document that can sit on a shelf once completed.
- BMPs need to be incorporated in a company’s operations to be effective.
- Expensive third-party certification on the horizon.
- Is there a better way?
SHELLFISH AQUACULTURE AS A RISKY BUSINESS

Risk management: what is it?

- Federal programs through USDA to help farmers assess and manage risk
- Risk Management Education
- Funding for extension programs to assist farmer address and minimize risks
- This effort is funded by a USDA/NIFA Northeast Risk Management Education Grant
HOW DO BMPS DEMONSTRATE ENVIRONMENTAL PROTECTION?

- Grower pays attention to crop and to how growing shellfish impacts others
- Grower needs clean water to operate safely and for public health – following BMPs helps accomplish goals
WHAT ARE SOME RISKS IN SHELLFISH AQUACULTURE?

- Weather
- Multiple uses of waterways and boating accidents
- Disease outbreaks
- Threats to Public Health
- Mortalities for non-obvious reasons
- Nimby (Not In My Back Yard) attitudes and lawsuits
HOW DOES USING BMPS REDUCE RISK?
RISK MITIGATION

Example #1: predation is a serious problem that leads to loss of stock

BMPs say:

- The cages we use keep most predators away
- When predators are found within cages or under nets, we remove them immediately
- We inspect gear often to detect rips, tears or damaged equipment
RISK MITIGATION

- Example #2: public health protection – vibrio, red tides or sewage can shut down production unannounced

- BMPs show:
  - We comply with all applicable state regulations
  - We get our shellfish refrigerated immediately after harvest
  - We report any suspicious incidents to authorities
RISK MANAGEMENT ACCORDING TO USDA

- Production risk
  - Storm damage to gear
  - Predation from storm damaged gear
  - Disease outbreak
- Price risk
  - Sudden market changes
  - Seasonal fluctuations
- Financial risk
  - Inability to finance gear purchase
- Legal risk
  - Unanticipated legal challenges for ability to operate business in public waters
BUSINESS RISK:
LOST SHELLSTOCK

- Loss of shellstock is a risk to your business
- The BMP is to do anything you can to avoid that risk
- Predator control, cleaning of gear, etc.
BUSINESS RISK:
LOST SHELLSTOCK

- If it happens, the next BMP is what to do about dead and dying shellfish
What to do about Dead and Dying Shellfish

Gef Flimlin, Rutgers Cooperative Extension
Roxanna Smolowitz, Roger Williams University
Dale Leavitt, Roger Williams University
So, you have some gaping oysters, or clams that are now boxes. What should you do?
Don’t Freak Out!!!!

That won’t do much good.
A few things to remember

• When things are going downhill, they can pick up speed.
• So don’t wait to do something.
• There are people who can help diagnose the problem.
• It’s important to reach out to them as soon as possible.
Unexplained Mortalities can be quite confusing

- Sometimes the whole crop can die.
- Sometimes part of the crop will show mortalities and not other parts.
- Sometimes mortalities will be spread out over a long period of time.
- Sometimes it will be quick.
Once the hatchery operator or grower has realized a problem, what should be done?
The first thing would be to contact a professional who can assist

- Your state shellfish extension person.
- Someone from the state agency who works with shellfish.
- Go straight to the people mentioned in the diagnostic laboratory list on the NRAC Factsheet.
Then Who?

• Hatchery issue? check other local hatcheries
• Field issue? ask your neighbors
• Don’t be embarrassed to talk with others.
• Don’t assume it’s just you.
What’s next?
You will need to take some samples.

- Take random samples.
- Total counts of 60 to 100 individuals.
- Note the signs of the disease (gaping, poor growth, watery tissues, rings on the inner shells, etc.)
- Make an estimate of percentage of the problem.
• Where, actually, is the problem?
• Animals could be stressed or infected in several locations, but only currently dying in one.
• Take samples from different places in hatchery, nursery, or field.
Then What?
Selecting animals for shipment to a laboratory

- Affected shellfish and relatively normal animals for comparison.
- Thirty to sixty animals.
- Pick those animals that best exhibit the signs of disease (mild gaping, poor growth, etc.)
- However, these sick animals must still be alive and not just shells with rotting tissue.
How to pack for transit

• Place in plastic bag and then a cooler with ice packs.
• Mark date, time, and location from where it was taken.
Other special instructions for transit.... the lab will tell you.
Documenting much needed information

- Environmental conditions? $T^\circ$, Salinity, DO
- When was the last time you checked these things? (Starting to see the reason for recordkeeping?)
- Changes in food consumption for hatchery stocks.
- Other potential issues...heavy rainfall and runoff? fish kills in the area? hazardous material or sewage spills?
Documenting much needed information

- Current condition of the animals?
- All dead? Some still alive?
- Shells empty or meat left in some?
- What percentage of the crop is affected?
- Is it all over or just in one or a few isolated areas?
Documenting much needed information

- Did this ever happen before? When?
- Any strange changes in water color or clarity recently?
- Any strange algal blooms?
Shipping or delivering samples

Let the people at the lab tell you how they’d prefer to receive them. It might be easier to just drive them there.
How long should it take to get an answer

- The people at the lab will be best able to tell you the timeframe for an answer.
- It could be a couple days
- It could be longer
- They realize that mortalities can spread so they won’t waste any time.
What to do in the meantime?

• Reduce densities in upwellers or raceways.
• Reduce densities in your field plantings.
• Don’t cross contaminate sites or containers with other gear.
• Don’t move your animals to an alternate location. That may spread the problem.
Where to find a lab?

First, your extension person should know who to contact.

Or

See the list in the NRAC “Dead and Dying Shellfish: what to do?”
Last bit of advice

• Don’t delay if you see a continuing problem.
• Don’t not talk to other growers.
• Don’t be afraid to ask for help.
Questions about crop mortalities?
A FARM MANAGEMENT PLAN

What is it?
- An operations manual that documents how you run your farm

Why have a plan?
- To ensure your employees follow your lead
- To prove your intentions to potential lenders
- To show your customers your level of responsibility

How will a written plan help?
- By incorporating BMPs into an operations manual, it will help to minimize risk
- By minimizing risk, you will be in a better position to receive funds through loans or crop insurance
EXAMPLE #1

- You go to a bank for a business loan with your business plan
- Assets and financial information
- Projected costs, production, profits over 5 and 10-year periods
- Banker knows nothing about shellfish production but determines it is a risky business.
- He isn’t dumb, just uneducated about your business.
- Banker asks you how you minimize the risk.
You supply a farm management plan that incorporates industry-standard BMPs.

You explain that these BMPs were developed with funding from two federal agencies.

Plan demonstrates that you are operating your business in an environmentally and socially responsible manner.

You show him that you are doing everything in your power to mitigate risks you can control.
EXAMPLE #2

- You apply for crop insurance.
- You deal with someone that is somewhat familiar with shellfish aquaculture who asks you how you mitigate risk.
- You produce a farm management plan.
- You point out specific BMPs which minimize risks that directly apply to your business.
QUESTIONS?

You have questions...
Keeping good records is no fun but very important.

What records are necessary?
Recordkeeping for Aquatic Farm Management

Gef Flimlin, Rutgers Cooperative Extension
Dale Leavitt, Roger Williams University
What Recordkeeping Isn’t.
What difference does it make anyway whether I continue to document my activities on the farm?”
Scenario #1

- Seed is ready to go to the field but you can’t remember last year’s densities.
- So you stock heavy because of time and # of oyster bags.
- If you had records, you might have noticed that overstocking your bags, causes your growth rate to drop a little (say from 0.3 mm/day to 0.25 mm/day in the summer), and your mortality jumps a little (from 1.0% to 3.0% in the summer and from 5.0% to 7.5% in the winter).
- If you started with 100,000 - 20mm oyster seed in July, you could market them in the next July, and have about 72,000 pieces for sale when you stocked them lightly (final density of 150 oysters per bag).
- However, if you stocked them heavier, (250 oysters per bag) then it would have taken you an extra month to get them to market size and your harvest would only be about 53,000 oysters. That is a difference of 1 month of marketing and 19,000 oysters!
Scenario #2

• Suppose you spent $20 on something and didn’t record it.
• This oversight raises your business’ net income by $20.
• Overstating net income by $20 causes
  1. your Social Security tax to go up by $3.06 ($20 times 15.3 percent for a self-employed person);
  2. your federal income tax to go up $4 (assuming you were in the 20 percent federal income tax bracket)
  3. your state income tax to go up $1 (assuming you were in the five percent state tax bracket).
• The $20 expense not recorded will cost you $8.06 more in Social Security, federal income tax and state income tax.
• If you had recorded this expense in five minutes or 1/12 of an hour, you would have saved $8.06 in 1/12 of an hour or $96.72 per hour.
• And it might not be the only $20 that you didn’t record.
Good farm records will not guarantee success, but success is very difficult to achieve without them.
Record-keeping covers many different items of information to aid in all aspects of your farm, including:

- Financial records for accounting, taxes, loans or insurance
- Meeting regulatory requirements...IRS income or production reporting to state agencies;
- Eligibility for crop insurance or other farm programs;
- Farm management decisions, e.g. performance of seed from different broodstock lines, stocking densities, equipment longevity, etc.
So what kind of information should you keep?
What info to keep

- Daily logbooks…what did you do today?
- Forms of specific observations (e.g. °C, Salinity, Water quality)
- Daily weather conditions, weekly occurrence of predators, weekly biofouling conditions.
Production Records

- Inventory of equipment and product
- Things that influence the overall production of your farm.
Resource inventories

- Lists of gear or equipment on hand
- Identities of seed source and strains
- Amounts, size and distribution of each category of seed
Field notes on paper should be used and transferred onto a good ledger or onto a computer.

A resource inventory is usually recorded in your log book or entered into a computer program at regular intervals, on the scale of months.
Operations Records

- Water quality measurements
- Weather conditions
- Stocking density
- Appearance of Predators
- Observations of Bio-fouling on Gear
- Recognition of disease problems
Having data allows you to interpret and adapt your farm activities to ensure a successful operation.
• What does this record keeping effort look like?

• As simple as writing notes in a daily diary or logbook noting activities and observations for the day.

• You could just speak into your smart phone.

• Or custom designed software on your computer.
• The final point about recordkeeping is to make sure that you use the information.
• What worked and what didn’t?
• Keep the effort simple but understandable.
No matter what records you keep, protecting those records from water damage, fire, theft or hungry dogs is a final important step, as those records are your key to a successful business.

A back up set is not a bad idea, either.
Types of data collection sheets.
Record Keeping - Water Quality

Procedure:

**Secchi Disk** - The Secchi depth should be measured once a week

1. Lower the disk vertically into the water until it is no longer visible
2. Raise it again until the black and white quadrants can just be made out
3. Note the depth of the disk at this point using the markings on the rope (markings are approximately 1 m apart)
4. Be sure to note the date and time of each measurement, the time of that day's low tide, the total depth of the sampled water column, and the environmental conditions such as sea state, precipitation, air temperature, and other weather observations

**Temperature Logger** - You will receive a new logger every three months

1. Place the temperature logger in its waterproof container and affix it to an object in your work area, such as one of your cages
2. Note the location of the logger as well as its estimated depth or its estimated height off the bottom

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Secchi Depth</th>
<th>Low Tide</th>
<th>Total Depth</th>
<th>Environmental Conditions</th>
<th>Location and Placement of Logger</th>
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</table>
Record Keeping - Predators

Procedure:

1. Select one day per month to make observations of potential predators in your system.
2. On that day, make observations as you tend your gear about what predators are present.
3. Record on the table below what predators you observe over the course of your day's work.
4. If a specific predator is highly abundant, please note on the record sheet what percentage of the gear the predator is present on that day.
5. If you observe any other creature that you think is a potential predator, please note the occurrence on this sheet, photograph it, and inform the Field Technician for identification.

Predators

<table>
<thead>
<tr>
<th>Presence (+) with %'age occurrence if abundant.</th>
<th>Other Information:</th>
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<tbody>
<tr>
<td><strong>2006</strong></td>
<td><strong>Date:</strong></td>
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<tr>
<td>Invertebrates</td>
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<td>Green Crab</td>
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<td>Lady Crab</td>
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<td>Blue Crab</td>
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<td>Spider Crab</td>
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<td>Rock Crab</td>
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<td>Asian Shore Crab</td>
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<td>Mud Crab</td>
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<td>Horseshoe Crab</td>
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<tr>
<td>Lobster</td>
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</table>
Record Keeping - BioFouling & Nuisance Aquatic Species

Procedure:
1. Identify one clean bag or tray as the test cage for the biofouling observations.
2. Every other week, pull the same cage and record your observations on the fouling community on the bag.
3. Take a photograph of the tray. Note Roll ID and exposure number below.
4. Note the presence of any of the most common fouling organisms (refer to the Pests Brochure) by placing a (+) in the column.
5. If present in abundance, estimate the percent of the bag or tray that is covered with the fouling pest and record that in the column.
6. If you observe something that you do not recognize but could be a problem, note its presence, photograph it, and point it out to one of the field technicians when convenient.
7. If the bag or tray becomes fouled to the point where you must clean it, note that in the record sheet, clean and continue as before.

Fouling Species/Pests

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<tr>
<th>Year</th>
<th>Date: June</th>
<th>June</th>
<th>July</th>
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<th>Aug</th>
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<td>Deadman's Fingers</td>
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<td>Rockweed</td>
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</tbody>
</table>
Can it be a pain in the butt?  
Yup.
Can it make you more productive?  
Yup
Can it make or save you money?  
Yup
Can it make you more profitable?  
Yup
So
JUST DO IT.
QUESTIONS ?
FARM MANAGEMENT PLAN

What is in it?

- General information
  - Company name, owner’s name, address, contact
  - Location, lease/license number
- Specifics of farm operations
FARM MANAGEMENT PLAN

BENEFITS

Will a farm management plan help you?

- Yes
- Minimizes financial risk
- Minimizes legal risk
- Minimizes environmental risk
- Boosts customer confidence and product acceptance
HOW TO CREATE AN INDIVIDUAL FARM PLAN

Using the template
HOW TO USE A FARM MANAGEMENT PLAN FOR MARKETING AND PROFITABILITY
EXAMPLE

- You have a customer whom you’ve dealt with for a long time.
- You realize that some buyers are curious about “sustainable seafood”, because their customers are asking them about it.
- You give your Farm Management Plan to your customer.
You explain that you are operating your shellfish farm in an environmentally sound way.

You want your customer to know your operation so he can communicate that to his customers.

This should instill customer and consumer confidence.
MARKETING BROCHURE

- What is it?
- What is the purpose and how can it be used?
MARKETING BROCHURE TEMPLATE

- Benefits?
- How can it be customized?
- How to print it.
The following are some of the eco-friendly design elements included in the Portland Whole Foods Market.

**Marmoleum**
Check Stands
- A raw material supplied by plants and trees, which is harvested or extracted with relatively little energy consumption.

**ICI Paint**
Walls
- Low in VOCs (volatile organic compounds) which contribute to the depletion of the ozone layer.

**Lumicor**
Decor Boards
- Utilizes sustainable manufacturing processes to ensure the most efficient, clean and healthful environment.

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The clerestory allows us to harvest daylight, thus reducing electrical loads. • A white roofing membrane helps to reflect sunlight, thus reducing cooling requirements. • Structural steel is 100% recycled material. • We employ energy management systems for lighting and refrigeration. Concrete floors minimize the depletion of our natural resources. • We choose recycled, renewable and sustainable resources, and make alternative energy the right choice. • Between 70% and 80% of all waste produced by this facility is recycled into useable materials, including all discarded food and other organic waste, which will be made into high-quality compost.

**Abaca by Lamin-Art**
Case and Board Headers
- A uniquely dimensional high-pressure laminate that contains 40% post industrial recovered content (paper) and features recycled banana fibers.

**McIntyre Tile**
Walls
- Tiles have a recycled content between 50% and 85%. They are made from materials that are naturally occurring and plentiful.

**Woodstalk**
Decor Boards
- Harvested from wheat straw fiber — a sustainable, annually renewable resource.
MARKETING BROCHURE TEMPLATE

Questions?
INCREASING PROFITABILITY?

- Will any of this increase your bottom line?
- Will it help financially in other ways?
  - Reduce risk
  - Bank loans
  - Insurance
  - Consumer awareness
  - Competitive “edge”
  - Growth industry with increased competition
Is the reason for BMPs clear to you?

Can they be used to your advantage?

Will following BMPs and a farm management plan separate you from your competition?

Will producing a plan and keeping appropriate records be worth it in higher prices?

If not, why do it?
QUESTIONS AND COMMENTS?

Any more questions?
Become a Member of ECSGA
or Renew Your Membership

To become a member or to renew your annual dues, please fill out the membership form below so we can update our records.

After filling in the form, you may pay online using PayPal or a credit card, or if you prefer you can mail your check to us at: ECSGA, 1623 Whitesville Rd, Toms River, NJ 08755. Thank you!

The 2014 dues schedule (unchanged since 2007) is shown below.

<table>
<thead>
<tr>
<th>Gross Annual Sales</th>
<th>Dues</th>
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<tr>
<td>$0 to $50K</td>
<td>$100</td>
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<tr>
<td>$50K to $100K</td>
<td>$200</td>
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<tr>
<td>$100K to $300K</td>
<td>$500</td>
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<tr>
<td>$300K to $3M</td>
<td>$1,000</td>
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<tr>
<td>Over $3M</td>
<td>$1,500</td>
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<tr>
<td>Dealers/Suppliers</td>
<td>$250</td>
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<tr>
<td>Non-voting</td>
<td>$35</td>
</tr>
</tbody>
</table>
Become a Member of ECSGA or Renew Your Membership

Name *
Company or Affiliation
Mailing Address *
Street Address
Address Line 2
City
Postal / Zip Code
State / Province / Region
Country
Phone
Email *

I am a *
• Shellfish Grower
• Shellfish Dealer
• Equipment Supplier
• Other
Dues Amount $ *
I’d like to donate to the Mike Voisin Memorial Fund
Yes
Donation Amount $  

Submit
To pay on-line using PayPal or your credit card, simply choose your membership level from the dropdown menu below and click the "Add to Cart" button. You can also make a donation to the Mike Voisin Memorial Fund at the same time.

**2014 Dues**

- $0 - 50K in Gross Annual Sales $100.00 USD
  - [Add to Cart]

**Mike Voisin Memorial Fund Donation**

- amount $25.00 USD
  - [Add to Cart]

Please feel free to contact us at [bob@ecsga.org](mailto:bob@ecsga.org) with any questions or concerns you may have.

All are welcome to [join the ECSGA e-mail listserve](mailto:join@ecsga.org).
CONTACT INFORMATION

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THANK YOU!!

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