

# Introduction To BMP's

## What is a Best Management Practice?

A **best practice** is a technique, method, process, activity, incentive, or reward which conventional wisdom regards as more effective.

More effective = with proper processes, checks, and testing, a desired outcome can be delivered with fewer problems and unforeseen complications.

# Why BMPs?

- Non-regulatory approach
- Bottom-up rather than top-down
- Industry-driven
- Provide consumer confidence
- Protect environment

# Who Writes BMP's ?

- Agencies
- Industry
- Collaborative Groups
- Whoever

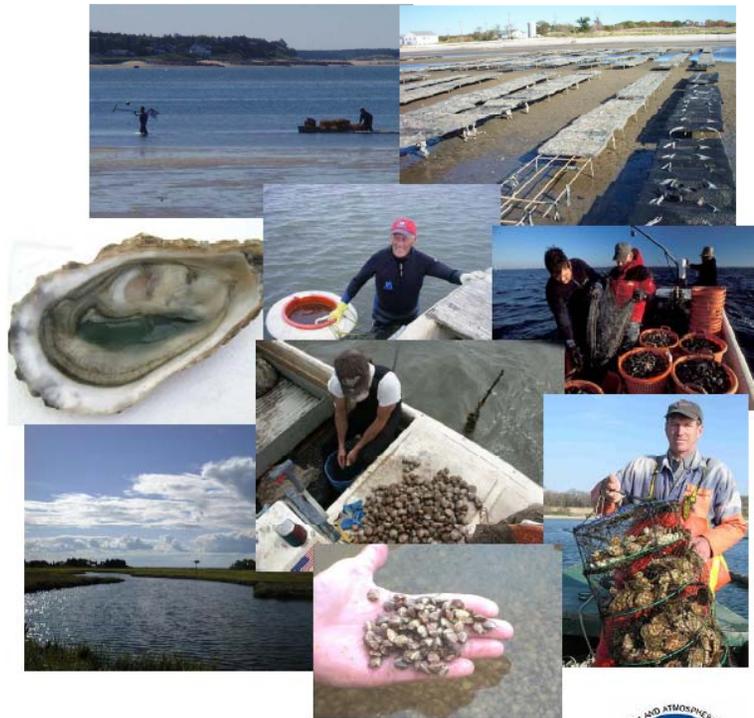
# Examples of Aquaculture BMP's

- **AQUACULTURE**  
Best Management Practices for Flow-Through, Net-Pen, Recirculating, and Pond Aquaculture Systems
- **MASSACHUSETTS**  
Best Management Practices for Finfish Aquaculture in Massachusetts
- **FLORIDA**  
Aquaculture Best Management Practices Rule January 2007
- **SHELLFISH**  
Best Management Practices for the East Coast Shellfish Aquaculture Industry
- **HAWAII**  
Best Management Practices for Hawaiian Aquaculture
- **WESTERN CAPE**  
Guideline to the Authorisation Requirements for Aquaculture in the Western Cape

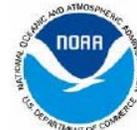
## A recent example

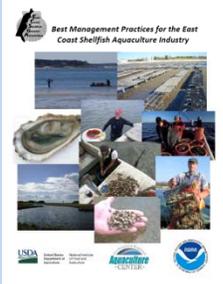


### *Best Management Practices for the East Coast Shellfish Aquaculture Industry*



United States Department of Agriculture  
National Institute of Food and Agriculture





BMP Elements .....	18
Permits .....	18
Siting Issues .....	18
Biological/Physical/Social Factors .....	19
Site Marking .....	21
Site Security .....	22
Access to Sites .....	23
Potential Changes to Sites and Site Access .....	24
Good Neighbor Policy .....	26
Noise .....	26
Odors .....	27
Recreational/Commercial Fishing/Boating Activities .....	27
Upland Gear Storage Areas .....	28
Seed Sourcing .....	29
Seed Selection/Sourcing .....	29
Operational/Maintenance Issues .....	31
Hatcheries .....	31
On-shore Nurseries .....	31
In-water Nurseries/Floating Upweller Systems (FLUPSYs) .....	32
Taylor Floats .....	33
Fouling Control .....	34
Predator Control .....	38
Siltation .....	39
Gear Maintenance, Disposal and Recycling .....	39
Fuel Handling and Fuel Spill Contingencies .....	40
Handling and Reporting Disease .....	41
Farm Protocols for Addressing Disease .....	41
Communication about Disease Events .....	41
Protected Species and Habitats .....	42
Shellfish Sanitation – Protecting Human Health .....	44
Record Keeping .....	46
Monitoring the Environment .....	46
Monitoring the Crop .....	47
Keeping the BMP Document Current .....	48

---

## Code of Conduct for Molluscan Shellfish Culture in the Eastern United States

---

The concept of a Code of Conduct for Responsible Fisheries originated with the United Nations Food and Agriculture Organization (FAO) suggesting a set of general and generic principles that growers should embrace in order to conduct their business responsibly. They are basically common sense precepts which most growers follow instinctively as good stewards of the waters where they grow shellfish and as good food producers. The Code of Conduct here takes into consideration particular aspects of the East Coast shellfish production industry. We believe that these statements belong at the beginning of a farm BMP.

Shellfish farmers shall:

1. Conduct aquaculture operations in accordance with all applicable laws and regulations, and acquire and maintain all pertinent permits.
2. Make the best effort to produce and handle products of the highest quality and ensure product safety.
3. Make a best effort to communicate early and openly with water-based and land-based neighbors about any facet of their operation which might affect them.
4. Work to benefit the local economy by patronizing local businesses and through employment and contributions to the tax base and infrastructure.
5. Site, plan, develop and manage aquaculture operations in a manner that minimizes negative environmental impacts.
6. Site, plan, develop and manage aquaculture operations in a manner that ensures the economic and social sustainability of the operation.
7. Take all appropriate measures to avoid and contain disease outbreaks and report them quickly to the proper authorities if suspected.
8. Dispose of culturing waste and chemicals in a manner that does not constitute a hazard to human health or to the environment.
9. Consult and collaborate with government and authorities, researchers, other producers and stakeholders for the development and implementation of regulations, technologies and standards to achieve environmentally, economically and socially sustainable shellfish culture when feasible.
10. Encourage other growers to adopt the shellfish code of conduct and better management practices.



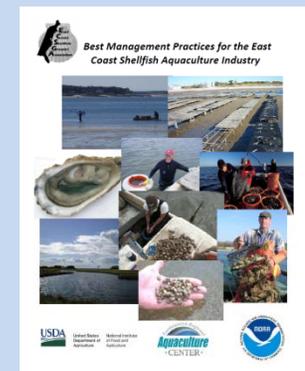
## Examples of BMPs

### BMPs for Disease

- Communicate disease events to appropriate authorities and neighboring growers.
- When disease is suspected, take samples and send them to a laboratory for analysis.

### BMPs related to gear

- Pick up loose gear as soon as possible.
- Partner with recycling companies and other farmers to dispose of gear that can be recycled in larger batches to have an economy of scale.
- Recycle or reuse gear whenever possible.
- Dispose of used gear appropriately when no longer usable.
- Participate in community beach clean-up activities.
- Keep gear neat and orderly.



## **BMPs for seed sourcing**

- Use only native or naturalized species.
- Purchase seed from a reputable hatchery.
- Use locally sourced seed where possible.
- Purchase hatchery seed that is approved by state officials.
- Ensure that disease inspection regulations have been followed.

# Best Management Practices for Marine Cage Culture Operations in the U.S. Caribbean (Example)

## 1. Community effects

*Local biodiversity and community structure, benthic effects, plankton blooms, predator effects*

## 2. Water quality effects

*Nutrient input, feed compounds, antibiotics and medicines*

## 3. Genetic considerations

*Genetic impacts of escapees, competition, use of non-native species, interbreeding, GMO's*

## 4. Disease

*Fish health, limit disease transfer*

# Best Management Practices for Marine Cage Culture Operations in the U.S. Caribbean

## 5. Feed

*Use of alternative feeds, decrease reliance on reduction fisheries*

## 6. Human Dimensions

*Competition with traditional fisheries, aesthetics, recreational, cultural issues, public perception*

## 7. Permitting

*Streamline permitting and review process*

## 8. Siting

*Siting of facilities to minimize ecological impacts*

**Breakout group instructions:**

**List as many possible BMPs as you can during the session.**

**Try to limit your discussion.**

**Goal is to be as exhaustive as possible.**