

# ***Development of Metrics for Top 3 Sustainable Indicators***



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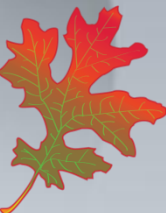
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# Common Approach to Sustainability: Continuous Improvement Process



## 1. Define

- A. Define Sustainability for the Enterprise
- B. Define Indicators
- C. Select Means of Verification (Metrics) for Indicators

## 2. Plan

- A. Benchmark Indicator Metrics
- B. Set Goals for Each Indicator
- C. Develop Strategy to Meet Goals

## 3. Implement

- A. Implement the Strategy
- B. Measure, Assess and Report Results
- C. Adapt Strategy to Improve Outcomes



# Next Step: Metric Development



- Identify the measurable elements within each indicator
  - Each sector will identify what is already being measured, what can be measured, and what should be measured
- Common measurements across sectors will be classified as System Metrics
- Metrics that are unique to a sector will be classified as Sector Metrics
- Prioritize System and Sector Metrics for benchmarking

# USRSA Top Indicator Priorities



Top Priority Issues for Each Dimension of Sustainability		
Economic	Social	Environmental
Consumer Value	Farm Raised	Risk of Disease
Marketing of US Products	Consumer Understanding	Sustainability of Feed Sources
Cost of Production	Product Quality	Water Quality
Access to Capital	Food Safety	Efficiency of Resource Use
Government Regulations	Affordability	Environmental Regulations

# Categories of Production: Fish



<b>Species of Fish Produced in US Aquaculture</b>			
<b>Food Fish</b>	<b>Sports Fish</b>	<b>Bait Fish</b>	<b>Ornamental Fish</b>
<b>Bass, Hybrid</b>	Bass, Large Mouth	Crawfish	Freshwater Egg Layers
<b>Carp</b>	Bass, Small Mouth	Fathead Minnows	Freshwater Live Bearers
<b>Catfish</b>	Crappie	Goldfish	Goldfish
<b>Flounder</b>	Muskellunge	Golden Shiners	Koi
<b>Perch, Yellow</b>	Northern Pike	Other Shiners	Saltwater
<b>Red Drum</b>	Sunfish	Suckers	Other Ornamental
<b>Salmon, Atlantic</b>	Walleye	Other Baitfish	
<b>Salmon, Pacific</b>	Other Sports		
<b>Sturgeon</b>			
<b>Tilapia</b>			
<b>Trout</b>			
<b>Other Food</b>			

# Categories of Production: Non-Fish



<b>Species of Crustaceans, Mollusks, and Plants Produced in US Aquaculture</b>			
<b>Crustaceans</b>	<b>Mollusks</b>	<b>Plants</b>	<b>Miscellaneous</b>
<b>Crabs, Softshell</b>	Abalone	Marine Kelp	Algae
<b>Crawfish</b>	Geoduck Clams	Purple Laver (nori)	Alligators
<b>Lobster</b>	Hard Clams	Green Laver (nori)	Caviar
<b>Prawns, Freshwater</b>	Manila Clams	Watercress	Eels
<b>Shrimp, Saltwater</b>	Mussels	Water Chestnut	Sea Urchins
<b>Other Crustaceans</b>	Oysters, Eastern	Water Hyacinth	Snails
	Oysters, Pacific	Cattails	Tadpoles
	Other Mollusks	Arrowhead	Turtles
		Other Plants	Live Rock

# Categories of Production: Management Strategy



## Range of Production and Management Strategies

<b>Water Salinity</b>	<b>Thermal Regime</b>	<b>Management Strategy</b>	<b>Water Treatment Approach</b>
<b>Marine</b>	Cold	Cage	Open Water
<b>Brackish</b>	Cool	Pond	Flow Through
<b>Fresh</b>	Warm	Channel	Pond
		Tank	Enclosed/Recirculating

# IWG Workgroup 1 Product



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# Step 1: Inventory Metrics across sectors



- Identify the metrics already measured across each sector
  - Frequency
  - Density
- Analyze to identify Sector and Systems metrics
- Evaluate the feasibility of expanding metrics
  - Pilot new metrics across a few sites
  - Expand measurements and metrics incrementally
- What could each sector measure easily?
  - Cost
  - Logistics

# Step 2: Develop a Data Management Plan



- How are data stored within each enterprise?
- How are data analyzed within each enterprise?
- Are sector metrics shared within sectors?
- Are sector metrics shared across sectors?
- How are systems metrics stored?
- How are systems metrics analyzed?

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# Framework of Goals for Metrics

