



Blue Economy

Aquaculture & Blue Tech Business Incubator

WAS, San Antonio: Women in Aquaculture Session | Feb 21, 2017

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Today's Agenda

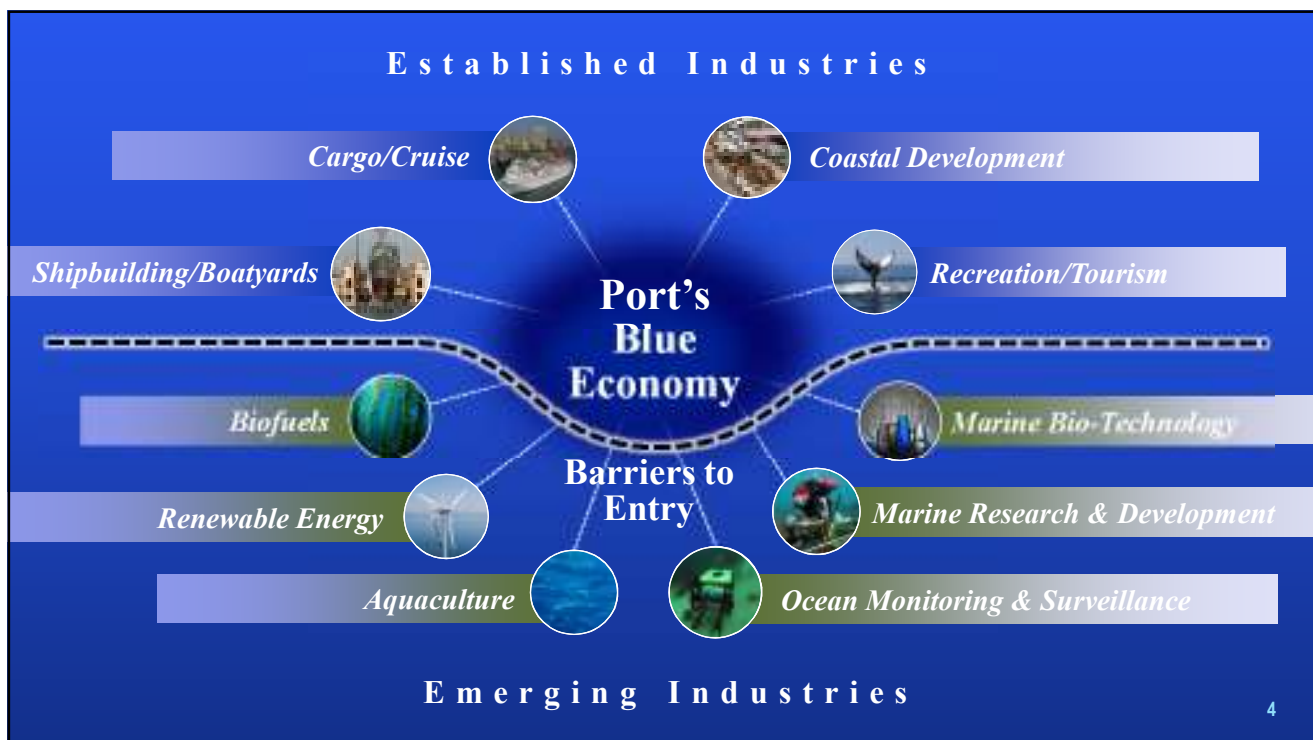
- Background of Blue Economy Program at Unified Port of San Diego
- Aquaculture Outlook
- Overview of Blue Economy Incubator Business proposals and process
- Update on planning and pre-development
 - Oyster Sampling, Marine spatial planning tools for aquaculture in and around the Bay.
- Feasibility analysis to develop infrastructure to support land and ocean-based aquaculture and blue tech businesses

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Background

- For a few years prior to 2015, the Port received several unsolicited proposals/inquiries for aquaculture type operations (shellfish and fish nurseries, culinary seaweed farming, etc)
- In 2015, The Port Initiated an Aquaculture and Blue Technology Program under the umbrella of The Blue Economy at the Port
- Beginning in 2016, the program began planning pilot studies and developed a Blue Economy business incubator, focusing on aquaculture and blue tech sectors as a way to develop economic and environmental opportunities in and around San Diego Bay.

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Blue Economy

Blue Tech



Aquaculture



District Blue Economy Strategic Business Plan



Blue Economy
Business Incubator

Common Approach to
Enable Innovation

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Enabling Innovation

- Land and water entitlements
- Permit-ready infrastructure
- Marine spatial planning tools
- Regulatory expertise
- Mentorship

Creating an environment in which innovation can excel by eliminating barriers to entrepreneurs and encouraging investment

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What is Blue Tech?

Blue Tech is the advanced technology sector of the maritime industry which drives innovation across emerging markets of the blue economy; from ocean renewable energy to offshore aquaculture.



Enabler of the Blue Economy

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Potential Uses of Aquaculture at Port

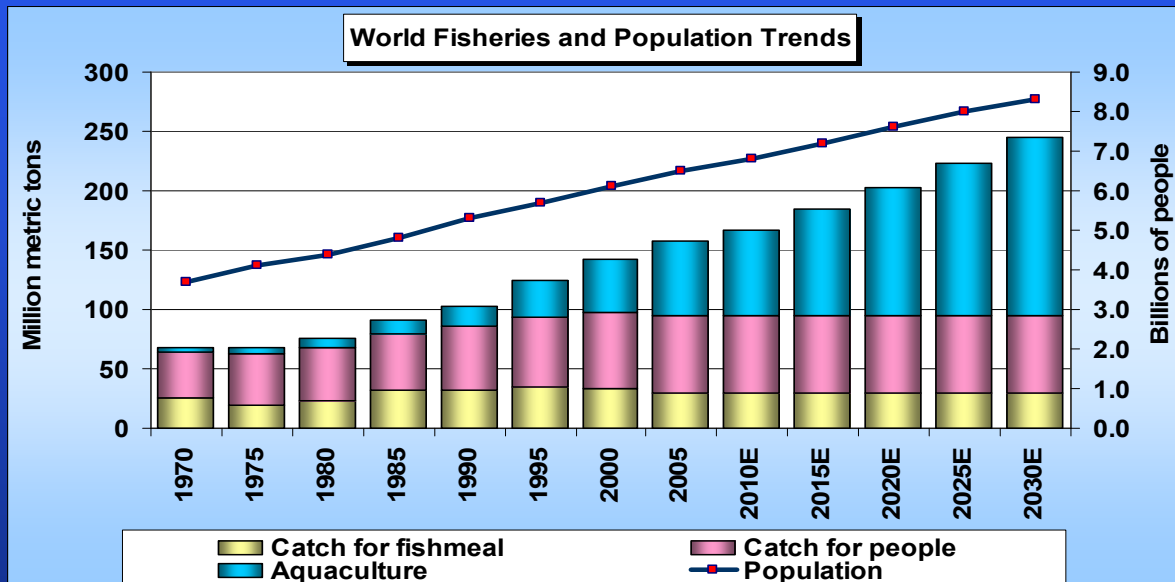
Companion Business Lines



Co-Benefits/Secondary Business Lines

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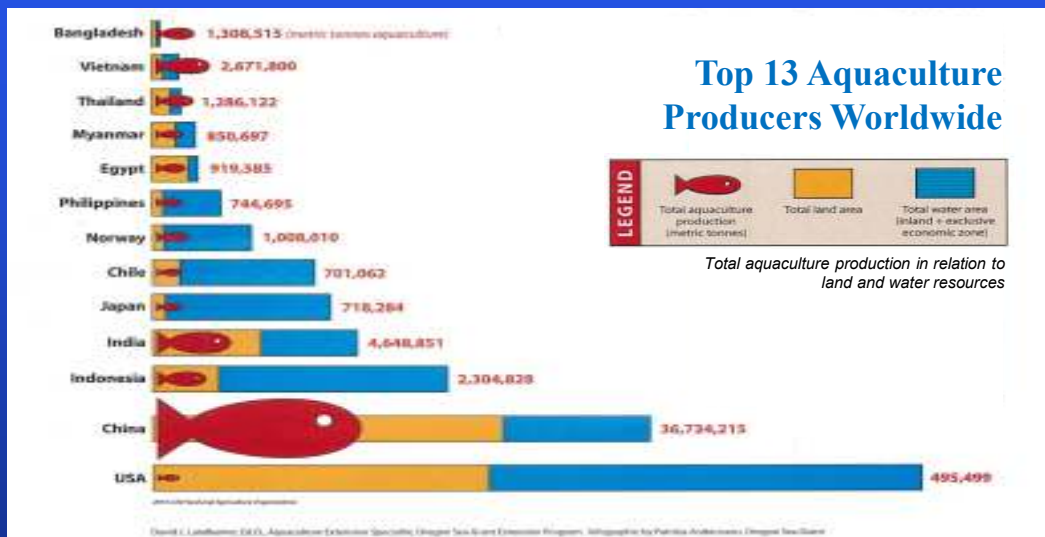
Global Situation Outlook



Courtesy Jingjie Cho, NOAA Aquaculture/John Forster

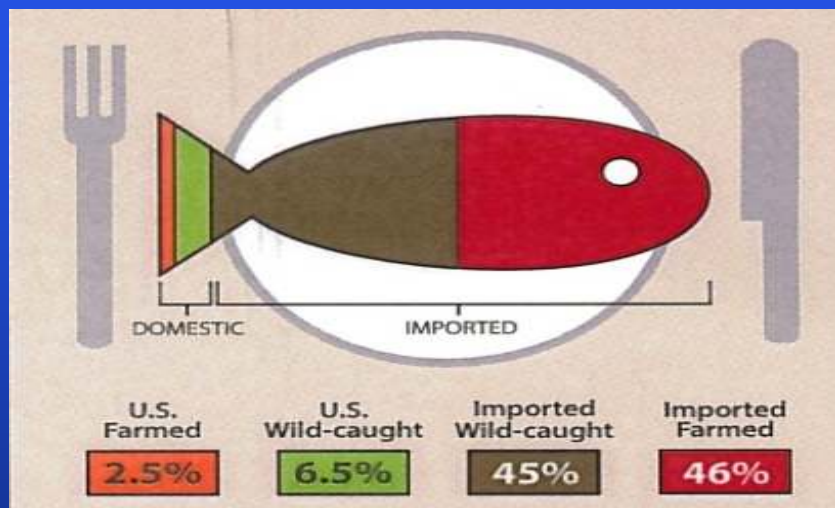
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USA Opportunity



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Sources of all seafood consumed in U.S.



Data 2012, NOAA National Marine Fisheries Service

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CA Opportunity

14.6 lbs./
person

x

38.8 million
California
population

=

566 million lbs.
consumable
product

• Potential Value:

- At \$6/kg of landed value \Rightarrow \$3 billion in annual sales
- At 43 jobs/1000MT = 21,500 CA jobs
- Total economic benefit to CA economy \Rightarrow \$6 billion (50% of CA livestock sales (from 0.5%))

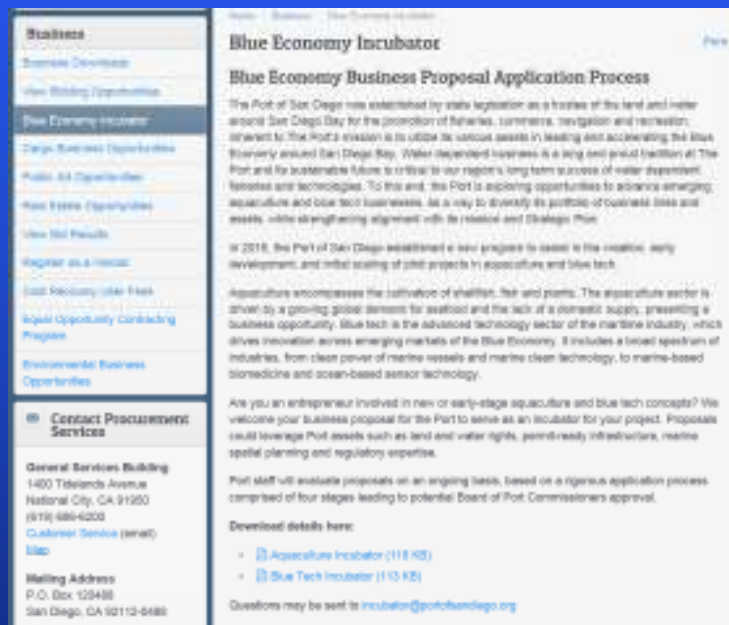


2012 Livestock sales = \$12 billion (aquaculture contribution <0.5%)

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Blue Economy Incubator Application Process

- Website live May 9, 2016!
- 6 formal applications under review
- (2 aqua, 4 blue tech)



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Blue Economy Incubator Application Process Steps

Proposals must support incubator mission "to utilize the Port's various assets in leading and accelerating the Blue Economy in our region"

1. **Submit cover letter/email with proposal to incubator@portofsandiego.org**
 - If selected, call with Incubator's Business Director and SME
2. **Biz Plan consistent with incubator core objectives, attractive financials, reasonable partnership proposal, then...**
 - Meet with Incubator Committee (CFO, COO, Legal, Biz Dir, SME)
3. **Highly considered proposals to BPC Investment Committee for review**
4. **Approved proposals taken by Port Staff as a recommendation to the Port's BPC for final approval and funding.**

If Board approves, likely be more logistical requirements prior to actual funding.

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Blue Economy Incubator / Pilot Opportunities

Hull Cleaning



Rentunder
(Boatwash)

Passive Filtration Remediation



Red Lion Chem Tech
(Patented Media Filter)

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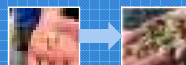
Blue Economy Incubator / Pilot Opportunities

Automated Dock Management



Swell Advantage

Oyster Nursery (FLUPSY)



Acacia Pacific Aquaculture

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Aquaculture Business Proposal Update: Other

- **Many other inquiries to date:**

- U.S. Veteran operated shellfish farm operations
- Land – based shrimp production
- Land – based sturgeon production
- Land – based salmon production
- Land – based culinary seaweed production
- Systems design, fabrication, service provider for aquaculture/blue tech businesses



Require Water (Seawater and freshwater) intake and discharge systems + space to operate



Infrastructure Feasibility Analyses – Aquaculture/Blue Technology Park

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Planning and Pre-Development Work-Oyster Sampling:



Objective:

- Develop baseline health information for various life stages of oysters in order to ensure that potential oyster operations can get the required permits and certifications needed to import seed into, and export juveniles out of San Diego Bay
- Sampling intended to simulate FLUPSY operations, growing oysters in baskets



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Infrastructure Feasibility Analysis

- **Contract for Feasibility Analysis:**
 - Conceptual design and development of infrastructure necessary to support aquaculture and blue technology businesses:
 - Seawater intake and discharge
 - Electrical, municipal, maintenance services
 - Land-based algae, shellfish, and fish production infrastructure
 - Blue tech business platforms
 - Education and outreach potential
 - Deliverables-
 - Drawings, site plans, permitting, development, timelines, phased approach, draft budget/s
 - Potential for concentrated aquaculture and blue technology park

Infrastructure Feasibility Analysis - initial

- Americas Cup Harbor Site
- Driscoll's Wharf
- Tuna Harbor
- National Distribution Center
- Tenth Avenue Marine Terminal
- Chula Vista



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