

# CERTIFICATION STANDARDS FOR ANTI-BIOTIC FREE SEAFOOD

SEBASTIAN BELLE  
MAINE AQUACULTURE ASSOCIATION

FEBRUARY 27 2020

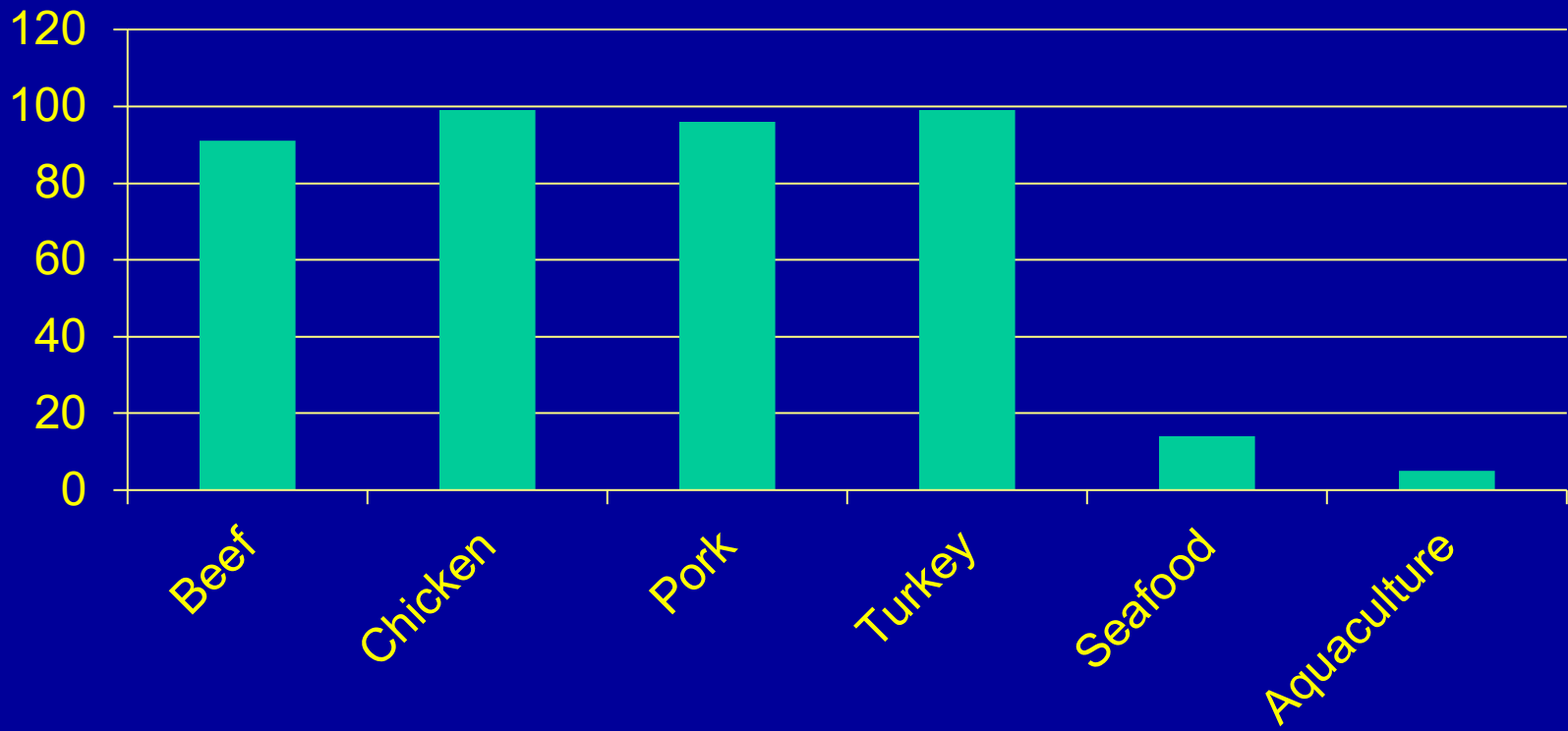
PRESIDENTIAL ADVISORY COUNCIL ON COMBATING ANTI-BIOTIC RESISTANT BACTERIA  
WASHINGTON, D.C.



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# SHARE OF CONSUMPTION SUPPLIED BY DOMESTIC PRODUCTION

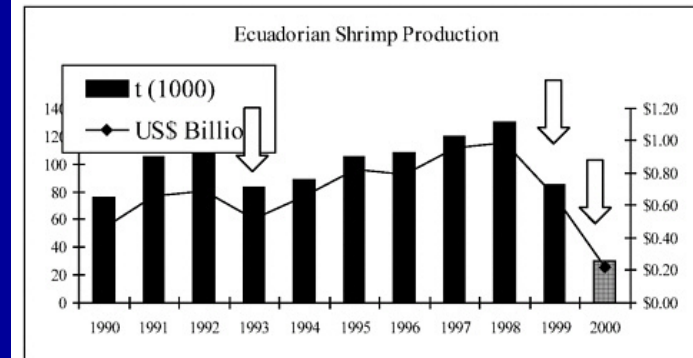
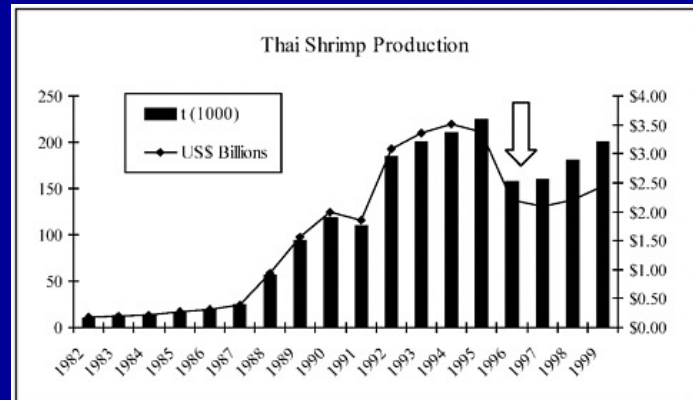
## % Domestically Sourced



# STEADY HIGH GROWTH SIGNIFICANT DISEASE CHALLENGES



**8%**  
**1998-2018**



# GLOBAL TRIPARTITE



+



+



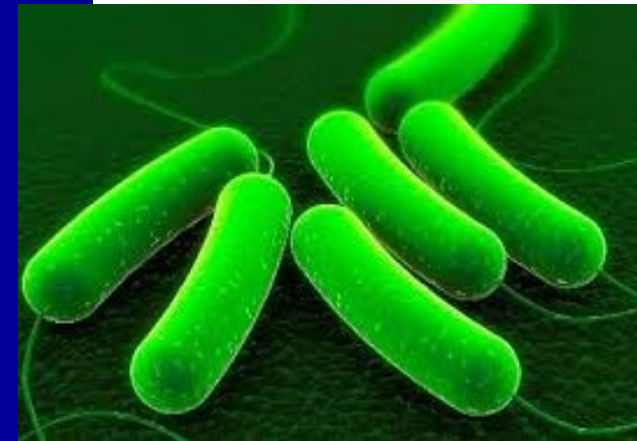
ONE HEALTH + GLOBAL FOOD CHALLENGE  
AMR GLOBAL ACTION PLAN



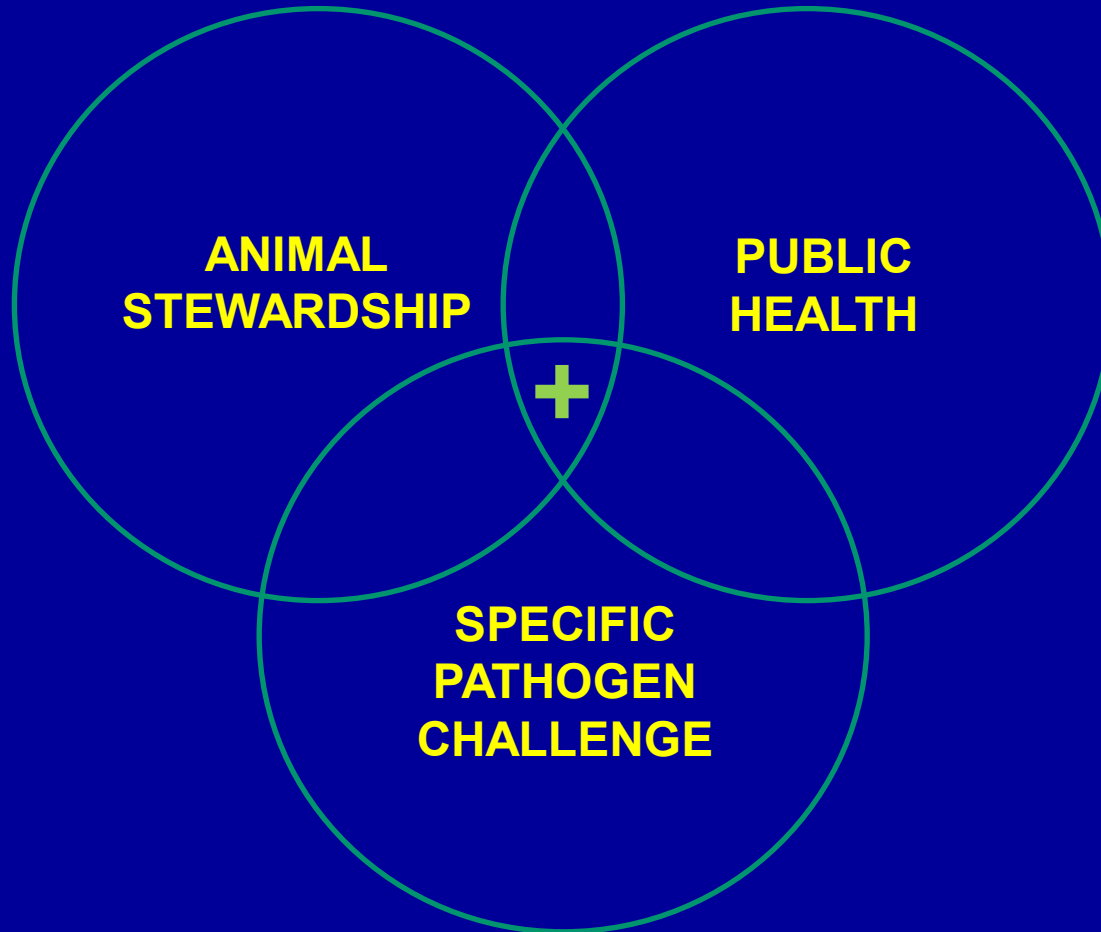
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# AQUATIC ANIMALS ARE DIFFERENT

- COLD BLOODED
- IM SYSTEM SIGNIFICANTLY ▲
- LIMITED KNOWLEDGE OF PATHOGENS
- LIMITED ANTIMICROBIALS (AM)
- AM ADMINISTRATION CHALLENGING
- PROFESSIONALS NEW TO FIELD
- HUSBANDRY METHODS NEW



# EVERY PATHOGEN IS DIFFERENT



# DEVELOPMENT OF BMPs DESIGNED TO REDUCE DISEASE RISK AND AMU : MAINE A CASE STUDY

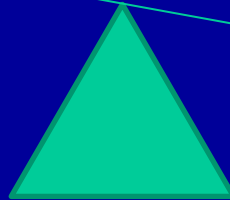
- 1992      COMPREHENSIVE FISH HEALTH SURVEILLANCE RULES
- 1994      3<sup>RD</sup> PARTY BIOSECURITY AUDITS, MAA CODE OF PRACTICE
- 1999      PATHOGEN SPECIFIC ACTION PLANS
- 2001      AREA MANAGEMENT AGREEMENTS, SITE ROTATION AND FALLOWING
- 2004      FARM AND AREA BIOSECURITY PLANS, EXPANDED SURVEILLANCE, COOPERATIVE COMMUNICATION SYSTEM
- 2016      THIRD PARTY CERTIFICATION PROGRAMS



# **DISEASE RISK CONTROL AND MANAGEMENT**

**CHEMICAL INTERVENTION**

**BIOSECURITY  
VACCINES  
AREA MANAGEMENT  
SITE ROTATION/FOLLOWING  
BIOLOGICAL INTERVENTION**



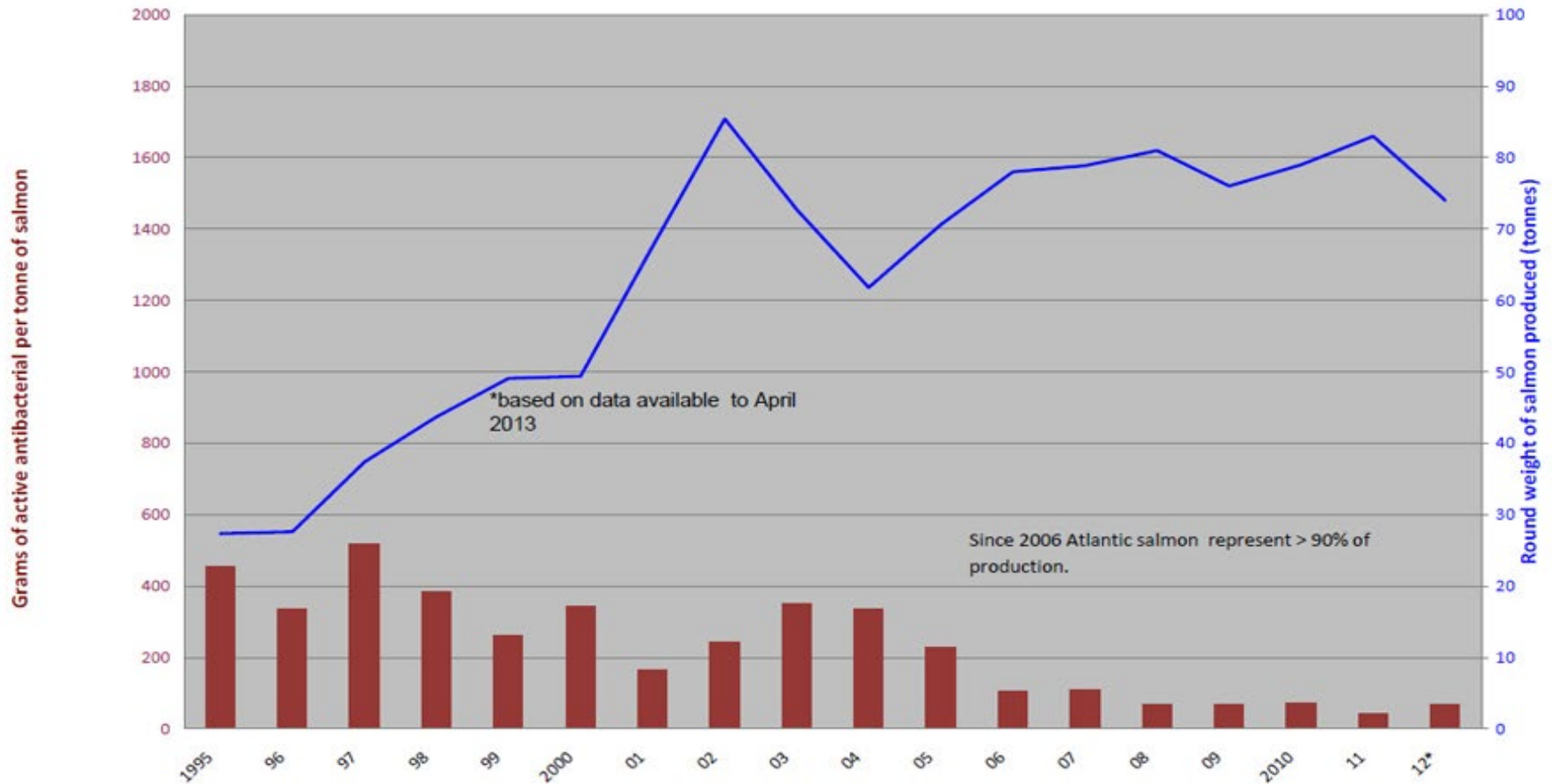
**FARMER**





# IMPACT OF EFFECTIVE VACCINES

## Antibacterial Use vs. Aquaculture Salmon Production in B.C. 1995 - 2012



# CERTIFICATION PROGRAMS

- “VOLUNTARY” BUT BUYER/MARKET DRIVEN
- RAPIDLY EVOLVING
- BMPs WITH SPECIFIC METRICS
- OVER AND ABOVE REGULATIONS
- REGULAR THIRD PARTY AUDITS
- SCIENTIFIC ADVISORY BOARDS



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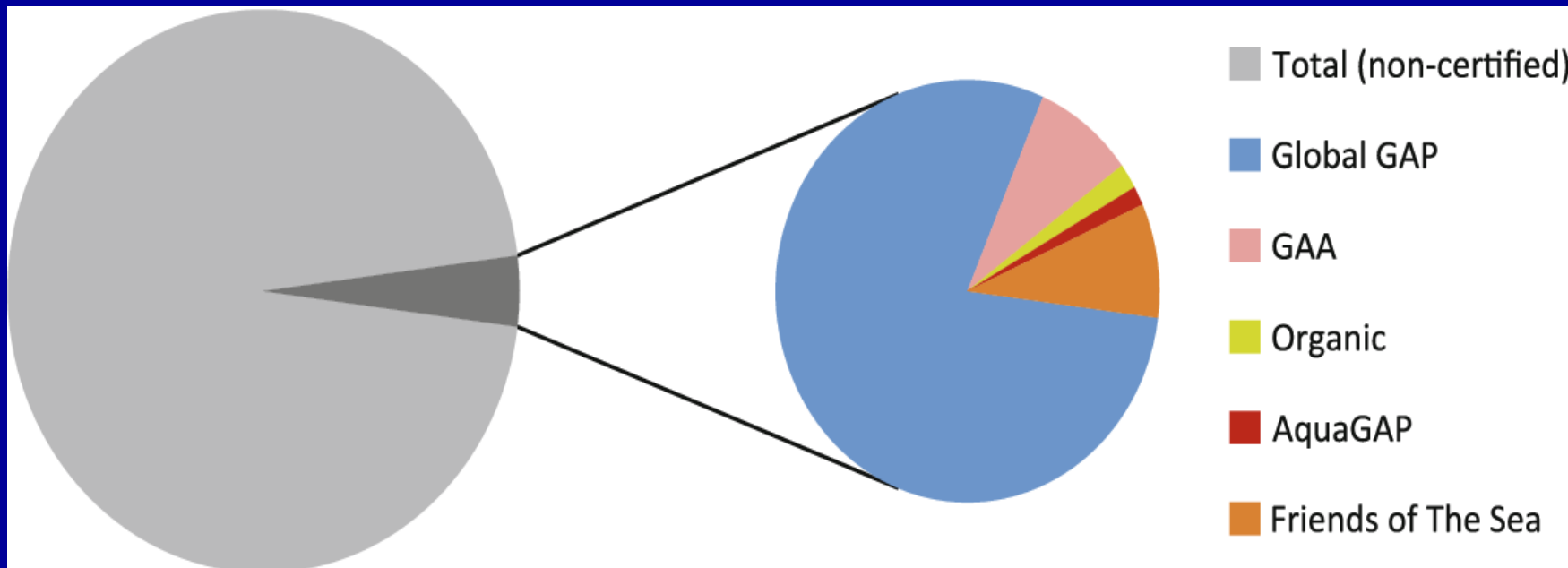


Aquaculture  
Stewardship  
Council



# AQUACULTURE CERTIFICATION PROGRAMS

**<2% OF WORLD PRODUCTION  
≈ +1% UNDER ASSESSMENT  
≈52% “GREEN” RATED+CERTIFIED**



JONELL, PHILLIPS AND TROELL (2013)

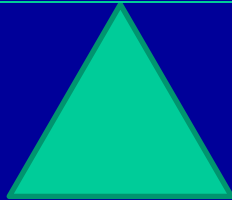
# INTER-PROFESSIONAL DISCUSSION



**HUMAN WELFARE**



**ANIMAL WELFARE**



**FARMER  
CONSUMER**



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# MAINE AQUACULTURE KEEPING WORKING WATERFRONTS WORKING

