

MAINE AQUACULTURE

**LOCALLY GROWN
SUSTAINABLE
HEALTHY SEAFOOD**

OPPORTUNITIES FOR A NATIONAL WORKING WATERFRONTS POLICY



NATIONAL WORKING WATERFRONTS AND WATERWAYS SYMPOSIUM

TACOMA 2013



MAINE AQUACULTURE ASSOCIATION

S. BELLE

RESOURCE USE PATTERNS ARE CHANGING



EVOLUTION OF RESOURCE UTILIZATION PATTERNS



HUMANS ADAPT AND USE TOOLS



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Empty Nets

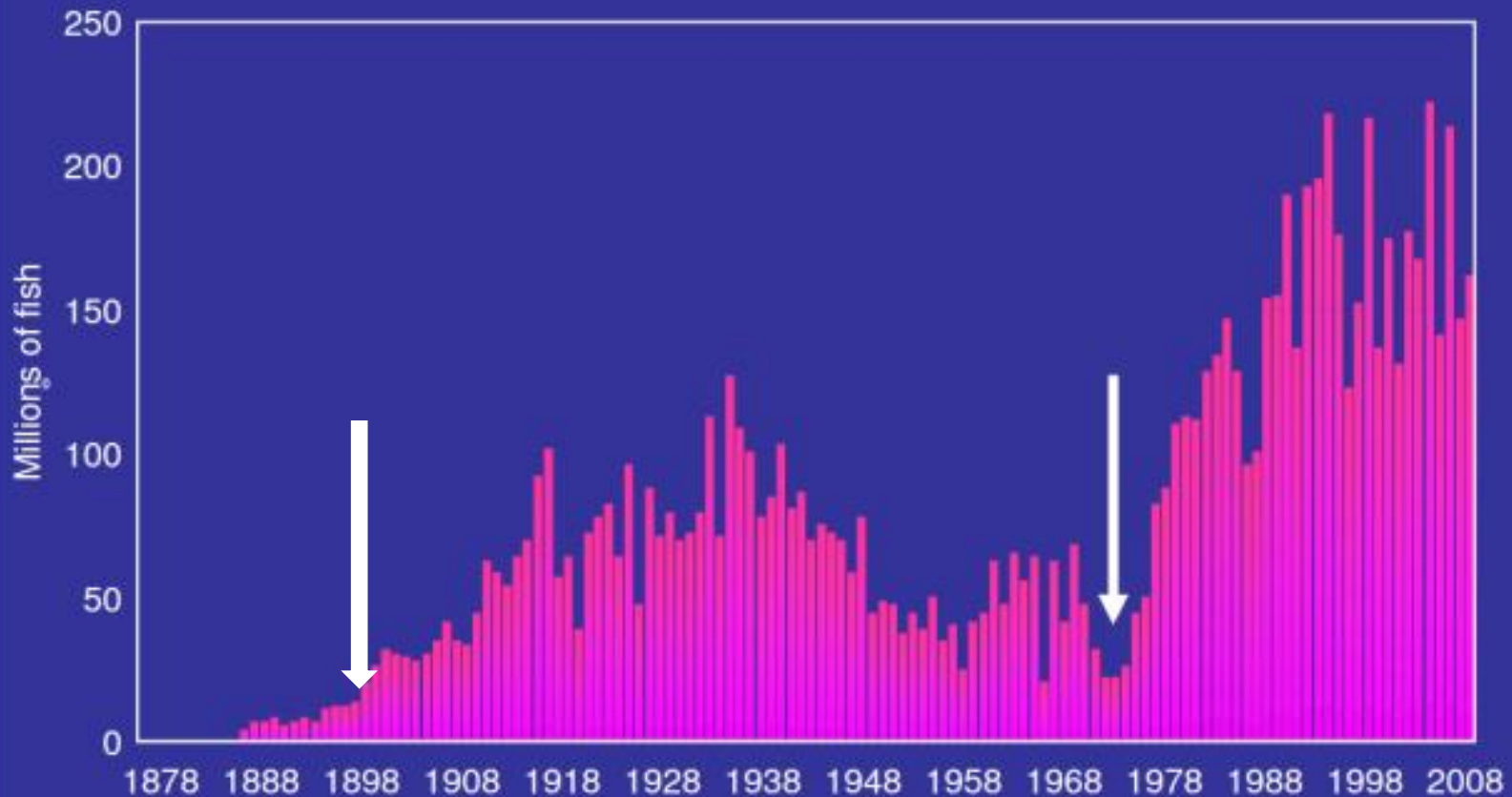
INDIANS, DAMS, AND THE COLUMBIA RIVER

Roberta Ulrich

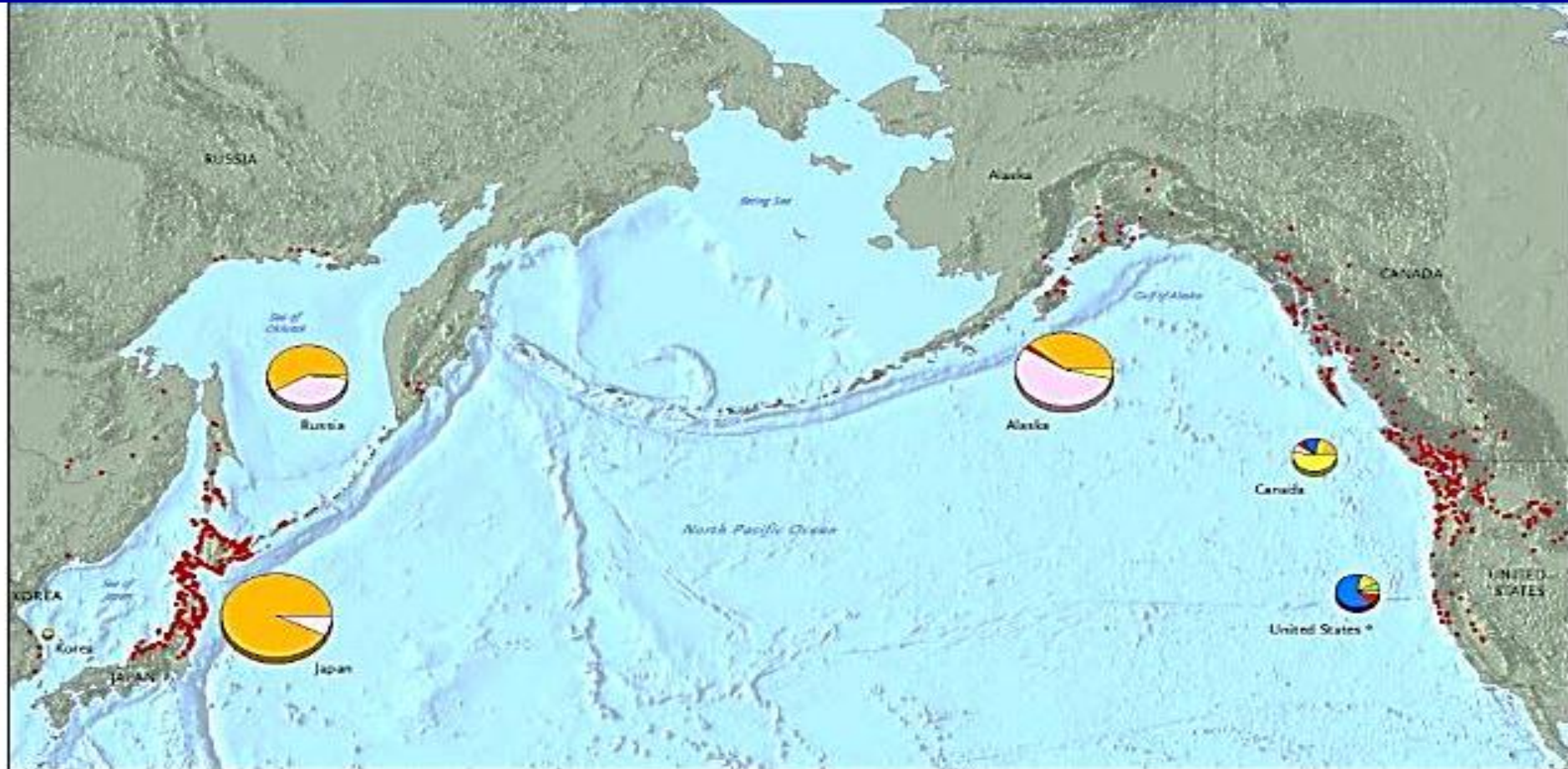
SECOND EDITION



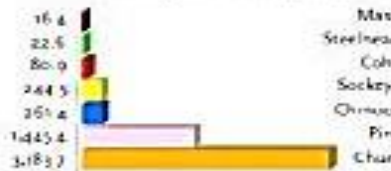
Alaska Commercial Salmon Harvest, 1880-2009



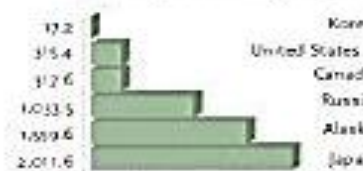
> 8.4 BILLION JUVENILE SALMONIDS ANNUALLY



Hatchery Releases by Species



Hatchery Releases by Region



* Hatchery Release Site

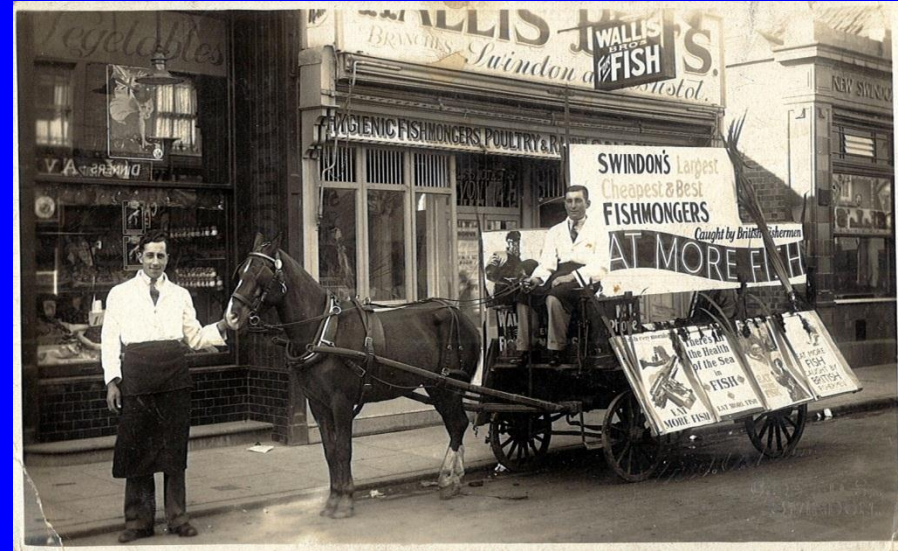


* California, Idaho, Oregon, and Washington

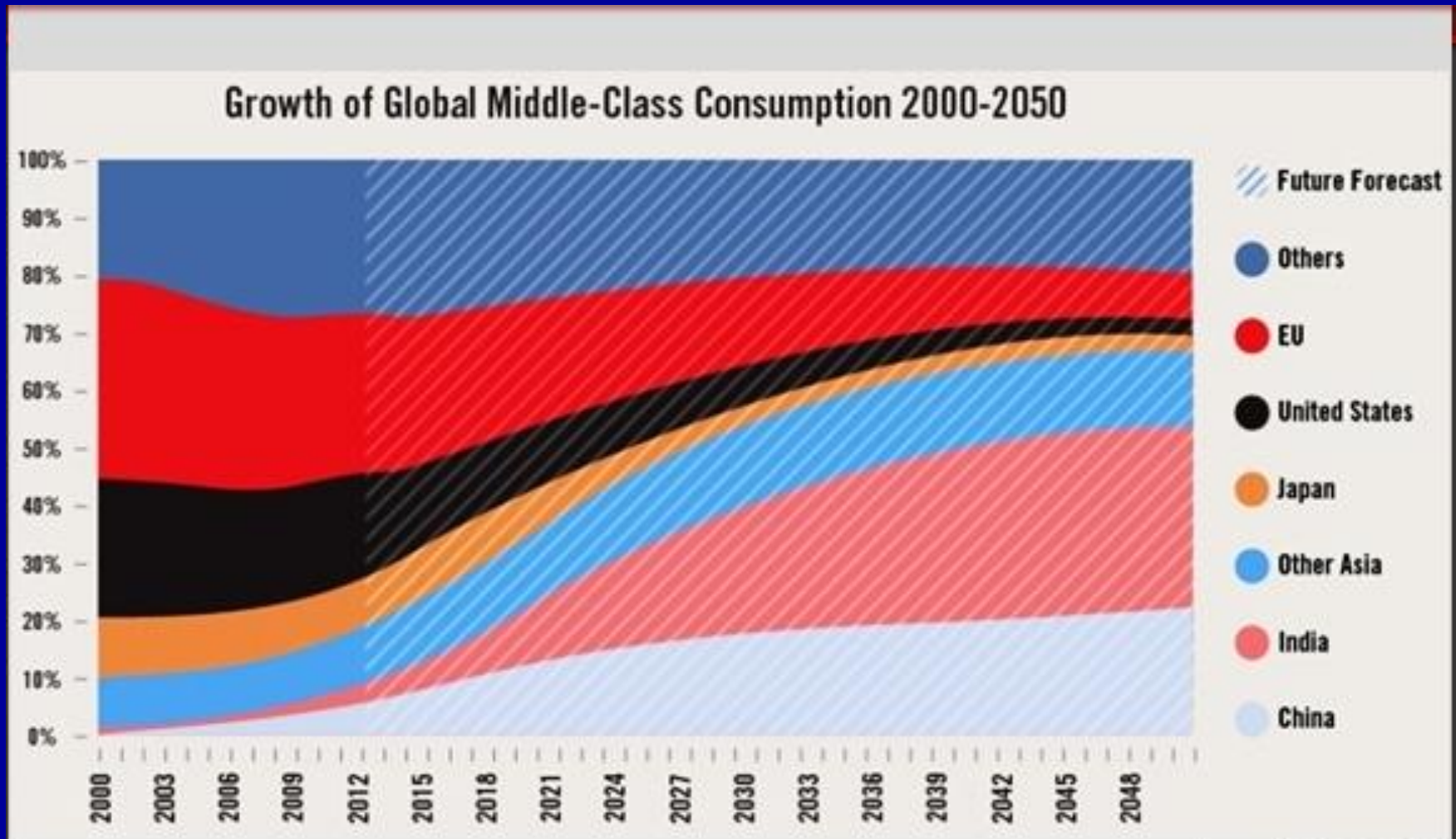
Data Source: North Pacific Anadromous Fish Commission 2010 Release Data



FOOD MARKETS AND DISTRIBUTION CHANNELS ARE CHANGING

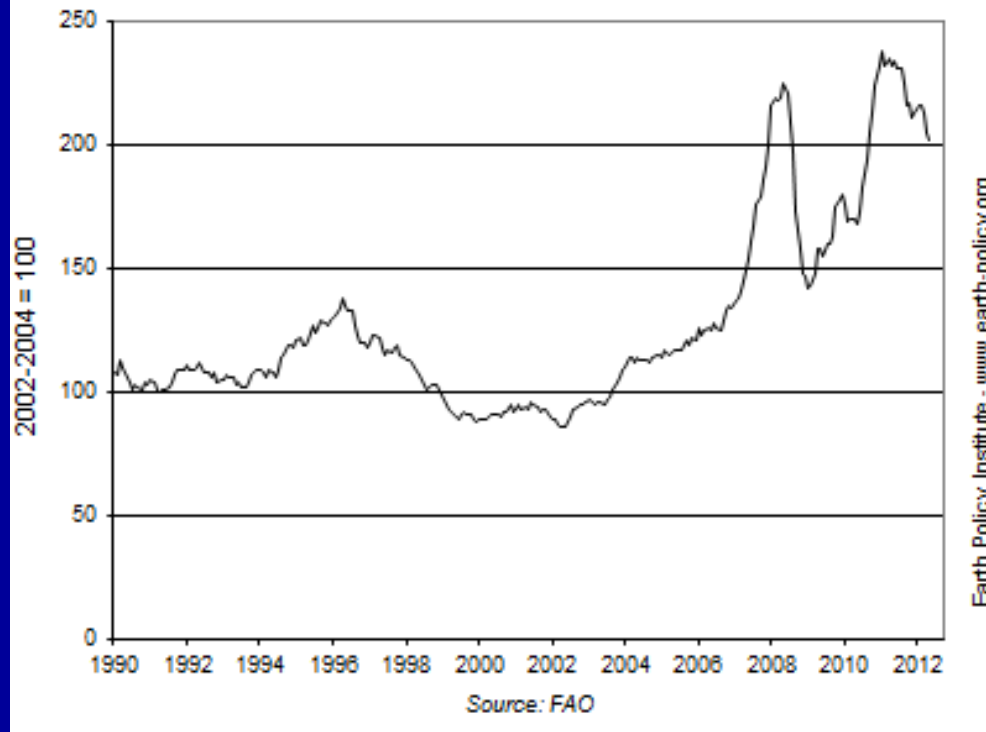


BY 2030 AVERAGE STANDARD OF LIVING IN CHINA AND INDIA = US



Source: JANA, Apr 2012.

Figure 1-1. World Monthly Food Price Index,
January 1990 - June 2012



“The world is in transition from an era of food abundance to one of scarcity, rising food prices and spreading hunger. Population growth, rising affluence, and the conversion of food into fuels are combining to raise consumption by record amounts. Extreme soil erosion, growing water shortages, and the earth’s rising temperature are making it more difficult to expand production. Unless we can reverse such trends, food prices will continue to rise and hunger will continue to spread, eventually bringing down our social system.” Lester Brown 2012

COST AND AVAILABILITY OF FOOD, ENERGY AND WATER WILL BE THE SOCIAL DRIVERS IN NEXT CENTURIES

SEAFOOD SUPPLY-DEMAND GAP

2030 MMT FOOD FISH ONLY

| | SUPPLY 2030 | DEMAND 2030 | S/D GAP 2030 |
|----------|----------------|----------------|-----------------|
| AFRICA | 11.7 | 18.7 | -7.0 |
| ASIA | 156.5 | 186.3 | -29.8 |
| EUROPE | 18.6 | 23.4 | -4.8 |
| LA & CA | 16.2 | 18.3 | -2.1 |
| NORTH A. | 6.2 | 12.9 | -6.6 |
| OCEANIA | 1.5 | 1.8 | -0.3 |
| WORLD | 210.7 | 261.2 | -50.6 |

ASSUMPTIONS: Per capita consumption at 2010 level
 GDP based on IMF 2010 projection
 World population based on 2010 UN projection
 No significant shift in preferences

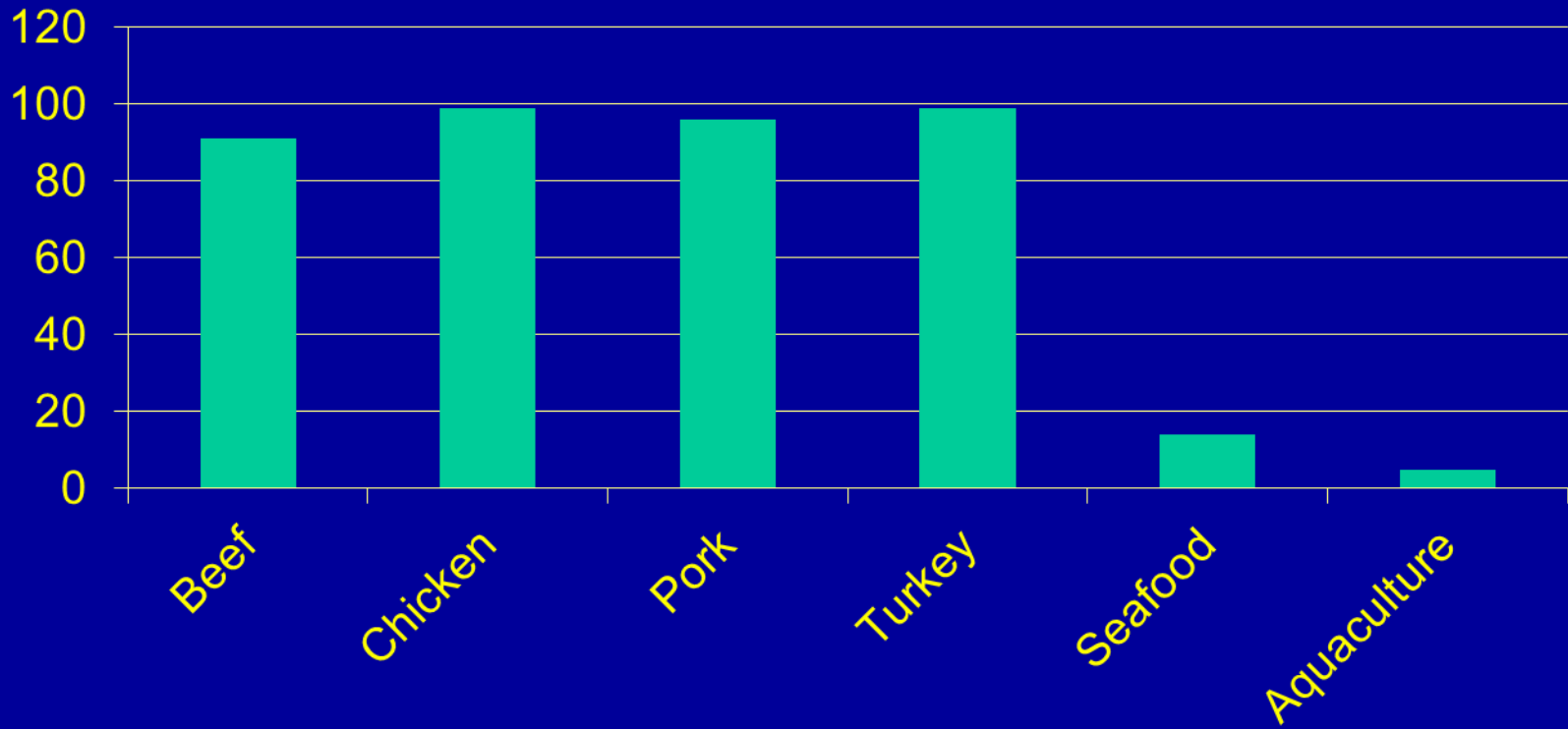
SOURCE: FAO, 2012

NATIONAL STATUS AND TRENDS

- **>90% OF SEAFOOD IMPORTED**
- **<2% OF IMPORTS INSPECTED (CONTAMINANTS, RESIDUES)**
- **~59% OF ALL SEAFOOD CONSUMED IN US IS FARMED**
- **SIGNIFICANT CONTRIBUTION TO U.S. TRADE DEFICIT
>\$10.2 BILLION (DOC 2009)**
- **US AQUACULTURE >\$1.5 BILLION (FARM GATE)**
- **~4200 FARMS (MOST FRESHWATER)**

SHARE OF CONSUMPTION SUPPLIED BY DOMESTIC PRODUCTION

% Domestically Sourced

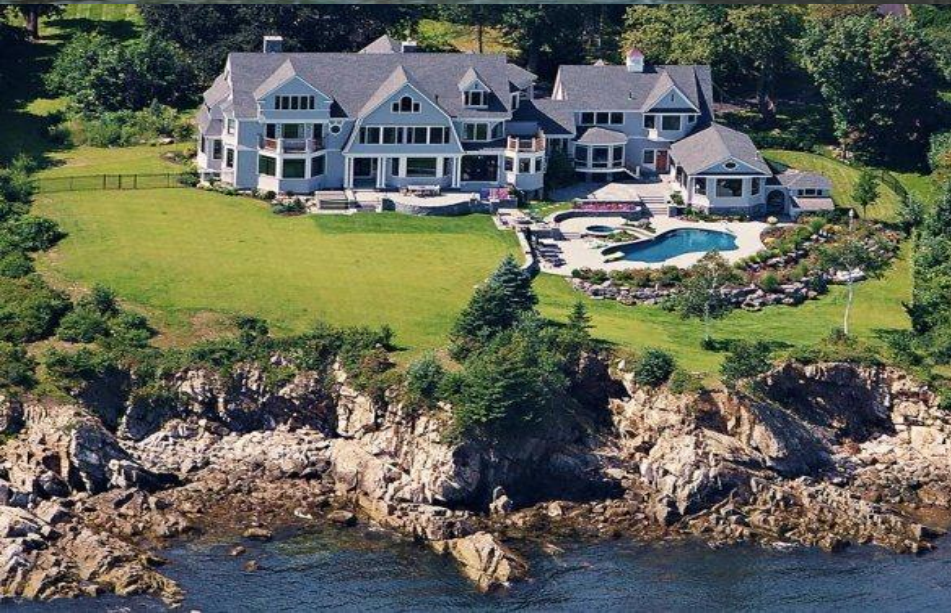


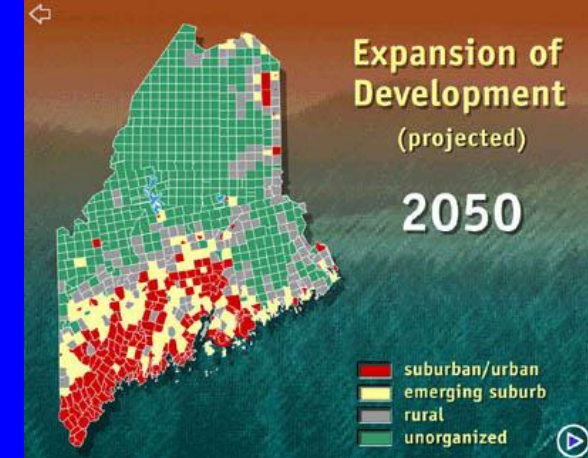
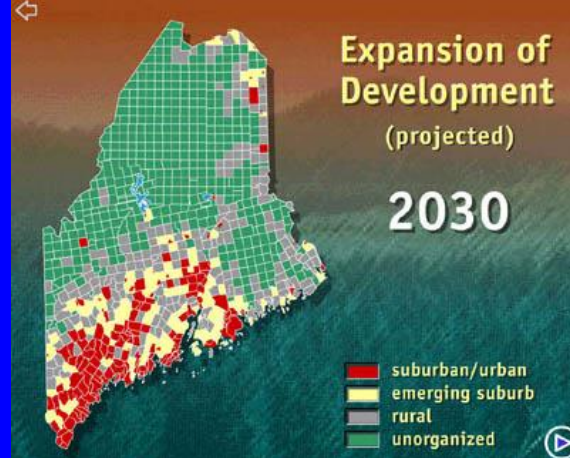
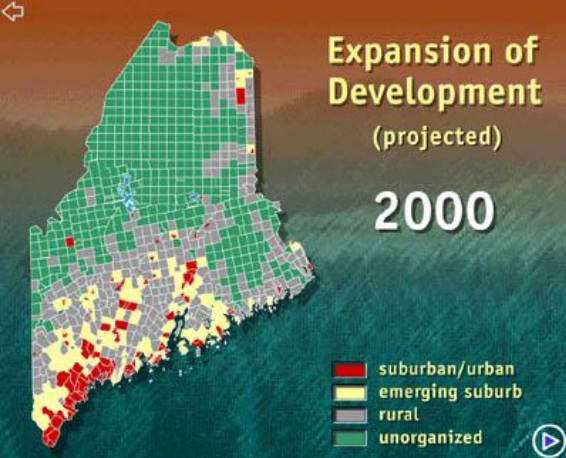
Source: USDA2010,USDOC2012

EXPECTATIONS AND DELIVERY HAVE CHANGED

- 50% ALL FOOD DOLLARS AWAY FROM HOME
 - 51% OF THAT IS CARRY OUT
 - PORTABILITY
 - REHEATABILITY
- > 75% SEAFOOD CONSUMED AWAY FROM HOME
- 78% OF BUYING DECISIONS KID INFLUENCED
- DECISION TIME 90 SECONDS MAX
- US SECOND LARGEST SPANISH SPEAKING COUNTRY
- AVERAGE MEAL 1 PAN 15 MINUTES

COASTAL COMMUNITIES ARE CHANGING





COASTAL COMMUNITY TRENDS

ME SPO

TRADITIONAL NATURAL RESOURCE BASES DEPLETED

DRAMATIC INCREASES IN PROPERTY VALUES AND TAXES

SIGNIFICANT DEMOGRAPHIC SHIFTS

INCREASING % SENIORS

INCREASING % "FROM AWAY"

NON EXTRACTION RESOURCE USE BECOMES DOMINANT (LIFESTYLE/TOURISM)

NON-EXTRACTIVE RESOURCE USE SHIFTING FROM SUMMER ACTIVITY TO YEAR ROUND

REDUCTION AND DISPLACEMENT OF TRADITIONAL SOCIO-ECONOMIC GROUPS BASED ON EXTRACTIVE NATURAL RESOURCE EXPLOITATION

POLITICAL AND ECONOMIC DEVELOPMENT DRIVEN BY TOURISM, RESIDENTIAL DEVELOPMENT, AND RETIREES



**VIABLE ACTIVE
WORKING WATERFRONT**

**DERELICT WATERFRONT
PRIME RESIDENTIAL
DEVELOPMENT**

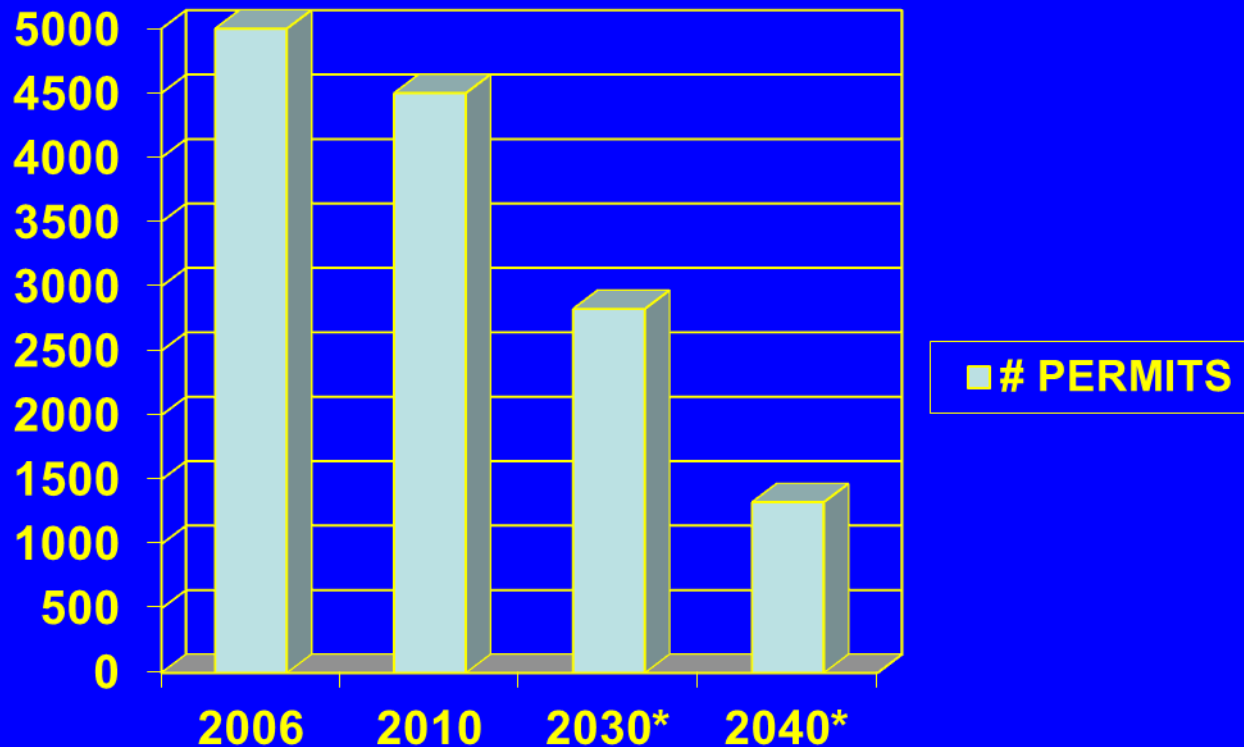




OTHER OPTIONS?



MAINE LOBSTER FISHERY



*BASED ON CURRENT (2012) LOBSTER ZONE COUNCIL ENTRY/EXIT RATIOS

WHERE DOES AQUACULTURE FIT?

MAINE AS AN EXAMPLE

- **FIRST LEASE 1974**
- **>20 DIFFERENT SPECIES OF PLANTS AND ANIMALS**
- **NUMBER OF LEASE SITES**
 - 93 STANDARD
 - 13 EXPERIMENTAL
 - 96 LIMITED PURPOSE LICENSES
- **1328 ACRES LEASED**
- **EMPLOYMENT**
 - DIRECT 653
 - INDIRECT 321
- **\$100 MILLION FARM GATE SALES**
- **\$198 TOTAL ECONOMIC ACTIVITY**
- **AVERAGE AGE 35**

AQUACULTURES ROLE

- **WELL ESTABLISHED**
- **ONE OF MANY TOOLS**
- **POWERFUL**
- **POSITIVE/NEGATIVE**
- **NUMEROUS VARIATIONS**



NATIONAL WORKING WATERFRONTS POLICY

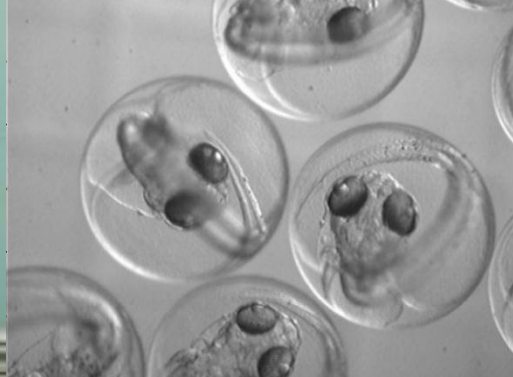
KEY COMPONENTS

- **OVERTLY STATE:**
 - **ECONOMICALLY VIABLE AND RESILIENT WORKING WATERFRONTS SERVE A VITAL NATIONAL INTEREST**
 - **AS SUCH THEIR PRESERVATION AND DEVELOPMENT SHOULD BE PRIORITIZED**
- **RECOGNIZE:**
 - **WORKING WATERFRONTS ARE DEPENDENT ON ACCESS TO THE NATURAL RESOURCES**
 - **SUSTAINABLE MANAGEMENT OF SAID RESOURCES IS NECESSARY FOR VIABLE WWF**
- **SEEK TO:**
 - **PRESERVE EXISTING WORKING WATERFRONTS**
 - **POSITION THE NATION FOR NEW WORKING WATERFRONT ACTIVITIES**
- **INCLUDE:**
- **A CLEAR DEFINITION OF “WORKING WATERFRONT”**
- **A SUITE OF ECONOMIC DEVELOPMENT AND HISTORIC PRESERVATION TOOLS**
 - **ECONOMIC DEVELOPMENT ZONES**
 - **TAX INCENTIVE PROGRAMS**
 - **MODEL COMPREHENSIVE PLANS THAT PRIORITIZE WORKING WATERFRONT DEVELOPMENT AND PRESERVATION**
 - **INVESTMENT INCENTIVE PROGRAMS**
 - **COMMUNITY BLOCK GRANTS**

WHAT SHOULD NOAA DO?

- **ADEQUATELY FUND A NATIONAL AQUACULTURE DEVELOPMENT PROGRAM**
- **CONDUCT CAREFULLY DESIGNED MARINE STOCK ENHANCEMENT PROGRAMS**
- **DEVELOP A NATIONAL EXEMPTION TO FMP FOR AQUACULTURE**
- **REMOVE AQUACULTURE MANAGEMENT FROM FM COUNCILS**
- **REMOVE AQUACULTURE FROM M/S ACT**

MAINE AQUACULTURE KEEPING WORKING WATERFRONTS WORKING



MAINE AQUACULTURE

GROWING MAINE'S FUTURE

GOOD JOBS - RESPONSIBLE STEWARDSHIP - HEALTHY FOOD



Thanks

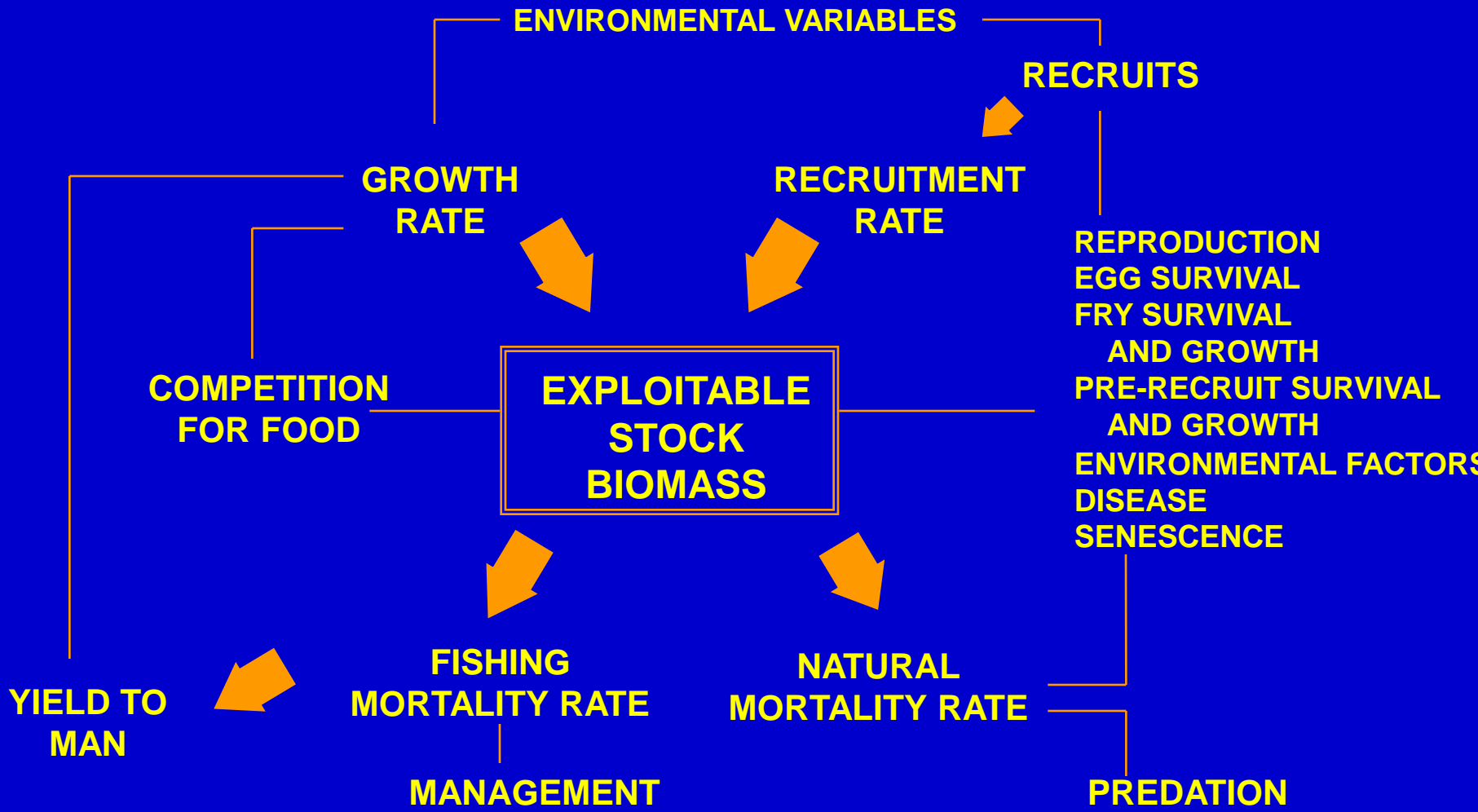
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**GROWTH
RATE**



**RECRUITMENT
RATE**



**EXPLOITABLE
STOCK
BIOMASS**



MORTALITY RATE



**YIELD TO
MAN**

MAA Guiding Principles for Responsible Aquaculture in Maine

- **SET OF 14 OVERARCHING PRINCIPLES BASED ON THE FAO CODE OF RESPONSIBLE FISHERIES. HARMONIZED WITH UN GUIDING PRINCIPLES.**
- **FOCUSED ON THE RESPONSIBILITY OF THE AQUACULTURIST TO THE ENVIRONMENT, THE FISH, SHELLFISH AND SEA VEGETABLES GROWN, CONSUMERS AND THE COMMUNITIES IN WHICH WE OPERATE.**
- **OVERTLY STATE THAT MAA MEMBER GOALS ARE TO ACHIEVE ENVIRONMENTAL, ECONOMIC AND SOCIAL SUSTAINABILITY.**
- **RECOGNIZE THE NEED FOR BOTH INDIVIDUAL AND COLLECTIVE ACTION.**
- **SPECIFICALLY ADDRESS THE IMPORTANCE OF REGULATORY COMPLIANCE, WATER RESOURCES, ANIMAL WELFARE, WASTES MANAGEMENT AND DISEASE CONTROL, THERAPEUTIC USE , INTRODUCTIONS AND TRANSFERS, LOCAL COMMUNITIES, ECONOMIC DIVERSIFICATION**
- **STRESS THE NEED FOR CONTINUAL TECHNICAL AND MANAGERIAL INNOVATION**

FISHERIES LANDINGS IN MAINE

