Aquaculture Research and Development in the U.S.

NCAC 2018 | Kansas City, MO

February 9th

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COLLEGE OF FOOD, AGRICULTURAL,
AND ENVIRONMENTAL SCIENCES

Sample of funding agencies

Sea Grant

NSF

USDA NIFA

United States Department of Agriculture
National Institute of Food and Agriculture

SOY OHIO
Ohio Soybean Council

FFAR

SARE
Sustainable Agriculture
Research & Education

THE OHIO STATE UNIVERSITY
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Not as many avenues as other ag industries…

Research and development focus?

- Local
- State
- National
- International

More emphasis on deliverables

Sea Grant encourages proposals that: 1) utilize a team approach that fully integrates at least one Sea Grant program and at least one end-user or public-private partnership in the effort, 2) involve Sea Grant Extension personnel and include a technology transfer component, where appropriate, 3) address how project impacts will be applicable to a broader geographic area through regional or topical partnerships, and 4) discuss how, upon completion, the work will have a high likelihood of increasing aquaculture production or address how the work will stimulate or advance nascent aquaculture industry(ies). Proposals should meet the program objectives to the extent practicable.

Sea Grant

JWAS Editor-in-Chief

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EDITORIAL

The Case for Effective Public Funding of Aquaculture Research and Extension

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EDITORIAL

High-Impact Research: The Critical Need for Strong Engagement with Aquaculture Producers

JWAS

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An Analysis of Nearly One Billion Dollars of Aquaculture Grants Made by the US Federal Government from 1990 to 2015

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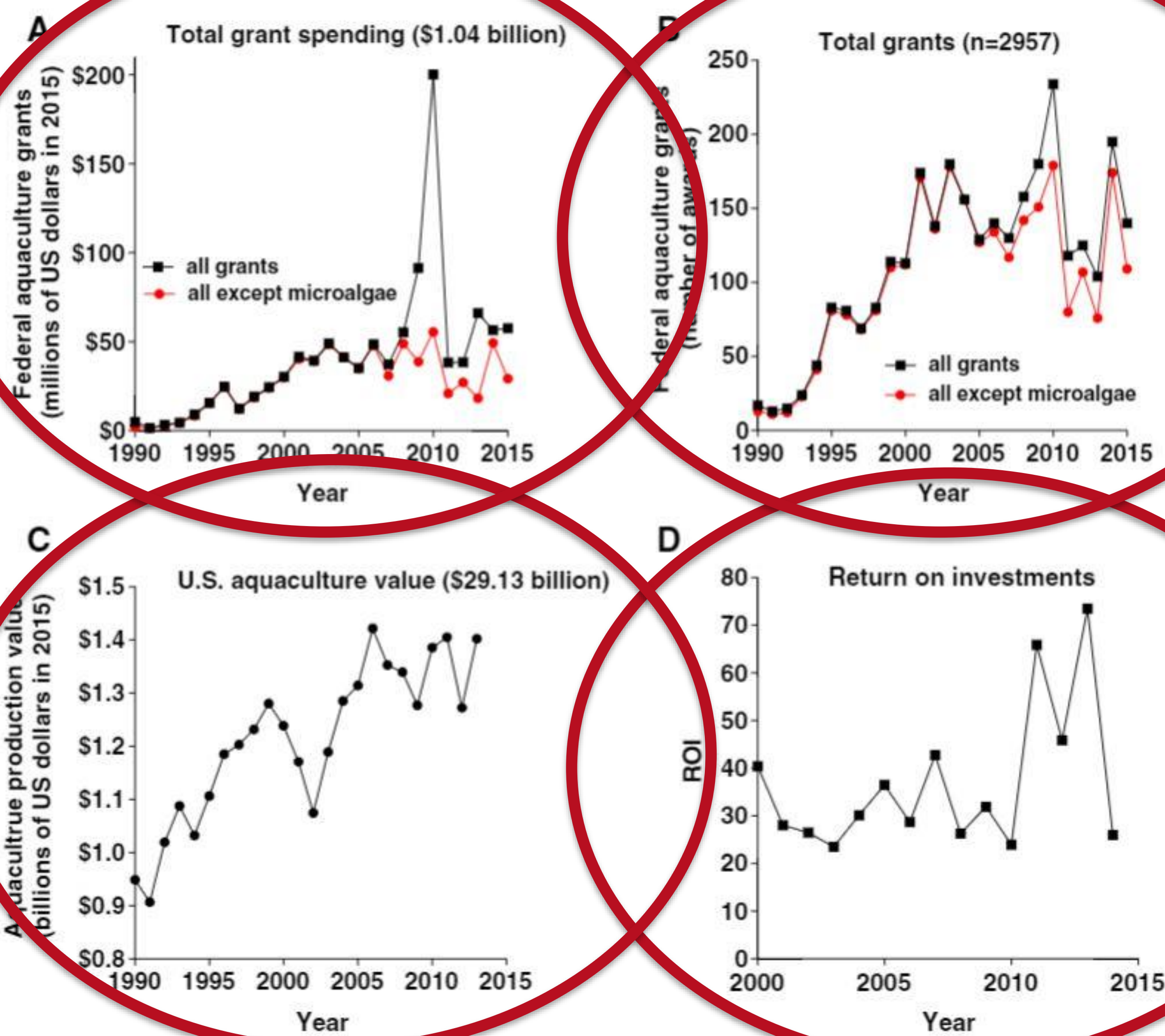
Examples: USDA, NOAA, NSF…

Love et al. 2017

US FEDERAL AQUACULTURE GRANTS FROM 1990 TO 2015



JWAS – Love et al. 2017

TABLE 6. *Top 50 institutions receiving US federal aquaculture grants from 1990 to 2015. State Sea Grant programs were combined with their host universities or consortium members.*

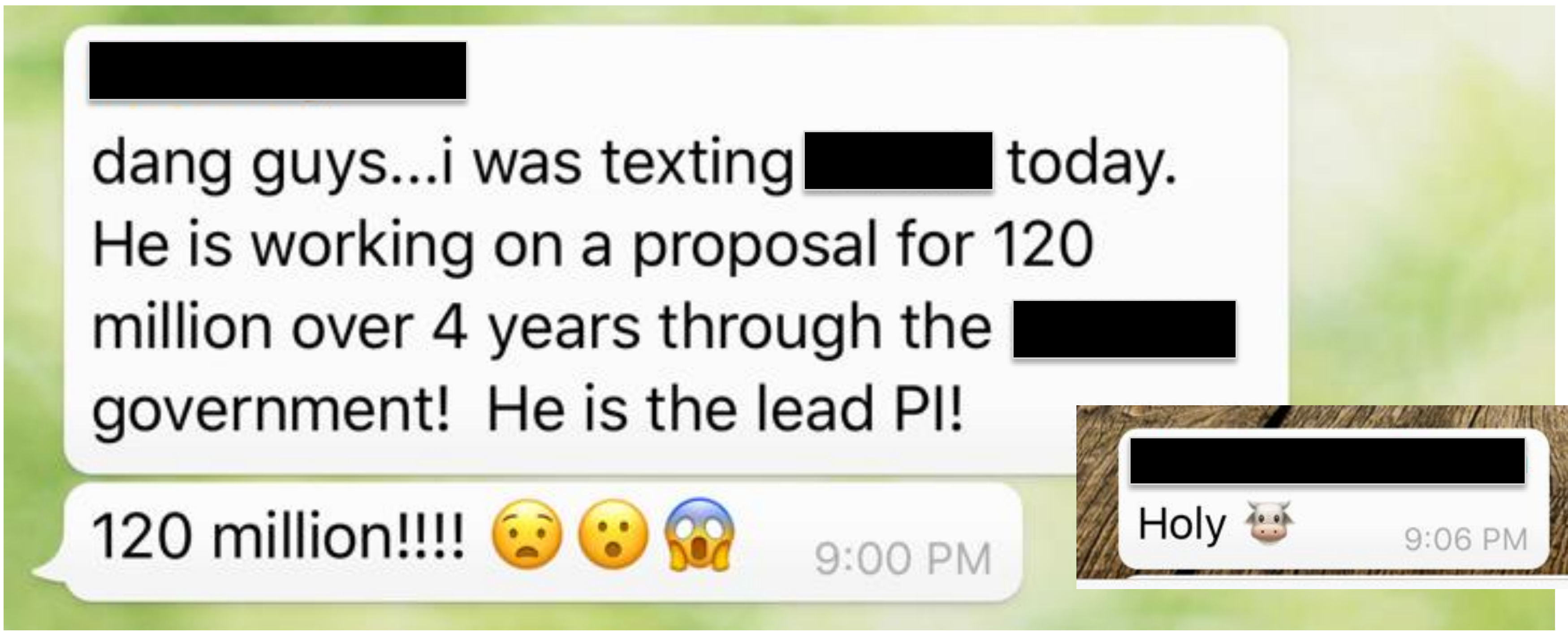
Institution	Number of awards	Total grant funding (2015 US dollars)

- ✓ **7 Midwest universities**
- ✓ **138 total # of U.S. federal awards**
- ✓ **$374,472 average ($/138 projects)**
- ✓ **What was the total U.S. federal funding for those 7 universities and 138 projects???**

- ✓ **$51,714,333 total grant funding (in 2015 U.S. dollars)**

Other countries investment in aquaculture

While Love et al. 2017 shows a large investment in aquaculture research and development….



it's clear the U.S. does not invest or see the value in aquatic production like other countries

What about currently in the U.S.?

Gets us back to the Editorial article…

Regionally?

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EDITORIAL

The Case for Effective Public Funding of Aquaculture Research and Extension

Within the U.S. – Regional Centers (Western)

Proposed Research Areas

Based on extensive input from aquaculture industry, extension and research representatives throughout the region, the Western Regional Aquaculture Center (WRAC) is seeking pre-proposals for nine research areas, listed here in no specific order or rank:

1. **Reducing Impacts of Aquatic Nuisance Species on Shellfish Aquaculture**
2. **New and Emerging Species**
3. **Emerging and Re-emerging Diseases Affecting Aquaculture Production**
4. **Aquaculture Opportunities Through Genetics**
5. **Immune Function in Aquaculture Species: Understanding and Evaluating Immune Status for Enhanced Production**
6. **Improving Aquaculture Profitability Through Market Research and Education**
7. **Aquaculture-Applied Technology Solutions**
8. **Diet Nutrition/Innovation**
9. **Aquaculture Effluent Water Quality**

RFP coming 2019

FUNDING OPPORTUNITIES

WRAC FUNDED REGIONAL RESEARCH AND OUTREACH PROJECTS

Currently the identification and proritization of research areas is now in process. This is the first step in developing the next WRAC Request for Proposals (RFP) for Regional Research and Outreach Projects slated for 2019. Pending funding, of course.

Within the U.S. – Regional Centers (Northeastern)

Goal: Research and demonstrate opportunities for increased profitability

Statement of the Problem: A number of limitations affect the development and growth of aquaculture in the northeast. NRAC seeks proposals to increase profitable production by:

- Lowering input costs (e.g., labor, energy, capital equipment, feeds, and space) related to the production of aquatic organisms. For example, high-energy costs for pumping, heating, and cooling water, reduce the competitiveness of the industry. Handling activities such as grading and counting aquatic crop species tends to be inefficient as practiced in the Northeast and needs engineering to reduce labor costs and increase consistency of the end product.
- Developing value-added products from aquaculture and aquaculture waste materials.

Goal: Co-production between industry and NRAC extension network leads to targeted outputs, technology transfer, and workshops that disseminate existing technology underutilized on northeast farms yielding outcomes that result in overall growth of the industry in the Northeast.

Statement of the Problem: NRAC has generated novel and important solutions for aquaculture in the northeast. NRAC seeks proposals that will increase the on-farm utilization and implementation of successful science-based solutions generated by its previously funded projects. These can include, but are not limited to:

- Workshops that target training industry groups about beneficial, but underutilized technology, that was generated through NRAC research
- On-farm training/demonstration programs that help drive technological solutions
- Multi- and social-media content that effectively and professionally describes NRAC products

Within the U.S. – Regional Centers (Southern)

- November 2017 meeting; decide in the spring…
- Getting “on the ballet”
- Policy analysis of the Lacey Act
- Edwarsiella piscicida - septicemia

Within the U.S. – Regional Centers (NCRAC)

Targeted NCRAC Research, Industry Development and Extension Areas

Theme A: Aquaculture Production

Targeted Research Area (TRA) A-1: Reproduction / Early Life History

Examples of specific issues:

- Broodstock quality / management
- Monosex production
- Larval / early rearing

TRA A-2: Nutrition

Examples of specific issues:

- First feeding enhancement
- Fishmeal / fish oil replacement
- Cost-effective diets
- Alternative / Novel Diet Ingredients

TRA A-3: Culture Systems

Examples of specific issues:

- Waste management
- Water Quality
- Technology improvements / profitability

Four themes…

Our region – common themes

- Within NCRAC or beyond in the region…
  - ✓ Obvious uptick in proposals related to aquaponics, biofloc, education/outreach/training, regulations, alternative feeds/feeding (soy), new species, new culture methods

Outside our region

- Although not without hurdles…
  - ✓ Off-shore/near-shore aquaculture is booming in much of the coastal states
  - ✓ Shellfish and salmonids

Top photo: Gef Flimlin

Development

- Few ways to look at how/what to develop…
- Research – replicated research trials that are designed and ran with the industry and Extension actively engaged and involved to ensure technology transfer

Development

- Farmer education –
  1) active leadership development to promote strengthened associations (a known precursor to a strong industry)
  2) technical training workshops developed with the industry involved and engaged
- Consumer education –
  1) Benefits of seafood and sustainable protein cultured in the Midwest
  2) How to cook seafood

Development

- Farmers – reach out - work with the researchers and extension folks
- Extension – be that facilitator
- Researchers – work with extension and farmers
- “A rising tide lifts all ships”

Our future?

- Crystal ball is 404
- However, active engagement by all will help the industry

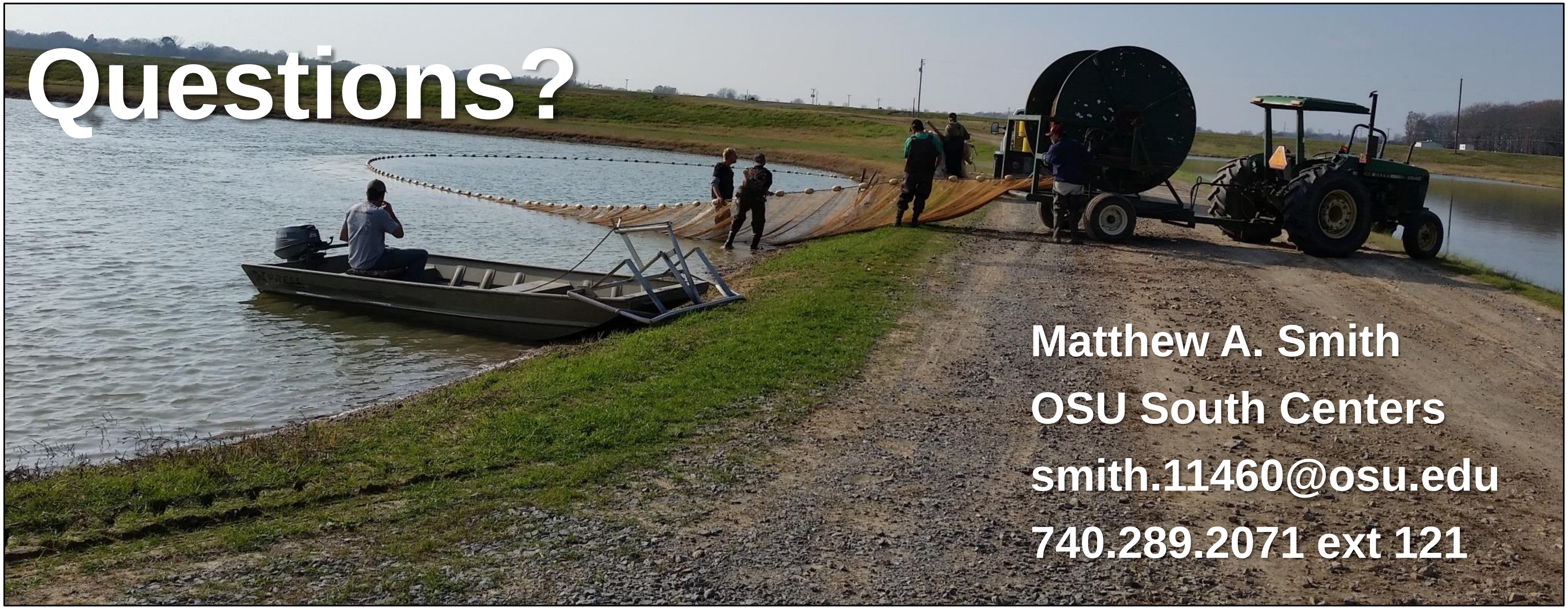
Listen and identify

Develop a program to address what's found

Nurse the program

Facilitate in the technology transfer

Hand it off to the industry and address the next item found



Questions?

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