

**Irish Farmers Association
Aquaculture Executive, Richie Flynn**

“Stagnation in EU production of farmed fish over the last decade has been the result of years of inertia, difficulties with competing and confusing EU legislation...”

Irish Farmers Association Aquaculture Executive, Richie Flynn

"...and a lack of respect for the needs and ability of small companies to absorb the costs and impacts of multi layered bureaucracy and red tape."

U.S. Aquaculture

– family farms, small businesses

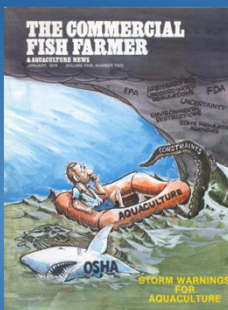
Not Factory Farms, Not Industry

- Census of Aquaculture (2005)
- 44% of farms sell less than \$25,000/year
- 69% of farms sell less than \$100,000/year
- 90% of farms sell less than \$500,000/year

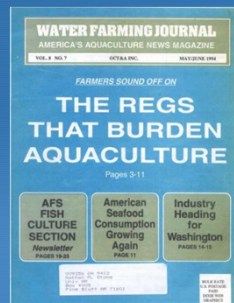
– Small Business Administration definition for a small aquaculture business ≤ \$0.75 million

Nothing New....

1979




1994



Aquaculturists seek relief from regulatory constraints

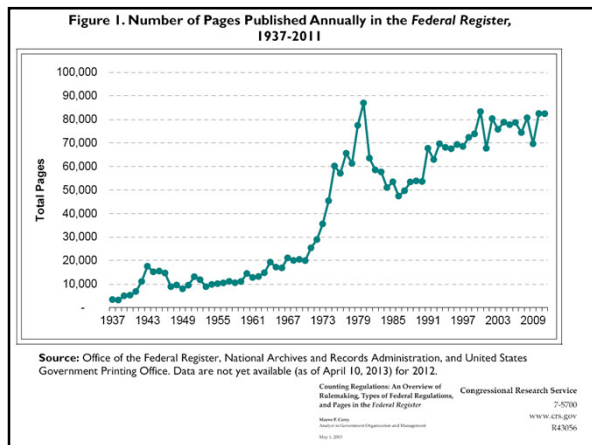
Studies of federal and state laws planned



"Constraints on orderly development of aquaculture tend to be political and administrative, rather than scientific and technological. Advances are needed in all areas, but for overall progress, the essential requirements are policy decisions and administrative actions. While it is unreasonable to expect that aquaculture should receive special exemptions from environmental and health regulations, it is not unreasonable to expect that aquaculture be given equity and parity with competing activities."

—From *Aquaculture in the United States: Constraints and Opportunities—A Report of the Committee on Aquaculture of the National Academy of Sciences/National Research Council*: 1978.

The Commercial Fish Farmer & Aquaculture News 5(2), 1979



OFFICE OF MANAGEMENT AND BUDGET



- In FY 2011, estimated that the public spent 9.14 billion hours responding to Federal information collections.
- U.S. population is 314 million.
- 29 hours per man, woman, child, infant.

Regulatory Costs - 2008

The Impact of Regulatory Costs on Small Firms

by
Nicole V. Crain and W. Mark Crain
Lafayette College
Easton, PA

for
SBA
Office of Advocacy
www.sba.gov/advocacy

under contract number SBAHQ-09-M-0456

Release Date: September 2010

Federal government regulations cost an estimated **\$1.75 trillion**, equal to 14% of U.S. national income.

Small businesses face an annual regulatory cost of **\$10,585 per employee**, 36 % higher than for large firms.

Federal Register
Vol. 76, No. 14
Friday, January 21, 2011

Presidential Documents

Title 3— Executive Order 13563 of January 18, 2011
The President Improving Regulation and Regulatory Review

Each agency must ...*"propose or adopt a regulation only upon reasoned determination that its benefits justify the costs..."*

"Regulations shall be adopted through a process that involves public participation."

<http://www.reginfo.gov/public/>

Office of Information and Regulatory Affairs
OFFICE OF MANAGEMENT AND BUDGET
Executive Order 12866

Reginfo.gov

U.S. General Services Administration GSA

Search: Agenda Day Review RSS

Home Unified Agenda Regulatory Review Information Collection Review FAQs Resources Contact Us

AGENCIES WITH THE MOST REGULATORY ACTIONS CURRENTLY UNDER REVIEW

Total Pending Actions: 112

Pending Actions By Rule Stage

View By Rule Stage

REGULATORY REVIEW

Executive Order 12866 directs agencies to follow certain principles in rulemaking, such as consideration of alternatives and analysis of benefits and costs, and describes OIRA's role in the rulemaking process.

- Regulations under E.O. 12866 Review
- Regulatory Review Completed in Last 30 Days

[More about Regulatory Review >>](#)

UNIFIED AGENDA AND REGULATORY PLAN

The Unified Agenda and Regulatory Plan provide uniform reporting of data on regulatory and deregulatory actions under development throughout the Federal government, covering over 60 departments, agencies, and commissions.

- The 2013 Fall Agenda was published on 10/25/2012

[More about Agenda >>](#)

ICR DASHBOARD

INFORMATION COLLECTION REVIEW PENDING



33 Lynwood Dr., Suite 200, PA 49015
www.originz.com 616-581-1360



Aquaculture in Michigan Roadmap through Regulation

Taking Aquaculture in Michigan (AIM) to the future: a "Roadmap" for the aquaculture sector to understand the underlying regulatory framework for operation expansion and new farm enterprise development.

Prepared for the Aquaculture Industry Committee
(Administered by the Michigan Department of Agriculture and Rural Development)
By: Originz, LLC
Project Principals: Joe Colyn & Gary Boersen
Summer 2012

...a wise and frugal Government, which shall restrain men from injuring one another, shall leave them otherwise free to regulate their own pursuits of industry and improvement, and shall not take from the mouth of labor the bread it has earned. This is the sum of good government...
Thomas Jefferson, 1st Inaugural Address, 1801

Wisconsin Walleye Initiative Regulatory Review & Recommendations Study November 15, 2013

A report to the Wisconsin Legislature as required by
2013 Wisconsin Act 20

Wisconsin regulatory agencies (DNR and DATCP) have been and will continue to work with the aquaculture industry on legislation and agency wide procedures to reduce barriers to private fish farm growth in Wisconsin. These changes will support the growth of agriculture in general, which will enable the private fish farms to play a significant role in stocking greater numbers of large fingerling walleyes in the future.



Benefits of Regulations

- Some degree of government oversight is necessary: rule of law, political & economic stability, environment, safety, etc.
- Regulations typically increase costs.
- Major federal rules – costs & benefits are evaluated. Some benefits hard to quantify, social costs of carbon.

Impact of Regulations on U.S. Aquaculture

- Global economy – costs of doing business in U.S. are higher due to regulations that do not apply to overseas competitors.
 - Food Safety, Environmental Sustainability



Aquaculture Economics & Management
 Publication details, including instructions for authors and subscription information:
<http://www.tandfonline.com/toc/taem20>
COMPETITIVENESS OF U.S. AQUACULTURE WITHIN THE CURRENT U.S. REGULATORY FRAMEWORK
 Carole R. Engle* & Nathan H. Stone**
* Aquaculture Fisheries Center, University of Arkansas at Pine Bluff, Pine Bluff, Arkansas, USA

- Encourage research on effects of regulations on U.S. aquaculture: \$, jobs.

Effect of Regulatory Burden on Costs



- **Requires**
 - Greater electric costs.
 - More water quality monitoring.
 - More plankton control costs.

Effect of Regulatory Burden on Costs

- **Increased Record-keeping**
 - More accounting & legal fees.
 - More office supplies.
 - More insurance, worker's compensation.
 - Bird control costs.
 - Monitoring effluents.
- **Requires additional manager-level personnel**

European Paradox:

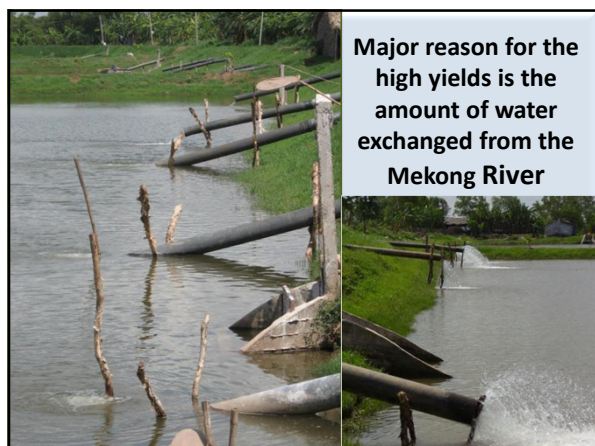
Europe sets higher standards for its producers than it requires for its markets. We produce at one standard but we consume at another.

(European Parliament Hearing, Committee on Fisheries, March 2008)

Basa/tra/swai are priced much lower in U.S. markets than are domestic fish.



Vietnamese farmers obtain very high yields, that result in lower costs.



Major reason for the high yields is the amount of water exchanged from the Mekong River

Rico et al. 2012. Use of chemicals and biological products in Asian aquaculture and their potential environmental risks: a critical review. *Reviews in Aquaculture* 4:75-93.

Antibiotics (n = 36)

- | | | |
|-----------------|-------------------------|-------------------|
| • Gentamycin | • Flumequine | • Oxytetracycline |
| • Kanamycin | • Norfloxacin | • Chloramphenicol |
| • Neomycin | • Ofloxacin | • Colistin |
| • Streptomycin | • Oxolinic acid | • Florenicol |
| • Amoxicillin | • Sulfachloropyridazine | • Metronidazole |
| • Ampicillin | • Sulfadiazine | • Rifampicin |
| • Penicillin | • Sulfadimethoxine | • Trimethoprim |
| • Erythromycin | • Sulfadimidine | |
| • Furaltadone | • Sulfamethazine | |
| • Furazolidone | • Sulfamethoxazole | |
| • Nifurpirinol | • Sulamonomethoxine | |
| • Nitrofurazone | • Tetracycline | |
| • Ciprofloxacin | • Chlorotetracycline | |
| • Enrofloxacin | • Doxycycline | |

Rico et al. 2012. Use of chemicals and biological products in Asian aquaculture and their potential environmental risks: a critical review. *Reviews in Aquaculture* 4:75-93.

Pesticides (n = 29)

- | | |
|-------------------|--------------------------|
| • Acriflavine | • Azinphos-methyl |
| • Copper sulfate | • Chlorpyrifos |
| • Fentin acetate | • Diazinon |
| • Malachite green | • Dichlorvos |
| • Methylene blue | • Dimethoate |
| • Nystatin | • Fenitrothion |
| • Trifluralin | • Malathion |
| • 2,4-D | • Monocrotophos |
| • Dalapon | • Trichlorfon |
| • Diuron | • Deltamethrin |
| • Paraquat | • Aluminum phosphide |
| • Simazine | • Nicotine |
| • Endosulfan | • Oil cake |
| • Lindane | • Rotenone |
| | • Saponin (teaseed cake) |

United States Department of Agriculture
FOOD SAFETY AND INSPECTION SERVICE

1400 Independence Avenue, S.W., Washington, DC 20250 Tel.: 202-720-3473 Facsimile: 202-690-3856

July 2011

PROCESS FOR EVALUATING THE EQUIVALENCE OF FOREIGN MEAT, POULTRY, AND EGG PRODUCTS FOOD REGULATORY SYSTEMS

“Imported meat, poultry, and egg products must meet all safety standards applicable to similar products produced in the United States”

And now, catfish ...

Impact of Regulations

- Cumulative burden – multiple agencies.
- Barrier to new farms: requires time, makes financing more difficult.
- Barrier to expansion; may keep farms small, unable to obtain economies of scale.
- Need for streamlining the regulatory process (e.g., Norway).
- Seek global parity in food safety and environmental sustainability.

Some Regulatory Issues

- Lacey Act
- Wildlife Diseases & USFWS
- Aquatic Invasive Species & Fish Transportation
- National Aquatic Animal Health Plan
- Critical Habitat for Endangered Species and Additional Listings
- Numeric Nutrient Criteria

The Lacey Act



- **1900**, amended several times.
- Applies to all wild animals (including fish), even if “bred, hatched or born in captivity”.
- Can be triggered by violation of federal law or regulation, or when a state or federal law or regulation is violated during interstate commerce.



SRAC Publication No. 5005
May 2012

Aquaculture and the Lacey Act

Elizabeth R. Runley

- *Example* - Load of live fish going from Wisconsin to Minnesota accidentally contains a fish that is legal in Wisconsin but prohibited in Minnesota.
 - state law, max. 90 days and/or \$1,000 fine.
- However, if the Lacey Act is invoked - up to a year in federal prison and up \$100,000 fine.
- If a false labeling charge is added (for not declaring the fish in the list of shipment contents)—additional up to 5 years and/or \$250,000.

¹ Staff Attorney, National Agricultural Law Center

U.S. Fish and Wildlife Service

July 1, 2012 FWS-HQ-FHC-2013-N044 FXFR13360300000-134-FF09T14000
/ompany=FF-N044-FWS-HQ-FAC-2013-0110 FXFB13360300000-134-FF09T14000

- Seeking authority to expedite injurious species listing under the Lacey Act.
- Categorical exclusion from having to consider the environmental impacts.
- Would also exempt the Service from having to consider **economic** impacts (e.g., for species in trade or being raised commercially).

Third Report to the Fish Farmers, U.S. Fish and Wildlife Service, 1984



Fig. 7.2. The bighead carp is an excellent food animal, and highly prized by Asians in the United States. It is well suited for culture in combinations with other fishes such as the grass carp, silver carp, and common carp. Its acceptance by consumers in the United States is rapidly increasing.

Listed by Congress, not USFWS, because of economic value.
Economic impact of \$135 million....

“Invasive Fish and Wildlife Prevention Act”

2013, H.R. 996; S. 1153. Improved regulatory control over injurious species.

Proposed legislation would give Interior (USFWS) control over interstate fish disease regulations.

SEC. 10. PREVENTION OF WILDLIFE PATHOGENS AND PARASITES.

“IN GENERAL.—The Secretary* shall have the primary authority to prevent, and the primary responsibility for preventing, the importation of, and interstate commerce in, wildlife pathogens and harmful parasites,...”

*Secretary of the Interior

Still under USFWS review: Petition to list as injurious live amphibians or their eggs in trade unless certified to be free of the chytrid fungus (Bd)

September 17, 2010; FWS—R9—FHC—2009—0093; 94140—1342—0000—N5.

- Devastating global fungal disease of amphibians. Infected amphibians and contaminated water are implicated in movement of Bd.
- *Potential means of movement* include moist soil, bird feathers, waterfowl feet, crayfish.

Waterfowl: Potential Environmental Reservoirs of the Chytrid Fungus *Batrachochytrium dendrobatidis*

An Garmyn^{1,*}, Pascale Van Rooij^{1,*}, Frank Pasmans¹, Tom Hellebuyck¹, Wim Van Den Broeck², Freddy Haesebrouck¹, An Martel¹

Implications of adding Bd-infected amphibians to the injurious species list

- Would **represent new authority** assumed by USFWS to regulate diseases using the Lacey Act (back-door approach, by regulating animals that carry diseases).
- Would **require testing of amphibians**; any in interstate trade would need to be certified as Bd-free (2-year history required!).
- An uncertified accidental tadpole in a load of fish crossing a state line would violate the Lacey Act...

Aquaculture Risk Reduction Act

- Proposed legislation (2013, H.R. 3105).
- To amend the Lacey Act to exempt animals accidentally included in shipments of aquatic species produced in commercial aquaculture.

UNITED STATES ASSOCIATION OF REPTILE KEEPERS, INC Lawsuit

"Currently this provision of law, among other things, bars import, export, transportation, sale, and receipt of fish, wildlife, and plants acquired, transported, or sold in violation of United States law, treaty or regulation, tribal law, or the laws of any state or foreign nation. 16 U.S.C. § 3372(a)(1), (2). **Importantly, however, the Lacey Act no longer prohibits interstate shipments, sales, or export of wildlife determined by the Secretary to be "injurious" under the Act's Title 18 provisions..**"

Aquatic Invasive Species & Fish Transportation

- **eDNA** – DNA that can be extracted from environmental samples (soil, water, air).

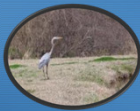


- Within cells or dissolved.
- Complex mixture of DNA from many different organisms, may be degraded.



Concerns with proposed use of eDNA for **regulatory** purposes

- Validity of tests unknown.
- Quality of labs unknown.
- Sources of DNA other than live fish.
- Unknown how long eDNA can persist.



ECAL Report February 2013 *Fisheries Gear*

- **Vessel hulls** have considerable amounts of adhering DNA, which can persist for days and is not removed by overland transport.
 - Adhering DNA also does not appear to be completely or quickly washed off of boats moving through the water.
- **Nets** appear to be sources of very large amounts of eDNA but require confirmation...



Invasive Species Advisory Committee (ISAC)

ISAC is a group of non-federal experts and stakeholders mandated to provide advice to the National Invasive Species Council (NISC) on invasive species-related issues.

INVASIVE SPECIES ADVISORY COMMITTEE (ISAC)

Meet the Invasive Species Challenge. Solve the NISC's Real-World Problems. **PREPARE. PREVENT. PROTECT.**

U.S. Department of the Interior • Office of the Secretary (OS/IS/INISC) • 1849 C Street, N.W. • Washington, DC 20240
Phone: (202) 515-7243 • Fax: (202) 371-1731 • www.invasivespecies.gov

Validation of PCR-Based Assays and Laboratory Accreditation for Environmental Detection of Aquatic Invasive Species
Approved by ISAC on May 25, 2012

"Validation is the bridge between research and regulatory decisions!"
(Anything else is jumping across the abyss of unknowns to any possible conclusion!)

Advisory Committee Recommendations:

1. National Academy of Sciences review of the reliability and effectiveness of DNA-based methods.
2. Independent performance testing of laboratories.
3. Develop validation & accreditation programs for eDNA methods and labs.

NAAHP

- National Aquatic Animal Health Plan.
- Currently, state fish health regulations vary widely. A national plan would encourage states to adopt more uniform requirements and regulations.
- Proposed: National Aquatic Animal Health Laboratory Network. Would standardize testing laboratories.
- Will likely increase costs for testing, implementing quality control documentation.

Critical Habitat for Endangered Species



Endangered Species Act Protection - Proposed Rule (August 27, 2013)

- Designate as critical habitat for the Neosho mucket:
 - 484 river miles in Arkansas, Kansas, Missouri and Oklahoma.
- Designate as critical habitat for the rabbitsfoot:
 - 1,655 river miles in Alabama, Arkansas, Kentucky, Illinois, Indiana, Mississippi, Missouri, Ohio, Oklahoma, Pennsylvania, and Tennessee.

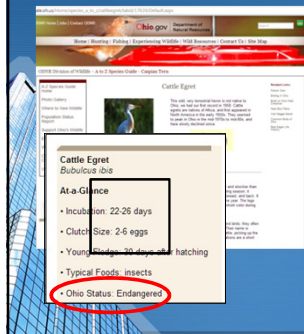


CBD/WEG-USFWS Settlement

- Center for Biological Diversity and Wild Earth Guardians sued U.S. Fish and Wildlife Service.
- Requires USFWS to make decisions on listing over 700 species as endangered by 2018.
- Will need to consider critical habitat for each new species listed.

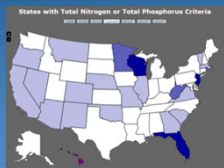


Are Cattle Egrets Really Endangered?



- “Endangered” in Ohio!
- Native of Africa, first appeared in U.S. in 1953.
- Globally abundant and widespread species.

Numeric Nutrient Criteria



- Under Clean Water Act, states are responsible for establishing water quality standards.
- Set limits for nitrogen and phosphorus concentrations in surface waters to prevent eutrophication.
- Complex process given variability among water resources.

States can set own numeric criteria

Nutrient Reduction Strategy Framework for Ohio Waters
[DRAFT]

Aquatic Life Use and QHEI	TP (ug/l)	DIN (ug/l)
Exceptional warmwater habitat	60	3,000
Warmwater habitat and QHEI score = 12 to 64	160	3,000
All other aquatic life uses and QHEI scores	300	3,000

What Can Be Done?




- Send in comments on proposed rules, stating how they will affect your farm
 - Opportunity for public comment.
 - But burden of considering impacts of proposed rules is on you, not the government.
- Be an active member of farmer associations.

Examples:






- National Aquaculture Association
- U.S. Trout Farmers Association
- American Farm Bureau
- Work with:
 - National Association of State Aquaculture Coordinators
