

Assessment and communication of the toxicological risk/safety of consuming shrimps and prawns of aquaculture origin

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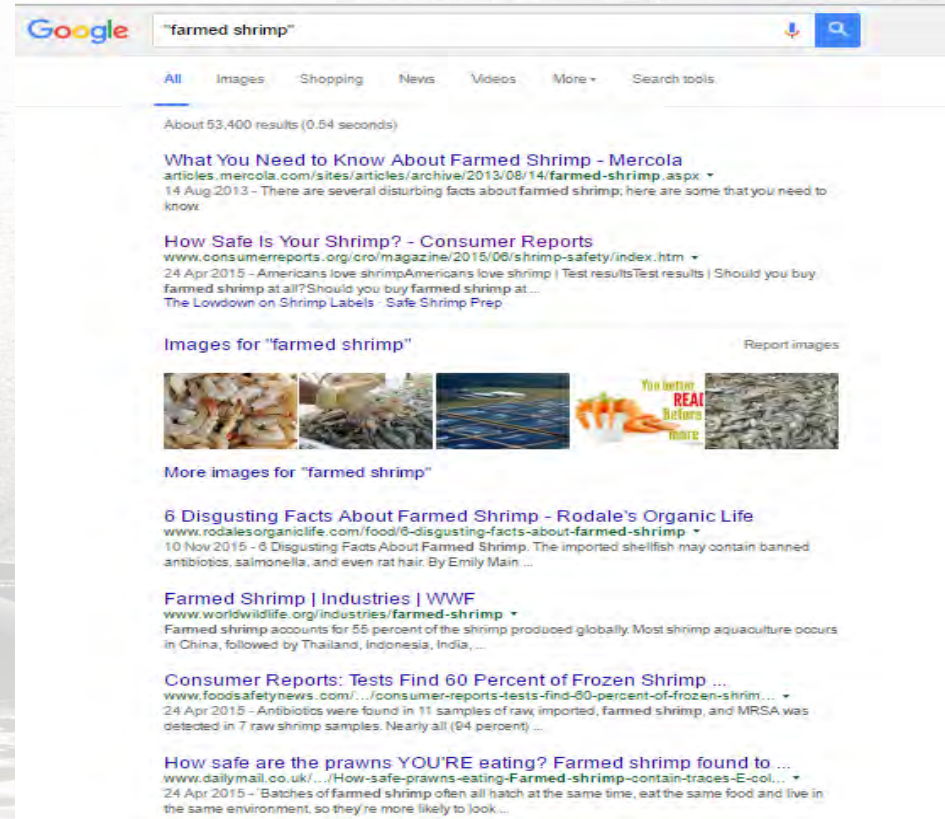


Overview

- Project commissioned by Seafood Importers and Processors Alliance **to assess**
 - risk from shrimp imported to Europe
 - media claims associated with consuming imported shrimp
 - public information regarding consuming shrimp
 - whether media claims are justified and whether public information is accurate

Background

- Public have negative perceptions concerning farmed tropical shrimp
- Do these perceptions reflect the evidence from shrimp production?
- Is the media responsible for creating or continuing negative public perceptions?
- How does potential consumption of shrimp and prawn relate to advised safe levels of intake of contaminants?



Google "farmed shrimp"


All Images Shopping News Videos More Search tools

About 53,400 results (0.54 seconds)

What You Need to Know About Farmed Shrimp - Mercola
articles.mercola.com/sites/articles/archive/2013/08/14/farmed-shrimp.aspx
14 Aug 2013 - There are several disturbing facts about farmed shrimp, here are some that you need to know.

How Safe Is Your Shrimp? - Consumer Reports
www.consumerreports.org/cro/magazine/2015/06/shrimp-safety/index.htm
24 Apr 2015 - Americans love shrimp Americans love shrimp | Test results Test results | Should you buy farmed shrimp at all? Should you buy farmed shrimp at...
The Lowdown on Shrimp Labels - Safe Shrimp Prep

Images for "farmed shrimp" Report images



More images for "farmed shrimp"

6 Disgusting Facts About Farmed Shrimp - Rodale's Organic Life
www.rodaleorganiclife.com/food/6-disgusting-facts-about-farmed-shrimp
10 Nov 2015 - 6 Disgusting Facts About Farmed Shrimp. The imported shellfish may contain banned antibiotics, salmonella, and even rat hair. By Emily Main ...

Farmed Shrimp | Industries | WWF
www.worldwildlife.org/industries/farmed-shrimp
Farmed shrimp accounts for 55 percent of the shrimp produced globally. Most shrimp aquaculture occurs in China, followed by Thailand, Indonesia, India, ...

Consumer Reports: Tests Find 60 Percent of Frozen Shrimp ...
www.foodsafetynews.com/.../consumer-reports-tests-find-60-percent-of-frozen-shrimp...
24 Apr 2015 - Antibiotics were found in 11 samples of raw, imported, farmed shrimp, and MRSA was detected in 7 raw shrimp samples. Nearly all (94 percent) ...

How safe are the prawns YOU'RE eating? Farmed shrimp found to ...
www.dailymail.co.uk/.../How-safe-prawns-eating-Farmed-shrimp-contain-traces-E-col...
24 Apr 2015 - Batches of farmed shrimp often all hatch at the same time, eat the same food and live in the same environment, so they're more likely to look...

Evidence of public health risks

- Evidence obtained from the EU's Rapid Alert System for Food and Feed (RASFF)
- Provides detailed notifications of batches of imported goods that have failed EU regulations



RASFF Portal

European Commission

European Commission > RASFF Portal

Notifications list New search Export to... -

Search result: 1833 notifications

Search criteria Product category crustaceans and products thereof Country flagged as Origin

First Previous 100 Notifications 1 to 100 of 1833 Next 100 Last

	Classification	Date of case	Reference	Notifying country	Subject
1.	information for attention	26/08/2016	2016.1179	France	prohibited substance nitrofuran (metabolite) furazolidone (AOZ) (1.14 µg/kg - ppb) in frozen shrimps (Penaeus vannamei) from India
2.	information for follow-up	25/08/2016	2016.1175	Netherlands	Vibrio cholerae (presence /25g) in frozen tiger prawns (Penaeus monodon) from Vietnam
3.	information for attention	24/08/2016	2016.1171	Netherlands	Vibrio cholerae (presence /25g) in frozen shrimps (Penaeus vannamei) from India
4.	information for attention	24/08/2016	2016.1170	Netherlands	Vibrio cholerae (presence /25g) in frozen raw shrimps (Penaeus vannamei) from Indonesia
5.	information for attention	16/08/2016	2016.1116	France	mercury (1.3 mg/kg - ppm) in chilled rock lobster (Palinurus elephas) from Tunisia

RASFF database

- Notifications characterised into 7 categories; bacteria, antimicrobials, additives, heavy metals, persistent organic pollutants (POPs), spoilage and traceability
- Country of origin identified
- Characterised into “farmed” or “wild” where possible, according to FAO Fishstat production figures – not possible for all species in all countries

Media search

- Nexis search on “shrimp” in headlines of European newspapers in 4 languages
- All stories related to shrimp value chains and trade collated

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Live Chat
ONLINE

tory

Results (276)



Nexis®



French



Disclaimer



Sort by: Newest to Oldest



- | | | | |
|--------------------------|--|-------------------|---|
| <input type="checkbox"/> | 226. Des crevettes élevées chinoises sont exportées vers le marché de l'UE
Xinhua News Agency - French
ACTUALITÉ NATIONALE, | 118 mots
1 hit | 20 décembre 2004
Preview |
| <input type="checkbox"/> | 227. Saisie de 12 tonnes de crevettes congelées volées
Agence France Presse | 187 mots
1 hit | 10 décembre 2004
Preview |
| <input type="checkbox"/> | 228. Crevette : tensions entre Américains et Chinois dues à la chute des prix (PAPIER D'ANGLE)
Agence France Presse
Par Françoise MEDGYESI | 557 mots
1 hit | 5 décembre 2004
Preview |
| <input type="checkbox"/> | 229. Madagascar. La crevette malgache méritait un laboratoire. REPORTAGE. La crevette aurait été interdite d'exportation sans la création d'un laboratoire de sécurité alimentaire.; ANTANANARIVO, reportage de notre envoyé spécial.
La Croix | 785 mots | 7 septembre 2004 |

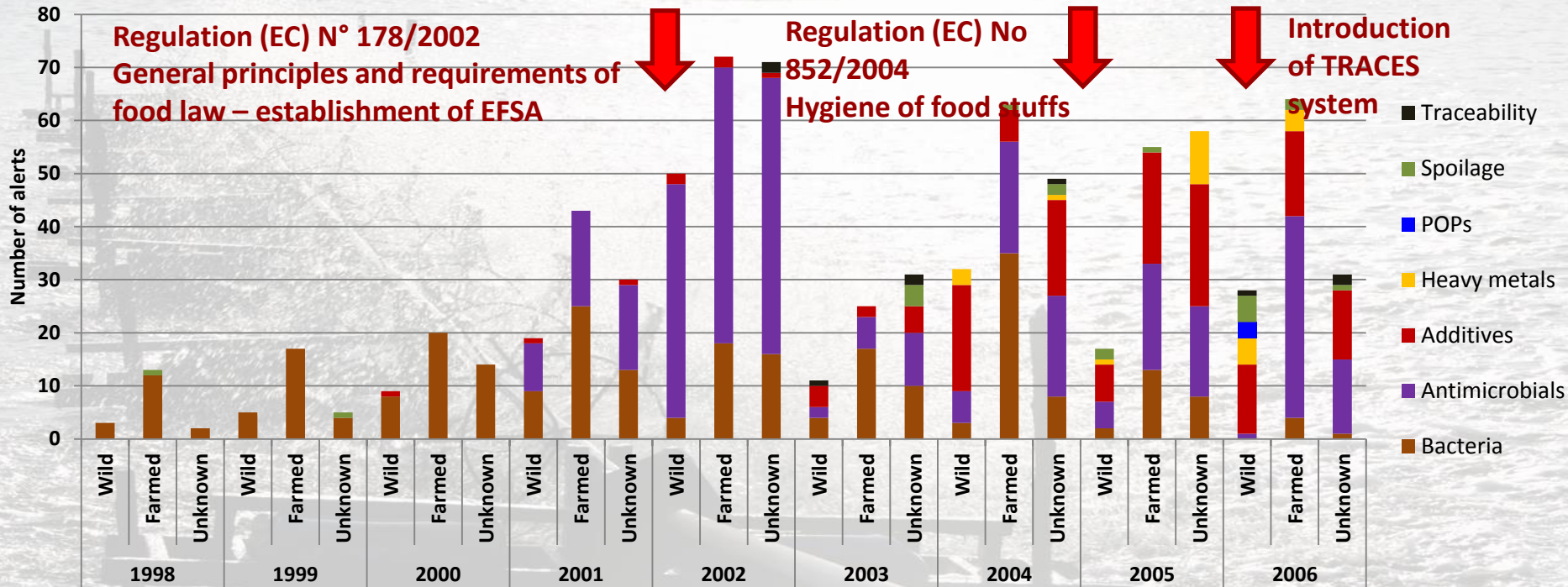
Media analysis

- Use “Frame Analysis” to categorise stories into 5 themes according to importance for responsible value chains
- Public health, Social responsibility, Environmental impact, Economics and Traceability
- Characterise stories as positive, negative or neutral
- Compare to current public information on the internet

Risk assessment of shrimp

- RASFF lists level of harmful substance in each sample from each batch tested
- What proportion of crustacean imports fail RASFF?
- Risk assessment can only be made on consignments that have failed – not those available to consumers
- Risk based on Acceptable Daily Intake (ADI)
- Calculate consumption level of contaminated material needed to reach ADI

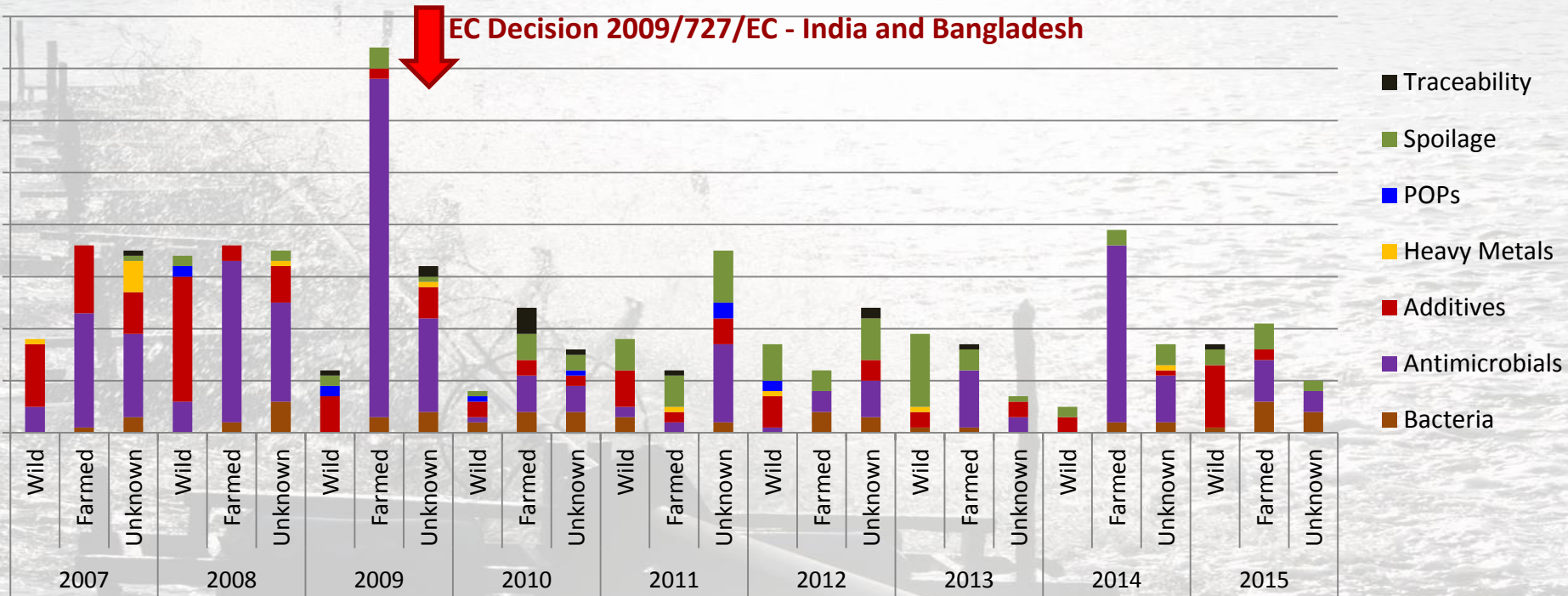
RASFF results 1998-2006



- Trend of bacteria to antimicrobial contamination
- More additives and heavy metals appearing from 2003

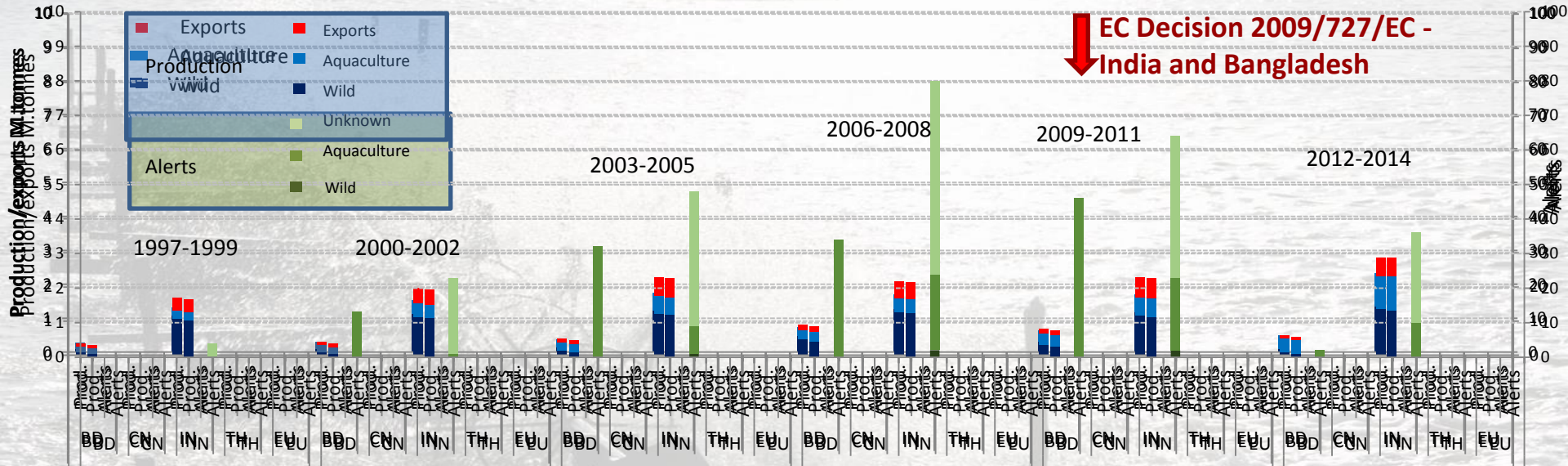
RASFF results 2007-2015

EC Decision 2009/727/EC - India and Bangladesh



- Fewer alerts overall
- Fewer bacterial, antimicrobials and additives alerts, but more spoilage

Alerts by country/region: Bangladesh and India



EC Decision 2009/727/EC -
India and Bangladesh

2006-2008

2009-2011

2012-2014

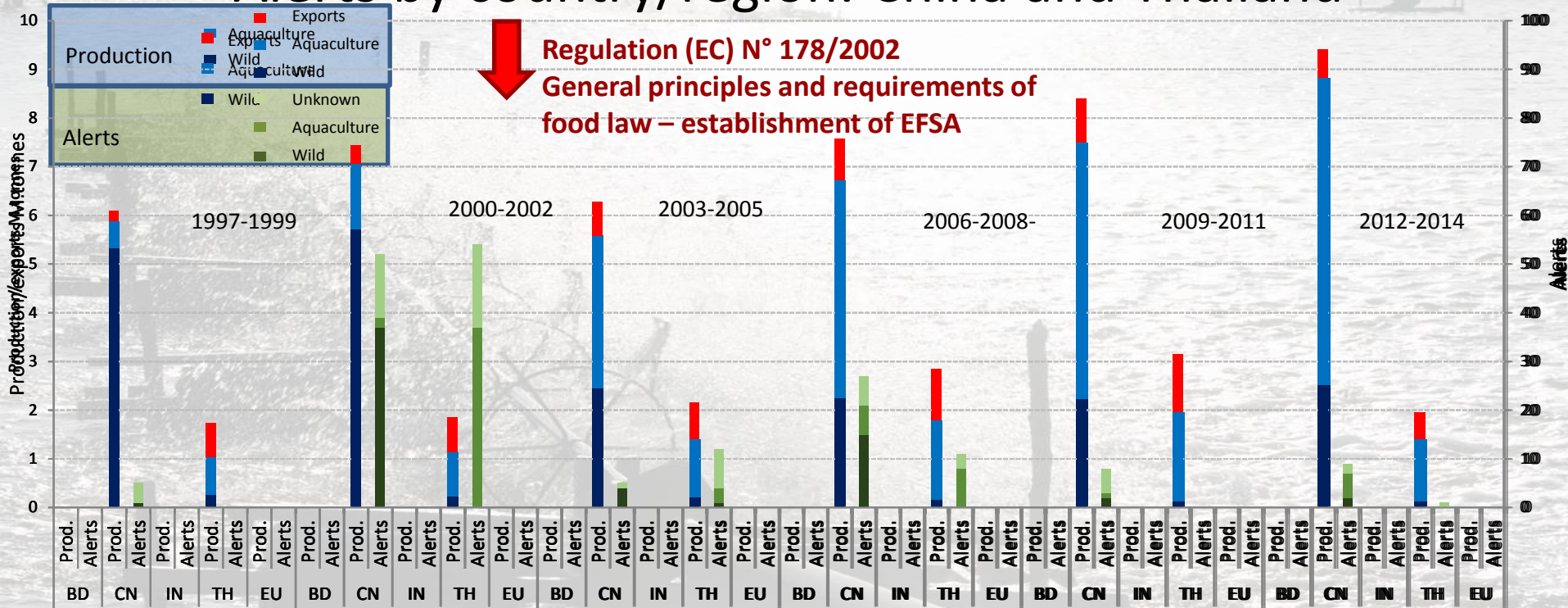
1997-1999

2000-2002

2003-2005

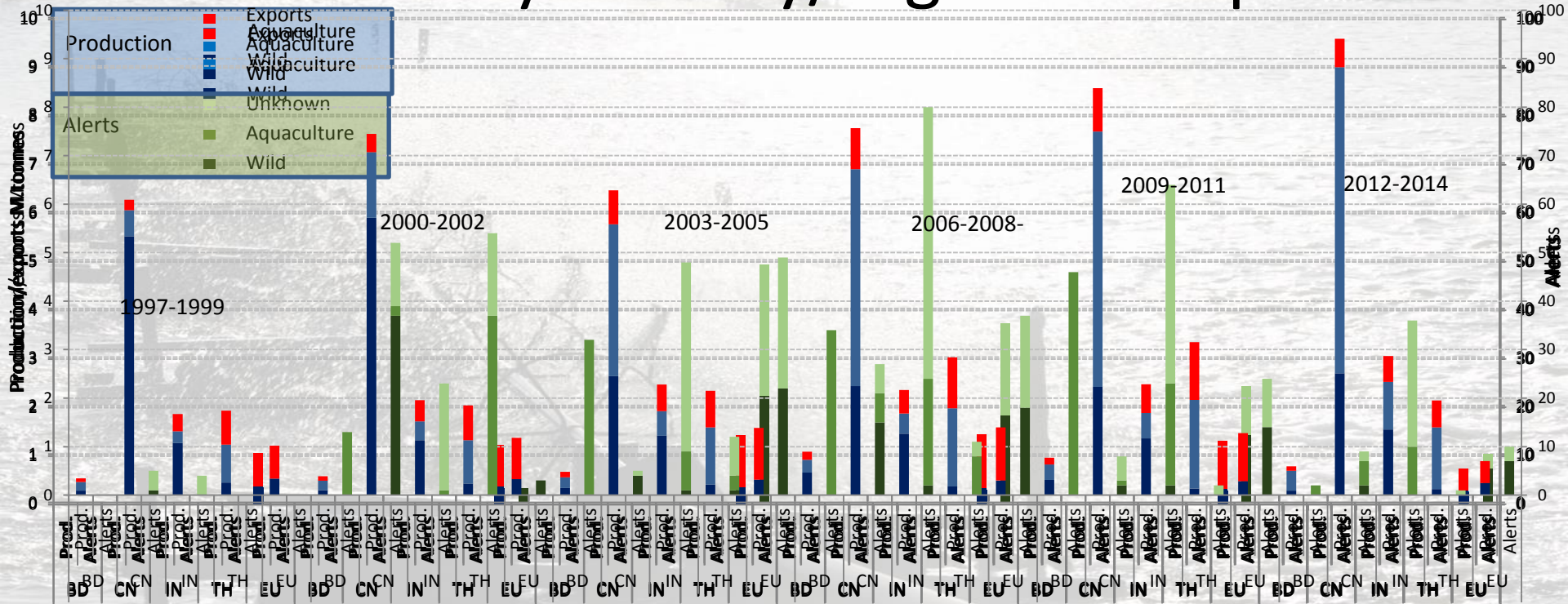
- Bangladesh and India both have important aquaculture industries – India, wild fisheries
- Export markets also important
- Relatively high level of alerts in wild (IN), cultured (BD) and produce of unknown origin (IN)
- Improving picture after EC Decision 2009/727/EC

Alerts by country/region: China and Thailand



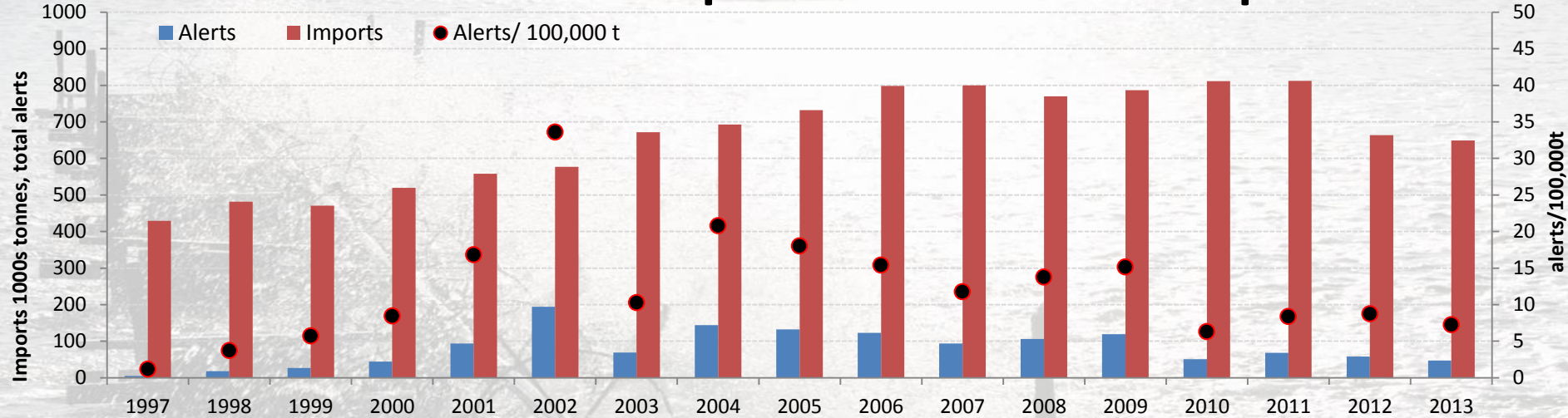
- Thailand steadily growing farming industry until EMS, China rapidly changed from wild to farming focus
- Production in both, until recently, increasingly export oriented
- Number of alerts reduced quickly after 2002

Alerts by country/region: Europe



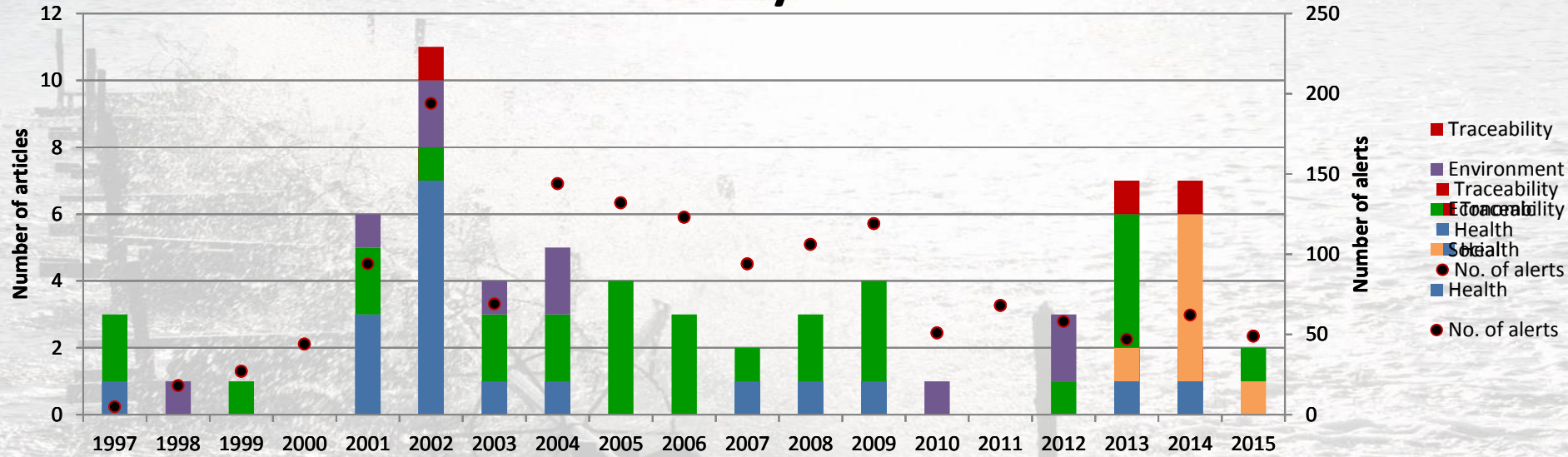
- Europe has a slowly declining shrimp fishery and small amount of farming
- Exports outstrip production – (re-export)
- Alerts are comparatively high – all in wild or unknown

Total alerts compared to EU imports



- Data shows number of alerts have gradually declined since 2002 peak
- Between 5 and 10 alerts per 100,000 tonnes of imported shrimp products

Media analysis results 1



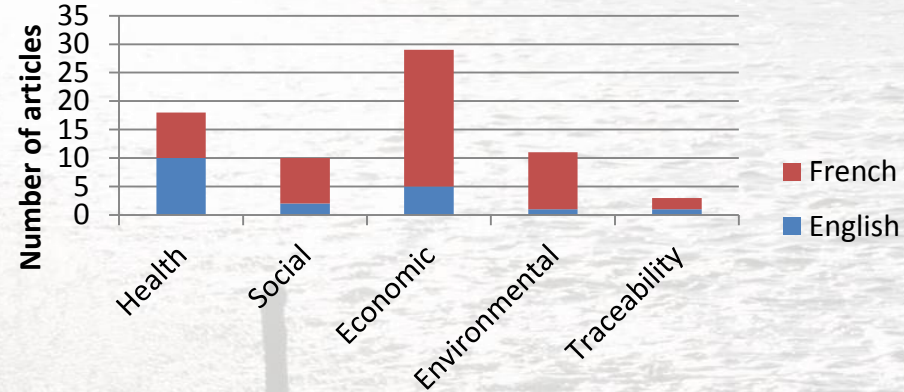
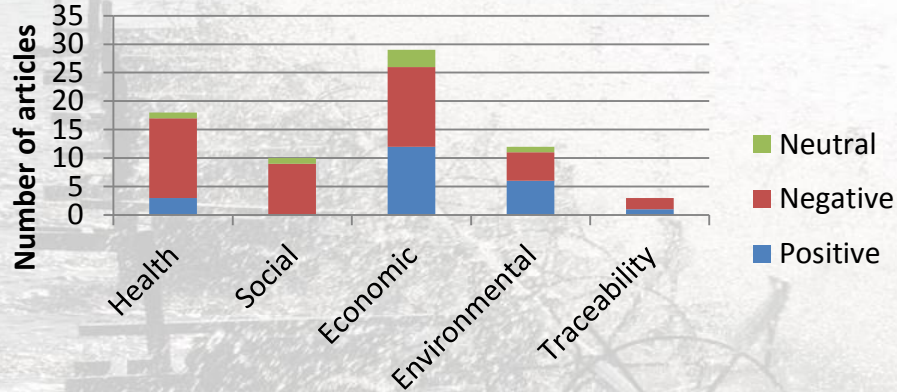
- Peak of public health related newspaper articles in 2002
- Matches RASFF alerts
- Later articles more concerned with social responsibility

Risk assessment of failed consignments

Contaminant	ADI – mg/kg/bw	Production	Mean RASFF mg	Upper RASFF mg	Max intake based on mean RASFF 70kg adult /day	Max intake based on upper RASFF 70kg adult /day
Sulphite	0.7/day	Farmed Wild	169 304	435 2327	290g 161g	113g 21.1g
Oxytetracyclin	0.03/day	Farmed Wild	0.214 No Alerts	2.07 No Alerts	9.82kg N/A	1.02kg N/A
Cd	0.025/mn	Farmed Wild	1.14 1.31	1.8 2.5	51.2g 44.7g	32.4g 23.3g
Nitrofurans	N/A	Farmed Wild	0.159 0.134	11 1	0.945g 1.12g	0.0136g 0.150g
chloramphenicol	N/A	Farmed Wild	0.0182 0.0534	0.91 1.4	24.8g 8.43g	0.495g 0.321g

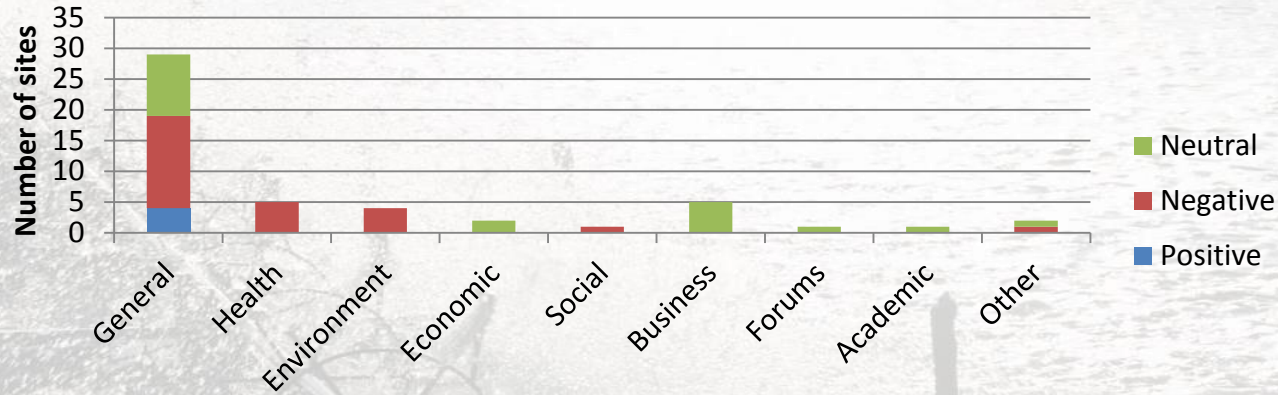
- Generally, farmed product appears safer than wild
- It is a complex picture and these figures only show the material from RASFF – not all shrimp and prawns

Media analysis results 2



- Stories about human health and social responsibility tend to be negative
- Other aspects may be more balanced
- Emphasis is different in different countries

Web-sites



- First 50 sites after Googling “farmed shrimp”
- Do not reflect the mainstream media
- General includes aspects including human health, environment and social responsibility
- Positive sites tend to be from NGOs supporting standards to improve shrimp culture

Media web articles 2



The screenshot shows the top navigation bar of the Consumer Reports website. The main navigation includes 'ConsumerReports', 'PRODUCT REVIEWS ^', 'ISSUES THAT MATTER v', and 'ABOUT US'. Below this is a secondary navigation bar with categories: 'Cars', 'Electronics', 'Appliances', 'Home & Garden', 'Babies & Kids', 'Money', 'Health', and 'News'. The article content area features social sharing buttons for Facebook (Like, Share), Twitter (4.8K Tweet), Google+ (G+1), and Pinterest (Pin it), along with icons for email, print, and font size adjustment. The article title is 'SPECIAL REPORT: SHRIMP SAFETY' in a dark blue box, followed by the main headline 'How safe is your shrimp?' and a sub-headline 'Consumer Reports' guide to choosing the healthiest, tastiest, and most responsibly sourced shrimp'. The publication date is 'Published: April 24, 2015 06:00 AM'.

- Many websites highlighting human safety referred to this report (<http://www.consumerreports.org/cro/magazine/2015/06/shrimp-safety/index.htm>)
- Found traces of many bacteria and antibiotic residues in several samples of shrimp at major US retailers

Media web articles 3

- Only one website tried to contextualise the information^a
- **“The Consumer Reports study found bacteria in 60 percent of the raw shrimp it sampled. Is this number troubling?”**
- **Dr. Fitzsimmons, University of Arizona:**“In some cases, yes, but in most cases, no. The majority of bacteria reported in the story were E. coli and Vibrio. **Both of these bacteria are ubiquitous. E. coli is found on virtually all our food and surfaces where humans are present. And Vibrios are ubiquitous in marine environments.** In fact, I would be more concerned if these bacteria were absent, as I would wonder what had killed them.”
- ^a(<https://www.bestfoodfacts.org/shrimp-safety-consumer-reports/>)

Contd.

- **“Should consumers be worried about the safety of shrimp?”**
- **Dr. Fitzsimmons:** **“Consumers shouldn’t be any more worried about shrimp than any other food stuff.** But, of course, we should be aware of safety with any food and should handle it and cook it accordingly.”

Conclusions

- RASFF alerts for shrimp imports to Europe have declined
- Some countries are more likely to trigger alerts than others
- Mainstream media generally reflects what is happening regarding RASFF alerts
- The internet and blogosphere have a multiplying effect on the worst cases
- The industry needs to communicate the positive case better

Pangasius V shrimp

- One species-one country-relatively standardised culture system and highly consolidated (Pangasius)
- Media claims for Pangasius affected by its low cost and substitution within an established sector
- Both affected by changes in detectability of contaminants and assessment of health risks

Reporting

- Watch out for final reporting of this work on Global Aquaculture Advocate and in the peer-reviewed literature