Fundamentals of Food Supply Chain Traceability
Seafood Products Association
77th Annual Seafood Processors Workshop

Tejas Bhatt
Program Director
Global Food Traceability Center
Institute of Food Technologists
tbhatt@ift.org
Institute of Food Technologists (IFT)

- Science-based professional non-profit society with 18,000 members from 100 countries
- Working on food traceability since about 2008
- Launched Global Food Traceability Center (GFTC) in 2013
- Vision is to be the authoritative voice and global resource on the science of food traceability
GFTC Sponsors

Logos are the copyright of their respective organizations and are used here for illustrative purposes only.
Agenda

- Fundamentals of Traceability
- Challenges and Opportunities
- Seafood Traceability
- Insights and Conclusions
Agenda

- Fundamentals of Traceability
- Challenges and Opportunities
- Seafood Traceability
- Insights and Conclusions
Fundamentals of Traceability

- **Food Protection**: Holistic Approach
- **Food Defense**: Intentional Contamination
- **Food Safety**: Unintentional Contamination
- **Food Sustainability**: Food productivity
- **Food Security**: Food accessibility
Fundamentals of Traceability

Trace“ability”  T“race”ability  Traceabi“lity”
Fundamentals of Traceability

- “T“race”” “ability”

- Traceability is NOT just recall
  - How do you find points of convergence when much is unknown?

- A single company doesn’t have whole-chain traceability – but _is_ a critical piece of the puzzle!
Fundamentals of Traceability

- “Internal traceability”
  - Ability to follow the movement WITHIN

- “External traceability”
  - Ability to follow the movement BETWEEN

- Key Data Elements
  - What is the product?
  - Where did the product originate or go to?
  - When did it move?
Fundamentals of Traceability

- Traceability is not about data, identifiers, bar codes, RFID, tags, and any information that needs to be linked together to make traceability possible.
  - These are all critical, but not sufficient

- Traceability is about systematic ability to access any or all information relating to a food under consideration, throughout its entire life cycle, by means of recorded identifications.
  - For this to happen, a traceability system must keep track of when the units (and the associated identifiers) are created, used, joined together, split up and finally disposed
Agenda

- Fundamentals of Traceability
- Challenges and Opportunities
- Seafood Traceability
- Insights and Conclusions
The Complexity of the Food System

Dig into this pizza and see why food traceability throughout the food system, from farm to fork, is critical to ensuring a safe and abundant food supply.

**Tomatoes**
While the U.S. produces the most tomatoes, Mexico accounts for 71% of tomato imports, and Canada accounts for 27%.

**Cheese**
14% of the raw buffalo milk used for mozzarella is made in Italy while 86% of buffalo milk is produced in Asia.

**Mushrooms**
China produces 47% of our mushrooms across the globe, followed by the U.S. which produces only 11%.

**Spices**
11.5% of India’s spices are exported to United Arab Emirates, the U.S., the EU, and Malaysia.

**Peppers**
95% of unprocessed peppers are exported through India, China, and the U.S.

**Anchovies**
56% of our anchovies are produced in Peru, while pizza anchovies come from Argentina, Croatia, Spain, and Italy.
Challenges and Opportunities

- Consumers are more vocal
  - Demand for rapid access to reliable and relevant information whenever they need it
Challenges and Opportunities

- Overlapping and conflicting demands from regulators, suppliers and customers (and my mother)
Challenges and Opportunities

How standards proliferate:
(See: A/C chargers, character encodings, instant messaging, etc)

**Situation:**
There are 14 competing standards.

14?! Ridiculous!
We need to develop one universal standard that covers everyone’s use cases. Yeah!

**Soon:**
There are 15 competing standards.

Source: http://imgs.xkcd.com/comics/standards.png
Challenges and Opportunities

- Poor paper records
  - Data is simply not available, or is difficult to collect
  - Is the data
    - Reliable?
    - Relevant?
    - Rapidly accessible?
Challenges and Opportunities

- Lack (or overuse) of technology
  - Technology is not the problem but it can be a solution
Agenda

- Definitions and Principles
- Challenges and Opportunities
- Seafood Traceability
- Insights and Conclusions
Seafood Traceability: Best Practices Guidance Document

- Best Practices in Food Traceability – A Guidance Document

- Purpose: To explore current food traceability best practices in 6 selected industry sectors: Bakery/ Dairy/ Meat-Poultry/ Processed Foods/ Produce/ Seafood

- Outcomes: A food traceability best practices guidance document for government regulatory authorities and others.

- Published in *Comprehensive Reviews in Food Science & Food Safety*
Seafood Traceability: Global Food Traceability Regulations

- Global Food Traceability Regulations

- Purpose: To assist in the discussion and development of harmonized food traceability requirements around the world.

- Outcomes: A benchmark report summarizing the existing global food traceability standards and regulations.

- Published in Comprehensive Reviews in Food Science & Food Safety
Seafood Traceability: Commercial Benefits of Traceability

- Global scope – 9 seafood value chains from catch to plate
  - North American, European, Oceania, SE Asian companies
  - Fresh, frozen and tinned seafood: Salmon, Sardines, Shrimp, Tuna, Mahi-Mahi

- Impact of traceability on
  - Business performance (financial) and industry vitality
  - Food waste reduction
  - Consumer perceptions & willingness to buy

- Investment decision support tool – ‘ROI calculator’
  - Creates investment business case (net present value)
  - Identifies the costs and benefits of traceability
  - User friendly (smaller businesses), web-accessible.
  - Available at globalfoodtraceability.org
Seafood Traceability: Commercial Benefits of Traceability
Profiting from Traceability
A Short Course at IFT 15

This highly-interactive course features an in-depth look at how you can gain a competitive advantage and improve your bottom line by enhancing your existing traceability system.

• Learn the basic principles of traceability through lectures and hands-on group break-out sessions

• Discover how to make your traceability investment work to your advantage

• Evaluate how you currently collect and manage traceability information

Register: http://www.am-fe.ift.org/cms/?pid=1001273
Seafood Traceability: Interoperability Blueprint

- A global dialogue involving all seafood stakeholders
- A collaborative pre-competitive effort at designing a blueprint for enabling interoperability
- Call for experts and volunteers
- Breakfast meeting at North American Seafood Expo in Boston on March 17th
<table>
<thead>
<tr>
<th>Task Force Recommendation</th>
<th>Traceability Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Pass implementing legislation for Port State Measures Agreement.</td>
<td>N/A</td>
</tr>
<tr>
<td>2 Develop, within 1 year, best practices for catch documentation &amp; data tracking, and other measures including vessel tracking systems.</td>
<td>✓ Part of designing a seafood traceability system</td>
</tr>
<tr>
<td>3 Include IUU fishing threat analysis/monitoring in efforts to increase maritime domain awareness.</td>
<td>N/A</td>
</tr>
<tr>
<td>4 Use trade agreements to combat IUU fishing and fraud.</td>
<td>✓ Requires agreement on global traceability requirements</td>
</tr>
<tr>
<td>5 Pursue international commitments to eliminate fishery subsidies that contribute to overfishing.</td>
<td>✓ Requires sustainability metrics as part of a traceability system</td>
</tr>
<tr>
<td>6 Coordinate with multi-lateral stakeholders to prioritize building sustainable fisheries.</td>
<td>✓ Requires sustainability metrics (standards) for traceability system</td>
</tr>
<tr>
<td>7 Combat IUU fishing and fraud as a diplomatic priority.</td>
<td>✓ Requires agreement on global traceability requirements</td>
</tr>
<tr>
<td>8 Develop, within 180 days, an implementation strategy (with deadlines) to optimize collection, sharing, and analysis of information/resources.</td>
<td>✓ Part of developing a seafood traceability system</td>
</tr>
<tr>
<td>9 Leverage existing and future CMAA’s to exchange relevant information and encourage foreign cooperation to combat IUU fishing and fraud.</td>
<td>✓ Requires alignment of global traceability requirements</td>
</tr>
<tr>
<td>10 Standardize rules on identifying species, common name, and origin of seafood.</td>
<td>✓ Part of a seafood traceability infrastructure</td>
</tr>
<tr>
<td>11 Work with state and local authorities to expand information sharing and develop tools to address IUU fishing and fraud.</td>
<td>✓ Relies on seafood traceability system</td>
</tr>
<tr>
<td>12 Broaden agency enforcement authorities (search, inspect, seize) and pursue range of other enforcement options.</td>
<td>N/A</td>
</tr>
<tr>
<td>13 Establish a regular forum with industry stakeholders and NGOs to enhance collaboration and improve understanding of IUU fishing.</td>
<td>N/A</td>
</tr>
<tr>
<td>14 Identify and develop, within 6 months, a list of types of data and standards needed for effective traceability program.</td>
<td>✓ Part of a seafood traceability infrastructure</td>
</tr>
<tr>
<td>15 Within 18 months, implement the first phase of traceability program.</td>
<td>✓ Pilot project for a seafood traceability system</td>
</tr>
</tbody>
</table>
Agenda

- Definitions and Principles
- Challenges and Opportunities
- Seafood Traceability
- Insights and Conclusions
Insights and Conclusions

“Traceability is Free”

Industry Competitiveness

Whole-chain Productivity

Compliance

Quality

Safety and Defense

Applications beyond Traceability

Value Chain (System) Traceability

Limited (one up/one down) Traceability

Internal (Enterprise-wide) Traceability

Internal (Individual) Traceability

“Traceability is Free”

27
Insights and Conclusions

- Traceability means increased liability ✗
- Traceability means lost confidentiality ✗
- The cost of traceability is high ✗
- Traceability is only of value for regulators ✗
- Traceability is a technology problem ✗
- Traceability reduces risk & liability ✓
- Traceability means commercial transparency ✓
- Traceability is free – it lowers costs & raises margins ✓
- The business value of traceability is significant ✓
- Traceability is a business opportunity ✓
Trends and Conclusions

- Get heard!
  - Learn from other industries and other food sectors
  - Tell us about known efforts in this area

- Get engaged!
  - Leverage research into actionable next steps
  - Focus on practical solutions and communicating broadly

- Get involved!
  - Sign up for a project or two (get your hands dirty)
  - Sign up to test and pilot proof of concepts within your own company / value chain

- Just don’t get left behind!
  - Change is inevitable; the only variable is how prepared we will be
  - Existing momentum today; companies like yours are gaining an advantage
Thank You!

Tejas Bhatt
Program Director
Global Food Traceability Center
Institute of Food Technologists

tbhatt@ift.org
globalfoodtraceability.org
ift.org