



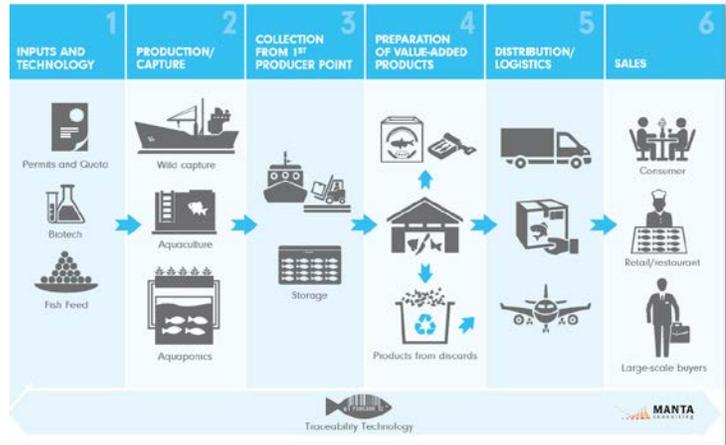
## Sustainability, profitability, and transparency go hand in hand in seafood.

The seafood industry has often been criticized for its complex, data-deficient, and particularly opaque supply chains. These provide room for operational inefficiencies and open the door to issues such as illegal fishing, mislabeling fraud, and labor rights violations. Today, rising demand for responsible seafood has spurred demand for new systems that can identify, track, and verify the origins of seafood to support the industry's sustainability claims.

**Greater transparency will require interventions at all stages of the supply chain**, providing opportunities for many players and solutions. Successful solutions will not only help companies manage reputational, regulatory, and food safety risks, but will also provide new capabilities and insights that translate into business advantages. Verified data on all aspects of seafood capture and handling could completely transform the seafood industry.

**To establish a chain of custody, fishing vessel activity and catch details need to be monitored, recorded, and verified at the source.** Illegal, unreported, and unregulated (IUU) fishing is still a big, gnarly segment worth \$10B–\$23B per year<sup>1</sup>. IUU fishing is hard to control because the oceans are vast, vessels are numerous and dispersed, catch diversity is high, and landing or offloading sites are numerous. This limits the effectiveness and coverage of human observers and inspections, and provides a clear need for technology and automation.

**To be effective, verified records need to remain with a product through the supply chain** — withstanding sorting, mixing, processing, and several international trades — without errors or gaps. The key challenge to achieving full traceability is establishing product data standards and ensuring interoperability of supply chain systems with existing inventory and sales management software. Advances in blockchain, computer vision, DNA analysis, and data science will undoubtedly have exciting applications in seafood traceability. Encouragingly, this sector is growing rapidly and is building technical capabilities and partnerships with leaders in the software industry.



## Areas of Opportunity

### What You See Is What You Get

New satellite, camera, and sensor-based data collection and AI-supported data evaluation platforms stand to make vessel and catch monitoring more comprehensive and cost-effective, eliminate IUU fishing, and deliver better business intelligence to vessel owners. Moreover, electronic reports of what was caught, where, when, by whom, and how it was handled are crucial for pricing seafood properly and planning more effectively.

### Sort, Record, Barcode, Repeat

New technologies, such as hyper-spectral imaging, are being developed for the seafood industry to automate and improve identification, measurement, and sorting, and ultimately to record product details of fish and shellfish. These innovations will make product records more accurate, and will assure buyers of the exact composition, quality, and freshness of a catch load. It will also increase yield and processing efficiency by reducing human error.

### Visibility from End to End

To move from the current “one up one down” system of traceability to full supply-chain visibility requires sophisticated new systems that can seamlessly integrate with a vast number of legacy inventory management and sales systems as well as varying regulatory environments. At the same time, these new systems also need to be simple enough for all handlers of the product around the world. Innovators are developing new platforms that can track products without data gaps and, crucially, that can authenticate information, thereby preventing record falsification or error.

### More Data = Fair Pricing

Finally, more product data and transparency could radically improve the sales process and empower fishermen. Instant and verifiable catch information could shift market power and ensure more optimal and fair pricing. Several platforms and solutions that are in development aim to connect fishermen to wholesale or consumer markets before they even land on shore, allowing them to sell their entire catch to the highest bidders. Earlier and more accurate catch information will also help buyers with processing and distribution planning, inventory control, and risk management.

Source:  
1. Agnew DJ et al. (2009) Estimating the Worldwide Extent of Illegal Fishing. *PLoS ONE* 4(2): e4570.

