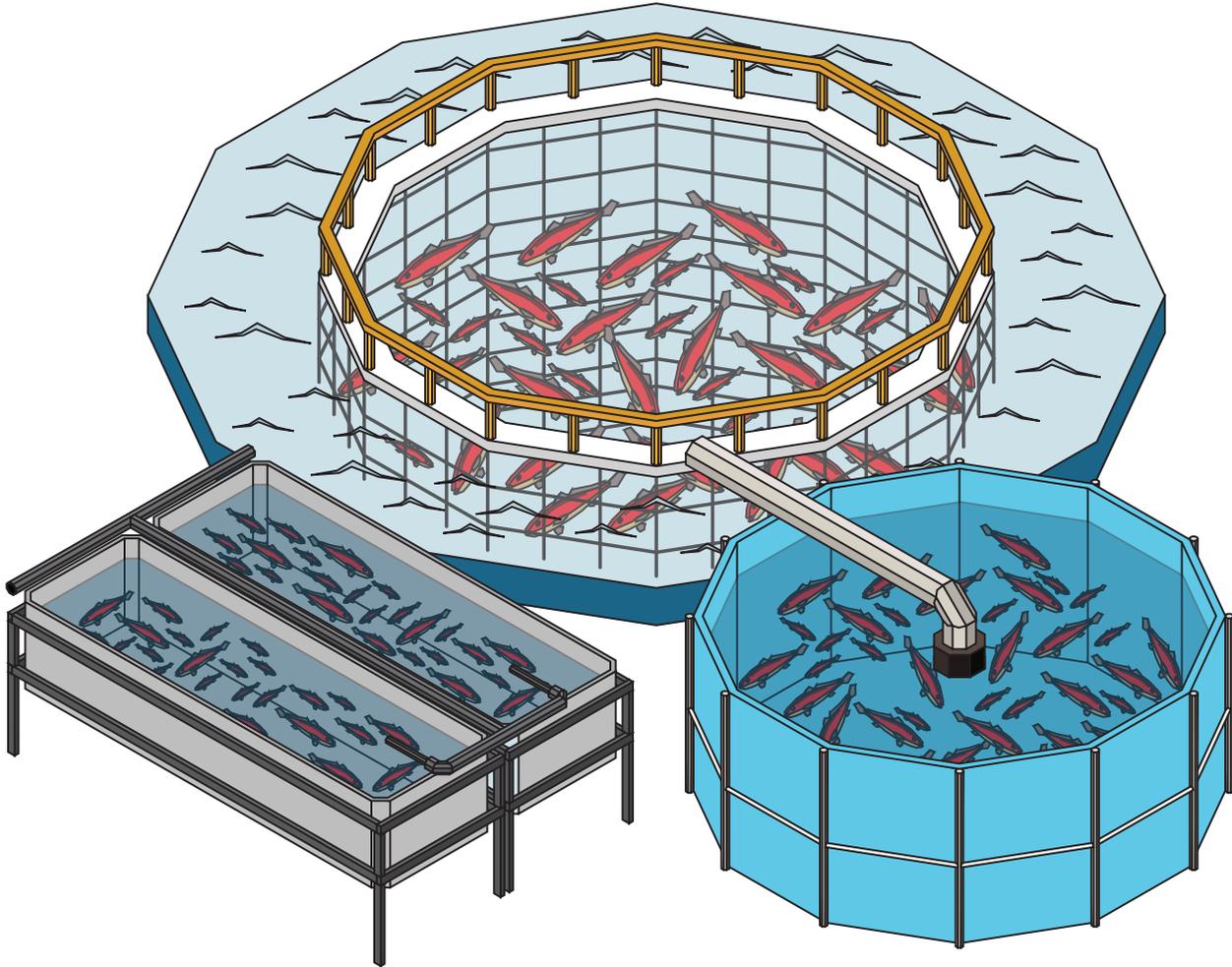


# Interface

## Blue Economy Solutions



Blue Economy Solutions v1.0



**Oceans cover about 70% of the planet's surface and would be the seventh largest economy in the world if it were a country. The blue economy emphasizes the economic potential of the ocean and other coastal resources, along with addressing other environmental long-term benefits.**

Interface solutions support the thriving and growing global blue economy by providing sensor technologies for exploration, research, energy production, sustainability, transport, and aquaculture activities. From conserving marine and ocean life to creating renewable energy, Interface plays a role in applying our force sensor technology for oceanic solutions developed to foster long-term sustainability in the blue economy.

### **A Sustainable Oceanic Future**

With 40% of the country's population living on the coasts in coastal communities, the United States is one of the leading countries now focused on the new blue economy. For the last few years, the United States and countries around the world are intensely focused on sustainability and the environment, and we are beginning to see the transition and merging of the green economy with the blue economy.

Research and testing is on the rise in applications related to the blue economy. For example, there is considerable focus on seawater mining, offshore marine life, fish farming, underwater vehicle charging, water management, coastal disaster relief and recovery, ocean renewable energy, and smart shipping. Measurement solutions play a critical role in blue economic development and Interface is prepared to support the wave of invention, innovation, R&D and engineering.

### **Fisheries and Aquaculture**

Fisheries play a huge part in the blue economy, creating economic growth alongside food security. It affects the overall well-being of coastal communities and societies on a global scale. Technological advancements are being developed within the seafood industry in order to create more sustainable aquaculture environments. Interface understands that developing sensors for aquaculture applications such as fisheries are the most complex because they require specially designed test and measurement equipment that can operate with accuracy onshore, near shore and offshore. Such equipment needs to handle the often-harsh environments in testing, monitoring, and ongoing operational use. Our line of products, such as our stainless steel, sealed, ATEX-Certified, and submersible load cells, load pins, shackles, tension links, and wireless telemetry solutions are designed to perform with high-accuracy and durability in aquaculture applications.

### **Oceanic Research**

Besides the growth in economic sectors such as maritime transport, tourism, and aquaculture, the blue economy is centered on oceanic research and observation. Interface is a provider of measurement solutions used in oceanic research, including sensors, instrumentation, and custom solutions. The ocean is still the most unexplored body on earth, with only about 5% of the entire ocean fully explored. With the acceleration of climate change, there is an increased demand of information on the ocean, coastal data, and how we can contribute to create a more resilient environment. An estimated \$1.5 trillion is spent on oceanic research, and is projected to double by 2030. Engineers and scientists turn to Interface for tools to assist in new marine R&D, such as ocean mining, wave energy, and marine biotechnology. As oceanic research and observation scale, test and measurement are center points for driving the blue economy, while ensuring the protection of marine habitats and environments.

# HIGHLIGHT: Aquafarming Fish Weighing

## Customer Need / Challenge

An aquaculture company needs a weighing system when collecting the fish from aquafarming cages. When the fish is ready to be collected from the aquafarming cages, they can ensure the wire rope is strong enough to carry the load.

## Interface Solution

Interface's WTSSHK-B Wireless Crosby™ Bow Load Shackle is installed between the end of the cable, and the fishing net of the boat collecting fish. The load shackle will weigh the net of fish when collected out of the fish farm. Data is wirelessly transmitted to the customer's computer using the WTS-BS-4 Wireless Base Station with USB Industrial Enclosure. Data is displayed, graphed and logged with supplied Log100 software.

## Results

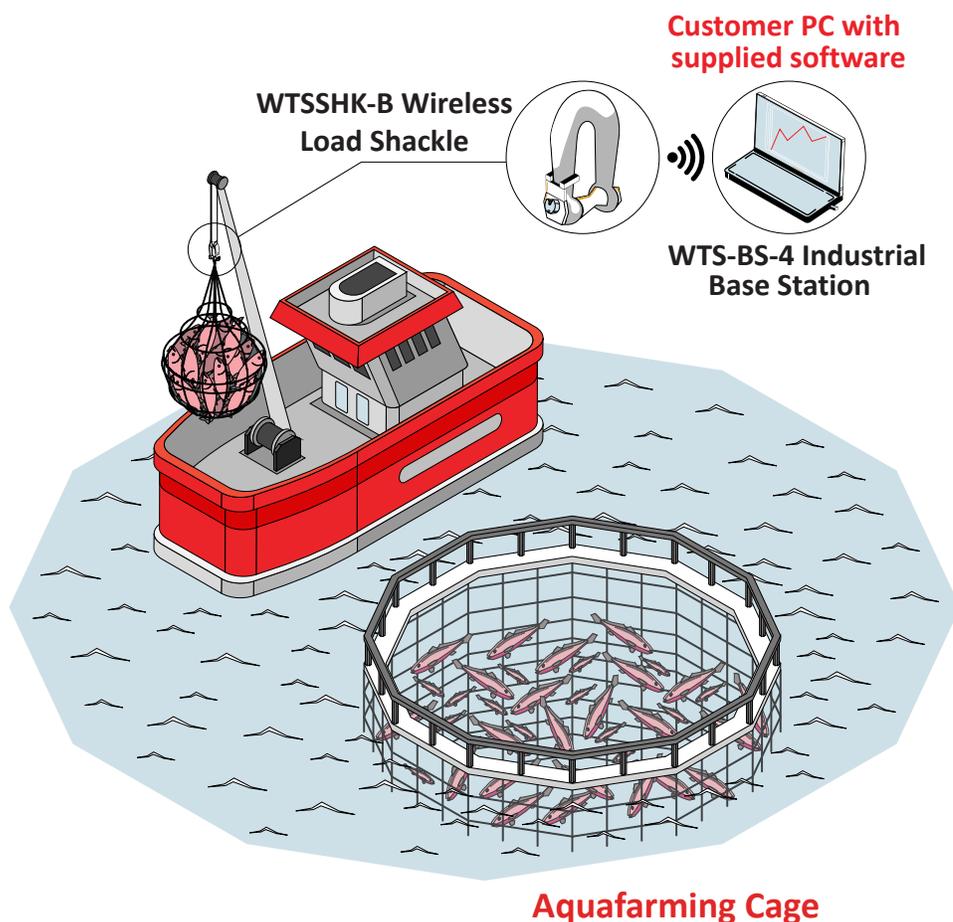
The customer was able to weigh the net of fish being collected out of the aquafarming cages using Interface's WTSSHK-B Wireless Crosby™ Bow Load Shackle.

## Materials

- WTSSHK-B Wireless Crosby™ Bow Load Shackle
- WTS-BS-4 Wireless Base Station with USB Industrial Enclosure with supplied Log100 Software

## How it Works

The WTSSHK-B Wireless Crosby™ Bow Load Shackle is installed between the end of the cable, and the fishing net of the boat collecting fish. The fish is collected with a net, and the weight of the fish is measured. The weight data is collected and is wirelessly transmitted to the customer's computer through the WTS-BS-4 Wireless Base Station. The data can be displayed, graphed, and logged using Interface's supplied Log100 software.



## LowProfile® Load Cells



**1200 WTS Standard Precision LowProfile™ Load Cell**  
300 lbf to 100K lbf  
1.5 kN to 450 kN



**1200 Standard Precision LowProfile™ Load Cell**  
300 lbf to 100K lbf  
1.33 kN to 445 kN

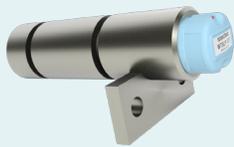


**2400 Standard Stainless Steel Low Capacity Load Cell**  
100 lbf to 5K lbf  
0.44 kN to 22 kN



**3200 Precision Stainless Steel Load Cell**  
2.5 lbf to 100K lbf  
12.5 kN to 445 kN

## Load Pins



**WTSLP Wireless Stainless Steel Load Pin**  
Up to 3,000K lbf  
Up to 13.3 kN



**ILMP Standard Stainless Steel Load Pin**  
1.1K to 3,307K lbf  
500 kgs to 1,500 MT



**ISHK-B Bow Type Crosby™ Cabled Load Shackle**  
2.2K to 2205K lbf  
1 to 1K MT



**WTSSHK-D Wireless Crosby™ Bow Load Shackle**  
26.5K to 77.2K lbf  
12 to 35 MT

## Load Shackles

## Tension Links



**ISITL Self-Indicating Tension Link**  
2.2K to 661K lbf  
1 to 300 MT



**WTSLTL Lightweight Wireless Tension Link**  
2.2K to 661K lbf  
1 to 300 MT



**3AXX 3-Axis Force Load Cell**  
Force: 4.5 lbf to 112K lbf  
Force: 10 N to 500 kN



**6A Series 6-Axis High Capacity Load Cells**  
Force: 11.2K to 180K lbf  
Torque: 88.5K to 354K lb-in  
Force: 50K to 800K N  
Torque: 10K to 40K Nm

## Multi-Axis

## Instrumentation

## Wireless Telemetry and Bluetooth® Telemetry Systems



**9325-NU Portable Sensor Display**  
Superior Linearity Performance Specifications. Measurement Rate up to 2400 Samples per Second



**WTS-WSS Wireless Wind Speed Transmitter Module**  
Low power mode providing exceptional battery life in excess of 12 months  
Constantly monitors average wind speed



**WTS-BS-1-HA Wireless Display for Multiple Transmitters**  
Connect up to 12 transmitters  
Provides summation of up to 12 transmitters



**WTS-BS-1-HS Wireless Display for Single Transmitters**  
Simple operation  
Connection to single transmitter module

## Wireless Telemetry and Bluetooth® Telemetry Systems



**WTS-RM1 Wireless Relay Output Receiver Module**  
Accepts up to 16 devices  
Provides a range of relay operation modes



**WTS-BS-6 Wireless Telemetry Dongle Base Station**  
Compact & Portable Logging  
Fast Configuration  
500m Wireless Range



**WTS-BS-4 Wireless Base Station with USB Interface in Industrial Enclosure**  
Up to 800 m (2,625 ft) range  
Configure & calibrate the WTS range



**BTS-AM-1 Bluetooth Telemetry System**  
“AA” Battery Powered Bluetooth Strain Gage Transmitter

## Interface Supports a Sustainable Blue Economy

There continues to be a growing awareness across the world for the blue economy, and how it is a potential source for economic growth. Force measurement provides value in the health and sustainability of the ocean and river ecosystems. Water is the basis for all livelihoods in human and animals. Creating cutting-edge force sensor technologies contribute to the overall management of the oceans, along with coastal resources. Interface's products provide reliability and accuracy when there are no exceptions.

As activity in the blue economy expands rapidly, so does the impact of technological advances. Here at Interface, we offer sensor based advancements that can be used in various ways within different facets of the blue economy.

Interface's collection of submersibles, sub sea and ruggedized load cells, load pins, tension links, and instrumentation is meticulously designed to cater to diverse submersible and harsh environment applications. Interface's load cells can wirelessly transmit data through underwater applications and harsh weather conditions. These load cells can survive through underwater submersions at different capacities and still be able to relay information to those at the surface level.

Here are the types of applications using Interface products:

- Anchoring Systems for Offshore Structures
- Fishery Operations
- Maritime Cargo Handling and Shipping
- Aquaculture Monitoring and Feeding Systems
- Underwater Vehicles and Robotics
- Offshore Hydro and Tidal Renewable Energy Production
- Offshore Wind Farm Installation and Maintenance
- Harbors and Ports Equipment for Lifting and Weighing
- Near-Shore Infrastructure Monitoring
- Oceanographic Research
- Underwater Construction
- Habitat Restoration
- Fishing Gear Monitoring and Optimization
- Marine Salvage and Recovery Operations
- Offshore Oil and Gas Platform Monitoring

# Blue Economy

- Load Cells
- Multi-Axis Sensors
- Tension Links
- Wireless Telemetry Solutions
- Load Shackles
- Load Pins
- Interface Mini™ Load Cells
- Data Acquisition Systems
- Instrumentation
- Digital Instrumentation
- Custom Solutions
- Submersible Sensors

*If you know what you need and are ready to talk to our application engineers, email or call today!*

**To learn more  
about the Interface  
blue economy  
solutions provided  
call 480-948-5555.**

**Interface is the world's trusted leader in technology, design and manufacturing of force measurement solutions.**

**Our clients include a "who's who" of the aerospace, automotive and vehicle, medical device, energy, industrial manufacturing, test and measurement industries.**

Interface engineers around the world are empowered to create high-level tools and solutions that deliver consistent, high quality performance. These products include load cells, torque transducers, multi-axis sensors, wireless telemetry, instrumentation and calibration equipment.

Interface, Inc., was founded in 1968 and is a US-based, woman-owned technology manufacturing company headquartered in Scottsdale, Arizona.