

# NEW PRODUCT PIONEERS

Products created with Hawaii SBIR Grant funding



## INTRODUCTION

In 1988, Hawaii Technology Development Corporation (HTDC) began providing matching grant funds to Hawaii companies who received Federal Phase I Small Business Innovation Research Grants (SBIR). These companies are recognized for advancing technology to solve critical challenges for the nation. **The Hawaii SBIR matching grant program is the longest state funded SBIR matching program in the United States.** In 2016 the legislature expanded the program to help companies who are moving their advanced technology products from research into the market. Hawaii's SBIR Phase II and Phase III winners are creating the best technology solutions in the nation.

HSBIR provides matching grants to help companies further the development of new products to solve national critical issues. As one of the best state matching grant programs, the HSBIR programs provides up to 50% match for companies receiving SBIR awards. With these funds, companies are able to build their prototypes, travel to meet with their customers, hire engineers & scientists, purchase equipment, and more. The HSBIR award brings prestige to the company making them more attractive to investors and potential partners. Here are some of their success stories.



### Products on Market

1. Infrared imaging systems
2. Telescopes
3. Microscopes
4. Medical diagnostic systems
5. Custom & Freeform Optics

**Success:** HNu Photonics' confocal microscope design yields significantly improved performance and manufacturing benefits. This new microscope is particularly robust for medical optics and applications.

**Uniqueness:** HNu Photonics manufactured and commercialized a broadband, zero-dispersion confocal objective that can achieve the requisite numerical apertures and spot sizes for sub-micron imaging.

## COMPANY

**Founded:** 2006

**Industry:** Photonics, Optics

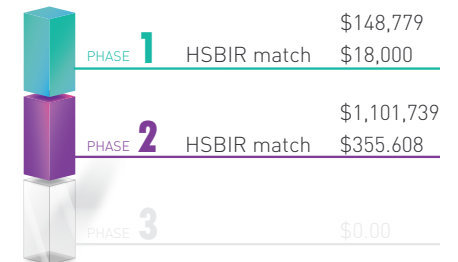
**Number of Employees:** 55

**Website:** [www.hnuphotonics.com](http://www.hnuphotonics.com)

**Location:** Kahului, Maui

## SBIR FUNDING

UV/Vis Low-Dispersion Confocal Objective



Total: **\$1,624,126**





### Products on Market

1. Offshore aquaculture "Veleva Technologies"
2. Kampachi fish

**Success:** The Veleva Project and the unanchored 'Drifter Cage' was named one of TIME Magazine's "25 Best Inventions of the Year" for 2012. Kampachi Farms successfully conducted the first-ever full grow-out trial of open-ocean aquaculture in U.S. federal waters.

**Uniqueness:** The development of open-ocean culture systems and hatchery methods for desirable high-value marine fish offers a great opportunity for environmentally responsible expansion of aquaculture in the vast undeveloped offshore regions of the U.S. Exclusive Economic Zone – up to 200 miles offshore.

**Investment Partnership:** Lockheed Martin is partnering in new spin off company – Forever Oceans – which is based at NELHA, and employs 6 people. Kampachi Farms is pursuing further Veleva technology trials in the Gulf of Mexico and the Sea of Cortez.

### COMPANY

**Founded:** 2011

**Industry:** Aquaculture/Mariculture

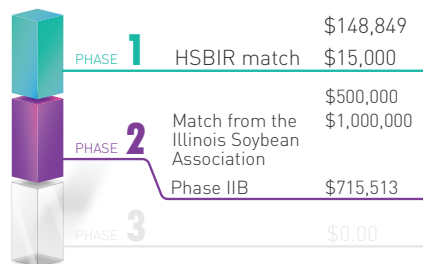
**Number of Employees:** 9

**Website:** [www.kampachifarm.com](http://www.kampachifarm.com)

**Location:** Kailua-Kona, Hawaii Island

### SBIR FUNDING

Veleva Project



Total: **\$2,379,362**



North Star Scientific

### Products on Market

1. Multiple High Power RF Amplifiers
  - Solid state technology
  - Vacuum tube technology
2. Multiple RF Switches
  - High Power T/R Switch
  - High Power 3-way Switch
  - Matrix Switch
3. Multiple Antennas
4. RF Power Meter
5. Custom Diplexer

**Success:** Products for military aircraft.

**Uniqueness:** NSS designed, fabricated, tested and demonstrated a working prototype of a 1 Kilowatt Link 16 HPA, cutting Size, Weight, and Power (SWaP) utilizing state of the art technology.

### COMPANY

**Founded:** 2001

**Industry:** Electronics

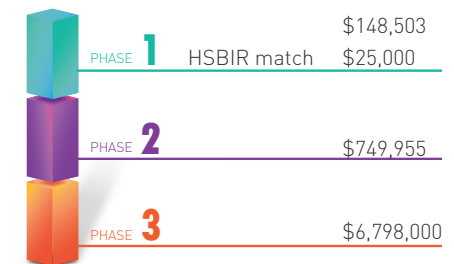
**Number of Employees:** 36

**Website:** [www.nsshawaii.com](http://www.nsshawaii.com)

**Location:** Kapolei, Oahu

### SBIR FUNDING

Lightweight Link 16 High Power Amplifier



Total: **\$7,721,458**





**MAKAI OCEAN ENGINEERING**  
The Future of Ocean Innovation

**Products on Market**

1. MakaiLay
2. OTEC
3. SWAC
4. Autonomous Underwater Cable Burial Vehicles

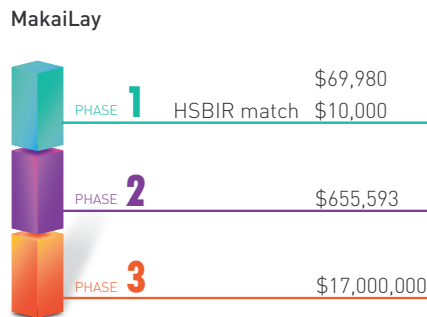
**Success:** MakaiLay is the number one subsea cable installation software in the world and is used by over 75% of subsea cable ships worldwide

**Uniqueness:** Makai improved the methodology to install submarine cables on the ocean floor, making use of a dynamic, real-time 3D modeling of the cable in the water column that accounts for variables such as ship speed, cable payout and ship course changes as well as irregular ocean bottom and dynamic ocean currents.

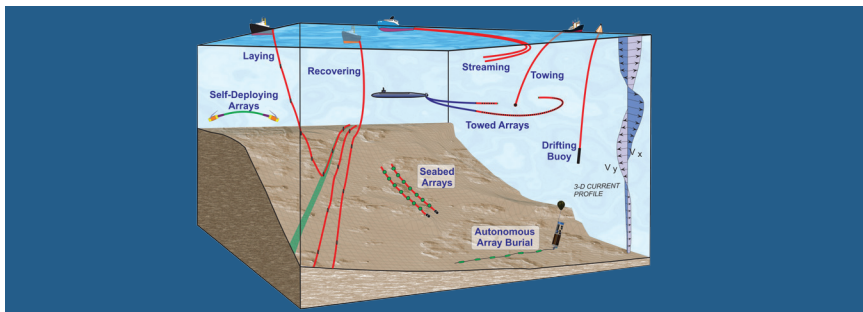
**COMPANY**

**Founded:** 1973  
**Industry:** Marine/Ocean Engineering  
**Number of Employees:** 30+, 25 engineers  
**Website:** www.makai.com  
**Location:** Waimanalo, Oahu

**SBIR FUNDING**



Total: **\$17,735,573**



**Products on Market**

1. SIFTer
2. PowerMatch
3. TeraTune

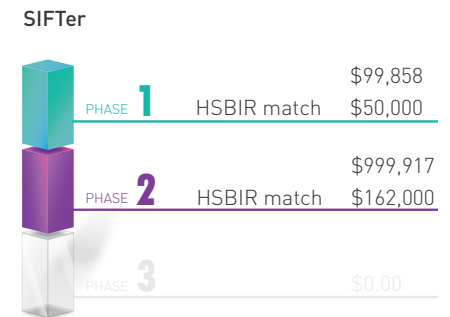
**Success:** Phase III transition through multiple DoD programs.

**Uniqueness:** SIFTer is a new approach to RF interference mitigation (RIM) that filters wideband noise and extracts desired radio signals from strong unintentional (friendly) and intentional (enemy) jamming and interference, without needing a reference copy of the interference.

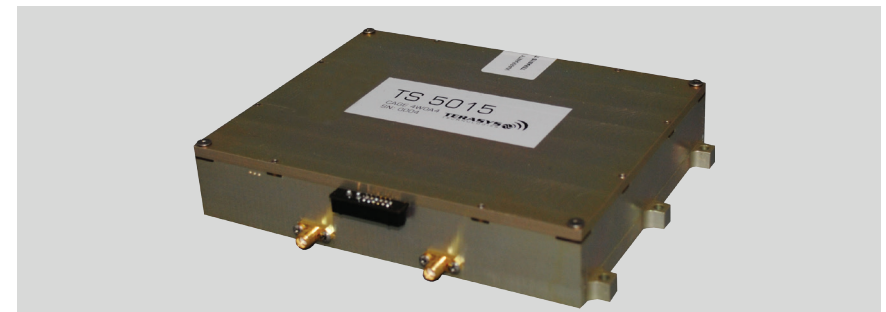
**COMPANY**

**Founded:** 2007  
**Industry:** Defense  
**Number of Employees:** 6  
**Website:** www.terasys technologies.com  
**Location:** Honolulu, Oahu

**SBIR FUNDING**



Total: **\$1,311,775**





**Products on Market**

- 1. Components in Personal Care Products

**Success:** The commercial application of this and related technologies has been through licensing of intellectual property and providing raw materials for specialty chemicals.

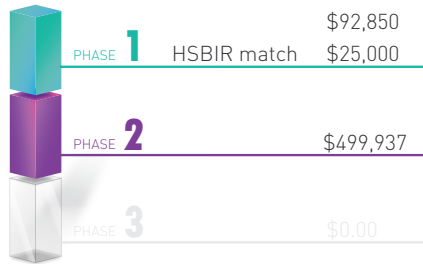
**Uniqueness:** We offer customers premium algae raw materials with unique profiles and performance.

**COMPANY**

**Founded:** 1998  
**Industry:** Life Sciences/Biotech  
**Number of Employees:** 8  
**Website:** : www.kuehnleagro.com  
**Location:** Manoa, Oahu

**SBIR FUNDING**

Enabling High Output Carotenogenesis in Plant Cells



Total: **\$617,787**



**Oahu Community Recycling (OCR), Inc. dba SMALL KINE FARM**

**Products on Market**

- 1. Keiki (Crimini) Mushrooms
- 2. Tutu Portabella Mushrooms.

**Success:** OCR provides a fresher, less expensive source of Agaricus mushrooms, to Oahu's Farmer's Market and Gourmet Restaurants.

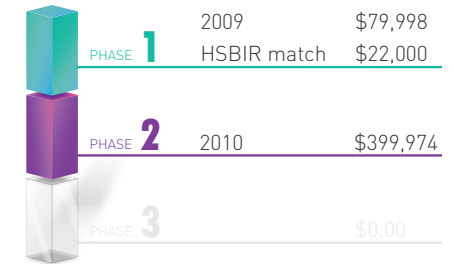
**Uniqueness:** Before OCR developed mushroom cultivating materials in response to a Department of Agriculture SBIR, Agaricus mushrooms weren't grown in Hawaii and were imported even though they are highly perishable.

**COMPANY**

**Founded:** 2000  
**Industry:** Agriculture; Recycling  
**Number of Employees:** 6  
**Website:** www.smallkinefarm.com  
**Location:** Waimanalo, Oahu

**SBIR FUNDING**

Agaricus mushroom production



Total: **\$501,972**





**Products on Market**

1. Underwater Chemical Sensing
2. Ultra Compact Hyperspectral Imaging Systems

**Success:** Spectrum Photonics' underwater chemical detection system has advanced to a Navy SBIR Phase II.5 program, and was successfully demonstrated to the Navy sponsor team at Makai Pier with results meeting or exceeding the program's performance metrics.

**Uniqueness:** This system is based on amplifying fluorescent polymer (AFP), the same technology used in the Fido handheld explosives detection system, which reacts to explosive materials and enables trace-level detection when exposed to light of a particular wavelength.

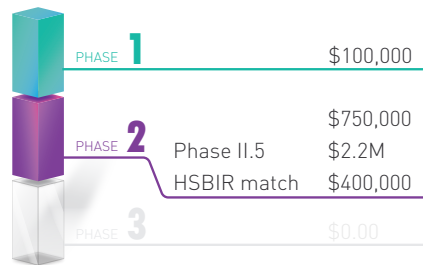
**Investment Partnership:** Partnered with FLIR Systems to develop underwater explosives detection system.

**COMPANY**

**Founded:** 2008  
**Industry:** Sensors; Defense  
**Number of Employees:** 16 (plus 4 contractors)  
**Website:** spectrum-photonics.com  
**Location:** Manoa, Oahu

**SBIR FUNDING**

Compact, Lightweight Chemical Sensor for Underwater UXO Detection



Total: **\$3,450,000**



**Products on Market**

1. Drop Stitch Inflatable Cushioning Materials for aircraft, sensors, and maritime applications
2. Advanced Ride Enhancement System (ARES)
3. Ultra Heavy-Lift Amphibious Connector (UHAC)
4. Sea Blade Boat Hull

**Success:** \$450,000 in sales of Drop Stitch Inflatable Cushioning Materials for aircraft, sensors, and maritime applications.

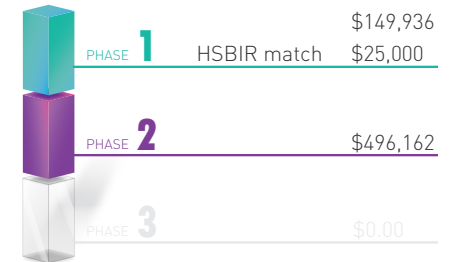
**Uniqueness:** Navatek manufactures a drop stitch material which is made into a very lightweight inflatable product. This material can create inflatable structures and components with very high stiffness that have properties of common, but bulky, structural materials.

**COMPANY**

**Founded:** 1979  
**Industry:** Marine Engineering  
**Number of Employees:** 75  
**Website:** : www.navatekltd.com  
**Location:** Honolulu, Oahu

**SBIR FUNDING**

Drop Stitch Inflatable Cushioning Materials



Investment: Partnership: **\$50,000**  
 Research support **\$50,000**  
 Total: **\$3,150,460**



**Products on Market**

1. Advanced materials (functional coatings, functional fabrics),
2. Sensor & communications systems
3. Software used in the oil & gas, space & defense, life sciences and manufacturing industries

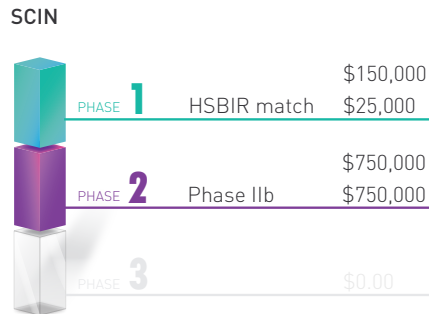
**Success:** Oceanit is co-developing Steel Cement Interfacial Nanobond (SCIN) with Shell. Following the 2010 Deepwater Horizon oil spill, all oil drillers want greater, even full, certainty of their bond logs. SCIN will allow them to speed up this evaluation process, avoid unnecessary delays, and save time and money, perhaps up to \$750 million over a five-year period.

**Uniqueness:** SCIN Increases the bond between steel and cement by achieving a super hydrophilic pipe surface that is chemically reactive to Portland cement, enabling faster "bond logging". If the bond is good, it will hold up under pressure. Without it, the well becomes unstable.

**COMPANY**

**Founded:** 1985  
**Industry:** Research & Development; Engineering  
**Number of Employees:** 110  
**Website:** www.oceanit.com  
**Location:** Honolulu, Oahu

**SBIR FUNDING**



Total: **\$1,675,000**

Partnership: Co-development with Shell.



**HAWAII FISH COMPANY**

**Products on Market**

1. HFC North Shore Tilapia
2. HFC Hawaiian Pongee

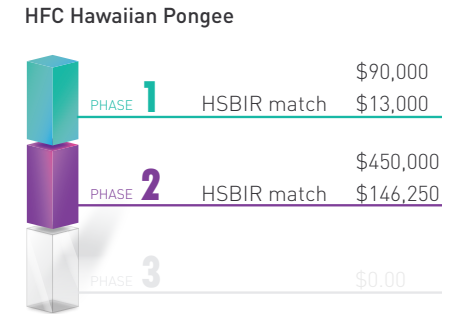
**Success:** Hawaii Fish Company is Hawaii's longest operating commercial aquaculture farm, successfully operating off the grid for more than 25 years, raising its premium North Shore Tilapia, which for the past nine years has been included on award-winning Chef Alan Wong's Honolulu restaurant's nightly menu. HFC produces and markets Hawaii-grown pongee to Honolulu's Asian seafood "niche markets."

**Uniqueness:** HFC's long-term marketing goal is to have Hawaiian pongee become recognized as the world's finest pongee, in the way that Cooper River salmon is marketed as the world's finest salmon.

**COMPANY**

**Founded:** 1978  
**Industry:** Aquaculture  
**Number of Employees:** 3  
**Website:** www.hawaiiifishcompany.com  
**Location:** North Shore, Oahu

**SBIR FUNDING**



Total: **\$699,250**



### Products on Market

1. LiveAction NX & UX
2. CyberWalls Protect
3. CyberWalls Access
4. In2lytics
5. Sprocket

**Success:** Referential's spinout company, LiveAction, has attracted Series A and B investments of over \$41M from top tier venture capital firms AITV, Cisco Investments and Enerdigm Ventures.

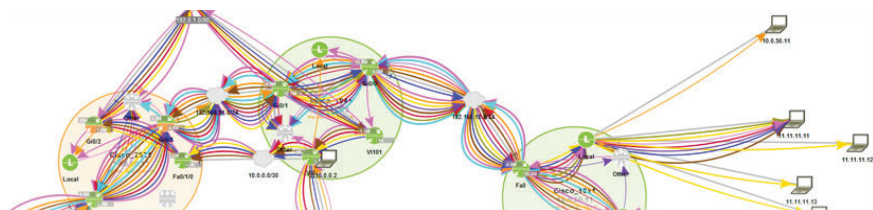
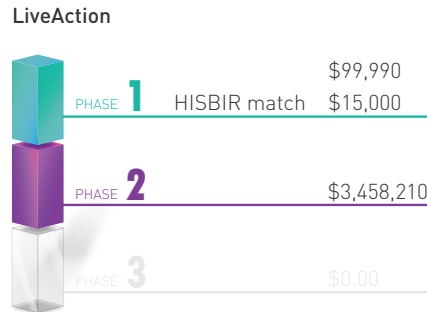
**Uniqueness:** LiveAction transforms an existing network infrastructure into a real-time sensor to improve cyber security and maintain mission-critical operations, and provides easy adjustments to network traffic to control malicious activity.

**Investment:** Series A and B investments of over \$41M from top tier venture capital firms AITV, Cisco Investments and Enerdigm Ventures.

### COMPANY

**Founded:** 1996  
**Industry:** IT  
**Number of Employees:** 100+  
**Website:** www.referentia.com  
**Location:** Honolulu, Oahu

### SBIR FUNDING



### Products on Market

1. Sensor & communications systems

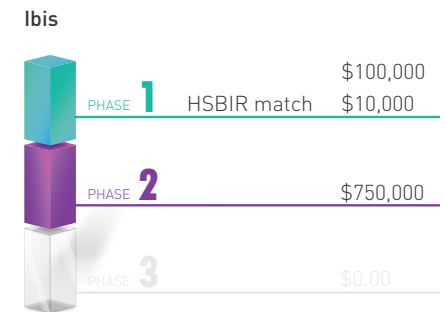
**Success:** Spun out Ibis Networks; \$4,350,000 private investment in IBIS spinout.

**Uniqueness:** These ad hoc wirelessly networked communication nodes (now called IntelliGateways) became the backbone of the Ibis Plug Load Management System, connecting IntelliSockets (energy meters and control points) with IntelliNetworks (reporting and control dashboard). The patented Ibis system enables users to see exactly how equipment is operating, and provides dynamic controls that allow you to use insights to save energy, extend device life, and truly manage building energy use in real time.

### COMPANY

**Founded:** 2013  
**Industry:** Energy Efficiency  
**Number of Employees:** 10  
**Website:** www.ibisnetworks.com  
**Location:** Honolulu, Oahu

### SBIR FUNDING



**Total: \$860,000**  
Investment (Angel/VC/JV/Partnership, etc.):  
**\$4,350,000** private







**Integrity Applications Incorporated  
Pacific Defense Solutions**

**Products on Market**

1. Operational Processing Applications at the Maui Space Surveillance Site (OPAMS)
2. Commercial Advanced Estimation algorithms for SSA (CAES)

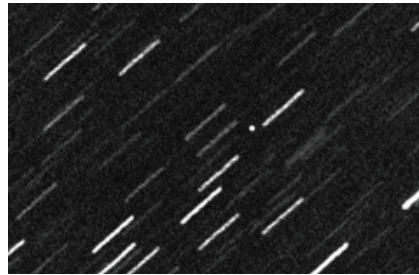
**Success:** Successfully transitioned critical complex automated SSA algorithms to operational DoD platforms and became a wholly-owned subsidiary of Integrity Applications Incorporated in November 2013.

**Uniqueness:** The accurate tracking of Resident Space Objects (RSO) depends on the rapid estimation of orbits using the knowledge gained from sparsely sampled observations of satellites under the influence of interacting gravitational, solar radiation pressure and atmospheric drag effects.

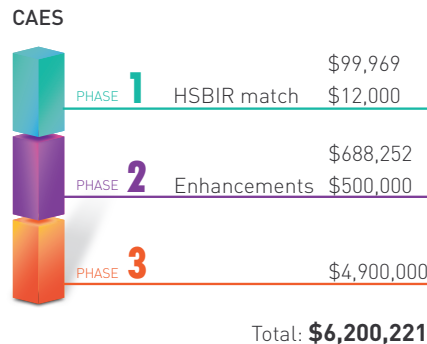
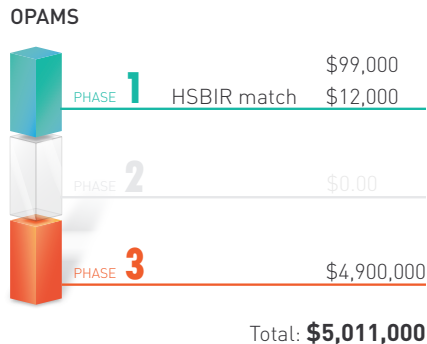
**Acquisition:** As of November 1, 2013, Pacific Defense Solutions, LLC (PDS) is a wholly owned subsidiary of Integrity Applications Incorporated.

**COMPANY**

**Founded:** 2006  
**Industry:** Software Development  
**Number of Employees:** 45  
**Website:** [www.integrity-apps.com/solutions/pds/](http://www.integrity-apps.com/solutions/pds/)  
**Location:** Kihei, Maui



**SBIR FUNDING**



**HAWAII BIOTECH**

**Products on Market**

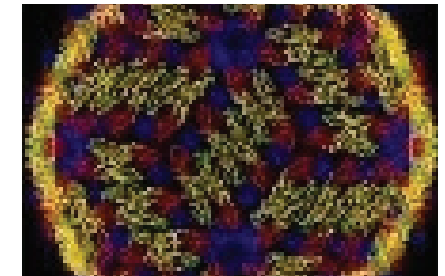
1. West Nile virus vaccine.
2. Dengue virus vaccine

**Success:** In August 2008, Hawaii Biotech, Inc. (HBI) entered first-in-man human clinical studies with its monovalent West Nile virus vaccine in Honolulu. In February of 2009, HBI entered first-in-man human clinical studies with its tetravalent dengue virus vaccine. In August 2010, HBI dengue vaccine technology was purchased by Merck Sharp and Dohme.

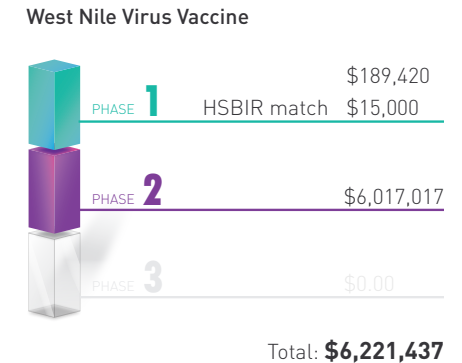
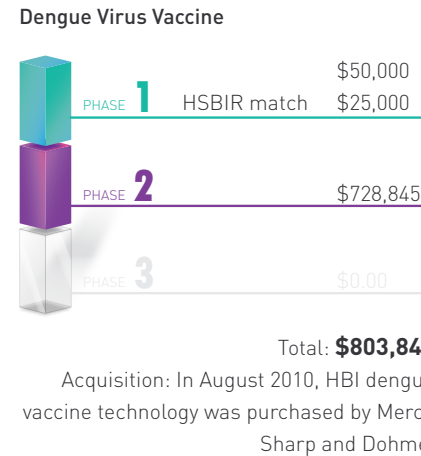
**Uniqueness:** Using genetically engineered proteins from all four serotypes of dengue viruses, HBI was able to induce immunity in animals to all four dengue viruses, or "tetravalent immunity."

**COMPANY**

**Founded:** 1982  
**Industry:** Biotechnology  
**Number of Employees:** 22  
**Website:** [www.hibiotech.com](http://www.hibiotech.com)  
**Location:** Honolulu, Oahu



**SBIR FUNDING**



**Products on Market**

1. Biodiesel

**Success:** In 2017 began its scaled-up farming demonstration to grow biofuel crops including sunflowers in Maui’s central valley. The crop project is the largest liquid biofuel crop project in the state of Hawaii and the only biofuel farming operation in the state running on 100% renewable fuel.

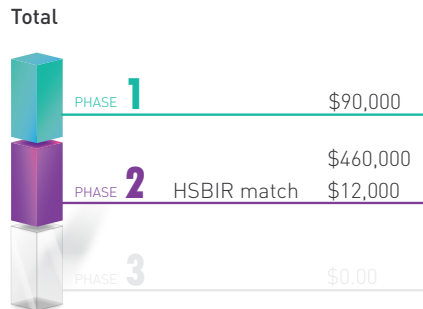
Our latest products include cosmetic-grade sunflower oil being sold to Hawaii’s spas and a new line of natural beauty oils made of locally grown ingredients, including excess macadamia nuts that the company collects from local processors.

**Uniqueness:** Pacific Biodiesel is the nation’s longest operating and most experienced biodiesel producer, and established the first retail biodiesel pump in America.

**COMPANY**

**Founded:** 1995  
**Industry:** Alternative energy  
**Number of Employees:** 80+  
**Website:** www.biodiesel.com  
**Location:** Kahului, Maui

**SBIR FUNDING**



Total SBIR Funding: **\$562,000**



**Products on Market**

1. Hawaiian Vanilla Beans
2. Hawaiian Vanilla Bean Extract
3. Estate Grown Hawaiian Vanilla Coffee
4. Multiple Vanilla Teas
5. Vanilla Kisses (lip balm)
6. Vanilla Royale Soap
7. Hawaiian Vanilla Bean Gardener’s Lotion
8. Pumpkin Papaya Body Butter
9. Hawaiian Vanilla Culinary Products

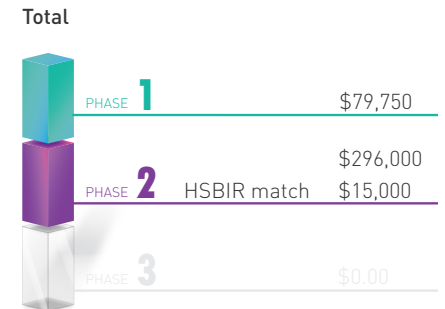
**Success:** Created a vanilla industry in Hawaii and developed a market of food lovers who want the best vanilla in the world, as well as the finest vanilla related products including vanilla coffee, beans & more.

**Uniqueness:** Hawaiian Vanilla Company were the first commercial growers of vanilla in the U.S.

**COMPANY**

**Founded:** 1998  
**Industry:** Gourmet Food Products  
**Number of Employees:** 9  
**Website:** www.hawaiianvanilla.com  
**Location:** Paauiilo, Hawaii Island

**SBIR FUNDING**



Total SBIR Funding: **\$390,750**



**Products on Market**

1. Kona Abalone

**Uniqueness:** Served at restaurants from Tokyo to New York. The aquafarm currently produces about 100 tons of live abalone per year and houses nearly 5 million abalone in their growout system alone.

**COMPANY**

**Founded:** 1997

**Industry:** Seafood

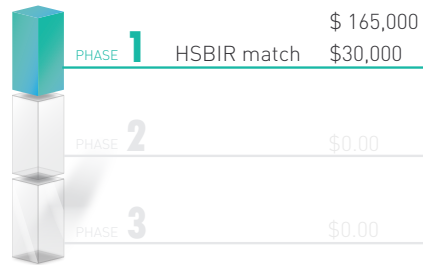
**Number of Employees:** 6

**Website:** [www.bigislandabalone.com](http://www.bigislandabalone.com)

**Location:** Kailua-Kona, Hawaii Island

**SBIR FUNDING**

Total



Total SBIR Funding: **\$195,000**



**Products on Market**

1. Ogo – edible sea vegetables
2. Salt water tilapia
3. Milkfish

**Success:** Royal Hawaiian Sea Farms sells over two tons of ogo per week.

**COMPANY**

**Founded:** 1987

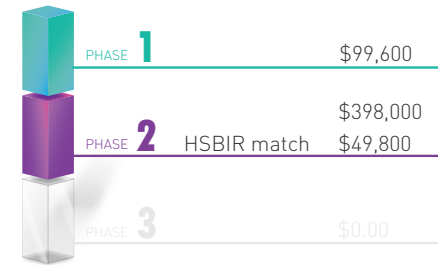
**Industry:** Seafood

**Website:** <http://nelha.hawaii.gov/our-clients/royal-hawaiian-sea-farms-inc/>

**Location:** Kailua-Kona, Hawaii Island

**SBIR FUNDING**

Total



Total SBIR Funding: **\$547,400**



# HIGH HEALTH AQUACULTURE

## Products on Market

1. Specific Pathogen Free (SPF) shrimp broodstock

**Acquisition:** 2012, High Health Aquaculture was purchased by Shrimp Improvement Systems (SIS). The company is still operates in Kailua-Kona and sells its product globally.

**Uniqueness:** High Health Aquaculture is the world's first SPF shrimp-breeding company.

## COMPANY

**Founded:** 1993

**Industry:** Seafood

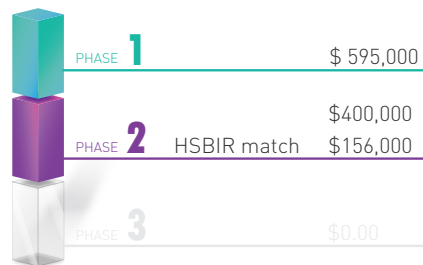
**Number of Employees:** 11

**Website:** <http://nelha.hawaii.gov/our-clients/shrimp-improvement-systems-llc/>

**Location:** Kailua-Kona, Hawaii Island

## SBIR FUNDING

Total



Total SBIR Funding: **\$1,151,000**



# Cyanotech

## Products on Market

1. BioAstin – Hawaiian Astaxanthin
2. Spirulina Pacifica

**Success:** Cyanotech is the world leader in the production of microalgae technology.

**Uniqueness:** The Bioastin brand was approved by the FDA as the first generally recognized as safe product containing Astaxanthin in 1999.

## COMPANY

**Founded:** 1983

**Industry:** Supplements

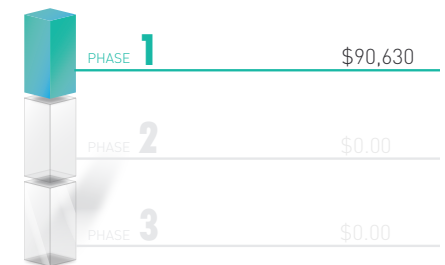
**Number of Employees:** 122

**Website:** [www.cyanotech.com](http://www.cyanotech.com)

**Location:** Kailua-Kona, Hawaii Island

## SBIR FUNDING

Total



Total SBIR Funding: **\$90,630**





### Products on Market

1. Hawaiian varieties of kalo (taro)
2. Kulolo
3. Taro Fruit Smoothies
4. Poi
5. Taro Mochi Cake
6. Laulau
7. Poi Banana Bread
8. Taro Hummus
9. Taro Veggie Burgers

**Uniqueness:** 6 generation family farm.

### COMPANY

**Founded:** 2000

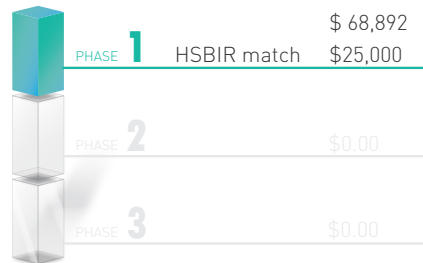
**Industry:** Taro, food manufacturing

**Website:** [www.hanaleitaro.com](http://www.hanaleitaro.com)

**Location:** Hanalei, Kauai

### SBIR FUNDING

Total



Total SBIR Funding: **\$93,892**



### Products on Market

Artisanal Single-Origin Hawaiian Chocolate

1. Milk chocolate
2. Dark forastero
3. Dar criollo

**Success:** In 10 years, OHCF's cocoa developed a brand similar to Kona coffee's: a high-quality, high-value, widely recognized market that can support local orchard production.

**Uniqueness:** The Original Hawaiian Chocolate Factory is a completely vertical business from growing the cacao, processing the beans, and turning them into chocolate bars.

### COMPANY

**Founded:** 1999

**Industry:** Gourmet Food Products

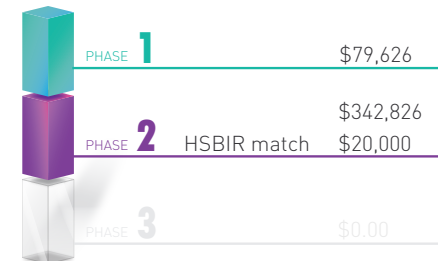
**Number of Employees:** 6

**Website:** [www.ohcf.us](http://www.ohcf.us)

**Location:** Kailua-Kona, Hawaii Island

### SBIR FUNDING

Total



Total SBIR Funding: **\$442,452**





### Products on Market

1. Icellator ® Cell Isolation System
2. TG-XBIOS™ Bioculture System
3. Adipase® Enzyme Blend

**Success:** Tissue Genesis is a leading authority in adipose cell therapy and delivery systems.

**Uniqueness:** Their technologies have flown on 18 space shuttle missions for NASA and are currently being used to treat patients in 6 human clinical trials on Earth.

### COMPANY

**Founded:** 2001

**Industry:** Biotech

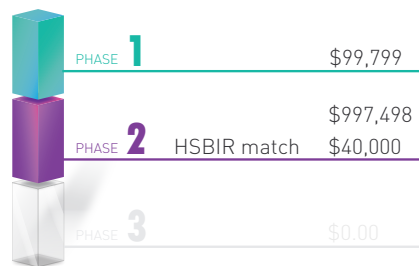
**Number of Employees:** 15

**Website:** [www.tissuegenesis.com](http://www.tissuegenesis.com)

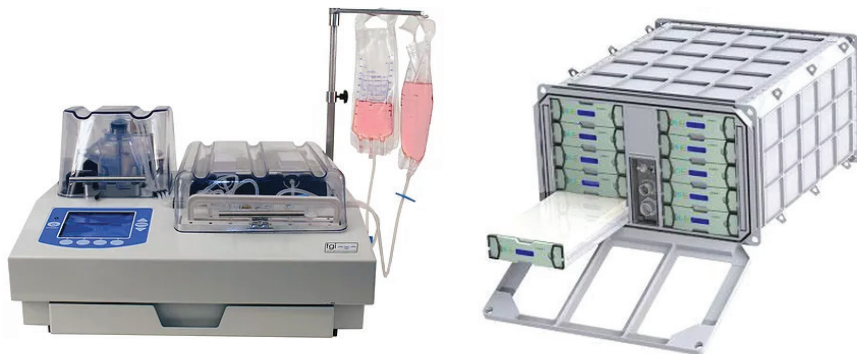
**Location:** Honolulu, Oahu

### SBIR FUNDING

Total



Total SBIR Funding: **\$1,137,297**



### Hawaii's Tibbetts Award Winners

The US Small Business Administration SBIR program recognizes individuals, organizations, firms or projects with the prestigious Tibbetts Award. The individuals or companies exemplify the very best in SBIR achievements based on the economic impact of their technological innovation, and the extent to which that innovation served federal R&D needs, encouraged diverse participation and increased the commercialization of federal research. Congratulations to the following Hawaii companies for their outstanding achievement.

- 2016** – Makai Ocean Engineering  
– Referentia Systems

- 2011** – TREX Hawaii (now Fantom Materials in Lihue. TREX also has these Hawaii ventures: CrossFiber R&D lab on Maui; Loea Corp. In Honolulu & on Maui; Sago Systems in Honolulu; and Silicon Kinetics on Maui.)

- 2007** – Archinoetics (now Area 10 Labs in Rochester, MN)

- 2006** – Hawaii Biotech  
– Oceanit

- 2002** – Hawaii Biotech

- 2001** – Jo Ann Johnston & Co.

- 1999** – Orincon (acquired by Lockheed Martin in 2003)

- 1997** – Oceanit

- 1996** – Synthetic Technology Corp. SETS Technology (became STI; sold govt biz, started PanThera, now STI Medical)



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