



RURALWORKS

## Maine's American Unagi Innovates Domestic Eel Aquaculture in Partnership with RuralWorks

In Waldoboro, Maine, respect for natural resources runs deep and a connection to the working waterfront is a cornerstone of life. But like the winding Medomak River that runs through town, the path to a local thriving economy is not a straight one and depends on the grit of Mainers who harness hard work, innovation in the face of change, and a heritage of utilizing natural resources to build a better life.

American Unagi, the first and only commercial eel farm in the nation, taps into the DNA of this rural community and creates a key connection between people, resources and opportunity. Founder and CEO, Sara Rademaker is innovating a sustainable approach to aquaculture and is single handedly up-ending the traditional route to market for this valuable and bountiful local baby eel fishery.

In a mission aligned partnership with **RuralWorks**, this female-founded enterprise is working to protect the environment and build economic resilience by innovating a transparent and value-driven domestic supply chain of eel from Maine's inland waterways to the American table. "It creates a connection to our local fishery and builds a broader system of not just fishermen, and not just a business, but to customers who appreciate the value," says Rademaker.

Prior to the launch of **American Unagi** in 2016, the entirety of Maine's annual eel catch was flown to Asia to be grown, harvested, and processed only to be returned by boat for distribution in the growing American market.



*Sara Rademaker, Founder and CEO  
American Unagi*



*Waldoboro, a Maine community at a  
crossroads*

By nurturing the matchstick sized baby eels (called *elvers*) to maturity in aquaponic tanks then processing the mature fish in-house, **American Unagi** has drastically streamlined the supply chain from farm to consumer, and in doing so has bolstered the local economy with new jobs and an innovative path forward as the climate warms.

Like many Maine towns, this community of just over 5,000 people is at crossroads as the state's climate changes and traditional fishing businesses may be in peril. Just down the road from the rural towns of Friendship and Hope, **American Unagi** provides the community with a promising future: year-round employment for its workers, a reliable and regulated market for local fishermen, and a sustainable and fully traceable product for the growing domestic sushi market.

This **RuralWorks** investment reflects a commitment to rural ventures that are designed to protect the environment *and* create a positive impact on the community. “Our investment strategy is centered on supporting businesses that combine innovation with sustainability,” said Louisa Schibli, Director of Impact and Engagement. “**American Unagi’s** focus on sustainable aquaculture practices makes them an ideal partner for us, as we aim to drive both financial returns and positive social and environmental impact.”

## Unveiling the Potential of a Curious Fish and the Entrepreneur Disrupting the Market

Think Maine, think lobster. But as this New England state’s waters warm, the fishing community and state government are looking for new sources of revenue and alternate markets to explore. “The State has been forward thinking about what aquaculture can be for Maine to support the economy while continuing to protect a valuable resource,” says Rademaker, who has both managed large scale aquaculture farms in Africa and shepherded aquaculture micro-businesses in Maine.

Determined to find a viable aquaculture venture to both bolster the local economy and provide a sustainable product to American consumer, Rademaker discovered the untapped potential of the American eel and set out to research and replicate successful European aquaculture models. As a visionary of how Maine can level up an historic fishing practice to meet a changing market, Rademaker conducted her due diligence into the viability an eel aquaculture venture and concluded, “Oh this one, this one could work!”



*American Unagi Eels, Anguilla  
Anguilla heading back to their tank*



*Maine glass eels*

Every grown eel that enters today’s 4.3B global sushi market began as a wild caught juvenile in streams and estuaries around the world. Sara Rademaker was curious about this highly nutritious fish, popular around the globe with an origin story based in indigenous cultures who prized this accessible and nutritious form of protein in their diet. “That’s a really cool piece of the puzzle, that this species is really a connector in a lot of different ways, says Rademaker. “There’s evidence that eels were once one of the things that the local tribes taught to fish for and that they were part of the first Thanksgiving.”

Each Spring, millions of tiny glassy eels make their way to Maine's inland waterways from the depths of the Sargasso Sea, an elliptical patch of ocean in the North Atlantic not far from Bermuda. But details of the eel life cycle are still a mystery to marine biologists, and not even researchers have witnessed the reproduction and early life of the American eel which is one of fifteen global eel species in the world and one of only four in commercial production.



*A local fyke net at low tide*

Maine is in a unique and prime position to optimize the opportunity as the demand for eel is on the rise in America. It is one of only two states that allow fishing of elvers in streams and estuaries and has instituted tough regulations to prevent overfishing and protect the long-term sustainability of the local eel population. Since 2014, Maine has mandated an annual quota which is currently at 9,688 pounds of eel allowed to be caught and monitors the annual spring catch closely.

The local Passamaquoddy Tribe, who have a long heritage of fishing eel, are investors in **American Unagi** and receive a portion of the guaranteed carve out of up to 21.7% for Maine's indigenous tribes. Rademaker works closely with the Passamaquoddy in her facility, sharing best practices and knowledge to enable the tribe to develop their own aquaculture ventures in the future.

This Spring's catch of elvers garnered about \$1,500 per pound, but has fetched as much as \$2,500 in prior years - a boon to local fisherman who enter a lottery system to be one of the fortunate few allowed to tap the fishery.

**American Unagi** works with harvesters during the short spring season who swipe an identification card when the eels get weighed and entered into the facility's staged tanks where they mature from baby to adult which takes from 8 months to 2 years. Carefully fed and monitored throughout the growth stages in clean and recycled water, 98% of the transparent elvers in this system reach full adulthood, unlike the only 1% that survive in the wild.

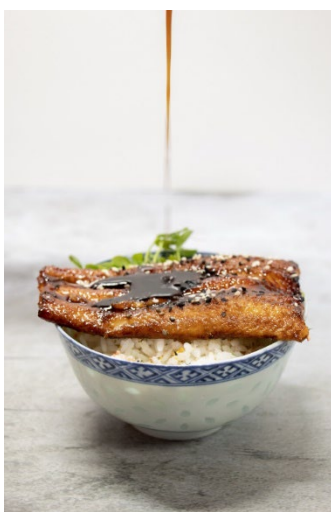
Since Rademaker launched **American Unagi**, the local price for Maine's yield has been bolstered and stabilized, and the full value of this natural resource is captured, "This is way more efficient than fishing, "If most of these babies are not going to live in the wild, then it makes a whole lot more sense that we can take 500 pounds of baby eels and turn it into 500,000 pounds of eels," said Rademaker.

#### American Unagi Environmental Stewardship

- Reduces greenhouse gas emissions by streamlining supply chain
- 90% of water is recycled and waste is upcycled
- Eels come from within 20 miles of the farm and are raised hormone and antibiotic free
- Survival rate of elvers is 98% compared to 1% in the wild
- Fully utilizes local natural resource by growing 500 pounds of eel to 500,000 pounds of product

This venture avoids questionable aquaculture practices abroad and builds the local economy by keeping the value close to the source. “We are not only shortening the supply chain – cutting out a whole trip around the world – but we are bringing year-round jobs to a seasonal fishery,” said Rademaker. “We’re bringing additional economic value to the glass eel fishery which is worth \$25 million, but if it were all grown out here could be as much as \$250 million. It’s keeping more of a natural resource here to grow and to connect it to a part of the industry that currently exists overseas.”

## On the Menu: Traceable, Safer and Sustainable Eel



*Raw eel fillet prepared as Unagi Kabayaki*

Demand for eel, largely for sushi, is steadily growing in the America market that consumes 11 million pounds of the product annually. **American Unagi’s** current capacity is to grow 2 million live eel and the potential is even greater, “It’s an exciting opportunity because this farm represents only 5% of the U.S. market and we’re only using about 5% of the fishery. The rest of the juvenile elvers are still going to China to grow,” said Rademaker.

Like the consumer desire for more transparency in the beef and pork industries, there’s also a growing interest from consumers to know that the eel on their plate originated from a reliable, traceable source. The goal is to “continue to peel off more of that domestic market share with reliable local product,” said Rademaker who noticed early on that restauranteurs were taking eel off the menu because there was not a domestic source of sustainable, ethically raised fish.

**American Unagi** eel are processed in-house and sold as live eel, frozen fillet of eel and smoked eel. Currently marketed directly to restaurants and on-line direct to consumer or through a growing network of distributors, Rademaker touts the natural purity and freshness that comes from a responsibly raised fish, captured in the wild and raised hormone and antibiotic-free.

The **RuralWorks** investment will assist Rademaker in expanding her market reach by working with wholesalers and distributors to move more product from the Waldoboro facility to consumers across the country. “With our investment, American Unagi will have the resources to scale their operations, build out their team, and reach a broader market’ said Wyer. “This support will enable them to continue their mission of sustainable eel farming and contribute to the overall growth of the aquaculture industry.”



*Processing eel fillet*

Timing is key as **American Unagi** is operating at break even and is primed to scale the business, “**RuralWorks** has come on board really at a critical time when we are working to grow our sales,” said Sara Rademaker. “It’s going to be critical to get to the next level with our operation and we’ve brought on a really solid sales director to help.”



*Packaged smoked eel*

## **A Fishery for Maine’s Future: Restoring Community Resilience**

A hairdresser, a plumber and a lobsterman are some of the 40 or so licensed locals who supplement their incomes in short four-week season of elver fishing. The barriers to enter this business are low – fishermen don’t need a large investment in a boat, equipment or the time to learn complex fishing skills. Licensees can earn up to \$25,000 for a 10-pound catch of eels - an economic game-changer in a rural community where locals must find creative ways to support a life here. “It’s a place where it’s not easy to make a living and people piece together a lot of jobs,” said Rademaker. “But it’s a great place to build a business because it’s community focused and it’s people who recognize the value of natural resources.

**American Unagi** has created a year-round business out of a very short and seasonal fishing season. With 10 full-time, year-round jobs and 5 part-time positions, the focus is on fair and equitable pay, a generous benefits package and building valuable skills to support a complex 27,000 square foot aquaculture facility. “Sometimes the impact of having year-round employment in the area is big,” said Rademaker. “I have a really diverse staff of people who are establishing lives here in the community in one of the oldest states in the nation. That’s a really cool thing to be able to build a business that’s allowing people to live in the area.



*American Unagi production manager, Kathleen Marciano*

### **American Unagi Community Impact**

- Employment of 10 full-time and 5 part time employees
- Female founded company
- Commitment to providing a living wage and benefits package
- Partnering with Passamaquoddy tribe to build wealth and knowledge base in order to replicate aquaculture venture
- Builds economic resiliency by creating jobs, a reliable market for a local natural resource and path toward a sustainable aquaculture industry



In addition to supporting the local fishing community and creating year-round employment opportunities, **American Unagi** works with researchers to improve future eel aquaculture projects and works side by side with the Passamaquoddy tribe to assist them in learning how to manage the facility. Rademaker’s dream was to collaborate with researchers, employees and indigenous Mainers about eel aquaculture in order to create a solid future for Maine. hugely powerful.”

## American Unagi and RuralWorks: Growth for Good

A baby eel is smaller than a pinky and as translucent as a shard of glass. But elvers, with a mysterious life story and a mighty drive to swim thousands of miles northward, demonstrate that something very small can accomplish something remarkable. Sara Rademaker has built a business in rural Waldoboro that pushes upstream too by protecting a squandered natural resource and disrupting an environmentally costly supply chain. In partnership with **RuralWorks**, Rademaker optimizes an underutilized Maine fishery, honors local indigenous culture and improves the community she lives and works in. There’s only one direction for this company, the rural town of Waldoboro and the nascent eels on their way to Maine each year: onward.