



City of Cambridge

57.

IN CITY COUNCIL

September 30, 1996

VICE MAYOR BORN
 COUNCILLOR DAVIS
 COUNCILLOR DUEHAY
 COUNCILLOR GALLUCCIO
 COUNCILLOR REEVES
 MAYOR RUSSELL
 COUNCILLOR SULLIVAN
 COUNCILLOR TOOMEY
 COUNCILLOR TRIANTAFILLOU

WHEREAS: **Boston Seafarms**, an exciting new commercial venture in Cambridge, will connect Cambridge's fishing and farming roots to the newest technological approach to toxic-free fresh fish and hydroponic herbs; and

WHEREAS: Boston Seafarms, currently under construction at 160 Second Street, Cambridge, in the Greenworks Building, will provide year-round, highly dependable, quality-assured seafood that is organic and farm-raised; and

WHEREAS: Boston Seafarms will also use hydroponic growing techniques to make fresh organic herbs such as basil, thyme, cilantro, and oregano available year-round; and

WHEREAS: Boston Seafarms will utilize environment-friendly techniques that will make it a welcome neighbor and a valuable and leading edge addition to the Cambridge business community; now therefore be it

RESOLVED: That the City Council go on record expressing its hearty welcome to and support for **Boston Seafarms**; and be it further

RESOLVED: That the City Clerk be and hereby is requested to forward a suitably engrossed copy of this resolution to **Boston Seafarms** on behalf of the entire City Council.

In City Council September 30, 1996

Adopted by the affirmative vote of nine members.

Attest:- D. Margaret Drury, City Clerk.

A true copy;

ATTEST:-


 D. Margaret Drury
 City Clerk

KB

57.

Whereas: Boston Seafarms, an exciting new commercial venture in Cambridge, will connect Cambridge's fishing and farming roots to the newest technological approach to toxic-free fresh fish and hydroponic herbs; and

currently under construction

Whereas: Boston Seafarms, ^{the} at 160 Second Street, Cambridge, in a Greensunks Building, will provide year-round, highly dependable, quality assured seafood that is organic and farm-raised; and

Whereas: Boston Seafarms will also use hydroponic techniques to ~~grow fresh~~ make fresh organic herbs such as basil, thyme, cilantro, and oregano available year-round; and

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Resolved: That the C C go on record expressing
its hearty welcome ^{to} and support for
Boston Seafarers; and be it further

Resolved: SEC to Bosh Seafarers on behalf of
the entire C-C-

Catapult
SOFTWARE TRAINING

RECEIVED BY
OFFICE OF CITY CLERK
96 SEP 26 PM 3:21
CAMBRIDGE MA.

Fax Transmission Cover Sheet

DATE: 9-86-

TO: Maryanne

COMPANY: City Clerk

FAX NUMBER: 349-4307

NUMBER of PAGES (including This Cover Sheet): 9

FROM: Sandra

VOICE: (617) 737-1286

FAX: (617) 261-7556

COMMENTS:

Will try to call by

4pm.



Bopn orders for 9-

#1 see fax w/ Mass Peace @ reader

#2 support for Boston Sea Farms, a
new Cambridge Company

#3 see attached "ISO m"

Boston Seafarms

160 Second St. Cambridge, MA 02142
(V) 617-547 FISH (F) 617-876- RFAX

*in the Greenworks
Building*

Recirculating Aquaculture

Aquaculture is the farming, cultivation, husbandry, and underwater agriculture of plants and animals. There are several approaches to increasing the productivity in aquaculture operations. These approaches can be classified into three categories: open, flow-through, and recirculating systems. Recirculating systems reuse water by utilizing purification filters and disinfection techniques to maintain optimal and well controlled growing conditions.

The growth of recirculating aquaculture has been stimulated by environmental impacts imposed by open and flow-through mariculture, overfishing/dredging, rising prices of seafood, and consumer demands for quality assured, non-polluted seafood and produce commodities.

The accumulation of coastal and estuarine pollutants represent a significant threat to human food health safety and the environment. Sources of toxic contamination include pesticides, herbicides and fertilizers from agricultural runoff, polycyclic aromatic hydrocarbons from fossil fuel combustion, heavy metals and a myriad of industrial by-products.

*Exhib
new
commercial
venture*

Production and Consumption

Based on population growth projections coupled with a continued per capita increase of seafood consumption, global seafood demand is expected to increase over 60 percent within the next 30 years. Given that harvest from wild fish stocks are approaching or have exceeded maximum sustainable yields, aquaculture production is expected to increase approximately 500 percent to meet global seafood demand by the year 2025 (NMFS, 1994).

In the Northeast region (1992), Massachusetts (\$8.1 million) was the smallest aquaculture producing state after New York (\$9.6 million), Pennsylvania (\$11.9 million), Maine (\$42.9 million), and Connecticut (\$61.7 million). In other words, Massachusetts is lagging far behind, especially in light of New England's cuisine and culture which relies so heavily on seafood products (CZM, 1995).

*Drawing
Cen's
back*

Marketing a safe and healthy product

Due to public food safety concerns, recirculating aquaculture products become especially favorable when compared with open, flow-through, and wild stock fisheries products. Recirculating aquaculture operations are able to provide year-round, highly dependable, quality assured seafood products (e.g. organic and farm-raised fish). Moreover, contaminants found in wild fish may also limit the available supply of fresh fish to the public (Department of Coastal Zone Management, 1995). At the same time, America is becoming more health conscious and consuming more fish because of its nutritional value and low fat content.

From: Adam Weinberg To: Fax#407-4123

Date: 9/23/96 Time: 21:24:46

Page 2 of 4

Corporate Mission

The mission of Boston (BSF) is the environmentally conscious cultivation, marketing, and sale of quality assured seafood and produce commodities.

PHASE I: Business Plan Development
system engineering
marketing, sales, financing, production

PHASE II: Prototype Assembly and Operation
35,000 pound production
R&D aquaculture candidate species

PHASE III: Commercial Operation
3 million pound production

Objective

The main purpose of Phase II is to demonstrate Boston capability of successfully cultivating and marketing organic St. Peters fish (Tilapia hybrids) to regional supermarkets, restaurants, oriental live markets, and seafood wholesalers.

Phase II of this venture will be to engineer, construct, and operate an aquaculture facility for approximately twelve to twenty-four months. The prototype developed and refined in Phase II will represent one growing unit used during Phase III (commercial scale production).

Resources

Currently, one of our competitors' recirculating ("inland") facility has discharged in excess of 1.8 billion gallons of water per year into Massachusetts surface waters. Moreover, complaints have been filed with the Department of Environmental Protection concerning undesirable odor and color characteristics of tainted river water used for recreation. Boston believes this unsustainable form of agriculture is socially and environmentally irresponsible and cost-ineffective.

Boston will collaborate efforts to redefine recirculating aquaculture technology with Aqua Optima, Inc., MIT/MIT Sea Grant, Woods Hole Oceanographic Institute (WHOI), Camp Dresser, and McKee (CDM), The New England Aquarium and Greenworks, Inc.

Boston is in the process of developing an internship program with the Massachusetts Institute of Technology. The BSF/MIT program will focus on research and development areas on aquaculture candidate species such as

mahi mahi, red fish, and summer flounder. Moreover, BSF will develop relationships with Woods Hole Oceanographic Institute and the New England Aquarium which may be utilized for technical expertise and fisheries management. Camp, Dresser, and McKee, a internationally renown waste-water treatment consulting firm, has also shown interest in a collaborative effort develop waste-water reclamation techniques.

Greenworks, Inc., a Cambridge-based enviro-tech business incubator, has provided business management resources, availability to their revolving venture capital fund, and assisted with identifying State grant opportunities for aquaculture ventures.

Aqua Optima, a Norwegian aquaculture engineering firm, has developed a "turn-key" system that has been used internationally for halibut, tilapia, sea bass, and salmon aquaculture. Their aquaculture system will be utilized by BSF to reduce many of the start-up risks associated with these types of operations.

Aquaculture System

The Aqua Optima system consists of a preliminary water purification system, circular growing tanks, settling tank, mechanical filters (rotating screen filter, bead filter, centrifuge), biological filtration (packed tower, RBC, fluidized bed), ultraviolet sterilizers, ozone depuration apparatus, oxygen injection system, water pumps and blowers, computer monitoring and alarm systems, etc....

Hydroponics

Boston will integrate a hydroponics system into the aquaculture system (i.e. aquaponics) to reduce the toxicity of culture effluent. Hydroponically grown plants, such as basil, thyme, oregano, and cilantro, will be sold as organic produce to justify premium prices. Cultivated saltwater algae will be utilized to reduce nutrient-laden effluent from the mariculture system. Algal products will be sold to nearby pharmaceutical and biotechnology facilities.

Research and Development

Boston is cultivating many different freshwater and marine fish species with the BSF laboratory-scale system. Feasibility and marketability studies will be generated to illustrate which candidate species BSF is most likely to cultivate in commercial facility. Candidate species include, but are not limited to, trout, hybrid striped bass, fresh water and marine shrimp, yellow perch, pacu, carp, sea bass, cod, haddock, halibut, summer flounder, Mahi mahi, yellowtail tuna, oysters, scallops, clams, and mussels.

Site and Building Description

The prototype can be located in a building currently under construction in Cambridge, Massachusetts. That prototype facility will occupy approximately 1800 ft². Plans to construct a greenhouse on the roof of the facility are being negotiated. The facility has an appropriate floor bearing load of 375 pounds per square foot.

Available alternative energy sources

The roof of buildings #1 and #3 will be outfitted with solar panels that may be used for heating recirculated water. Steam pipes originating from a nearby power plant are also accessible for heating recirculated water. A ground source heat transfer pump system, located underneath the interior parking lot, may also be used for heating/chilling water cost effectively.

Prototype Operating Schedule

Month	Description
1 1 97	Seed prototype system with Fingerlings (\$400,000)
8-1-97	Harvest and sell first batch of fingerlings (43,000 lb / month)
2-1-98	Fundraising for commercial facility (\$3 million)
6-1-98	Commercial facility operational
8-1-98	Seed commercial facility with fingerlings
1-1-99	Harvest and sell first batch of fingerlings (25,000 lb./ month)



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DAVIS Consent Order #57

R-980

Duehay, Calluccio, Reeves Russell
Sullivan, Toomey

Vice Mayor Born re: Heary welcome to
Boston Seafarms, an exciting new
commercial venture in Cambridge.

Triantafillou

In City Council September 30, 1996

ORDER ADOPTED