Initiation Report

AQUABOUNTY TECHNOLOGIES

DIAMOND EQUITY RESEARCH

Small Capitalization Research
Initiation of Coverage

AquaBounty Technologies

AquAdvantage® Salmon Set for Rapid Commercial Growth with Aquaculture Boom

Investment Highlights:

- We expect AquaBounty to achieve exponential revenue growth, as it has already received sale, production, and consumption approvals from the U.S. Food and Drug Administration (FDA), Health Canada and the Canadian Food Inspection Agency for its registered AquAdvantage® Salmon. Following the approval, the company has already made its first sale of approximately five metric tons of fresh AquAdvantage® Salmon fillets to customers in Canada in 2Q 2017
- AquaBounty's land-based farming of AquAdvantage® Salmon (a genetically modified Atlantic salmon) is an effective method of producing larger quantities of salmon outside coastal zones, while complying with environmental regulations. Compared to traditional aquaculture, the company uses only 75% of feed, reducing operating costs. AquAdvantage® Salmon grows faster, becoming ready for sale in almost half the time, thus supporting more production in less time. Land-based farming can also reduce the carbon footprint by approximately 25x, compared to traditional salmon, *providing a key sustainability advantage*
- AquaBounty is rapidly expanding its production facilities to cater to the U.S. and Canada seafood markets and plans to continue to focus on research and development (R&D) activities to add more seafood varieties. Its FDA-approved Indiana facility could produce around 1,200 metric tons of AquAdvantage® Salmon in a year, which translates into over $10 million in potential annual sales at current Atlantic salmon prices. If anticipated timelines are achieved, the facility's first harvest should be in the third quarter of 2019
- Given the difficult in valuing an early stage business like AquaBounty, we used a blended discounted cash flow analysis and technology value analysis, with a mix of similar biotechnology and aquaculture companies. Our combined valuation analysis indicates that AquaBounty's shares are significantly undervalued

Company Description

AquaBounty Technologies focuses on the enhancement and improvement of the productivity in commercial aquaculture. It uses genetic manipulation and other molecular biologic techniques to improve the quality and yield of fish stocks. The company was founded in 1991 and is headquartered in Maynard, Massachusetts

Biotechnology

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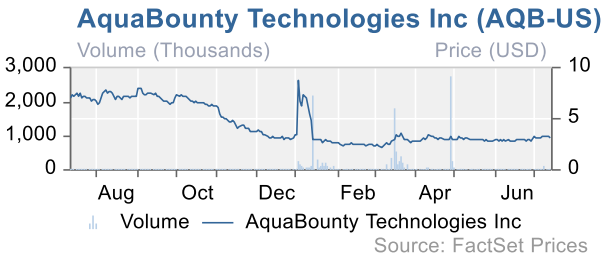
Price-Volume History



Key Statistics

Closing Price (As Of 07/13/2018)	$3.11
Valuation	$4.50
52 Week Range	$2.25-$9.99
Average Daily Volume(th)	83.622
Shares Outstanding (th)	12,827
Market Capitalization (M)	$39.63
Number of Analysts Covering	2
Enterprise Value/Revenue	N/A

Revenue ($ in millions)

Dec. FY	2017A	2018E	2019E
1Q	0.00A	0.02A	0.22E
2Q	0.05A	0.09E	0.45E
3Q	0.00A	0.26E	0.67E
4Q	0.00A	0.49E	0.90E
FY	0.05A	0.85E	2.24E

EPS ($)

1Q	(0.24)A	(.21)A	(0.08)E
2Q	(0.24)A	(.18)E	(0.12)E
3Q	(0.28)A	(.23)E	(0.16)E
4Q	(0.30)A	(.17)E	(0.32)E
FY	(1.05)A	(0.78)E	(0.62)E

Investment Thesis

The U.S. imports approximately 90% of its seafood for domestic consumption. In the past two decades, its seafood imports have grown at an average annual rate of 5.7%, to almost $20 billion in 2016. In contrast, exports have grown more slowly, creating a large trade deficit of approximately $14 billion in 2016 – one of the largest commodity trade deficits in the U.S. In particular, the U.S. imported 95% of the farmed salmon under strict environmental rules and high competition for coastal resources, resulting in a large departure of salmon farmers.

AquaBounty offers a high-growth investment opportunity, based on the effectiveness and efficiency of its pioneering salmon-production technology

Against such a background, AquaBounty's land-based farming of genetically modified salmon *is an effective method of producing large quantities of salmon outside coastal zones, while complying with environmental regulations and helping to narrow the seafood trade deficit*. Compared to traditional aquaculture, AquaBounty uses only 75% of feed to farm salmon with the same omega-3 fatty acid content, reducing operating costs. Moreover, the company's genetically modified AquAdvantage® Salmon grows faster (ready for sale in almost half the time) than traditional salmon, supporting more production in less time, without nutritional deficits or health hazards.

AquAdvantage® Salmon could provide significant environment sustainability advantage with a 23-25x lesser carbon footprint, unlike salmon imported from Norway and Chile that travels thousands of miles by airfreight and then shipped by truck to markets. AquAdvantage® Salmon is expected to travel much shorter distance to reach consumer in a fresher state, as they will be farmed in facilities close to major metropolitan areas.

With few companies focused on genetically modified salmon farming, we believe *AquaBounty offers a high-growth investment opportunity, based on the effectiveness and efficiency of its pioneering salmon-production technology*. We expect AquaBounty to achieve exponential revenue growth, as it has already received sale, production, and consumption approvals from the U.S. FDA, Health Canada and the Canadian Food Inspection Agency for its registered AquAdvantage® Salmon. Following approval, the company made its first sale of approximately five metric tons of fresh AquAdvantage® Salmon fillets at market prices to customers in Canada in 2Q17. AquaBounty is rapidly expanding its production facilities to cater to the U.S. and Canada seafood markets and plans to continue to focus on R&D activities to regularly add more seafood varieties.

The FDA recently approved production of AquAdvantage® Salmon at the farm site near Albany, Indiana, which was purchased in 2017 due to its proximity to high-potential markets, including Indianapolis, Chicago, and Columbus. The Indiana facility can produce around 1,200 metric tons of AquAdvantage® Salmon in a year,

which translates into over $10 million in potential annual sales at current Atlantic salmon spot prices. The facility will start production after it receives final product-labelling guidance from the FDA. If anticipated timelines are achieved, the facility's first harvest could be as soon as in the third quarter of 2019. The company has also received regulatory approval to construct a broodstock facility and a 250-metric-ton grow-out facility at its Rollo Bay site in Canada. In addition, the company expects to start commercial development of AquAdvantage® Salmon in Argentina and Brazil after the scheduled completion of ongoing field trials in 2018 and 2019, respectively.

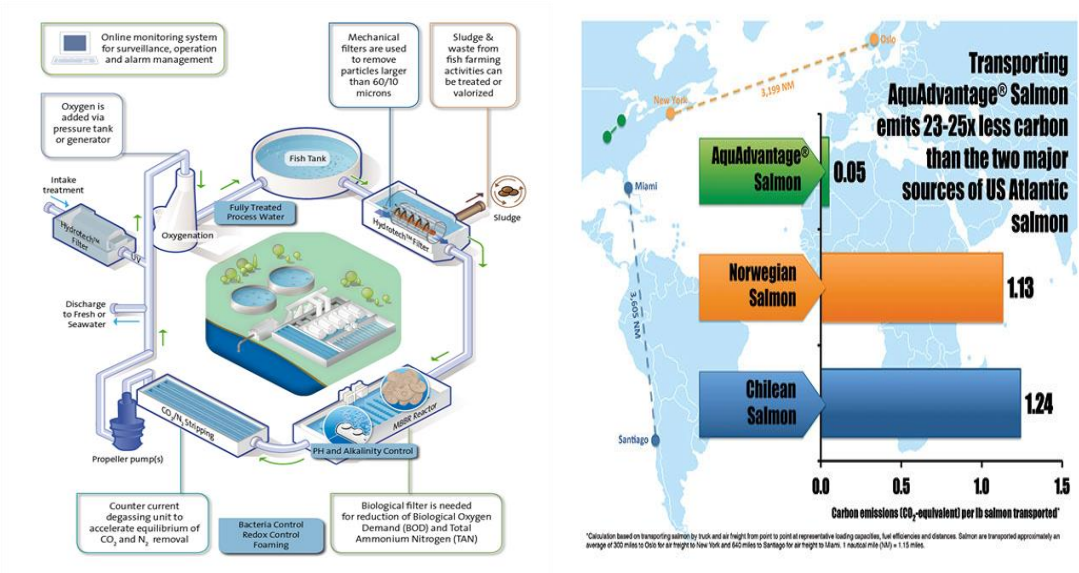
AquaBounty's $25 million equity subscription with Intrexon Corporation, together with the listing of its common shares on the Nasdaq Capital Market, has significantly boosted its market presence

AquaBounty's $25 million equity subscription with Intrexon Corporation, together with the listing of its common shares on the Nasdaq Capital Market, has significantly boosted its market presence. It expects its collaboration with Intrexon to reduce R&D costs as it develops more genetically modified varieties of seafood. Intrexon owns most of AquaBounty's common stock and could provide additional non-dilutive financing in the future. AquaBounty should also benefit from Intrexon's strategic relationships and manufacturing oversight during the targeted commercialization of its offerings.

Company Overview

Formed in 1991, AquaBounty Technologies, Inc. is a biotech aquaculture company focused on enhancing its productivity in a fast-growing aquaculture market. Headquartered in Maynard, Massachusetts, it uses genetic modification and other molecular biologic techniques to improve the quality of fish and to cater to growing demand of the aquaculture industry. AquaBounty currently focuses on AquAdvantage® Salmon farming under controlled conditions, as an alternative to traditional commercial harvesting of wild species of aquatic organisms. The company's primary shares trade on the Nasdaq Capital Market under the ticker AQB. Prior to the listing on Nasdaq in January 2017, the shares traded on the Alternative Investment Market (AIM; the London Stock Exchange's international market for smaller growing companies). AquaBounty delisted its shares from the AIM in June 2017.

AquaBounty Technologies is a biotech aquaculture company focused on AquAdvantage® Salmon farming under controlled conditions



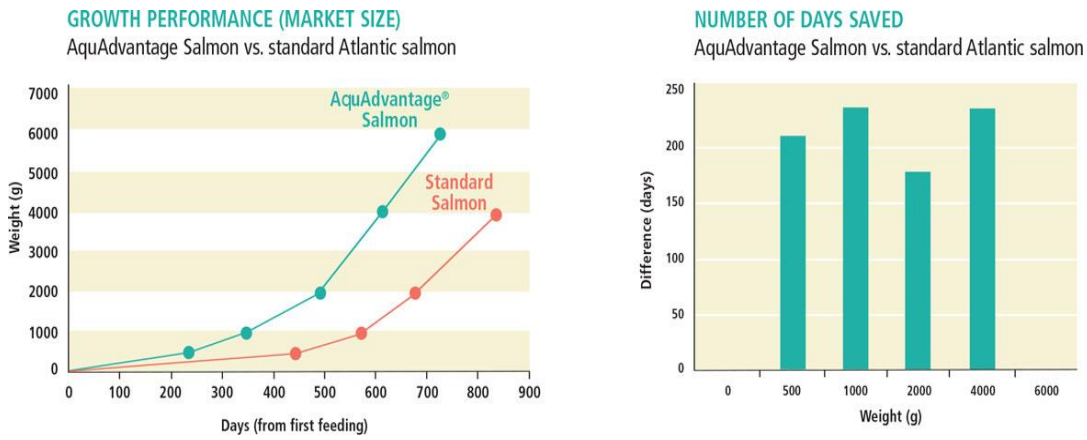
AquAdvantage® Salmon production system (left); low carbon emissions (right); Source: AquaBounty website

The company sees significant growth potential in salmon farming, as salmon is now the United States second most popular seafood item in terms of per capita consumption. The U.S. imported more than $2.6 billion worth of Atlantic salmon in 2016, according to the US Department of Commerce. AquaBounty's AquAdvantage® Salmon is the first genetically modified animal approved for human consumption. As a transgenic Atlantic salmon, AquAdvantage® Salmon takes around half the time that a traditionally farmed Atlantic salmon takes to grow to marketable size. In theory, more consistent levels of the growth hormone can be released by replacing a second copy of the salmon growth hormone gene under the control of an alternative genetic promoter from the ocean pout (an edible marine fish); this would accelerate the salmon's early stages of development.

AquAdvantage® Salmon is the first genetically modified animal approved for human consumption by the FDA

With accelerated growth in the early stages of breeding, AquAdvantage® Salmon could grow to marketable size much sooner than its traditional counterpart. This method could reduce farming time for Atlantic salmon to 18-20 months from 28-36 months, providing both economic and environmental advantages. That said, AquAdvantage® Salmon could simply be produced in contained inland systems, away from coastlines. Although this requires larger capital investment than the traditional sea-cage approach, any increase in costs would be easily offset by better efficiency and feed conversion, reduced threat to the environment, and effective disease control. Besides, land-based facilities located closer to major food markets could help reduce transportation costs, reduce carbon footprint, and cut the time taken to provide fresh product to the end market.

AquAdvantage® Salmon takes only half the time that a traditionally farmed Atlantic salmon takes to reach marketable size



Source: AquaBounty website

AquaBounty is focused solely on boosting commercial production of AquAdvantage® Salmon with its existing farm sites, buying additional facilities, and using other licensing or partnership arrangements. It is also actively pursuing regulatory approval for AquAdvantage® Salmon in Brazil, Argentina, China, and Chile.The company developed its first commercial-scale production facility in the U.S. through acquisition of a farm site in Albany, Indiana, from the Bell Fish Company in 2017. Currently, the land-based contained facility has the capacity to produce 1,200 metric tons of AquAdvantage® Salmon a year. AquaBounty has received approval from the FDA to raise AquAdvantage® Salmon at this facility. Production will start once the company imports the eggs from its Canada facility, pending product-labelling guidelines from the FDA. AquaBounty expects its first commercial harvest of AquAdvantage® Salmon in late 2019. It has also started construction of a 250-metric-ton production unit in Rollo Bay, Prince Edward Island, which it expects to complete by late 2018. The company is also developing a new broodstock facility in Rollo Bay to increase its egg-production capabilities. Once completed, this facility would be able to meet demand for salmon eggs for the next five years.

Corporate Timeline

- April 2018: AquaBounty Technologies announces FDA approval of its first U.S. facility for commercial production of AquAdvantage® Salmon
- January 2018: AquaBounty issues an underwritten public offering to raise $12 million to build and operate production facilities
- December 2017: AquaBounty has 37 employees, including 19 employees dedicated to R&D activities
- June 2017: AquaBounty acquires Bell Fish Company of Indiana for $14 million in a cash transaction
- April 2017: AquaBounty announces plans to build 20 fly farms in the U.S. and Canada
- January 2017: AquaBounty announces commencement of trading on Nasdaq under the ticker AQB
- January 2017: AquaBounty voluntarily delists its common stock from the AIM, the London Stock Exchange's international market for smaller growing companies
- May 2016: AquaBounty receives approval from Health Canada
- November 2015: The FDA approves the New Animal Drug Application (NADA) for AquAdvantage® Salmon
- February 2012: AquaBounty files a novel food application for AquAdvantage® Salmon with Health Canada
- January 1991: AquaBounty Technologies is formed

Recent Catalysts

- Completed its first sale of around five metric tons of AquAdvantage® Salmon in Canada
- Established its first U.S. based facility in Indiana for commercial production of AquAdvantage® Salmon to capitalize on a significant market opportunity with rapid growth potential
- Major financing announcements and relationship with Intrexon boosted AquaBounty's market presence, while supporting its production objectives
- More production facilities to improve supply, and increased marketing outreach to expand the nascent aquaculture market in the U.S.
- Up-listing to the Nasdaq Capital Market increasing investor exposure and market liquidity

Large Market Opportunity

Unlike other biotechnology companies, AquaBounty specializes in genetically modified salmon to enhance growth of the fish and to reduce pollution associated with salmon breeding and harvesting. The company's exclusive research and business model provides it with a distinctive advantage in the aquaculture and genetically modified food industries. We believe both industries have significant growth potential, driven by global population growth, and that they will continue to offer opportunities for sustainable revenue growth and business expansion.

The aquaculture industry is fast growing; the global market is expected to grow at a five-year CAGR of 5.9%

Aquaculture refers to the farming of aquatic organisms such as fish, shellfish, crustaceans, and aquatic plants under controlled conditions, as an alternative to the commercial harvesting of wild species. The aquaculture industry has grown rapidly in recent years due to increased demand for seafood, driven by population growth and increasing per capita consumption, reflecting rising disposable incomes in developing countries, improved distribution, and an increasing preference for healthier food choices. The global aquaculture market is expected to reach $226.2 billion in 2022 from $169.9 billion in 2017, growing at a compound average growth rate (CAGR) of 5.9%, according to a report on global aquaculture by BCC Research. In particular, the market for salmon is expected to grow to $19.8 billion in 2022 from $14.2 billion in 2017, at a CAGR of 6.9%.

Depleting reserves of natural fish is a major driver of the booming aquaculture industry. According to the UN Food and Agriculture Organization (FAO), around 70% of the natural fish population is fully used, overused, or in crisis. We believe AquaBounty remains well positioned to benefit from the positive outlook for aquaculture. Besides, the company enjoys strong competitive advantages from its AquAdvantage® Salmon, which require less feed and time to grow to marketable size. In addition, compared to its traditional counterpart, AquAdvantage® Salmon would not only incur less production cost but also result in much higher production within the same time frame, meeting growing demand for seafood more rapidly.

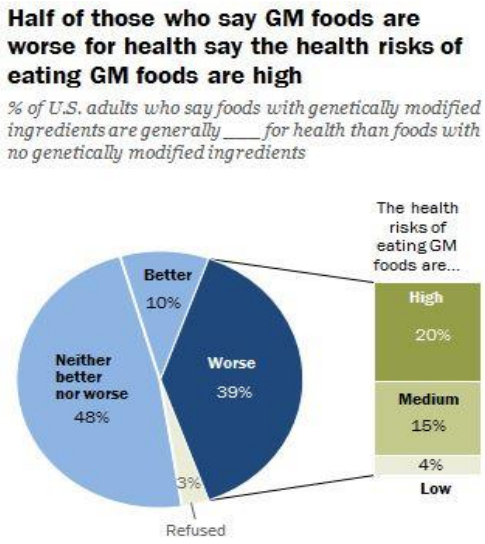
In the U.S., seafood consumption has risen sharply in recent years. According to a report by the National Oceanic and Atmospheric Administration, the U.S. was the second-largest country in terms of seafood consumption in 2015, with domestic seafood consumption of around 5 billion pounds. The average American ate 15.5 pounds of fish and shellfish (both fresh and frozen) in 2015, 0.9 pounds more than in 2014. The U.S. imported almost 90% of its seafood requirement in 2015, indicating a large gap in domestic supply. This gap will likely widen with increasing demand for seafood, driven by population growth, and aquaculture could prove to be an essential solution, consistent with the global trend. AquAdvantage®

Salmon could therefore be the ultimate solution to the prolonged seafood shortage once it starts commercial development for the U.S. market.

In traditional fishing, the cost of raising wild salmon has been rising due to an increase in the price of raw materials used to produce salmon feed, and thus the cost of salmon feed. Moreover, raising wild salmon increases the possibility of infestation of lice – a small insect that lives on the skin of animals. For salmon to be sold, they have to be treated for lice, increasing the cost of production. Introducing AquAdvantage® Salmon should help reduce production costs, as such salmon are raised in a closed environment specifically designed to prevent harmful infestation. AquAdvantage® Salmon require less feed to grow, reducing feed costs.

The genetically modified (GM) food industry is projected to grow at a CAGR of 3.2% by the end of 2021, according to Research Nester. We believe AquaBounty is well positioned to expand due to increasing acceptance of GM food on a global basis. More and more countries are opening up to GM food through imports, despite restrictions on domestic cultivation of such foods. We believe FDA approval for producing AquAdvantage® Salmon in the U.S. substantiates growing acceptance of GM food due to increasing awareness about its safety, efficacy and other advantages, including sustainability. AquaBounty will therefore be responsible for educating people regarding the safety and sustainability of AquAdvantage® Salmon, as GM food remains a debatable issue, with about 39% of the U.S. population considering it harmful to human health. Most U.S. consumers do not fully understand the issue due to the lack of information on the subject.

The GM food industry is projected to grow at a CAGR of 3.2% by 2021

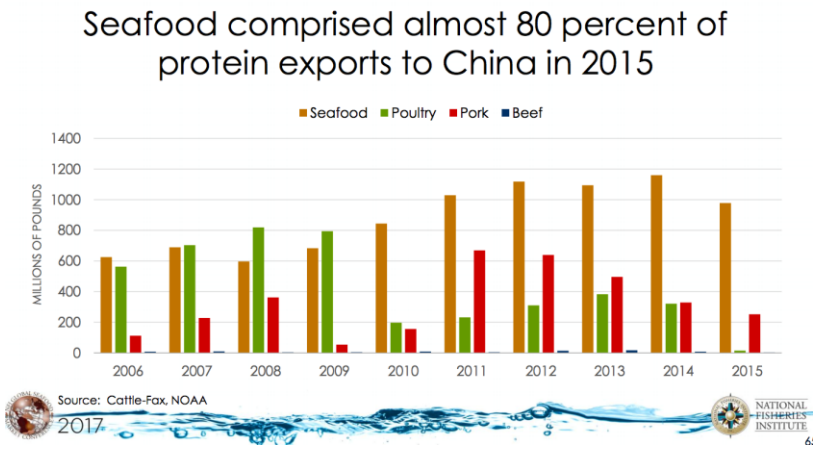


Source: Pew Research Center

Consumers are becoming increasingly aware of the ill effects of traditional fishing on the environment. The global environment has worsened due to continued white pollution, over-lumbering, and over-farming. AquAdvantage® Salmon offers a tangible solution to mounting concerns of pollution, due to inland fish production and advantages of water recycling, which help sustain aquaculture. In 2016, around 82% of S&P 500 companies published sustainability reports compared with just 20% in 2011, according to Governance & Accountability Institute, Inc. AquaBounty is well positioned to increase recognition and expand its operations, providing an essential viable alternative.

Many countries have realized the benefits of aquaculture, opening up a large market for AquaBounty

Rapid growth in global aquaculture offers AquaBounty a considerable potential market for expansion. Concerns surrounding depleting fish stocks are increasing, leading for example, to unprecedented growth of the aquaculture industry in France, as highlighted in the article Potential benefits of biotechnology in aquaculture: The case of growth hormones in French trout farming. China is forecast to have the largest market share in aquaculture in 2018, and expansion into China could be a growth option for AquaBounty to consider. China is also the largest seafood consumer in the world, with U.S. fish farmers exporting large amounts of seafood to China each year.

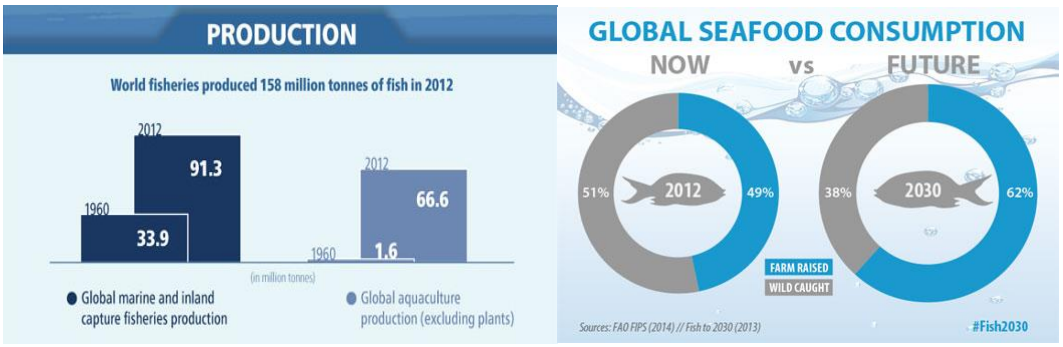


Source: NOAA

However, for international expansion, AquaBounty may need to seek alternatives to its current business model of selling mature fish. The company faces a disadvantage in terms of its relatively small workforce and may not be able to provide a large amount of salmon, restricting its share of the world market. We believe it should seek to cooperate with fish farmers and sell its proprietary technology and production of AquAdvantage® Salmon for recurring revenue, while reducing its domestic capital requirement that could be used for overseas expansion.

Competition

The global aquaculture market is growing rapidly because of rising demand for seafood, driving an increase in fish farming as wild-caught supply falls short of demand. It is now increasingly vital for the fishing industry to develop ways to grow sustainably without overusing natural resources, the most important factor that determines production. This presents tremendous growth potential for AquaBounty. The company currently competes specifically in the salmon market, where the Atlantic is the largest point of production. Given that the US has traditionally been a large importer of seafood, AquaBounty's capability to produce locally and deliver fresher salmon differentiates it from other fishing companies.



Source: AquaBounty Aquaculture Market

AquaBounty's expansion activities are highly dependent on government acceptance, as each facility requires approvals for producing, marketing and selling AquAdvantage® Salmon. The company received FDA approval for its first facility in Indiana, close to major markets such as Chicago, Detroit, Columbus, and St. Louis. However, it will require specific approvals for additional facilities, which may restrict near-term growth potential due to the long approval process. AquaBounty could therefore be at a temporary disadvantage compared to other large aquaculture companies with established production networks.

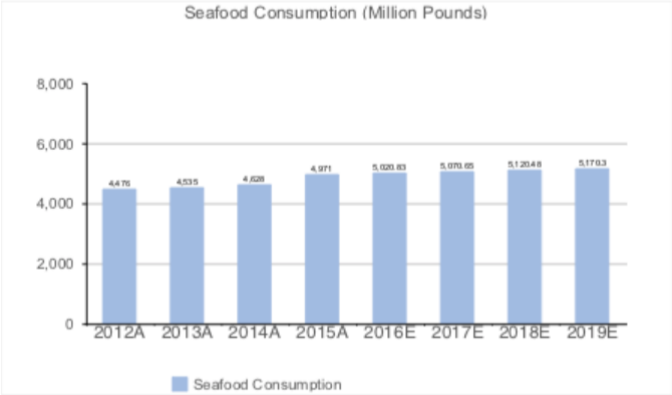
That said, AquAdvantage® Salmon provides it a longer-term competitive edge, driven by cost and scale advantages on the back of increasing importance of environmentally friendly aquaculture production. Land-based farming avoids many of the environmental problems associated with the sea-caged, net-pen fish farming methods that many fishery companies employ, enabling a more efficient, high-yield production. More importantly, AquaBounty's leading bioengineering capability helps it to deliver AquAdvantage® Salmon, higher in nutritional value and with a shorter production cycle of 18 months compared to 28-36 months for the traditional method. We therefore believe AquaBounty will be able to produce economically at a larger scale and differentiate itself with a healthier and fresher product.

Data Analysis

The following charts provide an overview of actual import, export and consumption patterns for salmon in the U.S. since 2014, and forecasts based on historical trends.

In the U.S., net salmon imports have increased steadily since 2014. Based on modelled estimates, net imports are projected to continue to grow in the next four years, indicating expanding market demand for salmon.

The model forecasts U.S. seafood consumption based on growth in 2012-2015. U.S. seafood consumption is projected to rise from 2016 to 2019, indicating volume growth for AquaBounty, driven by higher consumption.



Valuation

AquaBounty is an early-stage biotechnology company with few directly comparable companies. It is challenging to value AquaBounty using a single method of traditional valuations. We believe it cannot be compared directly with other biotechnology companies because it specializes in producing its proprietary AquAdvantage® Salmon. We have therefore valued it using a blended discounted cash flow analysis and technology value analysis, with a mix of similar biotechnology and aquaculture companies. Our combined valuation analysis indicates that AquaBounty's shares are significantly undervalued.

Comparable early-stage biotech and aquaculture companies

Technology Value Analysis				
$ in M				
Company Name	**Ticker**	**Market Capitalization**	**Cash & Cash Equivalents**	**Technology Value**
Agro Capital Management	ACMB-US	$45.30	$0.08	$45.22
Arcadia Biosciences	RKDA-US	$38.72	$13.02	$25.69
GroGenesis	GROG-US	$17.88	$1.51	$16.37
Marrone Bio Innovations	MBII-US	$213.21	$1.27	$211.93
NaturalShrimp	SHMP-US	$1.44	$0.09	$1.35
S&W Seed Company	SANW-US	$80.31	$0.75	$79.57
SweeGen	SWEE-US	$108.94	$0.01	$108.93
Yield10 Bioscience	YTEN-US	$14.09	$14.49	-$0.40
Applied DNA Sciences	APDN-US	$39.15	$2.96	$36.19
Median		***$39.15***	***$1.27***	***$36.19***
Mean		***$62.11***	***$3.80***	***$58.32***
AquaBounty Technologies	AQB	$41.30	$0.51	$40.80

Average Technology Value	$58.32
Basic Shares Outstanding May 8, 2018	$12.83
Target Price Per Share	**$4.55**

Source: Diamond Equity Research Analysis/FactSet Data Systems

AquaBounty does not have a direct competitor that concentrates on the development of gene-modified salmon. In the above comparison, we have identified nine public-listed companies, based primarily on their business focus on biotechnology (especially gene modification) and agriculture, similar to AquaBounty. These companies have not reported net income from operations. Most of them have similar business models, with a significant focus on R&D, while creating or promoting novel agriculture products and outputs. To arrive at a meaningful conclusion, we use technology value analysis to compute a fair value of price per share for AquaBounty.

The technology value is calculated by deducting cash and cash equivalents from a company's market capitalization, which leaves the value of the businesses underlying technology. We divide the comparable average of total technology value by

AquaBounty's basic outstanding shares to arrive at a target price of $4.55 per share, based on the latest number of outstanding shares. At the current price of $3.10 per share, *our technology valuation implies significant upside from current trading levels.* We acknowledge the difficulty of direct comparison due to the limited number of public-listed companies engaged in gene-modified aquaculture.

To strengthen our fair-value estimate, we created a discounted cash flow model to analyze the intrinsic value of the business, based on the large addressable market and the abovementioned market studies. Our discounted cash flow assumptions are conservative and value only AquAdvantage® Salmon. We have projected figures for eight years to consider longer-term potential. We have created a top-down model to value the business.

Top-down Revenue Model

	FY17A	FY18F	FY19F	FY20F	FY21F	FY22F	FY23F	FY24F	FY25F
Atlantic Salmon Prices/Kg		$10.00	$10.30	$10.61	$10.93	$11.26	$11.59	$11.94	$12.30
Growth Y/Y%			**3%**	**3%**	**3%**	**3%**	**3%**	**3%**	**3%**
Total Quantity Sold (kgs)		85,000	217,500	975,000	1,960,000	2,410,000	2,810,000	3,210,000	3,580,000
Growth Y/Y%			**156%**	**348%**	**101%**	**23%**	**17%**	**14%**	**12%**
Production Units									
Rollo Bay - Prince Edward Island		25,000	37,500	125,000	200,000	250,000	250,000	250,000	250,000
100% Capacity (Kgs)		250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000
Capacity Utilization		**10%**	**15%**	**50%**	**80%**	**100%**	**100%**	**100%**	**100%**
Albany, Indiana		60,000	180,000	850,000	1,760,000	2,160,000	2,560,000	2,960,000	3,330,000
100% Capacity (Kgs)		1,200,000	1,200,000	1,700,000	2,200,000	2,700,000	3,200,000	3,700,000	3,700,000
Capacity Utilization		**5%**	**15%**	**50%**	**80%**	**80%**	**80%**	**80%**	**90%**
TOTAL REVENUE ($ in M)	**$0.05**	**$0.85**	**$2.24**	**$10.34**	**$21.42**	**$27.12**	**$32.58**	**$38.33**	**$44.03**

Source: Diamond Equity Research Analysis/AquaBounty Management Presentation

Based on our understanding of the current salmon pricing provided by the U.S. Department of Commerce, we believe that AquaBounty should price AquAdvantage® Salmon at $10.00-$12.30 per kilogram (kg). We computed this range based on historical import volumes and values of Atlantic salmon to the U.S. We model around $44 million in sales by 2025. We expect capacity utilization at the Albany, Indiana facility to increase to 90% in 2025 from 15% in 2019, and capacity utilization at the Rollo Bay, Prince Edward Island, production facility to increase to 100% in 2020 and thereafter from 10% in 2018.

Operating cost assumptions

$'000	FY18E	FY19E	FY20E	FY21E	FY22E	FY23E	FY24E	FY25E
R&D expenses	3,400	5,601	2,586	4,283	4,069	4,072	4,599	5,284
% growth	1%	65%	-54%	66%	-5%	0%	13%	15%
G&A expenses	5,316	5,582	5,861	6,037	6,218	6,405	6,597	6,795
% growth	5%	5%	5%	3%	3%	3%	3%	3%
Selling & Marketing expenses	765	448	1,138	1,713	1,627	1,955	2,300	2,730
% growth	-4%	-41%	154%	51%	-5%	20%	18%	19%
Total Operating expenses	9,481	11,631	9,585	12,034	11,914	12,431	13,496	14,808
% growth	3%	23%	-18%	26%	-1%	4%	9%	10%
As % share of total sales	1115%	519%	93%	56%	44%	38%	35%	34%

Source: Diamond Equity Research Analysis/AquaBounty Management Presentation

Discounted cash flow analysis

($ in M)	FY16A	FY17A	FY18E	FY19E	FY20E	FY21E	FY22E	FY23E	FY24E	FY25E
Operating Income (EBIT)	(8.07)	(9.23)	(9.01)	(10.13)	(2.45)	3.17	7.62	11.35	14.48	17.33
Less: CAPEX	0.93	18.89	0.26	0.29	5.51	5.51	5.51	5.51	5.51	0.14
Add: D & A	0.14	0.17	1.10	1.06	1.28	1.50	1.70	1.89	2.07	1.97
Current Assets excl. cash	0.25	0.90	0.63	0.88	4.06	8.41	10.66	12.80	15.06	17.30
Less: Current Liabilities	1.04	2.72	3.44	4.41	4.53	6.37	7.14	7.70	8.56	9.49
Working Capital	**(0.79)**	**(1.82)**	**(2.81)**	**(3.53)**	**(0.46)**	**2.04**	**3.51**	**5.10**	**6.50**	**7.80**
Increase/(Decrease) in Working Capital:		(1.03)	(0.99)	(0.73)	3.07	2.50	1.48	1.59	1.40	1.30
Less: Taxes	0.00	0.00	0.00	0.00	0.00	0.59	1.52	2.31	2.97	3.58
Free Cash Flow for the Firm/Equity =		**(26.92)**	**(7.18)**	**(8.63)**	**(9.74)**	**(3.94)**	**0.81**	**3.83**	**6.67**	**14.29**
Terminal Value =										**148.07**
Present Value of Free Cash Flows =			**(6.75)**	**(7.19)**	**(7.19)**	**(2.57)**	**0.47**	**1.96**	**3.03**	**65.17**

Source: Diamond Equity Research Analysis

DCF Fair Value

($ in M except per Share data)	
Total Present Value of Free Cash Flows =	50.8
Add: Cash & cash equivalents =	6.84
Less: P.V. of Total Debt o/s (as per latest filings) =	3.06
Less: Preferred Shares	-
Less: Minority Interest	-
Equity Value (Present Value) =	**54.54**
Number of Shares outstanding (in M)=	12.83
Fair Value per Share ($)=	**4.25**

Source: Diamond Equity Research Analysis

Our eight-year discounted cash flow analysis provides a fair-value estimate of $4.25 per share, based on the above revenue and cost assumptions. We have also provided a summary of our analysis below. Please refer to the Appendix for our detailed assumptions.

Average Valuation

Fair Value from Comparable Analysis	$4.55
Fair Value from Discounted Cash Flow Analysis	$4.25
Valuation Per Share	**$4.40**

We arrive at a blended valuation of approximately $4.50, based on the average of technology value analysis and discounted cash flow analysis valuation techniques

Experienced Management Team

AquaBounty's management team has years of experience in aquaculture and management. We are encouraged by this mature and experienced team, as their knowledge of biochemistry and development should translate into significant breakthroughs and their management and marketing experience should continue to boost company growth.

Dr. Ronald L. Stotish (Executive Director, President and Chief Executive Officer): Dr. Ronald L. Stotish, also known as Ron, has been president and chief executive officer of AquaBounty Technologies, Inc. since May 2008. He has also been an executive director at AquaBounty Technologies, Inc., since this time. He came with over 38 years of experience in discovering, developing and commercializing new animal health products. His experience also helped him to become vice president of Regulatory Affairs of AquaBounty Technologies, Inc. since joining it in 2006, and senior vice president of Research and Development and Regulatory Affairs. Dr. Stotish has also served as executive vice president of Research and Development of Metamorphix Inc. since June 2004. He joined Metamorphix Inc. as vice president of Research and Development in September 2000 and directed all its scientific and product development programs. From 1996, he served as vice president of Global Pharmaceutical Research and Development at Fort Dodge Animal Health, a division of American Home Products Corporation (now Wyeth). Prior to that, he was employed in various capacities at American Cyanamid and Merck & Co. and greatly enhanced his expertise in different fields. Dr. Stotish has degrees in Biochemistry, including a Bachelor of Science degree from Pennsylvania State University and a Master of Science degree and a Ph.D. from Rutgers University.

David A. Frank (Chief Financial Officer and Treasurer): David Frank was appointed chief financial officer of AquaBounty Technologies, Inc. in October 2007. Previously, after serving as Magellan's CFO since the company's founding in 2004 and as TekCel's CFO since 2003, he gained experience in management and finance as the president and general manager of TekCel LLC, a subsidiary of Magellan Biosciences. David has over 28 years of financial management experience, including as CFO of SmartEnergy during its rapid growth from less than $1 million in revenue in 2000 to more than $45 million in 2002. He also served as corporate controller at Moldflow when it completed its successful public offering. Prior to this, he gained extensive experience, including in various financial roles at PerSeptive Biosystems, Lotus Development Corporation, Apollo Computer, and Honeywell. He holds a Bachelor of Science in Finance and Accounting from Boston College and an MBA from Babson College.

Henry Clifford (Vice President of Marketing & Sales): Henry Clifford was appointed vice president of Marketing & Sales at AquaBounty Technologies, Inc. in June 2005 and is responsible for commercial deployment of the company's product lines. Henry is an internationally recognized authority on aquaculture and genetic improvement programs, with a career spanning more than 30 years in the industry. He has provided technical services in aquaculture to more than 250 clients in 20 countries since joining the company. In addition to implementing sales and marketing strategies and overseeing customer relations, he directs domestic and international field trial evaluations of the company's products, and successfully introduced AquAdvantage® Salmon and its production to Panama. Henry holds a Master of Science in Aquaculture Nutrition from Texas A&M University.

Alejandro Rojas, DVM (Chief Operating Officer): Alejandro Rojas, DVM, has been chief operating officer of Aqua Bounty Farms at AquaBounty Technologies, Inc. since February 2014. From 1988 to 2000, He served as production and technical manager for Marine Harvest, where he was responsible for operations and the production of salmonids in Chile, honing his management skills. At AquaBounty, he is responsible for managing Quality Control Labs, Environmental Programs and Fish Health Programs – three of AquaBounty's important operations. Alejandro holds a doctorate in Veterinary Medicine and for the past 14 years, has been a technical advisor and consultant to numerous global aquaculture and biotech companies working with marine fish, including salmon, seabass, seabream, and barramundi. His expertise includes benchmarking and market studies, technical and economic analysis for M&A activities, new species development in Latin America, the Middle East, and Africa and consulting on fish production, aquatic health, environment and biosecurity programs to private companies and governments.

Christopher Martin (General Counsel and Corporate Secretary): Christopher Martin has served as AquaBounty's general counsel since June 2015 and as its corporate secretary since July 2015. Prior to joining AquaBounty, he gained experience as an assistant general counsel at Athenahealth, Inc. from 2012 to 2014 and as senior corporate counsel from 2008 to 2012. He also served as corporate counsel at LeMaitre Vascular, Inc. from 2006 to 2008 and practiced in the areas of commercial, corporate, finance, and intellectual property law with Hemenway & Barnes LLP in Boston and Cummings & Lockwood LLC in Connecticut. Christopher holds a Bachelor of Arts in Anthropology from Stanford University and a Juris Doctor from the University of California, Berkeley (Boalt Hall). He is passionate about healthcare and medical services.

Risk Factors

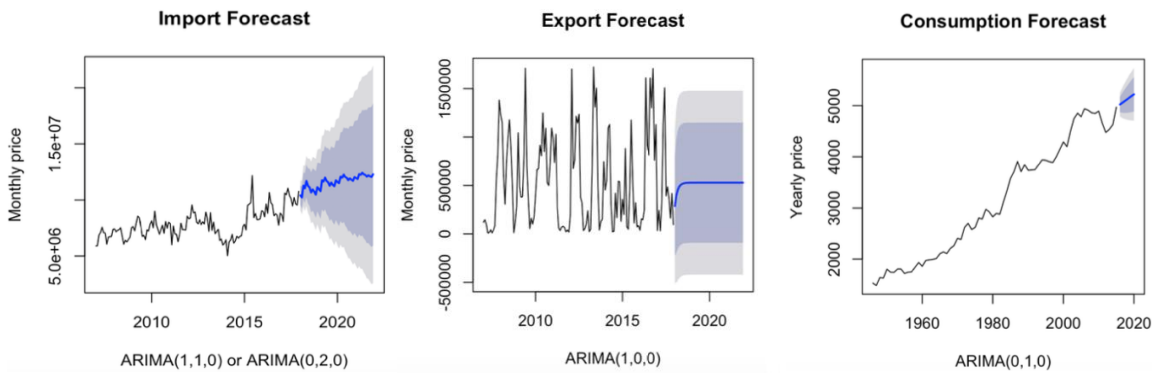
- AquaBounty has a history of net losses and has yet to generate revenue. Significantly more capital will be required to fund the business. Modest revenues are expected from our Panama farm during 2018, with more significant revenues expected in late 2019 once our new facilities are in full production. However, our ability to realize revenues and the timing thereof are not certain, and achieving revenues does not assure that we will become profitable
- The company's ability to generate revenue to support its business depends on regulatory approval for AquAdvantage® Salmon, which is uncertain. AquaBounty requires approval from the U.S. FDA and the Ministries of Health and Environment in Canada. It has no assurance that it will be able to obtain and maintain such approval
- Consumer acceptance of AquAdvantage® Salmon is also a risk factor. Some activist groups are seeking to ban or restrict genetically modified organisms, and this would adversely affect consumer acceptance and the company's sales and reputation
- Atlantic salmon farming is restricted in certain states. As concerns surrounding the environmental impact of AquAdvantage® Salmon increase, Washington and California have imposed legislative and regulatory restrictions or bans. In addition, some states such as Alaska have imposed general restrictions on Atlantic salmon farming
- Costs could also increase as disease affects the production system, in terms of loss of production. Although the company has implemented biosecurity measures to prevent or mitigate disease impact, we believe these will not be 100% effective.
- AquaBounty is also exposed to risks associated with international operations. These could be affected by exchange rate fluctuations since most of its employees are based outside the U.S.
- Government grants and loans may not be available in the future. This may delay progress in product development
- Intrexon's significant share ownership allows it to influence corporate affairs. It holds 8,239,199 shares of AquaBounty's common stock, which translates into about 64% of AquaBounty's outstanding shares after execution of Intrexon warrants. It may therefore discourage third parties from seeking to acquire control of AquaBounty and adversely affect its market price
- AquaBounty cannot guarantee that it will continue to comply with the Nasdaq Capital Market's listing standards; this could significantly affect the company's good standing so far

For Full List of Risk Factors Please Read AquaBounty's Latest Prospectus and/or Annual Filings

Appendix

Salmon imports, exports and consumption:

The following graphs show import, export and consumption forecasts for the U.S. salmon industry. The data is collected from the United States Department of Agriculture's Economic Research Service's salmon import and export data from 2007 to 2017 and seafood consumption data from 1946 to 2015. In our model, we assume that salmon imports will increase, barring an annual seasonal influence; salmon exports will remain unchanged in the coming years; and seafood consumption will continue to increase in the coming 10 years.



Income statement – Assumptions:

We believe that AquaBounty will be ready for commercialization during the eight-year forecast period ending 2025. Our revenue estimation is based on expected sales prices of Atlantic salmon for each year and expected capacity utilization and sales per year from both production facilities – Prince Edward Island and Indiana. Besides, we considered that a salmon takes approximately 18 months to grow fully. According to the Department of Commerce, which tracks the volume and value of Atlantic salmon imports to the U.S., the average wholesale price of Atlantic salmon imported to the country increased to $4.30 per pound ($9.48/kg) in 2016 from $3.81 per pound ($8.39/kg) in 2011. Based on this trend, we forecast that the average price will increase at a CAGR of 3% to $12.3/kg by 2025 from $10.0/kg in 2018. In addition, we expect the Prince Edward Island facility to operate at 15% capacity in 2019 and 100% capacity from 2020 and the Indiana facility to operate at just 15% capacity in 2019 and 80% capacity from 2020. As guided by management, we also expect a significant capacity increase and production pickup in late 2019. We expect the company to add 500 tons a year to the existing 1,200 tons capacity starting 2020 and gradually reach 90% of capacity utilization by 2025 from 80% during 2020-24. Based on sales and price trends, we expect revenue from continuing operations to increase to $44.0 million in 2025 from $0.85 million in 2018. We have provided our modelled cost and margin assumptions details below.

Gross margin (as a percentage of sales)

Year	Margin
2018	55.0%
2019	67.0%
2020	69.0%
2021	71.0%
2022	72.0%
2023	73.0%
2024	73.0%
2025	73.0%

Operating expenses:

i. R&D expenses:

We expect the company to spend close to $3-4 million a year on R&D. We expect R&D expenses of about 4x forecast sales in 2018, but based on robust sales growth, we expect R&D expenses as a percentage of sales to gradually decline to 12.5% in 2024 from 250% in 2019.

R&D expenses (as a % of revenue from continuing operations)

Year	Assumed Rate
2018	400.0%
2019	250.0%
2020	25.0%
2021	20.0%
2022	15.0%
2023	12.5%
2024	9.0%
2025	9.0%

i. Selling, general and administrative (SG&A) expenses (excl. depreciation and amortization; D&A):

We expect SG&A expenses of around 9x forecast revenue for 2018. This is largely on the back of salaries and other employee-related costs as management gears up for production capacity expansion in 2019. We expect SG&A expenses as a proportion of sales to decline to about 269% in 2019 and 21.5% in 2025 as the company achieves economies of scale.

SG&A expenses (excl. D&A) (as a % of revenue from continuing operations)

Year	Assumed Rate
2018	900.0%
2019	269.0%
2020	67.7%
2021	35.2%
2022	28.9%
2023	25.7%
2024	23.2%
2025	21.5%

iii. D&A

We assume that D&A will average approximately 5% of property, plant, and equipment (PP&E) during the forecast period.

Depreciation & Amortization expenses (as a % of revenue from continuing operations)

Year	Assumed Rate
2018	130.0%
2019	12.0%
2020	8.0%
2021	7.0%
2022	6.0%

2023	6.0%
2024	5.0%
2025	5.0%

Tax rate:
We assume an effective tax rate of approximately 21% from 2020, based on AquaBounty's latest 10-K filings.

Accounts receivable/payable:
We assume accounts receivable at 20% of sales holding over the period. We expect accounts payable at around 33.3%, the average of selected comparable biotechnology companies.

Shareholders' equity:
We also assume that the company will raise funds via additional paid-in-capital from 2019 since the main shareholder and investors may add their investments. We model AquaBounty's total shareholders' equity at around $95 million until 2025.

WACC in DCF:

- **Risk premium:** We use the S&P U.S. Biotechnology Select Industry Index, as we believe it is the best proxy for this particular market index
- Risk-free rate: We use the 10-year U.S. Treasury rate
- Beta: 0.73, based on the estimation available on MarketWatch
- Debt: We assume an interest rate on debt of 10%, in line with our expectations of common stock issuance to meet working capital requirements

WACC Inputs	
Risk-free rate	2.9%
Total Equity Risk Premium	14.7%
Beta	0.73
Cost of Equity (CAPM)	13.6%
Cost of Debt	10.0%
Statutory Tax rate	25.7%
Debt / Capital	10.4%
After Tax Cost of Debt	7.43%
WAC (Debt)	0.8%
Cost of Equity (CAPM)	13.6%
Equity / Capital	89.6%
WAC (equity)	12.2%
WACC Conclusion	**12.94%**
Long term growth rate (assumed) =	**3.0%**

Source: Diamond Equity Research Analysis

Sensitivity Analysis				
Change in Target Price with a 1% change in WACC				
WACC	**11.58%**	12.58%	**13.58%**	**14.58%**
Terminal Growth %	3.00%	3.00%	3.00%	3.00%
Target Price ($ / Share)	5.12	4.14	3.37	2.74
Change in Target Price with a 0.5% change in Terminal Growth %				
WACC	12.58%	12.58%	12.58%	12.58%
Terminal Growth %	**2.00%**	**2.50%**	3.00%	**3.50%**
Target Price ($ / Share)	3.63	3.87	4.14	4.44

Source: Diamond Equity Research Analysis

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