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**NEPTUNE**  
*technologies & bioressources*

500 St-Martin Blvd. West  
Suite 550  
Laval (Québec)  
Canada H7M 3Y2

Telephone: (450) 972-6291  
Toll free: 1 888 664-9166  
Fax: (450) 972-6351  
[www.neptunebiotech.com](http://www.neptunebiotech.com)

# *Executive Summary*

October 2001

## NEPTUNE TECHNOLOGIES & BIORESSOURCES INC.

### Corporate Profile

Neptune Technologies & Bioresources Inc. taps the riches of the sea to develop products with hugely desirable nutritional, cosmetic and pharmaceutical properties. Among those, krill stands at the top of the list.

Neptune Technologies and Bioresources Inc., based in Laval, a suburb of Montreal, was founded in 1998 with the mission of extracting and maximizing the value of marine biomass, not only from krill but from other underused sources as well. The company is developing products that will be applied in nutraceuticals, as well as in pharmaceuticals, cosmetics and other fields, including nutritional aids. The first product is Neptune Krill Oil™, heading for market during the first half of 2002, with part of its production already committed to specific customers.

A number of R&D projects are underway to demonstrate the various applications of Neptune Krill Oil in the fields of cardiovascular disease, rheumatoid arthritis, skin cancer, facial wrinkles and transdermal delivery systems. The results of these studies will serve as the basis for Neptune's pharmaceutical and cosmetic product claims, as well as add commercial value to the company's current products in the nutraceutical market.

Neptune anticipates widespread product application in the following growth sectors:

- Nutraceutical: natural supplements; functional foods.
- Cosmetics: anti-free radical cream; moisturizing cream; natural sun screen.
- Pharmaceutical: primary prevention of inflammatory conditions; primary prevention of cardiovascular disease; primary prevention of certain cancers; effective transdermal vehicle.

Neptune will also produce Neptune Aquateine™, a krill-based protein concentrate based on the dry residue that is left following extraction of the oil. It contains 19 amino acids, of which 9 are essential, chitin and peptides while retaining active and stable enzymatic activity.

Production of both marine oil (Neptune Krill Oil) and protein concentrates (Neptune Aquateine) rely on the Neptune OceanExtract™ extraction process. This process preserves the biological activity of krill components while destroying bacteria; the result is a secure product for human consumption. Furthermore lipid alteration is minimal. This results in high-quality products, rich in essential nutrients, highly stable, and free of preservatives. The Neptune OceanExtract™ extraction process is in the final stage of patent protection application in more than thirty-five countries.

An initial public offering of shares in Neptune Technologies & Bioresources Inc. in July of this year raised \$5 million and was oversubscribed, a rare event in a difficult investment climate. Shares now trade on the Canadian Venture Exchange under the symbol NTB.

Moreover, due to its technologies, Neptune will be strategically well positioned in the huge and emerging markets based on the health and wellness concepts, markets in which natural products

from biomass extraction will play an important role in developing **nutrigenomics**, the next wave in nutrition research.

### THE COMPANY

Neptune was incorporated on October 9, 1998, under Part 1A of the Companies Act (Quebec). On May 30, 2000, the Company filed articles of amendment in order to proceed with the restructuring of its capital stock and to convert its then issued and outstanding shares into newly-created classes of shares. On July 5, 2001 the Company completed its Initial Public Offering (IPO) and is trading at CDNX, under the symbol "NTB", since July 11, 2001. Neptune's head office and executive offices are located at 500 Saint-Martin Boulevard West, Suite 550, Laval, Quebec, H7M 3Y2.

### **MISSION AND OBJECTIVES**

The Company's mission is to enhance the value of marine biomass by developing, marketing and exploiting innovative high-yield technological processes for the production of natural products with superior health benefits. Neptune Technologies & Bioressources Inc. intends to validate the health applications of each product with peer reviewed and approved scientific research. The Company plans to market these products in the nutraceutical and cosmeceutical industries.

Neptune Technologies & Bioressources Inc. aims to scientifically validate health applications of innovative independent product components in the nutrigenomics field. **The company seeks the formation of credible alliances in related fields striving towards establishing itself among the leaders of the biopharmaceutical – nutrigenomics industry.**

In the pharmaceutical field, the Company intends to collaborate with pharmaceutical and biopharmaceutical companies in new product development by supplying these companies with innovative functional ingredients. However, the Company does not currently anticipate becoming itself involved in the development and certification of pharmaceutical products.

### **MARINE BIOMASS - PROVISION**

#### **Krill**

Krill designates a set of 85 species of deep and cold water marine zooplanktonic crustaceans. The smallest species of krill, found in the Pacific Ocean, measures approximately 1 cm. The larger Antarctic krill can grow up to 6 cm. Krill is amongst the most abundant animal biomass on the planet and is found in schools that can sometimes cover several square kilometers of ocean.

#### **Seal**

Greenland seals have been commercially hunted since the early 18th century. The northwestern Atlantic Greenland seal population (Gulf of St. Lawrence and along the southern coast of Labrador) for the year 2000 is estimated at 5.2 million seals. As in 1999, the hunting quota for seals in 2000 was 275,000 animals. This represents 5.3% of the current population of Greenland seals. On July 25, 2000, the Company also entered into a partnership agreement with the Association Gaspésienne des Industries du Loup Marin ("AGILM") to carry out the first step of setting up an initial seal processing plant in the Gaspé Peninsula.

#### **Fish**

Over 100 000 millions metric tonnes of fish are fished every year of which fish residues are usually wasted. Sixty percent of the fish captured are rejected. Neptune entered into a research agreement

with Sherbrooke University so that the latter undertakes a research project consisting in adapting the krill extraction process to fish, namely to fish residues. The Company holds an exclusive option for a worldwide license agreement for developing, exploiting and marketing the results of this research.

## **PRODUCTS**

The Company plans to initially market one nutraceutical product and one specialized animal feed product. These products are Neptune Krill Oil™ and Neptune Aquateine™.

In an initial short-term commercial phase, they are intended for use as food supplements for humans and ingredients in specialized diets for certain farm animals. In conjunction with the marketing of these derivatives, other products under development will lead to nutraceutical, cosmetic and pharmaceutical applications.

### **Neptune Krill Oil™**

Neptune Krill Oil™ is a marine oil offering a unique and natural mixture of essential nutrients. It is characterized by its high content of polyunsaturated fatty acids such as Omega-3,6,9, antioxidants such as astaxanthin, canthaxanthin, vitamin A, vitamin E and phospholipids such as phosphatidylcholine, phosphatidylethanolamine, phosphatidylserine, phosphatidylinositol and Sphingomyelin, while demonstrating a remarkable and naturally acquired stability without the addition of any preservatives.

### **Neptune Aquateine™**

Neptune Aquateine™ is the dry fraction (or residue) remaining after the extraction of Neptune Krill Oil. This residue's main characteristic features are its high protein content, 19 common amino acids, active and stable enzymatic activity, traces of residual pigments, traces of polypeptides (more or less short chains of amino acids resulting from the protein's self-digestion), traces of chitin, traces of a growth agent.

## **DEPARTMENT OF RESEARCH & DEVELOPMENT**

### **1. University Research - Extraction Process**

In 1998 and 1999, Neptune Technologies & Bioresources Inc. with the collaboration of the University of Sherbrooke, developed a laboratory process for extracting natural components from marine biomasses. The extraction process, has been labelled Neptune OceanExtract™ by the Company.

Neptune OceanExtract™ is an extraction process that enables the high yield extraction of marine oil from marine biomasses such as krill, seal and fish. Since none of the stages in the transformation process involve heating the raw material it has the effect of preserving the biological activity of the biomass; properties widely sought after by the nutraceutical, cosmetics and pharmaceutical industries. The Neptune OceanExtract™ process also destroys bacteria, resulting in products that are safe and healthy for human consumption and which also have an important shelf life for commercialization purposes. The process enables high extraction performance, recycling and salvage of extraction by-products thus enables full use of the biomass and bacterial destruction of the extracts obtained. It is also characterized by the absence of use of preservatives and the stability of essential fatty acids.

Neptune Technologies & Bioresources Inc. is working towards the development of an optimized laboratory version of a seal fat pressing extraction process, and the adaptation of the krill oil

extraction process to the seal. This project more particularly makes possible optimum use of the seal carcass, viscera and muscle by-products to obtain protein concentrates and enzyme concentrates. The results confirm the initial assumptions made as to the high extraction yield for an Omega-3, EPA, DPA and DHA-rich oil and as to the ability to obtain a 90%-pure protein concentrate free of pesticides.

Neptune Technologies & Bioressources Inc. with the collaboration of McGill University, confirmed the presence of 19 amino acids, including all the essential amino acids in Neptune Aquateine™, as well as an enzymatic activity which can be stabilized for further industrial applications.

## **2. Centre de Recherche Industrielle du Québec**

The Company has entrusted the Centre de Recherche Industrielle du Québec ("C.R.I.Q.") with the mandate to develop the Neptune OceanExtract™ extraction process in a pilot phase project.

The goal is to determine the parameters for the optimal industrial production facilities required to commercially exploit the Neptune OceanExtract™ process. The Company thereby seeks to obtain commercial quantities of consistent quality of krill oil, protein concentrates and amino acid concentrates derived from krill.

The Company is aiming to reach a production of 5000 liters of Neptune Krill Oil™ per month in mid 2002 with a long-term target of 40 000 liters monthly production.

## **3. Applied Research**

Under the direction of its Vice-president of Research, Dr. Tina Sampalis, the Company is carrying out five applied research projects regarding various uses of krill oil extracted by the Neptune OceanExtract™ process.

The Company hopes to establish the following benefits through these research projects:

- a. The superior efficiency of krill oil and its unique content in the prevention and management of hyperlipidemia and atherosclerosis;
- b. The beneficial effect of krill oil in controlling inflammation due to arthritis;
- c. The effective natural resistance of krill oil-based protection against ultraviolet rays (UVB) and its preventive effect against skin cancer;
- d. The effectiveness of krill oil in preventing and reducing facial wrinkles; and
- e. The performance of krill oil as a transdermal vehicle for active ingredients and/or medication.

## **4. Future Research Plans**

Considering that cellular damage due to oxidative stress is a causative factor for cardiovascular disease Neptune Technologies & Bioressources Inc. aims to evaluate the impact of Neptune phospholipids and other antioxidant on gene expression related to heart disease (apo-B, apo-E,

CDH1 and ABC1) by DNA microarray technology as well as the combined impact of Neptune Krill Emulsion and genetic susceptibility on the morbidity of coronary heart disease.

Various applications in the sectors listed below are anticipated:

Nutraceutical Sector	- natural supplements
	- functional foods
Cosmetics Sector	- anti-free radical cream
	- moisturizing cream
	- natural sunscreen cream
Pharmaceutical Sector	- primary prevention of inflammatory condition
	- primary prevention of cardiovascular diseases
	- primary prevention of certain cancers
	- effective transdermal vehicle

### **PATENT APPLICATIONS**

1. "Procedure for lipid extraction of aquatic animal tissues producing a dehydrated residue"
  - a. Canadian patent application
  - b. October 21, 1998 CA2,251,265
  
2. "Method of Extracting Lipids from Marine and Aquatic Animal Tissues"
  - a. World Intellectual Property Organization ("WIPO")
  - b. October 21, 1999 PCT/CA99/00987
  - c. PCT international application
  - d. April 27, 2000 WO 00/23546
  
3. Health applications (35) of Neptune Krill Oil
  - a. 7 different patent applications (pending)
  - b. USA provisional
  - c. US60/298,374 - US60/298,375 - US60/298,378 - US60/298,380 - US60/298,382  
US60/298,383 - US60/298,384
  - d. June 27, 2001
  
4. "Natural marine source phospholipids comprising of polyunsaturated fatty acids and their applications"
  - a. USA provisional (pending)
  - b. July 18, 2001
  
5. "Method for the processing of seal tissues"
  - a. Canadian patent application (pending)
  - b. December 2, 1999 CA2,290,885
  - c. PCT international application (WIPO)
  - d. December 4, 2000 CA2,290,885

### **COMPANY STRATEGY**

The Company's strategy consists in combining the human and financial resources capable of placing it at the forefront of its field and hence obtain new value-added natural products. The Company intends to market nutraceutical products through a distribution network. Regarding

cosmetic and pharmaceutical applications, the Company does not plan to become involved in the advanced phases of development, validation and product distribution, but rather intends to make strategic alliances with leading companies in these fields.

Accordingly, the Company plans to:

- (a) optimize the Neptune OceanExtract™ process in a pilot project to industrialize the process for the commercial exploitation of krill;
- (b) develop and adapt the Neptune OceanExtract™ process in the laboratory for use with other sources of marine biomasses such as the seal;
- (c) promote research activities in order to develop and industrialize new marine biomasses extraction processes;
- (d) research all relevant applications of derived products obtained by using the Neptune OceanExtract™ process in the nutraceutical, cosmetics and pharmaceutical industries; and
- (e) negotiate and enter into strategic alliances with players and leading companies in the nutraceutical, cosmetics and pharmaceutical industries for marketing the products obtained.

#### **PREMISES**

The operations of the Company are conducted from its head office located at 500 Saint-Martin Boulevard West, Suite 550, Laval, Quebec, H7M 3Y2. These premises were leased by the Company on November 28, 2000, pursuant to a lease agreement entered into with Immeubles Salette inc. and cover an area of 5,481 square feet.

#### **PERSONNEL**

The Company currently employs 14 full-time persons. In addition, 6 doctors are involved in the applied research projects under the direction of Dr. Tina Sampalis and 3 technicians are working on the research project conducted by the Centre de Recherche Industrielle du Québec.

#### **THE COMPANY'S COMPETITIVE ADVANTAGES**

- The Company, to its knowledge, is the first and only company to commercially exploit an extraction process enabling to realize the complete value of krill and other sources of marine biomasses such as *calanus* and other crustaceans;
- The Company uses a cold extraction process, which enables it to preserve all active biological benefits of krill during its processing, without oxidation of its biological activity;
- The Company extracts Neptune Krill Oil™, a product that, according to preliminary results, contains an important quantity of antioxidants (vitamin A, trans-retinol, vitamin E, astaxanthin, canthaxanthin), Omega-3 polyunsaturated fatty acids and phospholipids;
- From krill, the Company will also produce protein concentrates (Neptune Aquateine™) and amino acid concentrates with preserved biologically active properties;
- The Company is in process of protecting its Neptune OceanExtract™ process nationally and internationally;

- The Company will adapt its Neptune OceanExtract™ process to other sources of marine biomasses such as the seal, which is currently the focus of a protected research project.

**RESEARCH ADVISORY BOARD**

- Adrien Beaudoin, Ph.D.
  - Lipid and enzyme specialist
  - Biochemistry Professor, Université de Sherbrooke
- Jean Roland Côté, M.D.
  - Dermatologist
  - Chief of Dermatology - Hôpital du Sacré-Cœur de Mtl
- Ronald Denis, M.D.
  - Surgeon
  - Chief of Surgery, Hôpital du Sacré-Cœur de Mtl
  - Director – Trauma Program
  - Medical Codirector – Grand Prix F1 of Canada
- Stephan Panic, M.D.
  - Surgeon
  - Traumatology and ICU
- Ghislaine Roederer, M.D.
  - Lipid and atherosclerosis
  - Cofounder – Canadian Association of Familial Hyperlipidemia – Institute of clinical research
- John Sampalis, Ph.D.
  - Clinical Epidemiologist
  - Tenured Professor of Surgery and Epidemiology McGill University, Université de Montréal et Université Laval
- Michael Schmidt, M.D.
  - Clinical neuroscientist and nutritional biochemist
  - Visiting Scholar at the NASA Ames Research Center

**DIRECTORS AND OFFICERS**

The following table sets forth the name, city of residence, position and main occupation of each director and officer of the Company.

<u>Name and City of Residence</u>	<u>Position</u>	<u>Main Occupation</u>
<b>Henri Harland</b> Rosemère, Quebec	Director, President and Chief Executive Officer	President and CEO of the Company
<b>Ronald Denis</b> Town of Mount Royal, Quebec	Director	Chief of Surgery at Hôpital du Sacré-Coeur, Montreal
<b>Jean-Pierre Boissonneault</b> Orford, Quebec	Director	President of Novycom Inc.
<b>Michel Timperio</b> Longueuil, Quebec	Director	VP Strategic Dev't of USA market of Les Systèmes de Construction

<b>Daniel Perry</b> Tours, France	Director	Technologique Ltée TBS General Manager of Société du Vivier des Landes
<b>Michel Fortin</b> Ayer's Cliff, Quebec	Chief Financial Officer	Chief Financial Officer of the Company
<b>Tina Sampalis</b> Laval, Quebec	Vice-President, Research	Vice-President, Research of the Company
<b>Luc A. Rainville</b> St-Denis-de-Brompton, Quebec	Vice-President, Provision and Quality Control	Vice-President, Provision and Quality Control of the Company
<b>André Bélanger</b>	Vice President, Operations	Vice President, Operations of the Company
<b>Roger Corriveau</b>	Vice President, Business Development	Vice President, Business Development of the Company
<b>Louis A. Lapointe</b> Saint-Laurent, Quebec	Sales Director	Sales Director of the Company

#### COMPANY DIRECTORS' BIOGRAPHICAL SUMMARIES

##### **Mr. Henri Harland**

Mr. Harland has been a director, and the President and Chief Executive Officer, of the Company since its incorporation on October 9, 1998. He has been involved in the krill research project since 1991. Since 1998, he has held the position of President and Chief Executive Officer of GCH, a financial engineering group and the promoter of this offering. From May 1992 to September 1997, Mr. Harland was a director and acted as Vice-president of Corporate Development and Chief Financial Officer of SignalGene inc. (formerly Société Algène Biotechnologies inc.). He holds a B.Sc. in actuarial science and a Master's degree in business administration (MBA), with a major in Finance, from Université Laval.

##### **Mr. Michel Fortin**

Mr. Fortin has been in the employment of the Company as Chief Financial Officer since January 2001. In 1978, Mr. Fortin completed a Bachelor of Administration degree at Université de Sherbrooke and became licensed to practice as a chartered accountant in 1980. From 1995 to 1999, Mr. Fortin was President and Chief Executive Officer of Siebruck Hosiery Ltd., one of the major manufacturers of hosiery in Canada.

##### **Dr. Tina Sampalis**

Dr. Sampalis joined the Company in March 2001 as Vice-President of Research. She obtained her Bachelor of Physiology degree from McGill University in 1983. In 1988, Dr. Sampalis obtained a medical degree from the University of Patras in Greece. In 1990, Dr. Sampalis did her training as a dermatologist at the University Hospital of Düsseldorf, Germany. In 1997 Dr. Sampalis obtained

her certification in general surgery with special training in breast oncology and in 1998 she obtained her first doctorate in experimental surgery from the University of Athens in Greece. Dr. Sampalis therefore has a broad university experience in clinical research. Her research was a determining factor in the implementation of retinols by Hoffmann La Roche Hellas, and she was awarded international prizes and scholarships as a result. Her work in scintimammography led to her being appointed to the Educational Speakers Bureau of the Canadian and U.S. Faculty of Medical Speakers for Miraluma® Breast Imaging. She also holds the position of Medical Advisor to DuPont Pharma, and Medical Director for JSS Medical Research, and has presided over the International Sampalis Trial for DuPont Pharma since 1998. Moreover, in conjunction with, and as a specialist for, the United States Surgical Corporation and AutoSuture Canada, she has directed the development and implementation of innovative surgical techniques relating to breast cancer at the Hôpital du Sacré-Cœur in Montreal. She is currently completing a second doctorate degree at McGill University on innovative surgical techniques relating to breast cancer.

**Mr. Luc A. Rainville**

Mr. Rainville has been employed by the Company since February 2000 in the capacity of Vice-President for Procurement and Quality Control. Mr. Rainville is an oceanographic biologist with more than 20 years' scientific and professional expertise in the field of marine bioresources, in particular krill. He holds a Bachelor of Biology degree from Université de Montréal, a Master of Oceanographic Biology degree from Université Laval and is currently completing a doctorate in the same field at McGill University. Until 1995, Mr. Rainville also acted as project leader and head of research and development activities in the private sector for various Quebec companies. From January 1996 to January 2000, Mr. Rainville was the President and Chief Executive Officer of Krical inc., a krill merchant.

**Mr. Roger Corriveau**

Mr. Corriveau holds the position of Vice President of Business Development since July 2001. He has been working in the financial services industry since 1982 as a manager for different financial institutions. As a financial planner, he has marketed numerous special business development products and strategies for the Eastern Canada section of the multinational company Zurich Canada.

**Mr. André Bélanger**

Mr. Bélanger has been at the employment of the company as Vice President of Operations since September 2001. In 1972 Mr. Bélanger completed a Bachelor of Administration degree at HEC. From 1973 to 1981 he was president of Cinemart inc., a corporation specialized in motion picture professional equipment rental. From 1982 to 1987 he was General Director for a corporation specializing in manufacturing of computers. From 1988 to 1996 Mr. Bélanger held the position of Vice President of Finance for Stock International Inc., a corporation specializing in producing features and television series. From 1996 to 2000 Mr. Bélanger was Vice-President of Development of Energizes Consultant Inc., a corporation specializing in reduction of energy cost. Since May 2002, Mr. Bélanger is also Chairman of the Board of Directors of DBM Reflex Inc., a corporation specialized in manufacturing moulds involving an automotive business.

**Mr. Louis A. Lapointe**

Mr. Lapointe holds the position of Sales Director with the Company. In 1996, Mr. Lapointe obtained a Bachelor of Business Management degree from Université du Québec à Montréal. Mr. Lapointe has been Sales Director for the Company since June 2000. In addition, since 1997, Mr. Lapointe has been President of LAL Power Split International inc., a company operating in the forestry equipment industry. In 1997 and 1998, Mr. Lapointe was President of B&E Firwood, a company from Chicago (U.S.A.) also operating in the forestry equipment industry. Finally, between

1994 and 1996, Mr. Lapointe was a sales representative and collection agent for Groupe Fichier Central.

All aforementioned individuals, who are employees of the Company, have a one year employment contract providing for automatic renewal of one year minimum, unless the Company decides otherwise. Furthermore, each employment contract contains the usual confidentiality, renunciation to intellectual property and non-competition clauses.

Neptune Technologies & Bioressources Inc. recognizing the future trend of medicine is aiming towards the development and production of high quality natural health products and the absolute validation of their properties and quality by peer reviewed and accredited research. Keeping a step ahead of regulations, Neptune products are examined as rigorously as pharmaceuticals in order to reassure quality and efficacy. Neptune Technologies & Bioressources Inc. proprietary technology and innovative product components encourage the Company to strive for a leading position in the **biopharmaceutical – nutrigenomics industry.**

Neptune is aiming towards the formation of strategic alliances in the fields of Research & Development and product industrialization.

For more information:

Neptune Technologies & Bioressources Inc.

Telephone : (450) 972-6291

1-888-664-9166

Fax : (450) 972-6351

**Roger Corriveau**

VP Business Development

**Lina Clément / Brigitte Beaulieu**

Direction of Financial Communication