

Table of Contents

Summary	.....	i
Preface	.....	xxix
Acronyms	.....	xxxii
Map of BC Coastline	.....	xxxiv
Part A. Introduction		1
1.0 The Setting		3
1.1 The Need for the Study		3
1.2 Study Objectives		4
1.3 Approach and Methodology		4
1.4 Report Outline		6
Part B. Background		9
2.0 Seafood Industry Profile		11
2.1 The Seafood Business		11
2.1.1 Nature of the Business		11
2.1.2 Industry Elements		11
2.2 Fish Harvesting		12
2.2.1 Regulatory Environment		12
2.2.2 Industry Structure		12
2.2.3 Major Fishery Species		14
2.2.4 Landings and Landed Value		14
2.2.5 Employment and Wages		17
2.2.6 Regional and Aboriginal Participation		17
2.3 Aquaculture Sector		17
2.3.1 Regulatory Environment		17
2.3.2 Industry Structure		19
2.3.3 Production and Farm Gate Values		19
2.3.4 Employment and Wages		21
2.3.5 Regional and Aboriginal Participation		21
2.4 Seafood Processing		23
2.4.1 Regulatory Environment		23
2.4.2 Industry Structure		23
2.4.3 Processing (Wholesale) Value		25

2.4.4	<i>Wages and Employment</i>	27
2.4.5	<i>Regional and Aboriginal Participation</i>	27
3.0	World Supply and Market Conditions	29
3.1	Worldwide Supply and Production Patterns	29
3.1.1	<i>Capture Fisheries</i>	29
3.1.2	<i>Aquaculture Production</i>	29
3.1.3	<i>Production Trends</i>	31
3.1.4	<i>Trade Patterns</i>	34
3.2	Consumer Trends	34
3.2.1	<i>Demographics and Food Trends</i>	34
3.2.2	<i>Quality and Safety</i>	36
3.2.3	<i>Sustainability and Other Environmental Issues</i>	36
3.3	Trade Issues	38
3.3.1	<i>Trade Agreements</i>	38
3.3.2	<i>Tariffs and Non-Tariff Trade Barriers</i>	39
3.3.3	<i>Traceability</i>	40
3.3.4	<i>US Country of Origin and Bioterrorism Legislation</i>	40
3.4	Markets and Economic Outlook	42
3.4.1	<i>Economic Outlook</i>	42
3.4.2	<i>Interest Rates and Exchange Rates</i>	43
3.4.3	<i>Domestic and Key Export Markets</i>	43
4.0	BC Resource Assessment and Issues	47
4.1	General Health of Wild Fish Stocks	47
4.1.1	<i>Salmon</i>	47
4.1.2	<i>Herring and Other Pelagics</i>	51
4.1.3	<i>Groundfish</i>	51
4.1.4	<i>Shellfish and Invertebrates</i>	52
4.2	New and Emerging Fisheries	53
4.3	The Ocean Environment and Climate Change	53
4.3.1	<i>El Nino and La Nina</i>	53
4.3.2	<i>Decadal Scale Cycles</i>	55
4.3.3	<i>Climate Change</i>	55
4.4	Sustainability in the BC Seafood Sector	56
4.4.1	<i>Sustainability Defined</i>	56
4.4.2	<i>Progress and Challenges to Sustainability in BC</i>	58
4.5	Precautionary Approaches to Fisheries Management	60
4.6	Federal Policies and Legislation	62
4.6.1	<i>New Directions for the Salmon Fishery</i>	62
4.6.2	<i>Species at Risk Act</i>	62
4.6.3	<i>Wild Salmon Policy</i>	65
Part C.	Seafood Business Assessment	67
5.0	BC Fish Harvesting Industry	69
5.1	Markets	69

5.1.1	<i>Domestic and Export Markets</i>	69
5.1.2	<i>Prices Received</i>	70
5.2	Government Policies and Regulations	74
5.2.1	<i>Resource Access, Licensing, and Fees</i>	74
5.2.2	<i>Developments in the 1990s</i>	76
5.2.3	<i>Allocation</i>	80
5.2.4	<i>Uncertainty of Access</i>	81
5.2.5	<i>Incentive Programs and Subsidies</i>	81
5.2.6	<i>Federal-Provincial Cooperation</i>	82
5.2.7	<i>Aboriginal Issues</i>	82
5.3	Human Resources	83
5.3.1	<i>Labour Utilization and Wages</i>	83
5.3.2	<i>Recruitment, Skills, and Training</i>	85
5.3.3	<i>Labour Productivity</i>	86
5.3.4	<i>Management and Labour Environment</i>	87
5.4	Investment, Financing, and Capital	87
5.4.1	<i>Size of Vessels and Technology</i>	87
5.4.2	<i>Investment Levels</i>	88
5.4.3	<i>Viability and Financial Performance</i>	91
5.4.4	<i>Access to Financing and Equity</i>	92
5.4.5	<i>Research and Development (R&D)</i>	94
5.4.6	<i>Overall Investment Climate</i>	94
5.5	Supply Chain Issues and Services	94
5.6	Catch Monitoring	95
5.7	Industry Liaison and Relationships	95
5.7.1	<i>Industry Associations</i>	95
5.7.2	<i>Integration and Strategic Alliances</i>	98
5.7.3	<i>Public Perception</i>	99
6.0	BC Aquaculture Industry	101
6.1	Markets	101
6.1.1	<i>Domestic and Export Markets</i>	101
6.1.2	<i>Prices Received</i>	103
6.1.3	<i>Product Quality and Differentiation</i>	105
6.2	Government Policies and Regulations	105
6.2.1	<i>Aquaculture Regulations and Fees</i>	105
6.2.2	<i>Regulatory Issues and Developments</i>	110
6.2.3	<i>Incentive Programs and Subsidies</i>	113
6.2.4	<i>Federal-Provincial Cooperation</i>	113
6.2.5	<i>Aboriginal Issues</i>	114
6.3	Human Resources	114
6.3.1	<i>Labour Utilization and Wages</i>	114
6.3.2	<i>Skilled Labour and Training</i>	117
6.3.3	<i>Management and Labour Environment</i>	119
6.4	Investment, Financing, and Capital	119
6.4.1	<i>Investment Levels</i>	119
6.4.2	<i>Viability and Financial Performance</i>	120
6.4.3	<i>Access to Financing and Equity</i>	120

6.4.4	<i>Technology and Research and Development (R&D)</i>	121
6.4.5	<i>Overall Investment Climate</i>	125
6.5	Supply Chain Issues and Services	125
6.5.1	<i>Biophysical Capability</i>	125
6.5.2	<i>Broodstock, Smolts, and Larvae</i>	125
6.5.3	<i>Feed</i>	126
6.5.4	<i>Other Goods and Services</i>	127
6.6	Sustainability Issues	127
6.6.1	<i>Feed Issues</i>	127
6.6.2	<i>Fish Health</i>	128
6.6.3	<i>Safety and Traceability</i>	130
6.6.4	<i>Production</i>	132
6.7	Industry Liaison and Relationships	134
6.7.1	<i>Industry Associations</i>	134
6.7.2	<i>Integration and Strategic Alliances</i>	134
6.7.3	<i>Public Perception</i>	135
7.0	BC Seafood Processing	139
7.1	Markets	139
7.1.1	<i>BC is a Small Player</i>	139
7.1.2	<i>Continued Expansion of Seafood Production and Demand</i>	141
7.1.3	<i>Domestic and Export Markets</i>	143
7.1.4	<i>Generic Seafood Marketing</i>	144
7.1.5	<i>Prices Received</i>	145
7.1.6	<i>Product Quality, Differentiation, and Branding</i>	149
7.2	Government Policies and Regulations	152
7.2.1	<i>Licensing</i>	152
7.2.2	<i>Quality Assurance Regulations</i>	153
7.2.3	<i>Regulation of Seafood Packaging Materials</i>	154
7.2.4	<i>Incentive Programs and Subsidies</i>	154
7.2.5	<i>Federal-Provincial Cooperation</i>	155
7.2.6	<i>Aboriginal Issues</i>	155
7.3	Human Resources	156
7.3.1	<i>Labour Utilization and Wages</i>	156
7.3.2	<i>Skilled Labour and Training</i>	157
7.3.3	<i>Labour and Management Environment</i>	159
7.4	Investment, Financing and Capital	159
7.4.1	<i>Investment Levels</i>	159
7.4.2	<i>Viability and Financial Performance</i>	159
7.4.3	<i>Access to Financing and Equity</i>	160
7.4.4	<i>Research and Development (R&D)</i>	160
7.4.5	<i>Overall Investment Climate</i>	161
7.5	Supply Chain Issues and Services	161
7.6	Production Monitoring	162
7.7	Industry Liaison and Relationships	162
7.7.1	<i>Industry Associations</i>	162
7.7.2	<i>Integration and Strategic Alliances</i>	162
7.7.3	<i>Public Perception</i>	162

Part D. Recreational Fishery Assessment	163
8.0 Recreational Fishing Industry Profile	165
8.1 The Recreational Fishing Business	165
8.1.1 <i>Nature of the Business</i>	165
8.1.2 <i>Industry Elements</i>	165
8.2 Industry Profile	166
8.2.1 <i>Regulation</i>	166
8.2.2 <i>Industry Structure</i>	166
8.2.3 <i>Industry Revenues</i>	168
8.2.4 <i>Employment and Wages</i>	171
8.2.5 <i>Regional and Aboriginal Participation</i>	171
9.0 Tidal Recreational Fishing Business	173
9.1 Markets	173
9.1.1 <i>Domestic and Export Markets</i>	173
9.1.2 <i>The Cost of Angling</i>	175
9.1.3 <i>Product Quality and Differentiation</i>	176
9.2 Government Policies and Regulations	179
9.2.1 <i>Resource Access</i>	179
9.2.2 <i>Regulation and Fees</i>	180
9.2.3 <i>Incentive Programs and Subsidies</i>	182
9.2.4 <i>Federal-Provincial Cooperation</i>	182
9.2.5 <i>Government Funding of Recreational Fisheries Management</i>	183
9.2.6 <i>Aboriginal Issues</i>	184
9.3 Human Resources	184
9.3.1 <i>Labour Utilization and Wages</i>	184
9.3.2 <i>Skilled Labour, Recruitment, and Training</i>	185
9.3.3 <i>Management and Labour Environment</i>	185
9.4 Investment and Financing of Lodges and Charters	185
9.4.1 <i>Investment Levels and Viability</i>	185
9.4.2 <i>Access to Financing</i>	187
9.4.3 <i>Research and Development</i>	187
9.4.4 <i>Overall Investment Climate</i>	187
9.5 Supply Chain Issues and Services	187
9.5.1 <i>Resource Capability</i>	187
9.5.2 <i>Other Goods and Services</i>	188
9.6 Catch Monitoring	188
9.7 Industry Liaison and Relationships	189
9.7.1 <i>Industry Associations</i>	189
9.7.2 <i>Integration and Strategic Alliances</i>	190
9.7.3 <i>Public Perception</i>	191
Part E. SWOT Analysis	193
10.0 SWOT Analysis	195
10.1 Economic Contribution	195

10.1.1	<i>Direct Economic Impacts</i>	195
10.1.2	<i>Regional Employment</i>	197
10.2	Themes	199
10.2.1	<i>General</i>	199
10.2.2	<i>Seafood Sector</i>	201
10.2.3	<i>Recreational Sector</i>	204
10.3	Major Business Issues	205
10.3.1	<i>Market Trends and Requirements</i>	205
10.3.2	<i>Government Policies and Regulations</i>	207
10.3.3	<i>Human Resources</i>	208
10.3.4	<i>Investment and Technology</i>	208
10.3.5	<i>Supply Chain Issues</i>	209
10.3.6	<i>Resources and the Environment</i>	210
10.3.7	<i>Catch Monitoring</i>	211
10.3.8	<i>Industry Liaison and Relationships</i>	212
10.4	SWOT Results	212
10.4.1	<i>Key Fish Harvesting Opportunities</i>	213
10.4.2	<i>Key Aquaculture Opportunities</i>	215
10.4.3	<i>Key Seafood Processing and Marketing Opportunities</i>	217
10.4.4	<i>Key Tidal Recreational Fishery Opportunities</i>	219
10.5	Aboriginal Issues and Opportunities	222
10.6	Final Comment	222
References	.....	223
Index	.....	231
Appendix A	Data: Fish Harvesting.....	A.1
Appendix B	Data: Aquaculture to Farmgate	B.1
Appendix C	Data: Seafood Processing and Distribution	C.1
Appendix D	Data: Tidal Recreational Fishery.....	D.1
Appendix E	BC Stock Assessment	E.1
Appendix F	List of Interviews	F.1

List of Exhibits

Exhibit 1: An Overview of the Seafood and Recreational Fishing Sector	5
Exhibit 2: Federal-Provincial Memoranda of Understanding on Fisheries Issues	13
Exhibit 3: BC Fish Harvesting Landings and Landed Value by Species Group	15
Exhibit 4: Estimated Employment and Wages in BC Fish Harvesting 2002	18
Exhibit 5: BC Aquaculture Production and Farm Gate Value by Species Group	20
Exhibit 6: Estimated Employment and Wages in BC Aquaculture Farm Level 2002	22
Exhibit 7: Wholesale Value of BC Seafood by Species Group	24
Exhibit 8: Estimated Employment and Wages in BC Seafood Processing 2002	26
Exhibit 9: World Fisheries Production - 1950 to 2001	30
Exhibit 10: World Salmon Production - 1950 to 2001	30
Exhibit 11: Overall Health of Wild Fish Stocks in BC	48
Exhibit 12: Fraser River Sockeye Run Size and Canadian Catch Estimates	50
Exhibit 13: Status of Emerging Fisheries by Species in the Pacific Region*	54
Exhibit 14: Examples of Progress Towards Sustainability in BC	59
Exhibit 15: BC Landed Prices for Selected Species	73
Exhibit 16: BC Commercial Licence Status Report for Limited Entry Fisheries 2003	77
Exhibit 17: Selected Commercial Fishing Licence and Quota Values in BC - 1990-2002	90
Exhibit 18: 2002 Financial Returns to the BC Fishing Fleet	93
Exhibit 19: A Competitiveness Survey of the BC Salmon Farming Industry	102
Exhibit 20: BC Aquaculture Production and Farm Gate Prices by Species	104
Exhibit 21: Federal Regulations Affecting Aquaculture	106
Exhibit 22: Provincial Regulations Affecting Aquaculture	108
Exhibit 23: World Salmon Production and Consumption 2001	140
Exhibit 24: Wholesale Value of BC Seafood Products by Product Form 2002	142
Exhibit 25: Alaska Sockeye Salmon Prices	146
Exhibit 26: BC Wholesale Prices for Selected Seafood Products	148
Exhibit 27: Non-Price Attributes of Seafood	150
Exhibit 28: BC Tidal Recreational Fishing Licence Sales to Adults – 1986/87 to 2002/03	167
Exhibit 29: BC Tidal Angling Expenditures	167

Exhibit 30: Georgia Strait Recreational Catch & Effort May to September – 1980 to 2002	169
Exhibit 31: Estimated Employment & Wages in BC Tidal Recreational Fishing 2002	170
Exhibit 32: The Recreational Fishery in Alaska – A Competitor for Angling Dollars	178
Exhibit 33: Economic Contribution of BC Seafood & Recreational Fishing - 2002	196
Exhibit 34: 2002 BC Seafood and Tidal Recreational Fishing Employment PYs*	198
Exhibit 35: SWOT Analysis – BC Fish Harvesting	214
Exhibit 36: SWOT Analysis – BC Aquaculture to Farm Gate	216
Exhibit 37: SWOT Analysis – BC Seafood Processing	218
Exhibit 38: SWOT Analysis – BC Tidal Recreational Fishing	220

List of Case Studies

Case Study 1: US-Vietnam Trade Dispute over Catfish	45
Case Study 2: Managing for Sustainability – The BC Roe Herring Fishery	57
Case Study 3: Chignik Salmon Seine Fishery Cooperative in Alaska	71
Case Study 4: 2002 Barklay Sound Commercial Seine Fishery	79
Case Study 5: The New Zealand Challenger Scallop Fishery	96
Case Study 6: KITASOO Aqua Farms and Seafoods	115
Case Study 7: North Coast Water Quality and Biotxin Program Society	133
Case Study 8: The New Zealand Mussel Industry Council	136
Case Study 9: Recreational Fishing in the Fraser River and Tributaries	181
Case Study 10: Queen Charlotte Islands Fishing Lodges – A High End Niche Product	186