

2003 FIA SFMP Deliverables

List of Indicators

2002/03 SFMP work that was funded under FIA resulted in the following indicators being proposed or considered by licensees. The indicators are listed here as a resource to other SFMP processes that may be involved in indicator development. The indicators listed here have mostly been developed under the Canadian Council of Forest Ministers criteria and indicators framework for sustainable forest management. Note that the indicators listed here are categorized as social, economic and environmental indicators, and that environmental indicators have been further categorized as "pressure", "state", or "response" indicators. SFMPs will normally contain a mix of all these indicator categories. In particular, it is desirable for SFMPs to contain a strong representation of environmental "state" indicators and accompanying targets or thresholds for the indicators to facilitate effective sustainable forest management.

When selecting indicators for individual defined forest areas, SFM planners should base their selections on the following criteria for selecting good indicators:

Measurable -- it is difficult to set a target for indicators that are not practical to measure. Data must be available to support indicator measurement.

Can be forecast -- it is difficult to manage for a goal if future targets cannot be predicted with reasonable accuracy.

Relevant -- indicators need to clearly represent a condition or trend of the associated goal.

Understandable -- the SFMP will be a public document, and indicators need to be meaningful, clear and easy to understand.

Valid -- indicators should be consistent with scientific understandings of the value being described, objective, easily documented, comparable and reproducible.

Cost-effective -- tracking indicator performance in time must be affordable when viewed in relation to the value of the information being generated.

Refer to the document, "[Working Paper: Developing a Sustainable Forest Management Plan](#)" for further advice on indicator and SFMP development."

Social Indicators

Indicator	Target / Objective	SFMP
1. Road density by road phase by ROS class by licensee	TBD	Morice
2. Percent of area of various recreation classes failing to achieve visually effective green-up, by licensee	TBD	Morice
3. Percent of area of various VQO classes failing to achieve visually effective green-up, by licensee	TBD	Morice
4. Percent change in ROS class by recreation type by licensee	TBD	Morice
5. Number of communications sent by resource value by type by licensee	1 per year per resource value	Morice
6. Number of participation opportunities by opportunity type	9 meetings /yr >1 display / workshop per yr.	Morice
7. Percent of forest management commitments (resulting from consultations on non-timber features and interests) completed on time	100% of commitments completed	Morice
8. Benefits (donations) directed into local communities by licensees	Maintain current status	Morice
9. Public advisory group established and maintained per terms-of-reference	Maintain PAG	Morice
10. Percentage of public comments receiving response by type by licensee	100%	Morice
11. Percent annual increase in CFS membership	??	Kaslo CFS
12. Percent of community satisfied that harvesting and road building protects drinking water.	??	Kaslo CFS
13. Percent of existing or potential recreation sites that are negatively or positively impacted by harvesting.	??	Kaslo CFS
14. Establishment and maintenance of a dispute resolution mechanism.	Yes / No	Kaslo CFS
15. Percent of roads and cutblocks situated away from residences	??	Kaslo CFS
16. Percent of roads that are located to take advantage of natural features that minimize noise and dust.	??	Kaslo CFS
17. Percent of problem roads that are deactivated, recontoured or gated.	??	Kaslo CFS
18. Percent of existing recreation sites that are preserved or enhanced.	??	Kaslo CFS
19. Percent of community forest land base that is developed for recreation.	??	Kaslo CFS
20. Number of winter recreation events hosted.	??	Kaslo CFS
21. Existence of educational materials that promote forest recreation.	??	Kaslo CFS
22. Existence of facilities (centre, signs) that promote forest education and recreation.	??	Kaslo CFS
23. Access plan is developed and maintained in consultation with community advisory group.	Yes / No	Kaslo CFS
24. Access plan is communicated to on-site contractors.	100% of contractors advised of plan	Kaslo CFS
25. Percent compliance / non-compliance with visual impact inventories.	??	Issaak
26. Number of complaints associated with visual quality.	??	Issaak
27. Number of job types in DFA.	??	Issaak
28. Percent unemployment (in DFA?)	??	Issaak
29. Percent labour that is local versus non-local.	??	Issaak
30. Percent of trainers that are local versus non-local.	??	Issaak
31. Number of recreation user days by user and user type.	??	Issaak
32. Number of camping permit sales.	??	Issaak
33. Amount of harvest of non-timber forest products by type.	??	Issaak
34. Percent satisfaction / dissatisfaction with impacts of forest management.	??	Issaak
35. Number of days and price of job training opportunities and education	??	Issaak

Indicator	Target / Objective	SFMP
opportunities by type.		
36. Number of opportunities for youth training / apprenticeships by type.	??	Issaak
37. Number of visitors to local education centre.	??	Issaak
38. Recreation resources and opportunities are maintained / enhanced.	TBD	Pope and Talbot
39. Visual quality of the managed landscape is acceptable to a broad range of stakeholders	TBD	Pope and Talbot
40. Forest management conserves unique / significant places and features of social, cultural, spiritual importance.	TBD	Pope and Talbot
41. Worker and community safety is maintained within acceptable levels.	TBD	Pope and Talbot
42. Forest management responds to a wide range of social values through effective planning processes that involve inclusive consultation with stakeholders.	TBD	Pope and Talbot
43. Collective understanding is increased through collaborative planning and adaptive management where information is exchanged to facilitate capacity building.	TBD	Pope and Talbot
44. Percent of cutblocks meeting VQOs	100%	QCI TSA
45. Number of people employed.	100 direct, 50 locally; 33-49 indirect.	QCI TSA
46. Area within DFA managed for archaeological sites.	100% compliance with Heritage Conservation Act	QCI TSA
47. Annual harvest is within 5 yr AAC harvest projection.	+/- 10% of projection	QCI TSA
48. Percent of cutblocks meeting utilization standards.	15m3 of avoidable waste.	QCI TSA
49. m3 of Cw salvaged.	1500 m3 / yr.	QCI TSA
50. Percent of cutblocks in compliance with green-up requirements.	100% compliance	QCI TSA
51. Percent of plans provided to public and First Nations for review.	100%	QCI TSA
52. Percent of public inquiries to DFA licensees responded to within 30 days.	100%	QCI TSA
53. Percent compliance with internal environmental awareness training requirements.	100%	QCI TSA
54. m3 / year harvested.	10% / 50% of AAC	PG TSA
55. Completion of VIAs as identified in FDP approval.	100%	PG TSA
56. Completion of visual overview assessment.	by Mar. 31/05	PG TSA
57. Completion of archaeological overview assessment model refinement.	by Mar. 31/04	PG TSA
58. Number of communications with people that have identified an interest following FDP advertisement.	100%	PG TSA
59. Maintain recreation sites.	Inform MOF annually	PG TSA
60. Provide opportunities to First Nations to become involved in the FIA / SFM planning process	by Sept/ 03	PG TSA
61. Provide opportunities for McLeod Lk Band to review applicable FDPs.	100%	PG TSA
62. Provide opportunities for public to become involved in SFM processes through McGregor Model Forest and advertised processes.	100%	PG TSA
63. Provision of SFM draft to people that express an interest.	100%	PG TSA
64. Creation of sub-group to identify how public involvement in forest	by ??	PG TSA

Indicator	Target / Objective	SFMP
management can best be facilitated.		
65. Timber supply certainty?	TBD	Arrow TSA & TFL 3
66. Potential implications of SFM practices on the amount and quality of non-timber values.	TBD	Arrow TSA & TFL 3
67. Number of jobs supported by each sector of the local economy, on an actual and percentage basis.	TBD	Arrow TSA & TFL 3
68. Balance of primitive, semi-primitive and developed recreation opportunities are maintained, relative to baseline status.	TBD	Arrow TSA & TFL 3
69. Level of satisfaction for range of recreation activity types relative to baseline status	TBD	Arrow TSA & TFL 3
70. Level of success in meeting VQOs.	TBD	Arrow TSA & TFL 3
71. Level of public acceptance of visual impacts in visually sensitive areas outside of VQOs.	TBD	Arrow TSA & TFL 3
72. Annual timber harvest by species and diameter classes.	TBD	Arrow TSA & TFL 3
73. Employment and income in each forestry sub-sector	TBD	Arrow TSA & TFL 3
74. Indirect and induced employment and income.	TBD	Arrow TSA & TFL 3
75. Amount of supplies and services purchased (locally?)	TBD	Arrow TSA & TFL 3
76. Arrow IFPA communications plan developed and implemented.	Yes / No	Arrow TSA & TFL 3
77. Residents views on forest management are determined.	Yes / No	Arrow TSA & TFL 3
78. Equitable inclusion of stakeholders in decision-making	TBD	Arrow TSA & TFL 3
79. Reciprocal exchange of information on social values in open and transparent process.	TBD	Arrow TSA & TFL 3
80. Culturally appropriate opportunities are provided for Aboriginal participation.	TBD	Arrow TSA & TFL 3
81. Traditional knowledge and cultural heritage values are incorporated into planning, where available and appropriate.	TBD	Arrow TSA & TFL 3
82. Number of working relationships with First Nations (partnerships, joint ventures, cooperatives, memos of understanding, contracts)	TBD	Arrow TSA & TFL 3
83. Information on indicator condition is clearly communicated to public during planning processes.	Yes / No	Arrow TSA & TFL 3
84. Agreements with First Nations are implemented (information sharing, technology transfer, capacity building where feasible).	TBD	Arrow TSA & TFL 3
85. Monitoring data on C&I at Landscape Unit level is communicated through public process, including extension programs every 3-5 years.	Yes / No	Arrow TSA & TFL 3
86. Reciprocal demonstration of knowledge exchange (locals to technical experts and vice versa)	TBD	Arrow TSA & TFL 3
87. Area and percentage of forest management for one or more compatible recreation activities, relative to base line status.	TBD	Arrow TSA & TFL 3
88. Number of recreation sites/facilities maintained relative to baseline status.	TBD	Arrow TSA & TFL 3
89. Access routes for recreation are maintained.	TBD	Arrow TSA & TFL 3
90. Number of recreation / tourism visitor days relative to baseline status	TBD	Arrow TSA & TFL 3
91. Extent of protection / enhancement of visual resources (natural and manmade) and public aesthetic values, where appropriate.	TBD	Arrow TSA & TFL 3
92. Special social, cultural, spiritual sites are identified.	Yes / No	Arrow TSA & TFL 3

Indicator	Target / Objective	SFMP
93. Percentage and number of special social, cultural, spiritual sites that are protected.	TBD	Arrow TSA & TFL 3
94. Worker and community safety	TBD	Arrow TSA & TFL 3
95. Degree of flexibility in institutional and resource constraints.	TBD	Arrow TSA & TFL 3
96. AAC	Increase	Mission TFL
97. Recreation trails are established and maintained.	??	Mission TFL
98. Five year period harvest.	Meet cut control	Mission TFL
99. Harvest profile by species.	Every 5 yrs.	Mission TFL
100. Annual harvest rate, relative to annual allocation.	??	Tatla Lake
101. Efficient utilization.	<4m3/ha/yr	Tatla Lake
102. Maintain use for trapping, guiding, mushroom picking, range.	??	Tatla Lake
103. Number person days of Tsi Del Del staff training and capacity building	??	Tatla Lake
104. Annual number of contractors working / retained.	??	Tatla Lake
105. Manage access to allow areas for recreation, guiding, trapping, backcountry tourism, and species conservation.	per CCLUP	Tatla Lake
106. Number of roads / areas with restricted access.	??	Tatla Lake
107. Number and type of 'no harvest zones' used for recreation.	??	Tatla Lake
108. Scenic area management procedures were followed.	Yes / No	Tatla Lake
109. Area (ha) zoned 'no harvest' for wilderness tourism	??	Tatla Lake
110. Percent harvested per year by alternative silviculture systems.	??	Tatla Lake
111. Type and number of research projects supported.	??	Tatla Lake
112. Amount of money from harvesting that is allocated to the Tsi Del Del Educational Trust Fund.	??	Tatla Lake
113. Percent of forest work carried out annually by First Nations.	??	Tatla Lake
114. Annual number of areas / cutblocks set aside or modified by TUS information.	??	Tatla Lake
115. Annual number of AIA's completed annually.	??	Tatla Lake
116. Annual number of forestry crew / employee meetings.	??	Tatla Lake
117. Annual number of safety meetings.	??	Tatla Lake
118. Annual number of safety inspections.	??	Tatla Lake
119. Area (ha) set aside for community development (woodlots, community forests, tourism)	??	Tatla Lake
120. Number of public consultation meetings.	??	Tatla Lake
121. Percent compliance with all legislative and regulatory requirements.	??	Tatla Lake
122. M3 of annual harvest in relation to 5 yr. AAC harvest projection.	Meet cut control	TFL 47 QCI
123. Percent of cublocks meeting utilisation standards.	15m3 / ha	TFL 47 QCI
124. M3 of Cw salvaged.	1000 m3 / yr.	TFL 47 QCI
125. Percent of cut that is sold to value-added manufacturers.	10%	TFL 47 QCI
126. Number of recreation sites maintained.	5 sites	TFL 47 QCI
127. Number of cutblocks in compliance with green-up requirements.	100%	TFL 47 QCI
128. Percent of plans provided to public and First Nations for review.	100%	TFL 47 QCI
129. Percent of public inquires that are responded to within 30 days.	100T%	TFL 47 QCI
130. Percent of training courses delivered to staff, employees and contractors.	1/ yr minimum	TFL 47 QCI
131. Compliance with cut control	100%	TFL 6 WFP
132. Percent change in AAC (over 200 yrs)	Max. 5% over 5 yrs.	TFL 6 WFP
133. Volume of wood from DFA sold locally.	20,000 m3	TFL 6 WFP
134. Percent compliance with internal training requirements.	100%	TFL 6 WFP
135. Km of active road maintained and open to public.	1,000 km	TFL 6 WFP

Indicator	Target / Objective	SFMP
136. Percent of required VIAs completed.	100%	TFL 6 WFP
137. Number of recreation areas maintained.	14 sites	TFL 6 WFP
138. Km of recreation trail maintained.	??	TFL 6 WFP
139. Dollars spent locally on forestry public awareness and education.	\$80,000	TFL 6 WFP
140. Number of new hires that are locals.	90%	TFL 6 WFP
141. Number of Vanc. Is. North Woodland Advisory Group (VINWAG) meetings held per year.	5	TFL 6 WFP
142. Percent of key sectors represented at VINWAG meetings.	100%	TFL 6 WFP
143. First Nations Participation in VINWAG	100% opportunity	TFL 6 WFP
144. Number of documented opportunities for local First Nations to review FDPs and management plans.	100%	TFL 6 WFP
145. Management of cultural features (CMTs) as they are identified.	Zero CMTs harvested	TFL 6 WFP
146. Number of VINWAG meetings / yr to review decision-making processes.	1 / yr.	TFL 6 WFP
147. Number of public advertisements / yr over and above legal requirements.	3	TFL 6 WFP
148. Percent of letters in response to plans that have been replied to.	100%	TFL 6 WFP
149. Number of forest-based research and inventory projects.	10 / yr.	TFL 6 WFP
150. Level of compliance with VQOs in operational plans.	100%	Wey OK Falls
151. Number of committee / stakeholder meetings attended.	Annual report	Wey Ok Falls
152. Number of meetings attended to support government in First Nations consultation.	Annual report	Wey Ok Falls
153. Level of participation in local access planning initiatives.	100%	Wey Ok Falls
154. Extent of involvement in sponsorship in educational and research initiatives.	??	Wey OK Falls
155. Percent response to public consultation received on FDPs	100%	Wey OK Falls
156. Number of First Nations partnerships per year.	Report annually	Wey OK Falls
157. Annual meeting held with CSA advisory group.	Yes / No	Wey Ok Falls
158. Number of students involved in educational classroom visits.	Report annually	Wey Ok Falls
159. Number of participants involved with forest tours.	Report annually	Wey OK Falls
160. Number of participants involved with public presentations n forest management.	Report annually	Wey OK Falls
161. Documented communications with government agencies regarding proposals for land conversion.	100% involvement in land referrals	Fraser TSA
162. Number of recognized third party EMS and certification registrations.	Annual report	Fraser TSA
163. Percent response to written requests related to operational plans	100%	Fraser TSA
164. Number of written public and stakeholder referral responses addressed in operational plans.	100%	Fraser TSA
165. Number of First Nations referral responses addressed in operational plans.	100%	Fraser TSA
166. Number of operational plan referral meeting requests from First Nations that are met.	100%	Fraser TSA
167. Level of compliance with AOA process.	100%	Fraser TSA
168. Number of forest research, inventory and extension projects funded by FIA.	Annual report	Fraser TSA
169. Continual improvement for the SFMP	Annual monitoring report	Fraser TSA

Economic Indicators

Indicator	Target / Objective	SFMP
1. Percent of harvest volume by harvest method by licensee	TBD	Morice
2. Percent of AAC harvested by licensee	100% harvest	Morice
3. Ratio of annual mill consumption to AAC apportionment harvested by licensee	1:1 or greater	Morice
4. Area (ha / yr) harvested within the ALR / grazing lease areas by licensee (to create agriculture economic opportunities)	TBD	Morice
5. Percent of DFA classed as 'suitable forage opportunity' by LU by licensee	TBD	Morice
6. Percent of licensee expenditures on goods and services that occur locally	Within 10% of status quo	Morice
7. Ratio of capital expenditures to depreciation by licensee	> 1:1	Morice
8. Number of recreation-oriented businesses created / businesses that fail.	??	Kaslo CFS
9. Timber harvesting continues to contribute to economic well-being.	??	Pope and Talbot
10. Citizens of the area continue to receive a portion of the (financial) benefits.	??	Pope and Talbot
11. The provincial government continues to receive a portion of the financial benefits	??	Pope and Talbot
12. A strong, diversified forest sector exists.	??	Pope and Talbot
13. Productive capacity for non-timber forest values and benefits does not decline.	??	Pope and Talbot
14. Access to non-timber forest values and benefits does not decline.	??	Pope and Talbot
15. Employment and income sources and their contribution to the local economy continue to be diversified	??	Pope and Talbot
16. Annual paid amount of stumpage and rent.	100% compliance with req'd pay'ts.	QCI TSA
17. Total and net value of timber harvest.	TBD	Arrow TSA & TFL 3
18. Log prices by species and log diameter distribution.	TBD	Arrow TSA & TFL 3
19. Fees paid by industry to municipalities, regional and provincial governments.	TBD	Arrow TSA & TFL 3
20. Competitiveness of delivered log costs.	TBD	Arrow TSA & TFL 3
21. Industry structure: number of firms by size and product.	TBD	Arrow TSA & TFL 3
22. Markets?	TBD	Arrow TSA & TFL 3
23. Capital investment	TBD	Arrow TSA & TFL 3
24. Contribution of income sources in the local economy on actual and percentage basis.	TBD	Arrow TSA & TFL 3
25. Amount paid annually in stumpage, rent.	100% compliance with requirements	TFL 47 QCI
26. Earnings before taxes, depreciation and amortization.	\$120 million	TFL 6 WFP
27. Percent of annual dollars spent in DFA on local suppliers,	Maintain or	TFL 6 WFP

Indicator	Target / Objective	SFMP
contractors and consultants.	increase	
28. Annual volume (m3) of Cedar salvage.	7,500 m3	TFL 6 WFP
29. Profitability as measured by the difference between average selling price and average cost for harvesting operations.	Average selling price > average ops costs.	Fraser TSA

Environmental Indicators

Pressure Indicators

Indicator	Target / Objective	SFMP
1. Number of crossings by watershed by road class by licensee	TBD	Morice
2. Percent of gross forest area converted to permanent access, by licensee	TBD	Morice
3. Percent species composition by harvest volume by licensee	TBD	Morice
4. Road density by road phase by ecosystem and wildlife value class by licensee	TBD	Morice
5. Equivalent clearcut area by watershed by licensee	TBD	Morice
6. Road density index by watershed by licensee	TBD	Morice
7. Number of hillslope failures by source.	??	Issaak
8. Number of hillslope failures that reach streams.	??	Issaak
9. Area (ha) of forest land converted to non-forest land.	??	Issaak
10. Area (ha) of roads and trails	??	Issaak
11. Change in stream morphology in harvested watersheds compared to control streams.	Yes / No	Issaak
12. Volume of coarse woody debris.	??	Issaak
13. Number of snags.	??	Issaak
14. Number of harvesting related fires per year.	Zero	QCI TSA
15. Number of reportable spills to water.	Zero	QCI TSA
16. Number of reportable spills to land.	Zero	QCI TSA
17. Percent of TSA converted to permanent access structures.	<4.5% / yr.	PG TSA
18. Percent of harvested areas having significant soil compaction, displacement, erosion.	TBD	Arrow TSA & TFL 3
19. Area of forest converted to non-forest use.	TBD	Arrow TSA & TFL 3
20. Percent of forested area having road construction.	TBD	Arrow TSA & TFL 3
21. Area of regeneration failures.	TBD	Arrow TSA & TFL 3
22. Area out of compliance with free to grow measures.	TBD	Arrow TSA & TFL 3
23. Land surface area disturbed.	TBD	Arrow TSA & TFL 3
24. Percent of productive forest area covered by roads.	<3%	Mission TFL
25. Number of species classed as threatened, endangered or vulnerable.	TBD	Strathcona TSA
26. Annual number of harvested areas in permanent access structures.	<6%	Tatla Lake
27. Ha of non-recoverable losses due to wind and fire.	??	Tatla Lake
28. Percent of rare or endangered species and communities.	??	Tatla Lake
29. Sediment output from road crossings.	??	Tatla Lake
30. Number of harvesting related fires per year.	Zero	TFL 47 QCI
31. Percent of harvest area in permanent structures.	<7%	TFL 47 QCI
32. Number of industrial caused fires.	Zero	TFL 6 WFP
33. Annual number of petroleum product spills to water.	Zero	TFL 6 WFP

Indicator	Target / Objective	SFMP
34. Total area of clearcuts by size category	??	Wey. OK Falls
35. Number of harvesting incidents in rare ecosystems.	Zero	Wey. OK Falls
36. Annual percentage of opening areas in permanent access structures.	<6%	Wey. OK Falls
37. Annual harvest area as a percent of DFA	Report trend	Wey. OK Falls
38. Number of landslides caused by forest management activities.	Zero	Wey OK Falls
39. Number of Code contraventions respecting road, water and soil management	Zero	Wey OK Falls
40. Percent of annual harvest in permanent access structures (roads and landings)	< 7%	Fraser TSA
41. Number of rare physical environments impacted by harvesting.	Zero	Fraser TSA
42. Number of ha of induced landslides directly attributable to forest development.	Zero	Fraser TSA
43. Number of reports on roads under permit which indicate an impact has occurred on water quality or quantity.	Zero	Fraser TSA

State Indicators

Indicator	Target / Objective	SFMP
1. Number of Large Live Trees/ha by LU by BEC by licensee	TBD	Morice
2. Percent riparian management area where tree height is less than 3 m by LU by silviculture system by licensee	TBD	Morice
3. Percent of THLB and non-contributing land base in high and extreme beetle hazard condition, by licensee	TBD	Morice
4. Percent area retained in WTPs by LU by BEC by licensee	TBD	Morice
5. Percent forest in each patch type by patch size class by LU by NDT by licensee	per Biodiversity Guidebook	Morice
6. Percent seral stage distribution on non-timber tenures (trapping, guide-outfitting, range) by forest licensee	per Biodiversity Guidebook	Morice
7. Percent seral stage distribution by FEN class by licensee	TBD	Morice
8. Percent seral stage distribution by ecosystem and wildlife value class by licensee	TBD	Morice
9. Percent seral stage distribution by LU by NDT by BEC by licensee	TBD	Morice
10. Percent tree species composition by BEC by licensee	TBD	Morice
11. Percent tree species composition by draft FEN class by licensee	TBD	Morice
12. Percent tree species composition by age class within existing and potential range areas by LU by licensee	TBD	Morice
13. Percent total area by ecosystem and wildlife value class by LU by licensee	TBD	Morice
14. Area of interior forest by LU by BEC by licensee	TBD	Morice
15. Area of shrub by type by LU by BEC by licensee	TBD	Morice
16. Connectivity and fragmentation indices by LU by licensee	TBD	Morice
17. Mean annual increment (m3/ha/yr) by BEC by licensee	TBD	Morice
18. Volume of CWD by diameter class by LU by BEC by licensee	TBD	Morice
19. Number of snags per ha by LU by BEC by licensee	TBD	Morice
20. Percent of landscape in seral stage classes	Same as KBLUP	Kalso CFS
21. Peak Flow Index (based on total watershed area disturbed and ECA values)	Maintain watershed thresholds	Fort St. John DFA
22. Percent and distribution of forest types by site series.	??	Issaak
23. Percent and distribution of forest types by seral stage.	??	Issaak
24. Percent and distribution of forest types by distribution type.	??	Issaak
25. Stocks of non-timber forest products by type.	??	Issaak

26. Ecologically distinct habitat types are represented in an unmanaged state to sustain lesser known species and ecological function.	TBD	Pope and Talbot
27. The amount, distribution and heterogeneity of habitat elements and landscape structure important to sustain biological richness are maintained.	TBD	Pope and Talbot
28. Productive populations of selected species or species guilds are well distributed throughout the range of their habitat.	TBD	Pope and Talbot
29. Areas disturbed in the THLB show no net detrimental loss in productivity	TBD	Pope and Talbot
30. Adequate regeneration on the THLB is assured.	TBD	Pope and Talbot
31. Soil productivity is sustained within the THLB	TBD	Pope and Talbot
32. Soil resources associated with resiliency of site productivity are maintained.	TBD	Pope and Talbot
33. No net detrimental loss in productivity as a result of forestry-related slop instability.	TBD	Pope and Talbot
34. The total forest area and area of waterbodies are sustained.	TBD	Pope and Talbot
35. Water quality in monitored watersheds does not fall outside the range of natural variability with respect to Drinking Water Guidelines.	Drinking Water Guidelines	Pope and Talbot
36. Area of old growth by NDT	TBD	PG TSA
37. Percent of reforested areas meeting free to grow standards.	100%	PG TSA
38. Area of WTPs in gross cutblock areas.	10% of cutblocks	PG TSA
39. Ecologically distinct habitat types (site series) are represented in unmanaged state.	TBD	Arrow TSA & TFL 3
40. Amount, distribution, heterogeneity of terrestrial and aquatic habitat types are maintained across the landscape and through time. (dead and dying trees, CWD, riparian, hardwoods, shrubs)	TBD	Arrow TSA & TFL 3
41. Populations of selected species / guilds are well-distributed throughout the range of their habitat in TSA (various species are named as indicator species)	TBD	Arrow TSA & TFL 3
42. Soil productivity site index does not decrease significantly below the expected range by BEC site series and species.	TBD	Arrow TSA & TFL 3
43. MAI does not significantly decrease below expected range for specific site series and distribution types.	TBD	Arrow TSA & TFL 3
44. Soil organic matter pools do not decline below thresholds established for specific site types.	TBD	Arrow TSA & TFL 3
45. Site Nitrogen capital does not decline below established thresholds for site types.	TBD	Arrow TSA & TFL 3
46. M3 / ha of CWD accumulation	TBD	Arrow TSA & TFL 3
47. Soil bulk density following site preparation.	TBD	Arrow TSA & TFL 3
48. Percent of culverts in various condition classes	TBD	Arrow TSA & TFL 3
49. Seral stage distribution	TBD	Arrow TSA & TFL 3
50. Biological regeneration delay.	TBD	Arrow TSA & TFL 3
51. Area of wetland	TBD	Arrow TSA & TFL 3
52. Turbidity, true colour and water temperature, relative to natural variability.	TBD	Arrow TSA & TFL 3
53. Frequency of exceedences of Canadian water quality guidelines	TBD	Arrow TSA &

in community and domestic water supplies.		TFL 3
54. Stream flow relative to natural ranges in variability.	TBD	Arrow TSA & TFL 3
55. Percent old growth cover by LU and BEC variant.	Vary by BEC	Mission TFL
56. Percent wildlife tree retention by LU and BEC variant.	Vary by BEC	Mission TFL
57. Water quality trends (in 2 watersheds)	Maintain or increase	Mission TFL
58. Percent of cutblocks successfully regenerated within regeneration window specified in SPs.	100% compliance with SPs	Mission TFL
59. Percent of cutblocks meeting free growing within free growing window specified in SPs	100% compliance with SPs	Mission TFL
60. Percent of areas not meeting site degradation specifications that are specified in SPs	100% compliance with SPs	Mission TFL
61. Seral stage distribution	TBD	Strathcona TSA
62. Patch size distribution.	TBD	Strathcona TSA
63. Amount of old seral forest in OGMAs and no harvest zones.	??	Tatla Lake
64. Patch size distribution.	per Biodiversity Guidebook'	Tatla Lake
65. Maintenance of plant species within their range of variability.	??	Tatla Lake
66. Percent of area meeting regeneration delay and free growing standards in SPs.	??	Tatla Lake
67. WTP retention	per Biodiversity Guidebook	Tatla Lake
68. WTPs that meet internal policies for retention levels by LU	100%	TFL 47 QCI
69. Percent compliance with internal cedar / cypress commitments at free growing.	100%	TFL 47 QCI
70. Seral stage distribution	??	TFL 6 WFP
71. Patch size distribution	??	TFL 6 WFP
72. Average percent of cutblocks maintained in stand level retention	10% of harvested area	TFL 6 WFP
73. Percent of known species classed as threatened or endangered.	No increase	TFL 6 WFP
74. Average annual percent of DFP in permanent access structures.	6%	TFL 6 WFP
75. Unharvested area of riparian management areas.	??	TFL 6 WFP
76. Age class distribution.	??	Wey. OK Falls
77. Percent of harvested units with Wildlife Tree retention.	100%	Wey OK Falls
78. Percent of ground-based harvested cutblocks >20 ha that contain an average of 2-5 stubs or standing trees / ha	10%	Wey OK Falls
79. Percent of cutblocks having 3 or more tree species in the free growing inventory.	70%	Wey OK Falls
80. Percent of naturally regenerated cutblocks not meeting natural regeneration delay.	Zero	Wey OK Falls
81. Percent of cutblocks that reach free to grow on or before latest date (in SP?)	100%	Wey OK Falls
82. Annual percent of openings harvested where soil disturbance exceeds levels specified in SPs.	Zero	Wey OK Falls
83. Percent of cutblocks where a portion of fine organic material has been retained.	75%	Wey OK Falls
84. Percent cover old growth by LU and BEC variant.	Achieve targets in LU plans	Fraser TSA
85. Seral stage representation by LU and BEC variant.	Achieve targets in LU plans	Fraser TSA

86. Percent of cutblocks that achieve free growing status.	90%	Fraser TSA
87. Percent of cutblocks at or below soil disturbance specs identified in SPs or site plans.	100%	Fraser TSA
88. Average MAI of second growth forest of THLB	Maintain or increase	Fraser TSA
89. Percent of cutblocks retaining appropriate levels of CWD as defined in site plans.	100%	Fraser TSA

Response Indicators

Indicator	Target / Objective	SFMP
1. Area of silviculture treatments (brushing, fertilization, thinning, etc.) by	??	Morice
2. Number of continual improvement-related projects in the DFA by licensee (research, inventories, adaptive mgn't projects)	> 1 per yr.	Morice
3. Number of corrective actions completed to mitigate sediment occurrences by licensee	100% of corrective action plans completed	Morice
4. Percent of cutblocks meeting "net area to be reforested" objectives by licensee	100% of cutblocks to meet objectives	Morice
5. Percent of detected beetle infested trees removed / destroyed within one year of detection by beetle type by licensee	TBD	Morice
6. Ratio of net area to be reforested to net area harvested by licensee	1:1	Morice
7. Designation of habitat areas that are protected from harvesting	Yes / No	Kaslo CFS
8. Ecosystem restoration applied in identified high risk (fire suppressed) stands.	Yes / No	Kaslo CFS
9. Stand density and fuel loading in buffer zone is reduced.	Yes / No	Kalso CFS
10. Natural Fire events are mimicked through controlled burning and under-story thinning.	Yes / No	Kaslo, CFS
11. Number km / yr of road that is 'de-built'.	TBD	Kaslo, CFS
12. Percent of cutblocks harvested using alternative silviculture systems.	Minimum of 25%	QCI TSA
13. Percent compliance with QCI Forest District minimum cedar stocking standards	100%	QCI TSA
14. Percent of regenerated cutblocks in compliance with provincial seed transfer guidelines.	100%	QCI TSA
15. Percent of high risk windthrow areas treated with windthrow management strategies.	100%	QCI TSA
16. Amount of financial or in-kind support for forest-based R&D to promote sustainable forestry practices.	\$100,000 per yr.	QCI TSA
17. Percent of areas harvested that are successfully reforested within the regeneration window.	100%	QCI TSA
18. Ha of riparian restoration.	20 ha / yr. min. (3 yr average)	QCI TSA
19. Km of road rehabilitated.	100 km / yr. min.	QCI TSA
20. Percent of cutblocks managed for identified wildlife and plant species.	100% compliance with ID wildlife mg't strategies in WHAs	QCI TSA
21. Area within DFA managed for significant geological sites.	100% of identified sites are managed.	QCI TSA
22. Percent of cutblocks managed consistently with community watershed assessment procedures.	100%	QCI TSA
23. Percent of permanent access structures in harvest areas.	7%	QCI TSA
24. Percent of FDPs that contain patch size distribution blocks.	100%	PG TSA
25. Percent of silviculture prescriptions and silviculture treatment regimes that will allow the growth of ecologically suitable species.	100%	PG TSA

26.	Area composed of community's identified in the LRMP, D-fir, deciduous and cedar-hemlock.	TBD	PG TSA
27.	Percent of FDPs that contain old growth strategies.	100%	PG TSA
28.	Number of planning sub-groups formed.	1 by July 31/03	PG TSA
29.	Completion of VRI	by Mar 31/05	PG TSA
30.	Completion of PEM.	by Mar 31/03	PG TSA
31.	Number of FDPs containing commitments to stand level reserves.	100%	PG TSA
32.	Number of planned cutblock boundaries adjacent to protected areas that do not cross into protected areas.	100%	PG TSA
33.	Number of projects undertaken on special biological significance.	1 project on rare ecosystems by Mar 31/03.	PG TSA
34.	Number of management strategies	Form sub-group by Dec.31/04	PG TSA
35.	Number of projects undertaken on ecosystem resilience.	Project complete by Mar 31/05	PG TSA
36.	Number of sites that meet lat free growing date.	100%	PG TSA
37.	Completion of a silviculture strategic plan.	by Mar. 31/04	PG TSA
38.	Completion of growth and yield strategic and implementation plans.	by Mar. 31/03	PG TSA
39.	Number of projects on productivity estimates for natural stands.	Plot site indices project complete by Mar 31/05	PG TSA
40.	Number of projects monitoring water flow regimes.	Project complete by Mar. 31/05	PG TSA
41.	Percent of stream crossings that meet a stream crossing quality index.	100%	PG TSA
42.	Percent of SPs that have a strategy for addressing riparian management areas.	100%	PG TSA
43.	Completion of watershed integrity and resource protection strategy.	by Mar. 31/03	PG TSA
44.	Completion of TSR process.	every 5 yrs.	PG TSA
45.	Completion of beetle detection and harvesting program.	Annually	PG TSA
46.	Percent of harvested sites reforested within regeneration delay period.	100%	PG TSA
47.	Number of FDPs that identify timber recovery strategies for forest health factors.	100%	PG TSA
48.	Implementation of harvest strategies that deal with forest health or fires.	100%	PG TSA
49.	Number of FDPs that deal with access barriers.	100%	PG TSA
50.	Percent of FDPs that commit to managing according to existing access management plans.	100%	PG TSA
51.	Area successfully regenerated to target species composition levels.	TBD	Arrow TSA & TFL 3
52.	Extent of use of site preparation / fertilization regimes to increase site productivity.	TBD	Arrow TSA & TFL 3
53.	Area of TFL mapped for TEM.	TFL complete by Mar. 31/03	Mission TFL
54.	Percent of MOF registered or genetically superior seed used.	100% MOF registered seed; 90% Class A seed	Mission TFL
55.	Prevention, detection and treatment of forest health threats.	Timely treatment	Mission TFL
56.	Percent of operational plans that are consistent with terrain stability assessments	100%	Mission TFL
57.	Percent of riparian cutblocks meeting regulatory requirements.	100%	Mission TFL
58.	Establishment of OGMAs.	TBD	Strathcona

		TSA
59. Percent of DFA reserved for conservation purposes.	TBD	Strathcona TSA
60. Extent of maintenance of ecological inventories.	TBD	Strathcona TSA
61. Percent of required riparian reserve zones that are established.	TBD	Strathcona TSA
62. Length of road de-activated.	TBD	Strathcona TSA
63. Completion of a 'biodiversity reserve tracking table'.	Yes / No	Tatla Lake
64. Number of cutblocks / yr where CWD strategies were followed.	??	Tatla Lake
65. Extent to which FPC Riparian Area Management Guidebook practices are followed.	??	Tatla Lake
66. Area harvested annually that complies with CCLUP Caribou strategy and regional Mule Deer Winter Range strategy.	??	Tatla Lake
67. Percent of area annually that is regenerated naturally vs. planted.	??	Tatla Lake
68. Number of ha salvaged from severe pest outbreaks.	??	Tatla Lake
69. Percent of cutblocks in compliance with disease control measures as stated in SPs.	??	Tatla Lake
70. Percent of SPs and road designs that are consistent with terrain stability assessments.	??	Tatla Lake
71. Annual km of roads maintained.	??	Tatla Lake
72. Annual km of roads deactivated.	??	Tatla Lake
73. Annual number of stream crossings installed, inspected, monitored and maintained.	??	Tatla Lake
74. Percent of cutblocks using alternative silviculture systems	>30%	TFL 47 QCI
75. Financial or in-kind support for forest-based R&D to promote sustainable forestry practices.	>\$10,000 per yr.	TFL 47 QCI
76. Percent of regenerated cutblocks in compliance with provincial seed transfer guidelines.	100%	TFL 47 QCI
77. Percent of areas harvested successfully reforested within regeneration window.	100%	TFL 47 QCI
78. Km of riparian restoration.	>2km / yr.	TFL 47 QCI
79. Km of road rehabilitation.	> 4 km / yr	TFL 47 QCI
80. Percent of cutblocks that are managed for identified wildlife and plant species.	100%	TFL 47 QCI
81. Area within DFA managed for significant geological sites.	100% of identified sites.	TFL 47 QCI
82. Area within DFA managed for archaeological sites.	100% compliance with Heritage Conservation Act	TFL 47 QCI
83. Percent of cutblocks managed consistent with CWAP recommendations.	100%	TFL 47 QCI
84. Ha of reserves created (by classification vs. ha logged.	10%	TFL 6 WFP
85. Total number trees planted by species.	??	TFL 6 WFP
86. Number of ha in natural regeneration.	150 ha / yr.	TFL 6 WFP
87. Percent of net area to be restocked that meets free to grow commitments.	100%	TFL 6 WFP
88. Percent of weevil resistant spruce vs. total spruce planted in high hazard weevil areas.	10,000 seedlings / yr.	TFL 6 WFP
89. Average time taken to control accidental and industrial fires.	< 48 hrs.	TFL 6 WFP
90. Percent of high windfall risk edges treated.	100%	TFL 6 WFP
91. Average time to reforestation.	3.5 yrs.	TFL 6 WFP
92. Km of road permanently de-built.	??	TFL 6 WFP
93. Km of fish habitat created or restored.	??	TFL 6 WFP
94. Ha of riparian restoration.	15 ha	TFL 6 WFP

95. Conformance with seed transfer guidelines.	100%	TFL 6 WFP
96. Level of compliance with silviculture prescriptions.	100%	TFL 6 WFP
97. Percent of seed orchard seedlings planted.	70%	TFL 6 WFP
98. Number of ha fertilized at time of planting (cedar / salal sites)	100%	TFL 6 WFP
99. Percent of compliance with operational plans.	Zero penalties.	TFL 6 WFP
100. Percent compliance with terrain stability field assessments.	Zero penalties.	TFL 6 WFP
101. Km of roadside re-vegetated vs. km of roads built.	75%	TFL 6 WFP
102. Percent of landslides seeded or planted within 2 yrs.	95%	TFL 6 WFP
103. Percent of cutblocks that meet operational planning requirements for CWD.	Zero penalties	TFL 6 WFP
104. Percent conformance with coastal watershed assessment procedures.	100%	TFL 6 WFP
105. Percent of harvested areas and roads that meet riparian area regulatory requirements.	100%	TFL 6 WFP
106. Percent compliance with Fisheries Act authorizations.	Zero penalties	TFL 6 WFP
107. Dollars spent on watershed restoration.	\$1 million / yr.	TFL 6 WFP
108. Percent conformance with karst management prescriptions.	100%	TFL 6 WFP
109. Percent of staff and contractors trained in internal spill response.	100%	TFL 6 WFP
110. Number of ha broadcast fertilized.	500 ha over 5 yrs.	TFL 6 WFP
111. Number of fry released annually.	1 million	TFL 6 WFP
112. Establishment of old growth targets for DFA	Yes / No	Wey OK Falls
113. Percent compliance with IWMS and LRMP strategies for rare species.	100%	Wey OK Falls
114. Percent of cutblocks that are consistent with regional CWD policy and FDP strategies.	100%	Wey OK Falls
115. Percent of cutblocks regenerated in accordance with seed transfer guidelines.	100%	Wey OK Falls
116. Percent of right-of-ways re-vegetated with seed that is 'graded acceptable'.	100%	Wey OK Falls
117. Silviculture systems that are applied, by area.	Track trends	Wey OK Falls
118. Percent of harvest priorities related to forest health that are completed by target date.	100%	Wey Ok Falls
119. Percent of cutblocks planned for planting that are completed within 2 growing seasons.	70%	Wey OK Falls
120. Percent of access management commitments in FDPs that are met.	100%	Wey OK Falls
121. Percent of cutblocks where mechanical or chemical brushing treatments are applied to achieve free to grow.	Track trends	Wey OK Falls
122. Percent of incidents of non-compliance with government direction on recovery plans for regionally significant species.	Zero	Wey OK Falls
123. Percent of permanent roads that have risk inspections completed.	100%	Wey OK Falls
124. Percent of temporary RDS that are inspected annually until rehabilitation is completed.	100%	Wey OK Falls
125. Percent of employees and contractors trained in spill preparedness and response.	100%	Wey OK Falls
126. Percent of spills that comply with BC Environment reporting guidelines.	100%	Wey OK Falls
127. Annual dollars accrued to reforestation.	??	Wey OK Falls
128. Percent of cutblocks that require debris accumulation to meet reforestation objectives.	100%	Wey OK Falls
129. Amount of time between road cut and revegetation.	1 month	Wey OK Falls
130. Percent of cutblocks where stand level retention and/or CWD has been addressed.	90%	Fraser TSA
131. Percent of operational plans compatible with strategic plans for Identified Wildlife management areas and UWR.	100%	Fraser TSA
132. Percent of cutblocks reforested with more than one tree species ecologically suited to the site.	100%	Fraser TSA

133. Percent of harvested areas adjacent to streams, lakes, wetlands that have riparian management areas that protect aquatic habitat.	100%	Fraser TSA
134. Percent of MOF registered seed that is used.	100%	Fraser TSA
135. Percent of cutblocks in compliance with forest health controls identified in operational plans.	100%	Fraser TSA
136. Time to control an accidental industrial or recreational fire.	by 10 am the day after fire started	Fraser TSA
137. Percent of cutblocks successfully regenerated with ecologically suited species.	95%	Fraser TSA
138. Amount of time for seeding of exposed soils in road cuts and fill slopes, borrow puts, spoil sites and deactivated roads.	During first growing season	Fraser TSA
139. Amount of time for revegetation of roadside cut and fill slopes, spoil sites and road deactivation.	Within 2 yrs of construction	Fraser TSA
140. Percent of operational plans that follow recommendations in coastal watershed assessments.	100%	Fraser TSA