Application of RIC Standards in Fish and Habitat Surveys Conducted by the Forest Industry in Coastal BC

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Abstract

To assess the current application of RIC standards by the forest industry in coastal BC, in the collection of fish and habitat data, a questionnaire survey was sent to companies, consultants, and Ministry of Forests Small Business Program personnel. Prior to sending a questionnaire, a telephone interview was made to explain the scope of the project, and ensure that the appropriate person received the questionnaire. A response rate of 84% occurred from 25 questionnaires sent out. The objective of the survey was to determine to what extent fisheries surveys are being done, and for what purposes, to find how the data are collected and whether RIC standards are followed, and to determine the fate of project reports and data.

The majority of information that is being collected is related to the requirements of the Forest Practices Code for stream classification, surveyed at a scale of 1:5,000. The amount of 1:20,000 watershed inventory work appears to be minor, and occurs only when funded by FRBC. The majority of FPC data is collected by forest company personnel, with consultants used in sensitive or difficult sites that would impact a harvesting plan.

RIC standards are not currently being applied in the collection of FPC data, with the exception of 1 consultant. Both consultants and companies have all developed their own format to classify streams which serves their purposes. Data is stored in company offices, and usually forwarded to the Ministry of Forests as part of the harvesting plan. Some companies send information to MELP or DFO, but most keep it on file and available in the event of requests for information. Where fish sampling permits are required, the data is sent to MELP as part of the permit requirement. RIC standards are being followed for 1:20,000 inventory, as required by FRBC, and the data forwarded to MELP.

The respondents felt that the RIC data forms were too complex for the type of information required to classify streams under the FPC, and would adversely affect time and costs. A number of consultants choose not to use the RIC forms as they felt that they were unsuited to data collection for FPC work. In their present form, RIC data forms are not likely to be accepted for FPC work. Relatively little knowledge of programs such as FDW was apparent, although this data source could be useful in developing harvesting plans. Suggestions for utilizing the data that has been collected by the coastal forest industry are made.

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1.0 Introduction

The provincial Resources Inventory Committee (RIC) has developed standards for use in fisheries inventories. The use of the standards has been primarily in the delivery of watershed based *Reconnaissance (1:20,000) Fish and Fish Habitat Inventory* projects funded by Forest Renewal BC. The standards include field data forms and an electronic database for steam site description, fish sampling data and lake surveys. By providing a standardized approach to data collection, the RIC standards allow data to be entered into the provincial Fisheries Data Warehouse (FDW), and summarized data can be entered into the Fisheries Information Summary System (FISS). Both of these data storage systems facilitate accessibility to a broad range of users and application of the data for a variety of uses. The uses to which the entered fisheries data may be applied include long term and strategic forest harvesting plans. Currently, certification is being carried out within the forest industry, and data from fish and fish habitat surveys is a component in confirming that forest practices are managed in an environmentally sound and sustainable manner.

Under the Forest Practices Code (FPC), forest companies collect fish and habitat data to classify a stream, so that the appropriate riparian management can be applied. While not mandatory, the Fish Stream Identification Guidebook recommends that data for FPC surveys are recorded on RIC standard data forms, and that this information is provided to the province for entry into FDW and FISS. Without application of a standard method of data collection, and a commitment to providing the information to the province for storage and distribution, valuable information may be underutilized or lost.

At the present time, application of RIC standards to fisheries data collection appear to be quite widespread in the interior of BC, but to a significantly lesser degree on the coast. Consequently, a survey was carried out for coastal BC to address the following:

- To what extent are fisheries surveys being done, and for what purposes?
- How the data are being collected? Are RIC standards being followed?
- What becomes of the project reports and the data? Are the data being sent to the province for entry into FISS and FDW?

It was also desired to find whether the RIC data forms meet the users requirements, and whether improvements may be made to encourage a wider use of the RIC standards and linkages to the provincial database of fish and fish habitat data.

The survey was carried out by means of a brief questionnaire, an example of which is attached, that was sent out following a telephone interview describing the project.

2.0 Methods

The questionnaire was sent out to a selected group of forest companies operating on the coast, to biological consultants carrying out fisheries work in this region, and to the small business program (SBFEP) of four Ministry of Forests District offices.

Of the eight forest companies contacted, five would be considered major, one is a mid-sized company, and two are smaller companies. These companies represent widespread coastal operations, extending from the Queen Charlotte Islands, the north coast, mid coast, south coast mainland and islands, and throughout Vancouver Island.

Nine consulting firms were contacted, one of which works in the north and mid coast, with the remainder working mainly from the mid coast southwards, including Vancouver Island.

3.0 Results

3.1 Response Rate

Returns from the questionnaire were good, at 84%. The following table identifies the number of contacts made within each of the 3 sources of data; forest companies, consultants and the MOF.

Source	# of contacts	# of referrals to others	# of questionnaires sent out	# of "no replies"	# of responses
Forest Companies	24	12	12	1	11
Consultants	9	0	9	1	8
MOF	4	0	4	2	2
Totals	**37**	**12**	**25**	**4**	**21**

The number of referrals identifies the number of the initial contacts where their response was directed to another individual within their company, or to a consultant. Within the larger companies, the operations are broken into Divisions responsible for harvest planning, including data collection, within a particular area. Consequently where a number of logging Divisions occur within one company, each was contacted. However, in one case, all enquiries (five) lead to one individual responsible for data gathering through the whole company. In another company, four out of seven enquiries were directed to a single individual. One forest company referred the majority of its work to consultants. Eight of the nine consultants contacted responded to the questionnaire. All of the consultants appear to do work for more than one forest company.

The result was that of 37 contacts, 25 questionnaires were actually sent out, of which there were four "no replies," and 21 responses which are discussed in detail below.

Forest company and MOF contacts were typically forest engineers, responsible for block layout, including stream classification. The training and experience of the consultants is unknown, but the majority have been active in stream class identification for more than five years, and some have been involved in fisheries studies for much longer.

3.2 Summary of Responses by Each Question

The responses to each of the questions are discussed below, with specific reference to whether a company or a consultant was the source of the comment.

1. *Is fish or fish habitat information collected for your company? If so, is it solely for FPC stream classification, or for broader watershed planning, preparing net downs and operability, certification, or other purposes? Please specify.*

All of the forest companies reported that they collected fish or fish habitat information to deal with the Forest Practices Code (FPC) requirements for stream classification. However, stream data is also used in preparing management plans, operability plans and preparing net downs. One company uses the data for certification on private lands, and also for identification of

potential stream enhancement projects. The MOF small business engineers have similar needs, where the main requirement for fish data is to satisfy FPC requirements.

Consultants are hired by forestry operations to carry out 1:20,000 reconnaissance level inventories where FRBC funding is contributed. However, most of the consultants also carry out a variable amount of FPC stream classification for forest companies.

2. *Do you carry out reconnaissance watershed inventories, or is the data gathered at the cutblock level, or at some level in between? How many surveys per year?*

All forest companies collect data for FPC classification at a cutblock level, at an operational scale of 1:5,000. Only a few companies collected watershed level inventory data (at 1:20,000 scale), and then only occasionally and with FRBC funding in place. However, it was pointed out that in many operations, large inventories of watersheds have been carried out in the past (10 to 25 years ago), predating current inventory requirements, and reducing the companies need for this scale of information.

The number of cutblocks surveyed varies with the size of the company. In the sample for this questionnaire, surveys ranged from 20 to 80 blocks per year for a company division or a smaller company, to 500–600 blocks for the entire operation of a major company. The MOF small business programs usually survey 10–12 blocks in their districts per year. One company reported that they were classifying over a thousand kilometers of stream at a 1:20,000 scale as part of their strategic planning.

Some of the consultants primarily carry out 1:20,000 inventories, with some FPC classification. Other contractors are employed mainly to carry out FPC classification for specific companies. Several of the contractors noted that the amount of FPC related work has fallen in the last few years, due to increased activity by forest company personnel in this field, an increased number of local contractors, located more conveniently to a companies operations. The largest consulting company contacted carries out 5–20 1:20,000 surveys a year, and about 175 FPC classification surveys.

3. *Who collects fish inventory or stream classification data in your operation, company personnel or contractors?*

The bulk of FPC information in forest companies is generally collected by company personnel, usually forest engineers, except in the relatively few instances when a fisheries contractor had been hired to do the majority of the operating area, or deal with a specific problem area. Using the FPC guidebook, the forest engineers generally gather only physical data (stream width and gradient) for the purposes of classification, usually with some knowledge of potential fish barriers in the drainage. Company personnel do not usually sample for fish, but a few reported use of minnow traps. In general, the classification data collected by company personnel deals with obvious non-fish or fish waters. In questionable cases, where fish use may occur, consultants may be brought in, or the classification is defaulted to a fish bearing category. One company reports that they have a sign off procedure involving the engineer responsible for the area, the prescribing forester, and two professional reviewers who ensure that the fish stream identification requirements are followed.

Consultants usually gather their own data, with assistance from their own employees, or from forest company personnel.

4. *How are survey results presented – report, maps, electronic data file, other?*

Within the forest companies, FPC data is presented as a hard copy report and on 1:5,000 scale maps, and increasingly, on an electronic data base, linked to GIS. One company reported using a spread sheet summary for each cutblock with maps, and one company respondent also puts the information onto a Fish Inventory map for their division. It appears to be a common practice to have a cutblock file in which silvicultural prescriptions, logging plan, etc., as well as non-timber resource information such as fisheries reports are kept, or cross-referenced to other files.

Consultants prepare reports following RIC standards for all 1:20,000 surveys. Usually, for FPC classification, they write a report with a map of classified streams appended.

5. *Are survey results sent to the MELP regional offices, another agency, or kept in-house?*

Nearly all of the forest companies keep the FPC stream classification information in house. One company sends a copy of results to DFO, but the data is also available to MOF and MELP on request. In general, unless specifically requested, MELP has not been given 1:5,000 maps. In large companies, hard copy reports of all the blocks surveyed was felt to be too unwieldy to send out to the agencies. In the MOF small business program, one district keeps all its data on file in-house. The MOF should receive copies of all the blocks engineered by the companies, showing stream classifications as part of the silvicultural prescription. Where sampling permits have been required, the data is returned to MELP as a condition of the permit.

For FPC work by consultants, the report often just goes to the client. If sampling permits have been required, at least a map, and often a report on the classification of streams within the sampling area are sent to MELP. Two contractors included the regional DFO office for receipt of reports. FPC information is usually sent out at the end of the calendar year to the agencies, as per the sampling permit requirements.

All of the contractors preparing RIC 1:20,000 reports send them to clients and MELP.

6. *Is survey information recorded using the recommended RIC cards for field data collection (as per p. 67 of the* Fish Stream Identification Guidebook*), your own format, or other? Do you collect information that is not on the RIC cards?*

Without exception, where stream data was gathered by forest company engineers, RIC cards were not used. Each company has developed its own format relevant to data collection for stream classification, often suited to complement the traverse notes. One company operation has used its own cards for about 10 years, and several reported that their forms include many of the RIC card data fields and are satisfied in using them rather than the RIC cards.

When contractors are hired by companies to carry out stream classification, they frequently use data cards that they have developed themselves. Two companies reported using RIC data cards for FPC classification, one of which noted that the data is transferred to a much simpler summary form before data entry. Where their own formats were used, the consultants felt that they were collecting much of the information presented on the RIC cards. Several respondents noted that they felt the RIC cards did not serve well for FPC work, and that their own formats allowed them to more effectively collect the pertinent information for their clients. One consultant noted that while he had not used RIC cards for FPC work in the past, he probably would do so now.

For watershed inventories, all of the consultants reported using the RIC cards, as required for FRBC work. One consultant noted that it was a requirement to pass quality assurance. Several contractors noted that RIC cards are supplemented with field notes, and one consultant has developed a supplemental form that adds to the information collected relevant to defining the end of fish use. However, this was unusual. One respondent noted that the RIC cards seemed to cover "every eventuality known to man," and the majority of contractors would probably not collect information that is not already on RIC cards.

7. *If the RIC cards are used, do you use all of the fields or just some of them? Are they attached to a report? If not, where are they kept? Are they hard copy or electronic?*

If RIC inventory work is being carried out, the contractors reported that all of the fields that are mandatory are filled in. The RIC forms appear to be generally appended to the reports.

Where RIC cards are used by consultants for FPC work, which appears to be seldom, usually only those fields pertinent to the classification of the stream are used. For instance, watershed codes and detailed map references are usually not filled in, with a stream identification pertinent to the particular cutblock used instead. Data cards, whether RIC or their own are usually kept on file in hard copy, as transferring them to electronic file would be an added cost.

8. *If RIC cards are not used, or only a portion filled in, briefly give the reasons why. If possible, please send a copy of the data collection format that is used.*

The main reason that RIC cards are not used for FPC data collection, by either company personnel or most of the consultants contacted, is that most of the data fields are irrelevant to the immediate task of classifying a stream. Under the FPC guidelines, basically all the data that is required is gradient, stream width, and fish presence or absence. To collect all of the information on the RIC cards would increase the amount of time, equipment, and in the case of forest company personnel, training, required for a job they are already carrying out.

The use of RIC standards by consultants, for work other than RIC inventories, also appears to be minimal, for a similar reason—costs to the client. One of the main reasons for choosing not to use the RIC cards in coastal cutblocks is that it is not uncommon to find a large number of very small streams (often non-classified drainages), which makes filling out all the fields repetitive, time consuming, and adds unnecessary duplication of data.

Some further points identified as reasons to use their own formats for FPC work relate to sampling design issues, including:

- the RIC cards do not deal sufficiently with the issue of "end of fish use," and the reason for the end of use.
- the process of random spot sampling is not sufficient for FPC work.
- total capture of fish over 100 m is unnecessary, and was considered invasive by at least one contractor.
- the use of percentages was considered arbitrary, and data collection was inconsistent between workers.

9. *Do you have any suggestions for improving the RIC standards that will encourage wider acceptance and use, to improve the availability and accessibility of fisheries information?*

There was relatively little comment from forest companies regarding wider use of the RIC standards other than if the cards were expected to be used, they would have to be simplified and easier to use. Enlargement on this theme by one company respondent was that while they recognized that the information on the cards would be of use to others, a reduction of the amount of information required to be collected would be required to encourage their use by industry This is not to surprising in that nearly all of their years work is dealing with stream classification under the FPC, for which their own formats appear to be quite adequate. Use of the RIC standards would result in higher costs, with no direct benefit from the companies' viewpoint.

Another company replied that there is a major difference in what the RIC standards were designed for and the realities of their own needs under the FPC. In this company's case a large number of blocks were examined every year (500+), of which about 75% had only small non-fish streams, most of which are not on TRIM maps. They felt that the RIC standards are not suitable for doing a fish presence/absence type of inventory on such small, and often numerous drainages within small cutblocks.

Another comment was that the watershed code system was too unwieldy. The forest engineers know where they are, and application for an unclassified stream number can take a long time to be received.

One company respondent thought that minor changes to the RIC standards won't make the use of the data cards more widespread, and it would be better to have a new approach. For another company, the contacted person deals with watershed planning rather than the actual collection of data, and the potential usefulness of the FDW in public presentations and preparation of the forest development plan was viewed enthusiastically. He doubted whether many industry people knew of this data source, or the method of accessing it. For his companies use, the ability to pull up information within their TFL, on a watershed, and sub-basin basis would be of the most benefit, as well as a means of identifying the "strength" of the data in their management area—whether there was a lot of data, only a little, or point source information.

A broad range of comments was submitted by consultants. One consultant felt that as much of the FPC information did not meet RIC standards, stream classification may often be suspect. A consistent, standard of reporting was generally recognized as desirable, but there were a number of problems relevant to the application of RIC standards, as follows:

Reconnaissance Inventory

- Costs of carrying out fish inventories under the current standards were cited as excessive, with high costs for even small landscape units. The costs for carrying out the required level of detail in the field are high, but more significantly is the increased volume of data to be managed in the office, which was estimated by one consultant to be as much as 75% of the total project cost. In general there was a fairly unanimous cry to make the whole process simpler, and less expensive.

Stream Classification for FPC

- Much of the data on the RIC card is additional to the needs for FPC work. This entails a higher cost to the client, most of whom do not see it serving their needs or interests at present.
- There seems to be a number of specific reasons why RIC standards have not been applied to FPC work, other than that they have not been mandatory. In coastal drainages, with cutblocks less than 40 ha., it is common to find a large number of non-fish streams (S6). Several people cited blocks they had surveyed in which they found 25–30 streams less than 1 m wide.
- One respondent felt that it would be difficult to encourage wider use of RIC standards because it requires extra work that does not provide immediate benefit. Also, when the potential value of the data is realized, companies are reluctant to spend the money to collate the information, add missing fields (e.g., watershed codes, UTMs etc.) and generally bring the information up to a standard that could be used in the FDW. However, making this type of work eligible for FRBC funding by calling it a backlog inventory, without a commitment to further inventory, may be an encouragement.

There were also a number of specific sampling design issues that made FPC work difficult to meld with RIC standards.

- It was felt that while the RIC cards may be well suited to larger landscape units, the time and cost involved on small cutblocks is unwarranted. One company suggested that the design of the forms could benefit from input by the people actually collecting the data.
- RIC standards were also felt to be inadequate in dealing with the determination of the upper limits of fish use, and the justification for identifying a location as the limit.
- The use of random sampling points was considered inappropriate for FPC work.

Several people had somewhat more specific comments and suggested changes to the data cards:

- Add “proposed FPC class” field to the site card. A NCD class should also be included. A probability scale could also be used to assign a subjective confidence rating.
- No Visible Channel field requires expansion with the following options included on the site card:
  - drainage present, but not an FPC stream
  - not a stream, but an open water wetland (e.g., beaver ponds with no active channel present)
  - not a stream, but a wetland (e.g., bog, fen – with no defined channel)
  - mapping error – drainage incorrectly mapped, mouth incorrect
- Dry/intermittent channels should be separated on the card.
- Riparian vegetation – should be able to choose more than one type, as in bank texture.
- Separate the methods for height and length measurements in the features fields.
- A new field should be included for gradient measurement in the features fields.
- Lake and wetland ILPs are not linked to the stream network ILP system. A clearer way to do this is needed, that is consistent with the hierarchical watershed coding system.
- More than one comment per category in the Habitat Quality section of the site card should be possible. This needs expansion to avoid incorporation of comments for all species on one line, as for example discussing rearing suitability for a number of species.

- Resampling – rather than provide repetitive information on site and fish cards again, collect the information on abbreviated site and fish cards that has a reference link to the initial sampling.

There were also some specific comments regarding FISS/FDIS:

- One company reported finding errors in the FISS data. While standard forms may eliminate some of the errors, they suggested that the main problem may be a lack of understanding by data entry personnel.
- In FDIS, there needs to be a better linking of the fish card to the site. At present, linked to reaches, it means that much of the same information already entered on the site card has to be re-entered. There should be a direct link from the fish card to the site or lake form.
- The fish field form is inconsistent with the FDIS fish form (i.e., the EF specs are broken into two fields in FDIS)
- Comment codes on the field site cards link to specific comments, but FDIS has only categorized comment codes.
- Flood signs, and historical features sections in FDIS should be increased.

While some of these specific suggestions are somewhat peripheral to the subject of encouraging acceptance of RIC standards, they may be pertinent in improving the quality of the data collected.

4.0 Discussion

From the data received, it appears that the application of RIC standards to fish and habitat data collection on the coast, other than 1:20,000 inventories, is as poor as has been perceived.

The findings from the questionnaire are summarized under the objectives outlined in the introduction:

1. *To what extent are fisheries surveys being done and for what purposes?*

All of the forest companies contacted collect stream data for classification as required by the FPC. However, this information does have a broader application as it is also used in sivicultural plans, forest development plans, and the calculation of net downs. In one instance it was also used for identifying stream enhancement opportunities, and may be used in the certification process.

Consultants are carrying out 1:20,000 watershed surveys, often related to watershed restoration projects, as well as variable amounts of stream classification. For many companies, large watershed inventories have been carried out prior to the development of RIC standards, often in the 1970's and 1980's. The future requirement for this level of inventory work for developing harvesting plans is unknown.

2. *How are the data being collected? Are RIC standards being followed?*

The majority of FPC stream classification data is collected by company personnel, usually field engineers, with consultants brought in for contentious areas, or sites where the classification of a stream makes a major impact to the logging plan. On smaller streams, where fish use may occur, a conservative philosophy often prevails, where the classification often is defaulted to a fish stream category without sampling for fish, as the potential gains in timber are seen as more than offset by the cost of bringing in a consultant. It is unknown to what extent this default practice is carried out. In only a few of the companies contacted is the bulk of the stream classification carried out by consultants.

The 1:20,000 inventories are carried out by qualified consultants, and the use of the RIC standard data forms is a requirement.

From the respondents, the only use of the RIC cards at present is for 1:20,000 inventory, and probably watershed restoration projects, with very limited use for FPC work. None of the companies and only one consultant reported using the cards for this purpose.

The main reason for the lack of use of the RIC standard data cards for stream classification is that only relatively basic information is required to classify a stream, and that the data fields on these cards are largely surplus to classification requirements. Companies have developed their own formats to gather FPC information, as have the consultants contacted, as use of the RIC cards and filling all the fields would lead to more time and higher costs for data collection, that most companies are probably unwilling to support.

The value of FPC information has been questioned as a source of fisheries data by one consultant. This opinion may be merited given the limited data requirements for stream classification, and the fact that fish sampling may only be implemented in situations of uncertainty, often where economic considerations indicate that it is worthwhile. This suggests that the bulk of FPC data is dealt with as fish/non-fish based on criteria such as gradient and stream size, with a knowledge of barriers to fish in the watershed. Due to the large number of minor drainages in coastal cutblocks, the majority of streams classified appear to be non-fish

streams. This approach while not rigorous enough to address the needs for fisheries scientists, is apparently meeting the objectives for which the FPC was designed.

Despite the fact that RIC standards are not being applied to information collected by forest companies, it should not automatically be assumed that the data collection is not being done in a conscientious manner. The issue of stream classification is very important to all forest companies and the results of their work has to pass not only a review of the harvesting plan by the agencies, but also pass the stringent audits carried out as part of the FPC mandate. Due to the dire consequences of mistakes, it is unlikely that any of the companies takes this issue lightly. One way of assessing the frequency of errors, and the situations which may be problematical in stream classification, would be to review the audits and reports prepared by the Forest Practices Board.

3. *What becomes of the project reports and of the data? Are the data being sent to the province for entry into FISS and FDW?*

FPC survey results, if collected by consultants, are usually presented as a hard copy report accompanied by a map. FPC classification by forest company employees usually ends up on maps, usually 1:5,000 cutblock maps, but sometimes a Fish Data Inventory map, as well as Five Year Development Plan Maps. Information is usually filed in the company's office available to the agencies on request, but the data may also be sent to MELP and DFO. The Ministry of Forests would receive all of the stream classification data for each cutblock as part of the silvicultural/logging plans. Reports from stream classification by consultants would be sent usually only to the forest company. If a sampling permit was required for FPC work from MELP, then this agency would receive a map and the classification of drainages sampled, and sometimes a copy of the report.

The data that has been collected to RIC standards has probably all been submitted to MELP. For FPC surveys, a variety of in-house formats have been used, and the results are largely kept in files at the company (divisional) offices. A few companies reported sending information to DFO, and the MOF district offices are a potential storehouse of most of the current FPC classification data. Consequently, to gather existing FPC stream classification data, MELP, MOF as well as DFO should be contacted, in addition to the forest companies.

5.0 Conclusions

The survey indicates that nearly all of FPC stream classification data is not being collected to RIC standards. The data is being collected in a variety of formats, and may not involve fish sampling. How useful is the information to fisheries managers?

It is probable that the bulk of the information collected by forest companies will deal with non-fish categories, and show where fish are not likely to occur. A problem with this generalization is the conservative default to fish category for contentious sites, however this situation may only occur in only a small part of a companies mapping, and could probably be labelled.

The FPC work carried out by consultants is most likely to involve fish sampling, and this data would be available from the company files. All 1:20,000 surveys currently being done will meet the RIC standards. A large body of information may be garnered from watershed surveys carried out by forest companies prior to the RIC standards. These were carried out by qualified personnel, meeting the standards of the day, and should not be overlooked as a source of data that could probably be adapted to FDW and FISS.

While there was a full appreciation of the desire for a standard format, it appears unlikely that the current RIC data forms will be embraced for FPC work. The forest companies have worked out data collection formats that suit their needs, and as long as they can achieve the requirements of the FPC, they appear content and probably not willing to change. Similarly, the consultants have developed cost effective formats that suit their clients needs, and would probably resist having to adopt RIC standards as they are at present. The general feeling among consultants were that the RIC cards were not designed for FPC work, they don't fit well with FPC work, and that they should be a lot simpler. If a standard format designed for FPC work could be developed (perhaps with input from those collecting the field data), so that the data could be integrated into the provincial data base, there would be more likelihood of full participation by the forest industry. Because of the concern of some people over the quality of the data collected, or the qualifications of the data samplers, perhaps there could be labels attached to the data, identifying various levels of detail/quality. In general, the survey results indicate a desire to continue with a simpler process of data gathering, rather than to voluntarily increase the effort required to apply the RIC standards.

There appears to be little general knowledge in the forest industry of the availability of fisheries data through FDW. The information available regarding fish use in their tenures would appear to have a value to some of the respondents and perhaps more effort should be expended in identifying the location of this data to the forest companies. Although not directly dealt with in this survey, by inference from the responses, the use of models may be met with some reluctance. For one thing, forestry personnel are already on the ground conducting block layout where all drainages have to be classified, and the smaller streams are often not on maps. In these circumstances, the use of a predictive tool may not be a significant saving. Due to the penalties for non-compliance under the Forest Practices Code, there is a relatively conservative approach to stream classification, where a questionable stream may be treated as a fish stream by default. This approach may be altruistic in some cases, but it is also a matter of saving the cost of a qualified person that would be brought in. Simply put, the cost of being wrong under the FPC, may be higher than the potential savings of using a predictive model.

There are several suggestions for consideration:

- RIC standards are not being applied to FPC work on the coast. If this data is of value, it appears from this survey that the RIC approach to data collection has to change rather

than the users. Consider developing an appropriate data collection format, with the appropriate level of information required, to serve as a standard. This would allow the use of a field identifying sites where fish sampling occurred, or where a default to fish stream category was applied. The strength of the data could be labelled appropriately to allow fill-in sampling in future. Overall, this approach would provide reasonably good data on fish distribution within a watershed. Discussion with consultants and companies presently collecting data is strongly advised in developing a format that will be accepted.

- There may not be a widespread knowledge of the FDW among forest companies. It is unknown what efforts have been made to describe and explain this information source to the companies, but it appears that they would find it useful. Also, use of this data base may lead to an acceptance of the importance of standards in data collection. If there has not been an attempt to spread the word, this should be done.
- One data source for entry into FDW are the watershed surveys carried out in the past for forest companies, by contractors or in-house biologists. The formats in these surveys are pre RIC standards, but an appropriate level of detail including fish sampling were usually carried out. Usually, these reports have been reviewed by MELP and DFO, and could provide a lot of good information that would be relatively standardized. It is unlikely that companies will repeat the expense of carrying out these surveys, and it appears that if the information is not to be lost, a means of including this data into FDW should be developed.

Appendix 1. Fish and Habitat Survey Data – Questionnaire

The provincial Resources Inventory Committee (RIC) has developed standards for use in fisheries inventories. These standards have primarily been used in the delivery of watershed based *Reconnaissance (1:20,000) Fish and Fish Habitat Inventory* projects for Forest Renewal BC. The standards include field data forms and an electronic database for stream site description, fish sampling data, and lake surveys. The RIC standards provide a standardized approach to data collection to facilitate broad accessibility and application of the data collected.

Under the Forest Practices Code (FPC) fish and habitat data are collected to classify a stream so that the appropriate riparian management can be applied. While not mandatory, the *Fish Stream Identification Guidebook* recommends that data for FPC surveys be recorded on RIC standard data forms, and provided to the province. This data can then be entered into the Field Data Information system and made accessible through the provincial Fisheries Data Warehouse (FDW). Summarized data can be entered into the Fisheries Information Summary System (FISS).

Data in FISS and the FDW is readily retrievable for a variety of uses and users, including long term and strategic forest harvesting plans, and on going FPC stream classification. Certification is now being carried out within the forest industry, and data from fish and fish habitat surveys is an important component in confirming that forest practices are managed in an environmentally sound and sustainable manner. Without application of a standard method of data collection and a commitment to providing the information to the province for storage and distribution, valuable information may be underutilized or lost.

The RIC is interested in finding out to what extent the RIC standards are being used in fisheries data collection. This survey is being conducted on coastal forest companies to assess:

- To what extent fisheries surveys are being done, and for what purposes
- How the data are being collected
- What becomes of the project reports and of the data. Are the data being sent to the province for entry into FISS and FDW?

It is also intended to find whether the RIC data forms meet the users requirements, and whether improvements may be made to encourage a wider use of the standards and linkages to the provincial database of fish and fish habitat data.

Please take a moment to complete the following form and return it, if possible before 30 March 2001.

Fax to (250)722-3705, or e-mail to pbruce@pacificcoast.net

Thank you for your participation in this survey, Peter Bruce, R.P.Bio.

Name of Respondent –_____ Company Name –_____

Fish and Habitat Survey Data – Questionnaire

1. *Is fish or fish habitat information collected for your company? If so, is it solely for FPC stream classification, or for broader watershed planning, preparing net downs and operability, certification, or other purposes? Please specify.*

2. *Do you carry out reconnaissance watershed inventories, or is the data gathered at the cutblock level, or at some level in between? How many surveys per year?*

3. *Who collects fish inventory or stream classification data in your operation, company personnel or contractors? Please give the names of contractors.*

4. *How are survey results presented – report, maps, electronic data file, other? Please specify.*

5. *Are survey results sent to the MELP regional office, another agency, or kept in-house?*

6. *Is survey information recorded using the recommended RIC data cards for field data collection (as per p. 67* Fish Stream Identification Guidebook*), your own format, or other? Do you collect information that is not on the RIC cards?*

7. *If the RIC cards are used, do you use all of the fields or just some of them? Are they attached to a report? If not, where are they kept? Are they hard copy or electronic?*

8. *If the RIC cards are not used, or only a portion filled in, briefly give the reasons why. If possible, please send a copy of the data collection format that is used.*

9. *Do you have any suggestions for improving the RIC standards that will encourage wider acceptance and use, to improve the availability and accessibility of fisheries information.*

Please Return to Fax (250) 722-3705, or e-mail to **pbruce@pacificcoast.net**. Please use extra pages as necessary.