

2006 RPF Registration Exam: Sit-down Good Answers

This package contains examples of good answers that were submitted for questions in the sit-down portion of the 2006 RPF registration exam. Although the answers were chosen as one or two of the better answers submitted in 2006, take note of the score each answer received and be advised that answers may contain errors. Some questions on this package were not answered by enough examinees to provide examples of at least one or two good answers.

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RPF Registration Exam Questions (2006)



Question 1 (Essay)

The Central Coast Land and Resource Management Plan Framework Agreement (2001) defines Ecosystem Based Management as: *“a strategic approach to managing human activities that seeks to ensure the coexistence of healthy, fully functioning ecosystems and human communities. The intent is to maintain those spatial and temporal characteristics and processes of whole ecosystems such that component species and human social, economic and cultural activities can be sustained.”*

The Canadian Forest Service (2005) defines Sustainable Forest Management as: *“Management that maintains and enhances the long-term health of forest ecosystems for the benefit of all living things while providing environmental, economic, social and cultural opportunities for present and future generations.”*

- a) Compare and contrast the definitions of Ecosystem Based Management and Sustainable Forest Management as described above. (6 marks)
- b) Explain the relevance of these concepts to the current forest policy regime. (4 marks)

Answer (scored 8.5)

- a) Within the CCLRMP framework agreement (2001) definition of Ecosystem Based Management (EBM) the key factor is that EBM “seeks to ensure the coexistence of healthy, fully functioning ecosystems and human communities” where is the CFS definition of Sustainable Forest Management (SFM) management that maintains and enhances the long-term health of forest ecosystems”. These are two fundamentally concepts. Co-existence implies that there will be collaboration between all stakeholders with all forest ecosystem values being considered in the management of the forest land base. The SFM principle is predicated on initiatives developed to balance ecosystem values.

EBM framework embodies several overarching principles. EBM ensure that healthy, fully functioning ecosystems are providing the basis for sustaining communities, economics, cultures and the quality of human life indicating that ecological sustainability is fundamental to land and marine management. EBM provides for empowered and healthy communities which in turn play a leadership role in sustaining healthy ecosystems, cultures and economics. EBM focus is on planning fro the needs of the ecosystems and the values that the communities want to maintain. EBM incorporates the best of existing knowledge into planning and decision making. EBM uses the precautionary principles where there are unknown risks or incomplete understanding of the human and natural process interactions. EBM maintains natural, social and economic capital in the region and preserves a full range of options for future generations.

Sustainability in the context of EBM means “a state or process that can be maintained indefinitely.”

SFM has developed initiatives that are used as a means of determining if it is being achieved. These initiatives generally fall into one of three main groups 1. criteria and indicators with emphasis on monitoring, 2. forest certification with emphasis on management systems on performance, and 3. planning with the emphasis on allocating land and resources to various uses. These initiatives operate at different scales – international, national, provincial and local with some of them spanning all levels. This is uniquely different than EBM which primary principle is to sustain the biological richness and biological services provided by natural terrestrial and marine processes at all scales through time.

SFM is about establishing a balance among all the different uses of the environment while ensuring its continued ecological functioning so that the benefits and functions can continue into the future. This concept is similar in nature to the EBM principles. It can be emphasized that the principles of EBM (the interaction of environmental, economic and social systems) when applied in forests, is largely synonymous with SFM, although it may be argued that EBM is simply one of many forms of management that can be undertaken within the framework of SFM. As a professional, it is not my responsibility to determine which practice, EBM OR SFM works best for my planning, but to ensure that all options are open to review and debate with adequate public input with whichever process they deem appropriate to their land base.

- b) The relevance of EBM/SFM concepts to the current forest policy regime is in relation to what some consider policy shortcomings. The current land use planning in BC doesn't allow for the public to re-visit options within, for example, an LRMP to meet societies changing values and views. With EBM, the process allows for continued improvement through adoptive management where benchmarks are identified and measured against future management performance. Within this framework, explicit objectives for managing risk are established and performance is monitored for the purpose of adapting and improving. As a professional forester, I believe that this approach (EBM) is critical in meeting my obligations and responsibilities to the public of BC by practicing good forest stewardship based on sound ecological principles to sustain its ability to provide these values that have been assigned by society.

Under FRPA and professional reliance the decisions that balance environmental and social objectives with forest management must be predicated on stewardship. I believe that EBM is the process which best meets these objectives and societies expectations.

Answer (scored 10)

- a) There are many similarities between EBM and SFM, as well as key differences. The primary similarities focus on 1) a desire for management that focuses on long term solutions; 2) the emphasis on ecosystems; and 3) the inclusion of social and economic elements. The primary differences are in the processes and specificity of each system.

The definition for EBM presented here was derived through a multi-stakeholder process involving scientific experts, First Nations (FN), government and industry. This process is

described by the Coastal Information team (www.citbc.org). The definition of SFM initially evolved from the UNCED (1992) process. The SFM definition was also derived from multi-stakeholder processes. Both systems aim to improve the implementation of good forest stewardship.

A key difference in the two approaches relates to the specificity around “healthy” forests. In the SFM definition, there is no additional clarification of what is meant by healthy forest ecosystems, where as in the EBM definition, there is a qualifier used to specify “healthy, fully-functioning ecosystems and human communities”. Although a seemingly subtle difference, the inclusion of “fully functioning” adds numerous connotations of structural, compositional and functional aspects of ecological systems. The EBM definition also refers to “whole ecosystems” and not just forest ecosystems.

Another critical difference between the two systems is the use of long-term in the SFM definition versus sustaining “spatial and temporal characteristics” in the EBM. This implies multiple scales – short, medium and long term. The focus is on maintaining systems over these scales rather than the needs of present and future generations. EBM also focuses on the link between functional ecosystems and human communities, with particular emphasis on respecting First Nations title, rights, and cultures. While only implicit in the definition, the CIT has a considerable focus on FN (www.citbc.org).

EBM also emphasizes adaptive management (see definition on website) that is not explicit in the SFM. Finally the SFM definition emphasizes management while the EBM definition uses “managing human activities”. Again, this is subtle, but reflects a perspective put forward by many that humans can manage their own activities, but not all ecosystem process – this means human activities and management actions are still subject to uncertainty and “outside” forces such as natural disturbance.

On the surface, these two definitions are very similar. It is the underlying principles, including the advancement of ecological knowledge and conservation biology, and clarity of FN interests/rights in the foundation of EBM that separates them.

- b) SFM forms the basis of many certification schemes, particularly the CSA system. All initiatives seeking certification under CSA, SFI, and FSC (although some additional requirements link it closely to EBM - Utzig, 2005) require management systems that adhere to the principles in the definition given. These standards must be implemented on the ground, monitored, adapted where necessary. Objectives and performance measures must be set and implemented. Given the number of licensees seeking and already with 3rd party certification (especially CSA), SFM plays an important role in current forest policy regime.

EBM as defined here, arose from land use planning processes on the coast (N. Coast LRMP and Mid Coast LRMP). Significant agreements have been reached between government, industry, FN and environmental groups to implement EBM principles and associated actions. This includes meeting ecological management targets based on the range of natural variability, establishing reserves at multiple scales, meaningful engagement of FN, and potentially, a fundamental change to the ways that forests are managed in EBM areas. This model, after testing, may also spread to other jurisdictions.

Both EBM and SFI represent approaches to achieving the professional obligation of practicing good forest stewardship that upholds public interest (at multiple scales of “public”). In the professional reliance model, they provide guidance and increase over knowledge of the interactions between society, forests, ecosystems, FN and management.

EBM and SFM provide guidance to professionals working under the current professional reliance model. They both, through the CCFM criteria and indicators that underlie SFM in the CSA context, and the science compendium/compilation of the CIT’s EBM work, provide scientific and policy guidance.

Foresters working in areas with commitments to either SFM or EBM must develop results and strategies designed to achieve OSBC as well as the principles of SFM or EBM. This could significantly influence how stewardship concerns are balanced using independent professional judgment.

Both systems may also help set a benchmark for determining what is good stewardship. As professionals, we must be cognizant that knowledge changes and evolves, and we must ensure that we evaluate our practices related to EBM or SFM in this context.

Question 2 (Short Answer)

You are the Private Land Inventory Forester with responsibility for 100,000 hectares. The private land is Managed Forest. You have informed the CEO that the last complete re-inventory was 20 years ago and that you have considerable uncertainty as to its reliability. The CEO has agreed this is a matter of due diligence that must be attended to on behalf of the shareholders. You have been asked to come up with a plan. You are aware of the Provincial inventory procedures, and use this as a starting point for building your own inventory design and implementation. The last inventory was done to Provincial Forest Cover standards and has been consistently updated since that time to reflect roads, harvesting and silviculture practices.

- a) Describe the main components of a Phase I Vegetation Resources Inventory. (2 marks)
- b) Describe the main components of a Phase II Vegetation Resources Inventory. (2 marks)
- c) If Phase I indicates that there is a standing inventory of 3 million cubic metres and Phase II indicates a standing inventory of 4 million cubic metres, which one is statistically correct? Describe the calculation you would use (i.e., the adjustment) to reconcile the two answers? (2 marks)
- d) If you had a limited budget, such that you could do only Phase I and not Phase II or alternatively, do Phase II in combination with the old Forest Cover inventory, which one would you choose and why? Why not the other choice? (4 marks)

Answer (scored 9.5)

- a) The main components of a Phase 1 Vegetation Resource Inventory (VR1) consists of:
- Photo Interpretation
 - Estimate vegetation polygon characteristics from existing information
 - Estimate vegetation polygon characteristics from aerial photography
 - No sampling is done in Phase 1
- b) Phase II of VR1 is the ground sampling phase. Its main components consist of:
- On the ground sampling
 - Provide information necessary to determine how much of a given characteristics within the inventory area.

Ground samples alone cannot be collected in sufficient number to provide the specific locations of the land cover characteristics being inventories

- c) Phase I = 3,000,000m³
Phase II = 4,000,000m³

A Net Volume Adjustment Factor (NVAF) sampling collects data on a number of selected trees to account for errors in the estimates of net tree volume. The NVAF is calculated from the ratio of actual to estimates of sample tree volumes is applied as a correction to VR1

ground sample volumes. This data, used in conjunction with the original ground sampling data, provides an unbiased estimate of the net volume in the project area.

- The ground measurements are used to estimate the proper total for the population.
 - The relationship between the polygon estimates of ground samples is used to adjust the photo-interpreted polygon estimate.
 - The total for the population is then distributed into the adjusted description for each polygon.
- d) If I had a limited budget, I would choose to do only Phase I and not Phase II. In saying this, I am assuming that the primary objective of the re-inventory is to determine timber-resources only. Non-timber resources, many of which require more intense ground sampling.

Recently in BC, there have been several forest health crises such as

- Mountain pine beetle epidemic
- Firestorm 2003
- Increase in Spruce and Douglas fir bark beetle
- Increase in Spruce bud worm occurrence.

For my inventory, I would want to do a detailed photo interpretation of what is on the ground. Due to the above mentioned dynamics, the forests and forest polygons will have changed dramatically over 20 years. Doing a phase I inventory, will enable a competent photo interpretation professional to estimate polygon characteristics. Using this as a guide, on the ground activities can be proposed and planned. The on the ground activities (road and block layout) will in essence compliment the phase I inventory. The ground crew will be able to determine patterns associated with the photo interpreted estimates. For example, polygons may consistently be estimated to be 10-15% lower volume than timber cruises indicate. These patterns would be noted and incorporated into planning activities.

I wouldn't choose to do a phase II inventory with older Forest Cover inventory as I feel the variability would be too high and the results would be less reliable.

It is important that whichever method I chose to proceed with, I hire competent professionals to complete the task.

Answer (scored 9)

- a) The main components of a stage 1 Vegetation Resource Inventory (VRI) are:
- Photo Interpretation
 - i. Delineation of vegetation polygons of similar attributes based upon existing information photo interpretation, or other resources.
 - ii. Does not involve ground sampling
- b) Phase II of VRI is comprised of

- Ground Sampling
 - i. Physical ground sampling is undertaken in the area of the VRI with a sample design and procedure put in place
 - ii. The data is collected and used to estimate the proper total for the population.
- c) Phase I and Phase II will often indicate different totals of the population, because phase I shows broad areas of similar attributes but doesn't necessarily adequately define those attributes. On the other hand phase II provides a better definition of the attribute through sampling, but does not provide sufficient cover to give specific locations of the characteristics being inventoried (in this case, standing timber). The relationship between the polygon estimates and the ground samples must be used to adjust the photo interpreted polygon estimate ie)

Phase I - # of ha & est of vol

Phase II - vol/ha

If you adjust the volume estimate from phase I with the actual sample volume from phase II your answer will be much more statistically round.

If I had to chose between phase I of VRI or phase II combined with old Forest Cover inventory I would choose to complete phase II and combine it with old forest cover inventory data because...

- This would allow me to use statistically round updated timber volumes and combine them with an inventory which has been kept up to date in terms of roads, harvesting, and silviculture practices
- This means that the largest deficiencies in the old inventory date is in terms of natural disturbances such as fire, wind throw and insect/pest damage.

I believe that this option is more reliable than having an updated spatial inventory including natural and man made disturbance, but only being able to quantify the data with very rough estimates of volumes and little or no statistical measures of reliability.

Answer (scored 9)

- a) Main component of Phase I VRI is photo interpretation. This involves estimating vegetation polygon characteristics from existing information, aerial photos, and other sources. No sampling is done in this phase.
- b) Phase II of VRI involves ground sampling. This phase used the Net Volume Adjustment Factor (NVAF) to calculate inventory adjustment factors. Ground sampling provides information to determine if given characteristics is actually within an inventory area. These alone cannot be collected in sufficient numbers to provide specific locations of land covering characteristics.

- c) I would rely more heavily on the correctness of Phase II of VRI. This component involves actually ground sampling as opposed to photo interpretation, and involves NVAF which accounts for errors in estimates of net tree volume. The ground samples are used to estimate the proper total for the population. In order to calculate an adjustment I would use the difference between the polygon estimates and ground samples to adjust the photo-interpretation estimate. I would apply NVAF – calculated to estimate sample tree volumes – as a correction to VRI ground samples.

- d) I would choose to do option 2, Phase II with a combo of the old forest cover inventory. This is because I can use the current, on the ground samples from Phase II to connect the old forest cover inventory. Then I have an idea of what is actually on the land. Using only phase I (photo interpretation) all characteristics are speculated and the results give greater risk for inaccuracy, and uncertainty. With the purpose of an inventory to reduce the potential risk of inaccurate information, especially if being used for TSR's (Timber Supply Reviews) or an alternatively important determination, it is important to know what is actually on the ground with field samples.

Question 3 (Essay)

You are an RPF who has prepared a cutting permit that will result in a minimum stumpage rate. The permit was approved and problem free. You are about to commence logging and have received a phone call from someone that has become aware of the minimum rate. The caller asks you *"How can you feel good about yourself as a forest professional knowing the people of this province will receive little value in stumpage for this timber you are about to log? Are you not ethically bound to protect the interests of the public no matter who you work for?"* How do you answer?

(10 marks)

Answer (scored 9)

After approving a cutting permit that will result in a minimum stumpage rate and receiving a phone call from Joe Public in regards to my decision as a professional in terms of the public of the province's benefit from minimum stumpage and his question about my ethical obligation, I must consider the following:

Did I perform all of my obligations as a professional? This question is one you should ask of yourself prior to any data submission! Assuming I was personally responsible for overseeing this cutting permit from start to finish I should be able to competently address the issues of Joe Public. I would speak with Joe first hand addressing his concerns and treating him with respectful regard (as part of bylaw 12.4.1). As a professional I have an obligation of responsibility to the public to advocate and practice good stewardship of forestry...assigned by society (11.3.1). I will want to try to assure Joe that I hold his interest paramount and prove to him that I did in fact act ethically to protect the interest of the public and that my employer did not influence my decision. Under 11.3.6, it is my responsibility to extend Joe's knowledge of public forestry.

I would explain to him that under my ethical responsibility 11.3.2, I must uphold professional principles above the demands of employment. I would clarify that as a professional under the Forest Act section 1 & 20, I am a qualified professional and obligated under 11.3.7 to practice only in areas where I am competent. At this point I would invite him to consult with any other professionals with whom I may have worked with or consulted to develop the cutting permit in question. I would explain that if I am unqualified I have a duty to consult a professional. 11.3.8 states that I shall not make misleading or exaggerated statements regarding my qualifications or experience and 11.3.9 to express a professional opinion only when founded on adequate knowledge and experience.

I would advise Joe that I am responsible to the profession to inspire confidence and be subject in all that I do to a professional peer review. I am not allowed to misrepresent facts (11.4.4) and I must keep informed in my field of practice.

I would re-iterate to Joe that my obligation to my employer comes after my obligation to the public and the profession.

I would discuss with Joe the standards of professional practice: competence, independence, integrity and due diligence, and stewardship. The goals of which include performance benchmarks,

public expectation from practitioners, indicators of quality, legislated rights to title and practice, professional practice privileges and obligations, self assessment, peer review and individual plans.

I would re-iterate that all of my work must be proved with verifiable documentation and credible rationale that would withstand a peer review or the scrutiny of a professional disciplinary process.

I would ensure Joe that all my work is done in accordance with current legislation and practice and that all my work is done in accordance with bylaw 12.2.2 completeness and correctness standard that it is complete, clear and correct, scientifically sound, respects competing values when providing professional judgment, analysis, all practicable options, balances all expectations, is free of errors and has any limitations stated.

I would tell Joe that Bylaw 12 indicates I must act with Professional Care (12.2.3) Independence (12.3.1) a standard of integrity (12.4.1), must be able to prove due diligence (12.5.1) and follow stewardship standards.

I would ensure to take all of Joe's ideas and opinions into consideration. I would invite Joe to come into the office if he is not satisfied after our phone conversation to go through some of the documentation that helped me reach my decision, and again invite him to converse with the peers whose expertise and advice I sought while coming up with my decision.

Since the cutting permit was approved problem free, there is no obligation for me to postpone the commencement of harvesting for any reason.

Answer (scored 9)

As a forest professional addressing the concerns of a member of the public, I would conduct myself in a manner representing my status as a professional. I would listen to the concerns raised and evaluate them based on the perspective that the person complaining felt they were valid.

Once I had heard the complaints, I would strive to determine where the basis for the complaint was coming from and what the background of the person was in terms of their knowledge of forestry. This would allow me to determine how much information I needed to supply in my answer to ensure proper understanding.

I would start my answer by explaining the code of ethics that all forest professionals are bound by. I would explain that as a professional, my first obligation is to practice good stewardship of the land (11.3.1) and to uphold my principles as a professional above the demands of my employment (11.3.2). I would continue with details of the association's standards of practice, especially the independence standard (12.3.1).

After explaining details of the code of ethics and bylaws, I would begin a brief explanation of the stumpage system in BC. This would include an overview of relevant legislation, practices and procedures, and my duties. I would go into further detail about my duties for collecting, interpreting, and analyzing the data. I would discuss how I incorporate the various information into the stumpage calculation.

At this point I would mention several of the bylaws and sections of the code of ethics that pertain to the data preparation. These would include maintaining high standards (11.4.1), to practice only in fields I am competent (11.3.7), not to misrepresent facts (11.4.4) and to act continuously and diligently in my duties (11.5.1).

I would follow this with a reciting of the applicable portions of the standards of practice, namely the Knowledge (12.2.1), Completeness (12.2.2), Integrity (12.4.1), and Due Diligence (12.5.1) standards.

To further reassure the caller, I would go over my due diligence steps that I take to ensure that I have upheld my professional obligations. These would include peer reviews, data standards, and established procedures.

Providing that my explanation satisfied the caller, I would thank them for their interest and invite them to contact me if they had any further questions. I would also try to inform them of alternate sources of information such as the ABCFP website or the Revenue Branch. If I had not satisfied them, I would try to put them in contact with the appropriate expert to try and alleviate their concerns. This would be consistent in upholding my duty to educate the public (11.3.6).

Answer (scored 9)

As a professional forester, I have obligations to the public, the profession, to my client/employer, as well as to the other members of the association, ABCFP. In this case a member of the public has called my profession judgment into question, asserting that the "people of the province will be receiving little value in stumpage for this timber you are about to log". To address this member of the public, I would first ask how they had come to their conclusion regarding my decision, as I have an obligation under the ABCFP code of ethics to only express a professional opinion when it is founded on adequate knowledge and experience (Bylaw 11.3.9). Once I have all the facts on the table I can best assess how to respond. Perhaps this individual has been given some incorrect facts. In that case, a simple clarification of the facts may suffice. In the event that this individuals facts are correct, perhaps clarification as to the interpretation may be useful. At this point, I would walk this individual through the process I took to arrive at my decision to proceed as I did. This would be a good opportunity to advocate for good forest stewardship (bylaw 11.3.1) and to promote or extend public knowledge of forestry (bylaw 11.3.6). I would walk the individual through what I undertook to ensure my due diligence. First, I would let the individual know that I am a member of a regulated profession and member of a professional association that abides by a Code of Ethics and a Standard of Professional practice. I would then assure this person that I was performing assignments within my realm of capabilities, skill, and experience (bylaw 11.5.4). I would outline the legislation and regulators that relate to this activity and demonstrate that I have met all the legislative requirements. I would review the facts and data that led to any of my assumptions and/or decisions made. I would advise this person that as part of a quality assurance program at place of employment, that my work was reviewed by a qualified peer, and that specialist and/or consultant were used to verify only assumptions or proposed activities.

I would invite the individual to review similar cutting permits (CP) made in the area to demonstrate that this CP was not unique. Finally, I would invite this person into my place of work to meet face to face, review the materials and data that went into the CP development, in an effort to be transparent and open with my work. I would hope that given my due diligence and willingness to provide an opportunity to review my work further that this individual would be satisfied. I would continue with my efforts as reasonable to ensure the public's interests and concerns have been met. Additionally I may use the ABCFP Professional Advisory service to assist me with my consultation efforts with this individual.

Question 4 (Essay)

The practice of professional forestry is enormously complex, in part due to the fact that it demands knowledge of the biology of forest ecosystems, and of the relationships between forests and people. Because of this complexity, professional forestry is not simple or straightforward, and it requires interpretation which can lead to differences of opinion.

To add to the complexity, a considerable portion of provincial government revenues come from timber harvesting, and at the same time, forest management legislation and policy is developed and implemented by the provincial government.

Many communities in BC are dependent on the forest resource, and as stated above, much of the government budget also depends on forest resources. This places an enormous responsibility on the shoulders of professional foresters, who are bound by the code of ethics to "To advocate and practice good stewardship of forest land based on sound ecological principles to sustain its ability to provide those values that have been assigned by society", and "To uphold professional principles above the demands of employment" (ABC FP Code of Ethics).

How much should advocacy for good forest management practices play into the responsibilities of every professional forester? How should it play into the purpose and function of the Association of BC Forest Professionals? Explain your position. Are professional foresters and the Association meeting your expectations? If yes, explain how; if no, discuss what foresters and/or the Association should be doing differently.

(10 marks)

Answer (scored 10)

A Professional Forester is much more than what is stated in the Forester's Act and associated bylaws. An RPF is a member of the public – they are active and concerned citizens of BC, Canada and the world but they are different than what would be termed the "general public" who are also citizens. The RPF has a "tool box" that allows him/her to act professionally in forestry matters. A professional forester is not defined by regulations and law but by professional conduct as citizens of the knowledge and skills they bring to bear in their active, citizenship role (Ben Wilson, 2004).

As such the advocacy of/for good forest stewardship and management practices is a key role in an RPF's professionalism. Individual RPF's must engage in an advocacy role at all opportunities to help supplement the profile of the ABCFP and the ABCFP's new advocacy role under section 4 (2)(b) of the Foresters Act. It is the responsibility of the professional forester to make the public more aware of what a professional forester is, does and is responsible for. There are many ways that members can promote the ABCFP's advocacy mandate. By getting involved in your community, taking time to talk at schools or other functions, establishing or belonging to a local Professional Foresters Network (PFN) or taking media training so that you can be professional and open when talking about forestry and professional issues.

To the professional forester, advocacy is not a one-time event where he/she can say that they have completed it like a school course. Advocacy should always be in the minds of a professional forester and they should practice professional forestry as if every move being made was being

watched by society. This ensures that an advocacy role is being done even if it is not recognized as such.

The purpose and function of the ABCFP as outlined in the Foresters Act section 4 (2)(b) states that the object of the association is "to advocate for and uphold principles of stewardship of forests, forestlands, forest resources and forest ecosystems". This objective came into force in June 2003 with the revised Foresters Act and it is considered a "limited advocacy mandate". The association has always engaged in some degree of advocacy but the new Foresters Act limits it to issues of forest stewardship. In my opinion, the advocacy role of the ABCFP should not be limited to the forest stewardship, nor should it be limited to advertising campaigns aimed at future members. The association must take guidance from its membership and advocate on their behalf. This means becoming involved with policy establishment, certification issues, policy changes, proactive media interaction and the like.

The ABCFP and some professional foresters are not meeting my expectations in terms of advocacy. I say this based on the latest round of advertising that has been in the media and in the Vancouver newspapers. I have a hard time determining how this latest campaign can be considered the type of advocacy that will enhance the public's understanding of forest resource management and the complexities forest professionals will face under the new forest policy regime. In my opinion, the direction provided for in the strategic plan and the 2004 capacity analysis is quite different from what I have been reading and learning. The ABCFP strategic plans stated goal with respect to advocacy is "fostering public understanding and support for policies and advance good forest stewardship". With the recently released Forest Practiced Boards reviews of Forest Stewardship Plans, it would seem to me that a discussion about FRPA and its implications for both professionals and the public would be more consistent with this stated goal.

The capacity document prepared by Western Management Consultants noted that "advocacy on behalf of the profession as protectors of the public interest and on forest policy issues on a broader and more public scale is now a clean strategy and role of the association". Again, in light of the recent concerns raised by advocacy groups with respect to species at risk, the recent campaign doesn't seem to match.

In my opinion, the ABCFP council needs to re-vamp its message that doesn't address the challenges of forest management today and realize that maybe something is wrong with our message in the first place. Forest professionals have taken on substantially more liability under FRPA and the time to act independently in defence of the public's interest is more important than ever. Increased global competition will impose more pressure on professionals to reduce planning costs, possibly at the expense of stewardship. The association should be coming to the defence of its membership and advocating for its independence at a time when it is under considerable threat (co-authored with Prince George Study Group, 2006).

Both RPF's and the ABCFP need to engage in how to best raise the profile of the forestry profession. It concerns me when people ask me what I do for a living and I state that "I am a steward of the public in relation to the province's forests" and the resulted blank look is an indication that, generally, the public does not realize that professional forestry is a very real and valid profession!

I, for one, will continue to be an advocate for the ABCFP and professional forestry and call upon my colleagues to do the same. The ABCFP has put out the challenge and it is up to the RPF's to take them up on it.

Answer (scored 9)

The forest industry in B.C. is and has been undergoing profound changes. In fact, I think that history will look back on the period from 1995 (The implementation of the FPC) to about 2015, and characterize it as the time when both the public and professional foresters were under extreme pressure to "get it right" for future generations. This is a time when society as a whole is struggling with environmental values. What kind of province/country/world do we want to live in? What values does the public place on their forest resources? Is timber production the number one priority or is it tourism, the preservation of scenic vistas, water quality, and species at risk? What about climate change, and the MPB epidemic. What are the implications for future forest values?

Our bylaw 11.3.3.1 "to advocate and practice good stewardship of forest land" is based on values assigned by society. Public values and the focus of public interest is always changing. As professionals we cannot practice good forest stewardship without understanding and incorporating the public interest into our decisions. The public is trusting us to do the right thing even though the public themselves may not have an idea what that right thing is! We cannot assume, in these instances that we know and fully understand the public's interest. Does the public understand the implications of climate change, reduced timber supply in the mid-term due to the MPB epidemic or the cumulative effects of forest development on species such as the Caribou?

In order to meet our obligations to the public we must advocate our rationale for the decisions we make. We must advocate for what we believe is good forest stewardship and use the public as a "sanding-board" to ensure that these decisions are in the public's current best interest. Without publicly advocating for what we as professionals think is right may be off-base with the public. I believe that the public is number one on our list of responsibilities (11.2.2.1) and that advocacy (11.3.3.1) is number one as well for a reason. All bylaws and responsibilities must be adhered to, however, we are empowered by the public and the order in which the Code of Ethics is laid out illustrates the importance of advocating good stewardship on behalf of the public. It is absolutely incumbent on all individual members to meet this responsibility by talking with the media regarding important issues, support PFN's, write letters to the editor etc, to solicit public responses and input.

The ABCFP must also play a role. As detailed in the "Viewpoints" section of FORUM March/April 2004, a great percentage of the public does not really know what Professional Foresters do. As stated by Kevin Hanson (Forum 2004), Forest Professionals might just be the most important guardians of the public interest that British Columbians never realized they have. There is a common mis-conception that forestry is a purely corporate driven activity carried out by a relatively unskilled workforce. This clearly must change.

The ABCFP must take the lead role in making the public understand what we do, why we do it and the importance of making the right decisions in their best interests. It is difficult to create mass media advertising campaigns on a limited budget, however, the ABCFP must take their new

mandate of advocacy created by changes to the Foresters Act in 2003 very seriously. The ABCFP must pursue all available avenues to ensure this mandate is met. This may include increases to membership fees etc. The last thing we need is the public to ask 20 years from now "Where were you (individual professionals and the ABCFP) when all of those major changes to legislation and the environment were taking place?"

Both professional foresters and the ABCFP meet my expectations. As a professional, I am proud to be a part of the ABCFP and am privileged to have high quality professional peers. I am excited to be considered for membership and appreciate the high standards expected from me. Foresters and the ABCFP do need, however, to make greater efforts to advocate good forest stewardship. Active advocacy on matters of public policy in particular is a key means by which many high profile professional organizations demonstrate their independence and expertise (Kevin Hanson, Forum 2004). We must not fail in this endeavour to prove that we are collectively and individually responsible for ensuring the maintenance of the public trust.

Answer (scored 9)

Advocacy for good forest management practices is one of the leading, guiding principles of the Association of BC Forest Professionals. It plays into the everyday work of Forest Professionals and into the purpose and function of the ABCFP.

Bylaw 11.3.1, code of ethics states that "the responsibility of a member to the public is to advocate and practice good stewardship of forest land based on sound ecological principles to sustain its ability to provide those values that have been assigned by society". The code of ethics is the document that every forestry professional must refer to in every day work and this is the number one ethic listed giving it an extremely high importance.

The Foresters Act 4 (2)(b) also states that it is the duty and object of the association to advocate for and uphold the principles of stewardship of forests, forest lands, forest resources and forest ecosystems.

Forest Professionals themselves do their best to practice good stewardship every day through their work. They are also expected to advocate for good forest stewardship and this should be one of a professional's primary responsibilities. As Professional Foresters we have a level of training, education and experience that the general public does not possess, we are intimately familiar with forest ecosystems, soils, biodiversity, industrial activities and many other areas of knowledge that lead us to perceive long term and large scale impacts from activities or legislation that the average person in the public would not realize. The public has placed its confidence and trust in the ABCFP and its members by making it a self regulating profession and to maintain that trust members and the association must comment on and advocate for change in those areas where we believe a practice is detrimental to sustainability and good forest stewardship.

If a member believes another member may be practicing forestry in an unsustainable manner it is up to that member to confront the member under Bylaw 11.4.3 of the code of ethics. The association may also pursue discipline under section 27 of the Foresters Act if a member is not

practicing good forest stewardship. These are areas where the association and its members could do more to meet my expectations as a member. I believe that there may be some members out there who may have at one time or another not practiced good forest stewardship and the very few complaints and discipline hearings that have been conducted may lead some people to think that our discipline process is not working. Members need to be more active in approaching other members about potentially poor forest stewardship practices and I believe that the association needs to publish more discipline case digests or scenarios that came from complaints to both guide members, to maintain their belief that the system is working and to maintain the public trust.

The ABCFP is doing many excellent things to advocate for forest stewardship. By releasing position papers such as the Forest Fires in BC Paper as well as instituting the continuing competency program and continuing education program and stringent entrance requirements it has succeeded in many areas of advocacy, but more public relations work to promote our activities is necessary to retain the public's trust.

So, in conclusion, advocating for good forest stewardship is the primary purpose of the association in my opinion and a primary responsibility of its members are meeting my expectations of advocacy as they are maintaining high standards and speaking out to improve forest practices. However, in some areas such as discipline and public relations, more could be done by both parties to maintain the public's trust and to remain a self-regulating profession.

Question 5 (Essay)

As an RPF you may be required to work on or sign a Forest Stewardship Plan (FSP). These plans have moved away from the prescriptive regime of Forest Development Plans under the old Forest Practices Code of BC Act.

- a) Discuss and explain the obligations you have as a professional preparing and signing off FSPs. (5 marks)
- b) Your FSP has been approved. Discuss the steps that you would take and the responsibilities you have when you begin to operate under your plan. (5 marks)

Answer (scored 10)

- a) As an RPF required to work on, or sign a Forest Stewardship Plan (FSP) it is my duty as a registered member to serve, protect, and uphold the public interest. As per section 4(1) of the Foresters Act "It is the duty of the association (a) to service and protect the public interest" and as per section 4(2) "the objects of the association are the following: (a) to uphold the public interest respecting the practice of professional forestry by (i) ensuring the competence, independence, professional conduct and integrity of the members, and (ii) ensuring that each person engaged in the practice of professional forestry is accountable to the association".

As a registered professional forester, regardless of what I am preparing and signing, I am empowered and guided by the Foresters Act that establishes our self-governing body and grants us rights to title and practice. As a registered member I abide by the Foresters Act, the Association of BC Forest Professionals (ABC FP) Bylaws, including the Code of Ethics and council resolutions (including policies and guidelines) through which I may be held accountable for my decisions, advice, and professional conduct.

Forest Stewardship Plans (FSP) represents the new policy framework of greater reliance on professionals. Where professional reliance is the practice of accepting and relying upon the decisions and advice of forest professionals (RPF's or RFT's) who accept responsibility and can be held accountable for the decisions they make and advice they give. In relying on other professionals I am recognizing they have the required education, knowledge, expertise and experience and that I call upon them to apply their judgement and make decisions for which I/they are accountable to the public through the ABCFP. I will provide a sound rationale where my professional decisions have been challenged.

My obligations as a professional preparing and signing off FSP's is to serve and protect the public interest and I understand that my exclusive right to practice and title are privileges granted to me by the public who trust in me and expect that among other things, I will:

- Stay abreast of current science, research, theory; and
- Apply my expertise wisely as a steward of the forest, forest land, or forest ecosystem to achieve both long and short term sustainability thereof.

I must:

- Recognize environmental, social, and economic interest in the forests, forest lands, and forest ecosystems and the range of values they offer for both present and future generations;
- Actively engage in dialogue with interested parties to build trust and understanding;
- Be committed to continually improve my profession by modifying my practice to reflect what I have learned in my successes and failures; and
- Accept responsibility for my decisions and the advice I give fully recognizing that society expects their decisions will be rendered in the public interest to ensure sound forest stewardship.

I must rely on other professional and sign off on only those parts of the FSP, via a section 16 certificate, of which I am competent, have the knowledge, education and training, and I am a member of the ABCFP qualified to sign off said sections and that they conform to section 5 of the Forest and Range Practices Act (FRPA)

Under section 22.1 of the Forest Planning and Practices Regulation (FPPR) I am allowed to certify, through the signing and sealing of a certificate, that specific sections of my FSP are in compliance with section 5 of the FRPA.

By certifying one or more elements of the FSP, I am attesting that in my opinion, in those parts of the FSP, they conform to specific requirements as outlined in section 21 of the FPPR and in forming that opinion I must take all steps necessary as a professional and be qualified and competent in the particular area being certified. I must ensure that I and other professionals are competent to sign the certificate on sections thereof, they are authorized under the current legislation governing their associated profession to practice in the subject areas of the certificate.

- b) Now that my FSP has been approved I have several steps to take and responsibilities as I begin to operate under the FSP.

The FSP continued results and strategies consistent with government objectives under FRPA and it is my duty to ensure and carry out all forest activities to meet the results and strategies contained in the FSP. Whether it is government objectives for: scenic areas and visual quality; lakeshore management zones; general wildlife measures; wildlife habitat areas; wildlife habitat features; ungulate winter range; species at risk; fisheries or temperature sensitive streams; or other values identified through land use planning or public consultation my responsibilities are the same, I am bound by the standards of professional practice.

I must stay competent in my field(s) of practice and ensure all members or non-members under my direct supervision remain competent and maintain sufficient knowledge in their field(s) of practice. I must ensure completeness and correctness for all works undertaken by myself or under my supervision. I must exercise appropriate judgement and discretion with due care. I must hold paramount, public interest and professional principles and

conduct. I must exercise due diligence by being prudent and doing all work with consistent and careful attention.

In summary, my steps and responsibilities when I begin to operate under the FSP are to:

- Ensure competence of all involved;
- Provide continual education for all involved with the FSP (SOP's, Company Government Policies, ongoing training programs);
- Be active locally and provincially to stay informed and keep informed with respect to results and strategies contained in our FSP;
- Keep accurate records of all work completed (Perform pre-works, inspections, follow ups, and document everything)
- Perform quality work to meet the results and strategies of the FSP and stand behind it, continually improving the process, engaging the public;
- Ensure a safe and healthy workplace with safe dependable vehicles and equipment;
- Ensure my licensee has and provides proper and appropriate insurance coverage;
- Ensure fair compensation for work undertaken;
- Ensure that I sign and seal all professional or other necessary documents to ensure our licensee meets and continually adapts our FSP results and strategies.

Answer (scored 10)

a) Introduction

I am preparing a Forest Stewardship Plan (FSP) for my client/employer under the new FRPA. I am held accountable to the Bylaws & Forestry Act as with the Forest Practices Code (FPC) to keep the interests of the public paramount.

There is enhanced professional reliance and a different process – a results base process rather than prescriptive base. I will be held accountable for the advice I give and work that I do. I must have proper regard for the legislation to prepare an FSP (Code of Ethics 11.3.5).

FSP Content Obligations

The FSP must follow a hierarchy of government objectives:

1. Land use objectives (ie. higher level plans rolled over from FPC)
2. Objectives in regulation (ie VWR, WHA, VQO's)

The FSP must adhere to practice requirements in the FRPA and associated regulation. Results and strategies must be in place for the 11 FRPA values (S149).

1. Results and strategies must meet the above requirements and in some cases others that are superseded FRPA (ie Drinking Water Protection Act).
2. To be approvable they must also be clear and measurable. They must answer the questions where, whom and when.
3. They must balance environmental, social and economic aspects of government objectives.

Quality Plan

A FSP must be to a professional standard. It must be free from errors, not misrepresent fact, and not be too vague. I am obligated to get help from other professionals whenever needed ie. from engineers, biologists, and argrologists.

If I was questioned on the plan I would be able to answer questions based on sound rationale and backed with the latest scientific knowledge. I would be thinking of strategies on how to implement the plan while writing it.

Public Consultation

I am obligated to advertise the plan when complete with a map, Forest Development Units (FDU's), and the document. Public comment and presentations will take place for usually 60 days, but there are exceptions on this time to be decreased (deteriorating forest health and fire) and extended (increased public interest). I would also have to make a good effort to meet with local First Nations bands. I would follow provincial FN consultation guidelines.

With public and FN comments regarding the plan I would make necessary adjustments to the FSP, to uphold public's interests and justify why or why I didn't make changes based on public comment.

I would document all conversations, take minutes at meeting, keep advertisement clips, to show due diligence.

- b) Last year only 15 FSPs were approved and up to 300-400 are looking to be approved within the next year. Implementing FSP in its infancy.

I would consider using SFMP's from CSA certification if my company was accredited. This is a voluntary and non-legal process, certification. However, the Forest Practice Board (FPB) has indicated that it is showing the most potential for innovative forest management practices. This and other certification scheme implementations, such as environmental monitoring system (EMS), with ISO14001 can be used to show measurable results.

Quality control and documenting will also be important. An internal monitoring system to check and evaluate progress is a foundation of the FRPA architecture. Continual improvement and having the right staff with the ABGCFP is necessary to implement the FSP.

I would also look to keep current as FSP implementation continues. I would seek Forest Practices Board special reports and FREP's reporting on FRPA effectiveness. Adaptive management strategies may be necessary if innovative practices prove unsuccessful.

I would also loo at advocating the licensee contribute to advance scientific and professional knowledge. I would look into funding from Forest Investment Account to help with costing of scientific research.

Question 6 (Short Answer)

The Chief Forester has been asked to attend a city council meeting in Prince George to explain how the bark beetle infestation is affecting the wood supply to mills and to discuss the various impacts it may have on communities in the North-Central Interior. Unfortunately he is unable to attend and asked that you to go in his place.

a) In particular he asked that you discuss tree, stand and forest level impacts as they relate to shelf-life and the influence on the timber supply starting at the time of the initial catastrophic-level outbreak. You may wish to draw a flow diagram to help you explain the potential impacts to city council.

(4 marks)

b) Given your description of how the bark beetle is affecting stands in the Interior, outline what is being done or should be done to ensure that:

(1) the impacts of the bark beetle on long-term timber supplies will be minimized, and

(3 marks)

(2) the losses in short-term timber value will be minimized.

(3 marks)

Answer (scored 10)

a) Shelf life of a MPB (Mountain Pine Beetle) infested tree is referred to the time between its initial attack from the MPB and when it becomes too decayed (dead) that it no longer has any economic value. This can affect the timber supply trees, it affects individual trees, the stand and the forest.

As the tree's shelf life expires, it loses economic value and therefore cannot be contributed to the timber supply. This can take years and the exact number has not yet been determined as studies are still undergoing and the shelf life of a tree also depends on many characteristics such as age, site condition and ecology, elevation, size, and location in BC (southern portion of the infestation vs. northern fringe), 5 – 10 years shelf life. It must also be pointed that trees infested five years ago may be rearing their shelf life as opposed to trees infested recently may still have a few years left.

The same conditions of shelf life applied to a tree is also applied to the stand. An entire stand, especially a pure mature pine stand will be infested and its shelf life will probably be the same for all within the stand. When an entire stand is infested with MPB, there is greater value lost if the trees are not harvested before its shelf life ends. When mature even-aged stands of pine are present, the entire stand can be infected.

The same concept is applied to forests, but in some cases, parts of the forest may not be infested, probably because either there were some non-pine components or that the pine trees were not the size or age that the MPB targets. Mixed stands may not be as greatly impacted as pure pine stands.

Shelf life can positively affect timber supply in the short run as it can increase the cut. The goal is to acquire the greatest economic gain from the MPB infested trees before they lose their shelf life. In the long run, two things can result from this. First are trees not harvested during the shelf life will have no economic value past their shelf life and

therefore cannot contribute to the timber supply. Secondly, if a high number of trees are harvested during the shelf life, there may be less trees available for harvest once the shelf life of the last infested tree, stand of forest has passed. This will also contribute to the decline of timber supply.

Once the timber supply is depleted, there will be fewer trees left to harvest and that we will be allowed to harvest in order to ensure sustainability and forest stewardship while maintaining all other forest values.

This will have an impact on the economy, as there will be fewer trees to harvest, therefore fewer jobs available from falling to the mills (as shelf life is also applied to felled trees sitting at a mill site), and processing facilitators.

- b) 1) To minimize the impact of the bark beetle on long term timber supplies, the following can be done:
- Once harvested, stands should be planted with a mix species composition to avoid having uniform stands of mature even-aged lodge pole pine to avoid wide spread future infestations to occur.
 - Stop the spread of the MPB at the fringes by harvesting susceptible pine and infested pine at the fringes and burning the waste to ensure no surviving beetles remain to be moved along to spread further
 - Harvesting only the pure pine stands that are infested will ensure that some wood such as spruce, Douglas fir, and hemlock remain after the expected shelf life is over.
 - Also stop the spread, harvest only the susceptible pure even-aged mature lodge pole pine stands, and
 - Remove trees in areas where there is advance regeneration as to not delay the regeneration process.
- 2) To minimize the losses in short term timber value, one can:
- Allow for haul differential to use mills across BC, so that mills can process as much of the infected pine trees as possible as opposed to have them sit in the mill yard and waste away past their shelf life.
 - Encourage and fund research for
 - i. Shelf life
 - ii. Exploring new markets (blue stain cabinets)
 - iii. Non-timber forest products
 - iv. Value added timber products
 - v. Utilization of the MPB infested wood
 - Bio-fuels, wood that is decayed can be used as bio-fuels
 - Working to improve salvage efficiency and prioritizing salvage in areas where shelf lives are shorter or almost up

- Pricing timber, such as the new Grade Codes developed in the Interior
- Expanding markets and exports
- Expanding small scale salvage to allow more business to enter to forest industry and the salvage operators.
- Have new timber tenures that will facilitate the recovery processes.

Answer (scored 9)

Impacts of MPB (Mountain Pine Beetle) on shelf life and timber supply at the tree level:

- MPB attack has a three year cycle within a tree
- Year 1 – called a “green attack”; the tree is still alive
 - In terms of shelf life, the green attack tree has at least 2 more years, perhaps more, before the wood quality starts to decline
 - In terms of timber supply, the green attack tree is still available.
- Year 2 (“red attack”) and Year 3 (“gray”); the tree is dead
 - In terms of shelf life, the red or gray attack tree is steadily becoming less viable as a source of timber (depending on the site and associated decay rate)
 - In terms of timber supply, the red or gray attack tree is available, but only for a limited time, and maybe not for all products.

Impacts of MPB on shelf life and timber supply at the stand level:

- Mountain pine beetle attacks spread out from the initial green attack
- What was green attack in year 1 becomes red attack in year 2, but the surrounding “clean” stand in year 1 most likely will be green attack in year 2 – looks like a “bulls eye” of attack, and so on...
- So, the shelf life of the stand depends on the rate of attack and spread of the MPB.
 - The faster the MPB spreads, the shorter the shelf life of the standing dead timber.
- The timber supply is also connected to the shelf life of the standing dead timber
 - The faster the trees decay and become useless, the faster the timber supply decreases.
 - At the stand level, there are always individuals that either aren’t attacked, or survive an attack, so stay viable as merchantable timber, but they are often uneconomical to leave when harvesting the area.

Impacts of MPB on shelf life and timber supply at the forest/landscape level:

- As entire stands die the shelf life of the dead standing trees quickly decreases
- The timber supply is very high for a short period of time, while the dead standing timber is still viable, but then it drastically droops when all the timber in the area has been salvaged, or it is beyond use in marketable products.

To ensure that the impacts of the bark beetle on the long term timber supply will be minimized, BC’s Mountain Pine Beetle Action Plan has identified a number of objectives, including expanding and diversifying forestry-sector activities, as well as non-forest sector activities. This includes rehabilitating harvested MPB stands, encouraging forest dependent communities to diversify their economics (tourism, mining, etc.) and finding/developing new products that both utilize attacked

timber that may be beyond the shelf life for traditional forest products, or utilize non-timber forest products from MPB attacked stands (eg. Mushrooms). Research is being done on how to maximize the shelf life of dead standing timber and how to best utilize it at the different stages of decay. This is to extend the "life" of the wood supply as long as possible. As well, research needs to be done into growing perhaps more "MPB resistant" trees to plant, which raises the whole issue of climate change and which species will survive in the area in 50 – 100 years (not to be discussed here!). Leaving non-pine stands to harvest after the pine has been salvaged is another long term mitigation strategy, although this may backfire if spruce beetle becomes epidemic, too! (for example...)

To ensure that losses in short term timber value will be minimized, the MPB Action Plan identifies several objectives. These include research into shelf life of standing dead timber; determining the best rate of harvest to obtain the greatest economic value, while considering factors such as wildlife habitat and other non-timber resource values; applying for increases in the Allowable Annual Cut to maximize the MPB salvage available in the short term; maintain and expand forest product markets, including new, innovative products that use MPB wood; and ensure that mills are operating at maximum capacity (which only works if there is a market). As a community, it would be a smart strategy to maximize the salvage operations, but always with an eye to the future – re-invest the money into alternate product development, diversifying the economy and providing retraining opportunities for that mid term period where there will be a drastic drop in both the timber supply and the AAC in MPB affected areas.

Question 7 (Essay)

You have been asked by your organization to oversee the preparation and submission of appraisal data by your staff. You have been advised that there have been several issues with appraisal submissions over the last year or so. You decide to see what you can do to get things back on track.

After surveying staff, you discover that some have no issues with submissions, while others frequently have their submissions questioned for clarification, causing unacceptable delays. The staff experiencing delays say they are “constantly battling” with Ministry of Forests reviewers. Some say they are doing their best to get things right and that the appraisal data are clean and of good quality. They claim the issues found are usually “nit-picky” even when stumpage rates will be clearly below minimums.

You interview Ministry reviewers. They say they follow the appraisal manual and confirm that some appraisals flow through smoothly especially from the more senior submitting forest professionals while other submissions “are constantly missing key data, are sloppy and have no information to support the least cost questions that arise”.

How would you advise your submitting forest professionals on the following issues?

- a) To what extent should they expect their work to be critically reviewed by Ministry appraisal staff. (2 marks)
- b) How forest professionals are guided by their code of ethics when submitting (or reviewing) appraisal submissions, and how they know when they have balanced the needs. (3 marks)
- c) What defines the professional standard of care and the steps they should follow to meet the standard. (3 marks)
- d) What can be done to minimize confrontational situations. (2 marks)

Answer (scored 10)

- a) In the preparation and submission of approved data, the extent that the submitting forest professional's work by which it can be critically reviewed by Ministry appraisal staff is directly linked to the Forest Act. Sections 105.1 and 105.2 of the Forest Act requires licensees to ensure that stumpage appraisal submissions contain “accurate” information and authorizes the government to re-appraise stumpage rates deemed to contain “inaccurate” information. It is important to consider that the notion of accuracy cannot simply relate to whether the licence submits “correct” data for stumpage appraisals. Rather it must relate more to whether the policies and procedures contained in the manuals for arriving at the estimates used in stumpage appraisals are followed properly” (Davis & Company, Forestry Bulletin, June, 2006 Vol 2, No 2)
- b) Professionals, when submitting (or reviewing) appraisal submissions are guided by their code of ethics. In particular, Bylaw 11.4.4 which states that the responsibility of a member to the profession is not to misrepresent facts, Bylaw 11.3.2 to uphold professional principles above the demands of employment and Bylaw 11.3.7 to only practice in these fields where training and ability make the member (me) professionally competent. As a professional

forester signing the appraised submission I must also inspire confidence in the profession by maintaining high standards in conduct and daily work (Bylaw 11.4.1).

I would advise the submitting forester that they have balanced the needs of the regulations and bylaws when

- a. all relevant factors have been considered
- b. the data and cost estimates used to produce the submission are appropriate and representative given their current knowledge and information of the area
- c. Information not gathered personally was gathered by qualified people acting under appropriate instructions.
- d. The submission is logical given the signing forester's knowledge and experience
- e. The appropriate caveat from Bylaw 10 is used when signing and sealing the submission.
- f. The proper peer review is in place for concepts as well as errors and omissions.
- g. Proper support information is submitted with the appraisal is available upon request. (RPF notice to the Profession, December 2001. Professional issues related to Signing Appraisal Data Submissions)

- c) The professional standard of care is an integral component of the ABCFP Competence Standard. The professional care standard states that "Competent members exercise appropriate judgment and discretion with due care". The concept of due care is very similar to the concept of due diligence and is defined by the ABCFP in the Standards of Professional Practice. Guidelines for Interpretation as "the degree of care that is required of a person to prevent an undesirable outcome." Due care is proportionate to the given circumstance, its surroundings, peculiarities and hazards. A professional is expected to exercise due care to avoid reasonably foreseeable negative consequences. It is important that professionals ask themselves the following questions when assessing due care "What would someone with similar education and experience, faced with the same situation do"?

The steps that should be followed to meet the standard of care are firstly to distinguish between the professional standard or expectation and what might be considered common practice of the day. Secondly, the professional judgment must be demonstrated to be reasonable and justified. Reasons in support of professional judgment decisions should be documented. The due care standard should also consider some regular due diligence steps. These would be

- a. has the appropriate background been gathered and incorporated?
- b. Have I consulted with specialists for all areas for which I am not qualified?
- c. Have the people that I have relied on qualified and competent to do the work requested of them?
- d. Have I subjected by work to a peer review?
- e. Have I documented all the steps in the process?

- d) When submitting appraisal information situations of confrontation may arise between the submitter and the reviewer. In order to minimize confrontational situations there are review standards set out by the ABCFP in the Professional Reliance Implementation Guidelines, March 2000, which states that "reviewers are professionally accountable for the quality of their review, not the content of operational plans (in this case the appraisal submission). In

following these guidelines, the following concepts will ensure that confrontation is minimized:

- a. all persons must show respectful regard towards each other
- b. reviewers will not impose their opinion and/or judgment over a valid opinion or judgment of the submitting professional.

Should there be a disagreement of professional opinion, then the submitting foresters opinion must be respected. If the reviewing forester believes there is no doubt that there is significant technical or scientific flow, where it can not be resolved between the professionals, a written rationale should be provided to a higher authority to consider before making a decision.

Answer (scored 10)

- a) First, I would remind the submitters that their appraisal documents are meant to follow the appraisal manual and policies and the reviewers are following the appropriate rules, regulations and policies when reviewing the submissions. Under professional reliance a relationship needs to be built on trust as demonstrated by the reviewers comments that senior submitting professionals flow easily through the system because they are done correctly. Bylaw 10 on signing and sealing demonstrates the requirements that a professional should go through before submission to the reviewers.

I would tell the submitters that their work is being reviewed by professionals under professional reliance to ensure that no data is missing or incorrect. Quite often, professionals comment that reviewers seem to be proof reading for the submitter. The reviewers will follow their Code of Ethics and will not be reviewing and commenting on issues that are a personal preference but will comment on errors or omissions.

I would tell the submitters that I expect a quality document that is complete and free of errors. This would meet the objectives of submitting quality appraisal information through the standards of professional practice.

- b) Ethics

There are many ABCFP Code of Ethics that apply to the professional reviewer and professional submitter. I am only going to mention the most important ethics in relation to the appraisal submission. The professional needs to follow the regard for existing legislation, regulation and policy, therefore follow the appraisal manual instructions. A reviewer should only express a professional opinion when their information is founded on adequate knowledge and experience. This also applies to the submitter if they are not experienced in appraisals and this could be causing some of the problems. The professionals need to inspire confidence in the population by maintaining high standards in conduct and daily work. Therefore their submissions should be free from errors. Neither party should misrepresent facts and should seek advice when they are unclear. The submitters should follow Bylaw 10 when submitting appraisal documents with their

signature/seal. Both parties need to discuss problems with the submissions in a dignified manner without unfairly criticizing the work of other members.

The professional will know what they have balanced the needs when submitters submit equality and complete work that easily flows through the system. The needs will likely improve as trust with the new professional reliance culture improves with time. Ultimately, the balance is achieved when all of the members responsibilities are met to the public, professionals, client/employer and other members.

c) Standards of Care

In the PRTF report, a standard of care was defined as “the standard that meets or exceeds that expected of a professional who practiced routinely in the field; the quality of work expected from someone who is important in the area of practice”, within civil liability the standard of care can be used as a test to determine if the professional met the standard.

The steps that a professional should follow to meet the standard of care are the same that I would recommend to be due diligent. To meet the standard the submitters should follow the requirements of a professional quality plan and duly diligent. The following steps show due diligence:

1. participate in all aspects of continuing education;
 2. be active locally and provincially;
 3. keep accurate records of all work completed;
 4. do quality work and stand behind it;
 5. ensure proper notices and consultation were completed; and
 6. carry adequate and proper insurance
- (Marshall Study Notes)

While due diligence is an administrative proceeding in section 72 of the FRPA, it is similar to the concept of standard care. However, due diligence is held to a higher standard and thus more difficult to pass than standard of care.

As a professional meeting the standard of care is achieved by being competent and practising within my scope of practice. If I have questions and need help I need to seek guidance; this ensures that I will meet the reasonableness test.

- d) To minimize confrontational situations, submit quality and complete work. Proof read/review your submissions before you submit them to the government. This will prevent many conflicts from starting. Understand what errors or omissions were done to improve for the next submission. Remember the Code of Ethics and standards of practice when communicating with each other as professionals. When a reviewer finds a problem, they need to verify amongst their peers if they are unclear of the problem, before talking to the submitter. More open communication needs to be done and this could be facilitated through semi-annual meetings between submitters and reviewers to go over the problem, issues and improvements to build another program. As a professional, that is our obligation.

Question 8 (Short Answer)

A forestry company uses consultants to cruise their cut blocks. The company pre-stratifies the areas and prepares the cruise plan for the consultant to implement.

The consultant cruises the area. The company compiles the cutting permit (CP) and assesses the achieved sampling error (SE). If the SE is too high the company "fixes" the stratification which is "obviously incorrect". The compilation is re-run to see if it is "fixed". If the SE is okay, the stratification is judged to be correct and no adjustments are made.

You are an RPF and have recently been promoted to oversee cutting permit submissions. Your certified cruiser suggests that the process being used is problematic.

- a) Is there a problem with the process? (3 marks)
- b) If a problem exists, what is it? If not, why? (3 marks)
- c) How will you deal with the "suggestion" from your cruiser? (4 marks)

Answer (scored 9)

- a) As a forestry professional I have an obligation to not misrepresent facts (11.4.4). Cruise compilations involve collecting data, then compiling and analyzing that data. If errors exist within the field data, they should be addressed through field sampling (re-sampling). They should not be addressed by changing data to fit the desired outcome. This is a particularly relevant issue for stratified sampling. The honesty of a biometrician requires effective pre-stratification to ensure accurate results. A professional must uphold professional demands above the demands of employment. And a professional should only practice in areas for which they are competent.
- b) If the stratification were obviously incorrect, a competent professional should have noticed this prior to sampling or compiling the data. Changing the stratification would only be permissible if post-sampling stratification were a standard pest management practice. In this situation, it appears to be a solution based on "cooking the books". Forestry professionals in applying their exclusive right to title and practice. Falsifying or "fudging" results does not demonstrate good stewardship (11.3.1) and does not uphold professional principles.
- c) Before making any judgments, I would consult a qualified resource professional such as a biometrician to confirm whether or not this practice is poor stewardship and misrepresentation of facts. As mentioned above, it does not appear to be statistically honest. Because I do not want to unfairly criticize the work of other members, I would also re-check the facts to determine that this process, as described by the cruiser, is in fact how the cruise compilations are done. To do this, I would investigate the standard operating procedures used and compare these to the actions described. Once I felt that I had the facts and a clear understanding of the consequences (from consultation with QRP's- biometricians and possibly peers), I would approach the company and discuss the issue. I would use respectful regard to approach the situation, allowing the other party to explain their methods, provide justification and correct me if, even after my probing, I am misinformed.

If I have determined this is poor stewardship, or unprofessional conduct, I must approach the member to try to resolve the situation if I do not find a satisfactory resolution, I must contact the Association in writing with the particulars.

Answer (scored 10)

- c) There is most definitely a problem with the cruising process as it is currently enacted by the forest company. The company follows the procedures expected of the BC Ministry of Forests which requires that an "unbiased statistical sampling" procedure be developed prior to cruising and that "the population (area) be defined prior to sampling" (communication from Bill Howard, Director of Revenue Branch, BC MoF). As such, the pre-stratification is correct. There is some further latitude for the timber cruiser to "type" the forest on the ground to address items/forest type issues that were not ascertained from air photo's or initial stand/unit reconnaissance before compilation.

Should the (SE)/ Achieved Sampling Error be too large, then the prescribed, and statistically appropriate course is to increase the sample, either through a more intense density of cruise plots or through achieving a larger sample in each cruise plot through use of a lower BAF prism (the tendency in cruise design is to achieve the minimum number of trees and plots to save costs. This is also inherent in the "fixing" of the cruise SE, as it is a cost).

To "fix" the stratification following compilation because it is "obviously incorrect" is an "activity that changes the original intent of established and unbiased plot location is inappropriate both technically and ethically (Bill Howard communication). Therefore, the fixing is against the statistical design, and would draw the wrath of the revenue branch and affect both the employer and the RPF. In addition, the individual is not showing respectful regard for the work conducted in the cruise.

- d) As stated with the response to the previous question, the problem exists in the contravention of the prescribed procedure for the development of the cruise plan, including pre-stratification of the unit before cruising (there was formerly a cruise plan submission requirement, to BC MoF), amended stratification on the basis of forest typing by the cruiser, before compilation, and signed submission of the data by the cruiser.

To amend the typing and cruise data following compilation is a flagrant abuse of the BC MoF cruising manual and the statistical rigour therein. The resultant bias may be detrimental to the company (ie they pay more due to over simplification of the typing, resulting in volume over estimation) or detrimental to the province, which would have further impacts upon the company. In addition, this fixing would require amendment of the cruise cards and/or maps, which are a signed submission of the timber cruiser. This would be either without the cruisers knowledge, or through pressure of the company. All of the above items are both unethical and unlawful. I have personally had to resist changes to submitted timber cruises for the benefit of SE and the benefit of a more "amenable" timber cruise compilation, to the detriment of consulting practice.

I would accept the comment of the certified cruiser and seek to address the problem, eliminating the potential for "excessive" SE and the temptation to "fix" the issue. This would be achieved through:

- Involvement of myself and certified cruiser in the cruise planning state
 - Ensure adequate recce of the unit
 - Stratification
 - Setting of boundaries
- Implementation of more dense cruise plots within the unit, to achieve a greater sample of the population/area/stand/timber types.
- Implementation of higher tree counts per plot through BAF selection, to achieve greater sample size;
- Encouragement of education of contractual consultants
- Education of staff in company on cruising and the technically and ethically correct procedures in cruising;
- Inform supervisors of program and reason for same, including higher cruise costs with benefits of more accurate volume predictions, wood supply predictions, harvest planning, appraisal procedures and compiled stumpage from industrial experience against with two industry clients in the BC interior;
- Emphasize the importance of due diligence in cruise preparation and compilation;
- Emphasize respectful regard to the consultant and their work;
- Remind staff of duty to the public in the truth of their submissions, and to the profession (ABCFP Code of Ethics 4.4 – not to misrepresent the facts);
- Consider in the Code of Ethics 4.1 inspire confidence in the profession and 3.3 to have regard for existing regulation.

Question 9 (Short Answer)

In the winters of 1982 and 1983, periods of cold temperature effectively put an end to an outbreak of mountain pine beetle in the Caribou Plateau (Central Interior of BC). Until the recent outbreak, this was the largest recorded mountain pine beetle outbreak in BC. Approximately 15 years later, the largest beetle outbreak in recorded history began. This outbreak has sparked significant investment in research projects around "shelf-life", regeneration in beetle-killed stands, fire hazard, and other related areas. At the same time, this information is needed now, in order to deal with the impacts of the current outbreak. Therefore, some suggest that these research programs are 15 years too late, and that the current outbreak should have been anticipated and prepared for.

- a) Who has jurisdiction for forest related research in BC? (3 marks)
- b) Who has the responsibility to identify information needs for future forest management issues or problems? How does this relate to BC's tenure system? (3 marks)
- c) Do you believe that there is a suitable provincial strategy for recognizing future information needs? Defend your position. (4 marks)

Answer (scored 9.5)

- a) Jurisdiction for forestry related research lies primarily with the Canadian Forest Service (CFS), through local research stations such as the Pacific Forestry Centre in Victoria. Federal research scientists undertake projects relevant to forest management in BC, Yukon, NWT, and across Canada as relevant. The Ministry of Forest does have a research branch and have many talented and knowledgeable researchers, they tend to be more focused on operational research while the CFS has historically conducted more basic research. The Federal government has also funded several research initiatives such as the Mountain Pine Beetle initiative to promote research identified by local stakeholders. These initiatives are often implemented through universities, colleges as well as research scientists with CFS and MOF.
- b) Resource professions have a large responsibility for the identification of information deficiencies in current and future forest management issues. Historically most of the direction for research has come from government officials (MOF, MOE, etc.). However, this is in the process of changing with the current transition to professional reliance under FRPA. Individual registered professionals will be determining if their actions/plans/strategies meet legislated requirements and public expectations. It will be these individuals who will be identifying knowledge gaps that they see when developing their plans and strategies. BC's current tenure system is not set up for industry to have any incentive to look at long term management. Volume based tenures which account for the vast majority of licenses, do not give any security to the licensee for operations in any given site. After harvesting a licensee has only to achieve free to grow status (maybe 12-16 years) and then they are free of most obligations. The recent introduction of community forests is a huge step towards encouraging long term sustainable management of resources.

- c) BC has several initiatives which are focused on identifying current information gaps and potential future needs. The future Forest Ecosystem (FFE) initiative has broad objectives which range from understand our ecosystems (ie. fill in knowledge gaps) to predicting how climate change might alter our ecosystems (future knowledge gaps) other similar initiatives include the Climate Change Task Team, Species Management Committee; Mountain Pine Beetle Action Plan, Forest Investment Account; Forest Sciences Program, and the Gene Resource Management.

All of these initiatives (and others) look at current information and make recommendations on what they "see" as being needed in the future. If anything, there is somewhat a lack of coordination between these various initiatives and substantial overlap.

So, I feel there are many mechanisms at work to identify various needs for information both new and in the future. However, these individual initiatives do not equate to a provincial strategy that adequately addresses "Resource Management" future information needs. However, there are lots of positive moves in the right directions, especially with FFE and the Climate Change Team. What I feel is a bigger issue is the political will and money to proactively implement recommendations of these initiatives.

There was a Bark Beetle Task Force associated with the Chilcoltin beetle outbreak. They "told" (not sure of exact mechanism) that "we" got lucky, that the risk of the outbreak continuing in the future was great and made several recommendations (including developing access into unroaded drainage where there are high levels of mature pine) designed to allow managers to work proactively against the future outbreak. To my knowledge, these were never implemented, nor has the majority of people seen them or even aware of their existence. The information was there and we didn't act on it.

Answer (scored 8.5)

- a) Within British Columbia, no one agency or organization has jurisdiction for Forest Related Research. The Ministry of Forests have a Forest Research Program ran primarily at the Regional and Provincial level. Universities also perform a great deal of forest related research, from operational, to wildlife/fishers, to social. Industry also has research programs as do organization such as FERIC. In reality almost all research is tied to a funding source and it is generally the funding source that dictates overall research direction and ultimately approves the plan. Many of these research funding is provided with public funds, so in many instances public values have jurisdiction over research. In general research is done to improve science with in turn is used to improve the public goods. The primary funding agency for forester research in BC is the Forest Science Program (FSP) administered by the Forest Investment Account. They have specific areas where they can find research, although it is generally applied research.

FSP has a Sustainability Program and a Timber Growth and Value programs. If your research does not fall within this program you can attempt to get funding from other organizations such as Industry or the "Natural Science and Engineering Research Council" (Federal agency). Many funding programs require co-operation and support from multiple groups, after discrimination of results through extension programs and publication. In

reality, there are no regulated requirements for research, rather they tend to be addressed as issues arise.

- b) At the highest level and being that the majority of forested lands in BC are on Crown Land, the government has the primary responsibility to identify information needs for future management needs. There are numerous provincial and federal agencies (DFO and fish) who undertake inventory programs. Those programs tend to deal with managerial requirements as standards of the land. For example, it is up to the DFO to conduct fish inventories to set salmon harvest levels or the Ministry of Forests for Stand Inventories. Of course, as a Professional Forester, inventories are integral to sound forest stewardship. Thus, to meet due diligence we must have suitable inventories to manage the resource. There are few situations where there is a legal obligation to undertake forest inventories. One example is Section 9 of the Forest Act where the Chief Forester may require a holder of a TFL to prepare and supply plans. Another example of legal requirement is FPPR Sec 86 that requires forest tenure holders and BCTS to report diagnostic forest cover inventory due to harvesting (within 1 year) and when they have achieved free growing. It is also important to note the certain Forest Certification programs, such as CSA, require inventories of resources and practise and collection of baseline data to be used to show improvement in practices over time.

The responsibility is related in large part to BC's tenure system. Very few tenures are long term, with TFL's being one exception. In many tenures, once free to grow status is met, it reverts to Crown Land. There are few situations that provide companies with incentive to collect and maintain long term inventories when their obligation to the land base is limited in time. As a personal observation during my work, holders of TFL's tended to have better and more up to date inventories. TFL's are long term agreements, approximating a level of ownership, providing incentive to do proper inventories.

- c) At this point in time, I do not believe that we have a suitable provincial strategy for recognizing future information needs. Our most advanced would be in the area of timber supply, addressed in large part by the Timber Supply Review completed by the Chief Forester. Our current scientific knowledge and ability to predict growth and yield as well as future climate conditions and societal values, makes this a very challenging process. Government is attempting to create long term monitory programs and inventory as part of the Mountain Pine Beetle Action plan and this is certainly a step in the right direction. It will be imperative however to increase the Scope of the program to include all possible future scenarios. One of the primary constraints on programs is lack of long term funding for both research and monitoring. These types of programs require stable funding over long periods of time. The current FIA funding program for both the FSP and Inventory Programs can be very frustrating by imposing administrative constraints and short funding windows on programs that require years of research. We have been trapped in a reactive approach to our problems, instead of pr-active programs. Quality information is key to making sound forest management decisions and the provincial government needs to come up with a strategy. As professionals we need to advocate for this strategy. To be professionally reliant we need this data. To represent the public, we need this data. We need to encourage long term funding for programs and provide adequate resources and expand current research programs. Agency's such as the Integrated Land Management Bureau

must work to provide easy reliable access to land managers. We need to follow the example in the United States where Inventories done with public dollars are freely awarded to those who need this information. As part of this strategy, we must also work closely with Universities and Research Institutions to identify gaps in the knowledge and develop strategies to fill those gaps.

Question 10 (Essay)

Discuss the rationale for free-growing standards and the relationship between free-growing standards, silviculture expenditures, and allowable annual cut (AAC) determinations. What should you do if you believe that the AAC determinations for a Tree Farm License are based on incorrect assumptions about regeneration delays and future growth rates?

(10 marks)

Answer (scored 8.5)

Free growing standards are a vital instrument in how our practices today will affect forests of the future. The reason why we have standards is so that we can prove to the public that we are executing our obligations as forest practitioners. By signing off on a Free Growing Declaration, we are essentially saying that this particular stand is going to be healthy and viable for future benefits. There has and will continue to be a debate within the forest community on what free growing declarations are actually saying. Where we use an average number of species throughout the stand as the qualifier to meet the free growing standard, we may be misrepresenting what the stand will look like in the future. I think this is becoming a question of the standard of the day and the professional standard. Advocate for change.

Silviculture expenditures are made to get the stand to grow faster thereby reducing the time which the stand can be harvested again. Silviculture treatments would include such things as brushing (trees can out-compete other vegetation), fertilization, use of herbicides, commercial thinning and planting. These treatments are done in part to meet our obligation to reforest the stand but also in part to get the stand back on line sooner. By this I mean that composition and rate of growth, time needed for the forest to be re-established and silviculture treatments are all considered when the Chief Forester makes his/her determination of AAC based on these and other criteria. Therefore, if we are misrepresenting what is actually happening we are providing poor stewardship in that the Chief Forester is trying to establish a sustainable rate of harvest. He/she will consider all the best available information under the Forest Act 8(8) to make an independent judgement. Thus if this information is considerably off, we may be over or under harvesting. This was a key factor in the Pearce report Royal Commission because Dr. Pearce felt that as we moved from old growth stands to second growth we would have a fall down affect in AAC but he predicted that with reforestation and intensive silviculture this fall down would not be realized. This is what ended up occurring after growth and yield information began to become available in 2002 and this is why AAC can remain at this rate. However, if this growth and yield information is incorrect, the AAC may be over inflated. Important to make sure these stands are conveying accurate information for the Chief Forester.

As a professional when I hear that an AAC is based on incorrect information, I must make sure I am competent in the field of practice (knowledge, experience and training) I must (11.3.1) advocate and practice good stewardship – over cutting is poor stewardship (11.3.2). I must also uphold my professional principles above the demands of employment (ie. company trying to keep AAC over sustainable levels – 11.3.6). I must promote truthful and accurate statements on forestry. Thus following these aforementioned items I would first double check my information - is it scientifically and technically correct? Confer with peers ask scientific community. If I determine that the rate is

too high, I must report it so that the timber supply review is correct. This may start a new AAC determination 8.3.2 Forest Act but it is my professional obligation to practice good stewardship.

Answer (scored 9)

Free growing standards are a requirement under FPA where a suitable stand of healthy growing trees, free from brush and competition generally 15 – 20 years after logging depending on approval of standards in the FSP. The silviculture expenditures or costs in obtaining a free growing stand are considered when stumpage is charged to companies. These are called tenure obligation adjustments and are discounted on the stumpage rates during the appraisal process. The AAC (annual allowable cut) is based on assumptions of future growth and yield. If areas become non-productive or are not satisfactorily restocked, the area will be a negative pull on the AAC determination (hence lowering it). If it becomes non-productive, it cannot be considered in the Timber Harvesting Land Base. It is therefore in the licensee's best interest to fully restock areas to the Free Grow Standard not just because it is the law but to practice good forest stewardship and possibly increase their AAC if they can improve silviculture practices and thereby improve growth and yield. These can be proven through Site Index Adjustments, Vegetation Resource Inventories or Change Monitoring Inventories, granted they are done by professionals and are statistically valid.

If I believe the AAC determinations for a TFL are based on incorrect assumptions about regeneration delays and future growth rates, it is my duty to supply this information to the Chief Forester. If I do not divulge the information I could be held accountable under Bylaw 11.4.4 not to misrepresent the facts, this being incorrect assumptions about regeneration delays and future growth rates regardless if they are negative or positive. The AAC has implications for the environment as well as social implications in the form of wages, taxes, and meaningful jobs. To not bring these matters to the attention of the Chief Forester, it may contravene Bylaw 11.3.4 "where a member believes a practice is detrimental to good stewardship of forest land. In addition the member would be practicing due diligence and professional standards of practice and reliance in bringing the incorrect assumptions to light. It is a forester's professional responsibility to honestly present all the facts. However, this all being said, I need to be duly diligent in ensuring that the assumptions are valid and that if another professional's work is involved, I discuss any conflicts with him/her to ensure I have my facts right otherwise I may contravene Bylaw 11.6.2 of the Code of Ethics – not to unfairly criticize the work of other members. It would also be ideal to review these assumptions with peers, co-workers, or fellow professionals for their relevance and accuracy before submission.

Question 11 (Essay)

You are an RPF working for a small forest company. The licensee has asked you to locate a road to a proposed block area. The road must cross a riparian reserve zone (RRZ) and in other places, the proposed harvest boundary extends to the edge of a stream. The stream was classified by a biologist as an S3 stream.

- a) When is it appropriate to harvest timber in the RRZ? When is it legal? Who decides and under what circumstances? (5 marks)
- b) When the RRZ is in a community watershed, what are the rights of the water users? What is the legal framework that ensures water quality to community water users? (5 marks)

Answer (scored 10)

- a) Riparian management has received considerable public attention in the past few decades due to the concerns over water quality, habitat, and fisheries. The regulations ruling harvesting in RRZ are outlined under FPPRs 51 and state that “an agreement holder must not cut, modify or remove trees in a riparian reserve zone, except for the following purposes”:
- Falling or modifying trees that are a safety hazard
 - Topping or pruning a tree that is not wind firm
 - Constructing a stream crossing
 - Creating a corridor for full suspension yarding

Riparian Reserve Zones are required for L1-B and L2 lakeshore riparian classes, S1B, S2, S3 classes, and W1, W2, and W5 classes. Unless the above purposes are required for the riparian classes described above, it is not legal to harvest within a RRZ. It is legal to harvest under those circumstances, or in the riparian classes not cited above (eg. S4, S5, S6 streams).

Given the legalities above, the determination of whether harvesting is appropriate will depend on a given circumstance and site-specific considerations for example, it is preferable to minimize stream crossings that affect the RRZ in order to protect (minimize risk) fish and water quality objectives. Other factors such as natural disturbance requires in an area may also determine the appropriateness of harvest in the RRZ for stream, lake or wetland classes where it is allowed. Research by Anderson in the Foothills Model Forest [available online] has identified ecosystem types and areas where fire “ignores” riparian zones and where harvest may mimic natural disturbance. The decision to harvest in RRZ’s (where it is allowed in FRPR) should be made by a qualified resource professional who has exercised due diligence in determining the rationale and risk assessment involved. The same applies to harvest for the legal reasons cited above (FPPR s51).

In the example cited here, I believe that it may be appropriate to cross the RRZ to access the block, but that it is not appropriate to harvest adjacent to the stream based on the

stream classification. Decisions must be made by members who are competent in the area of practice, especially given the importance of riparian. However, site specific information would confirm the circumstances in both cases. Determining appropriateness is a professional decision that must be made within the limitations/restrictions of required practice requirements. All decisions would uphold professional principles and the code of ethics, and be based on sound ecological principles and data.

- b) Objectives for community watersheds are listed in the FPPR s8.2 and involve the prevention of cumulative hydrologic effects resulting in material adverse effects on quantity, quality of water, or timing of flow. These, as with most other FPPR valves are tempered by the requirement to not unduly reduce the timber supply. These objectives must be met through the practice requirements in FPPR s59, 60, 61 unless alternative results are consistent with OSBG. However, requirements for roads and fertilizer use (s 62,63) cannot be modified and must be complied with. The provincial Drinking Water Protection Act also applies, and GAR s8 addresses Community Watersheds and Water Quality objectives. This legal framework is intended to ensure that water quality is maintained within community watersheds, primarily to ensure maintenance of human health.

When a RRZ is located in a community watershed, water users have the right to be (and must be) notified 48 hours before the commencement of work. However, as a steward of the public resource, consultation should occur prior to finalizing harvest plans. This will allow the forester to determine public concerns and best practice good stewardship based on the valves assigned by society (11.3.1) and will assist in following the stewardship and standard of care standards in the SoPP. Water users should also know that harvesting is not to occur within 100m upstream of a water intake; their licensed water works will not be damaged; no harmful materials will be deposited and fertilizer use will be restricted.

Water users also have the right to comment on the FSP, to participate in local land use planning or on a licensee's public advisory committee/team, and to advocate for change through voting or other means.

Answer (scored 9)

- e) Per the FPPR regulations section 52 (1) and (2), there are exceptions to when harvesting timber within a RRZ is permitted:
1. a) felling or modifying a tree that is a safety hazard (if no other practical option)
 - b) topping or pruning a tree that is not wind firm
 - c) constructing a stream crossing
 - d) creating a corridor for full suspension yarding
 - e) creating guyline tiebacks
 - f) carrying out a sanitation treatment
 - g) a tree wind thrown or damaged by fire, insects, disease, or other causes, if there is no material adverse impact on the RRZ

h) under an occupant licence to cut, master licence to cut or free use permit in respect of an area subject to a license, permit or other tenure under the Land Act, Coal Act, Geothermal Resources Act, Mines Act, Mineral Tenure Act, Mining Right of Way Act, Petroleum and Natural Gas Act or Pipeline Act, if the felling or modification is for purpose expressly authorized under that licence of tenure.

i) or for maintaining or establishing an interpretive forest site, recreation site, recreation facility or recreation trail.

2. An agreement holder who fells, tops, prunes or modifies a tree under sub-section (1) may remove the tree only if the removal will not have a material adverse effect on the RRZ.

A registered professional who is competent, having the proper education, experience, knowledge and training can recommend if trees may be felled within a RRZ. This would require proper approval from a delegated decision maker. If the stream RRZ is federally managed (ie. Salmon), DFO may also require approval. If safety is the number one reason for removal/felling and there are no other reasonable alternatives under the situation; the tree may be felled or modified (ie. during fire fighting or rescue or human life).

- f) Section 59 and 60 of the FPPR detail rules regarding harvesting in a community watershed. It must be ensured that (given authorization) primary forest activities do not cause material that is harmful to human health to be deposited in, or transported to, water that is diverted for human consumption by a licensed waterworks. A licensed waterworks must not be damaged – no person shall harvest timber or construct road in a community watershed if it is to occur within a 100m radius upslope of the licensed waterworks, where water is diverted for human consumption – unless the activity will not increase sediment delivery to the intake.

The Drinking Water Protection Act is mostly concerned with drinking water health hazards. The legislation basically states that no person shall introduce anything, or cause, or allow anything to be introduced to a domestic water system.

Under FRPA the same applies, however, the primary focus is the conservation of all water quality, with specific objectives for soils – to conserve and protect the hydrologic function; and for water, fish, wildlife and biodiversity within riparian areas – to conserve at the landscape level, water quality and all habitats values associated.

Question 12 (Short Answer)

- a) Why is coarse woody debris (CWD) important? Explain your answer with reference to each of the following scales: (3 marks)
- (1) A site?
 - (2) A watershed?
 - (3) A landscape?
- b) What criteria would you use to determine whether or not there is enough CWD and will be enough CWD in the future? Refer to the three scales above if necessary. (4 marks)
- c) For each scale above, identify the two most significant guidelines / practices affecting the levels of coarse wood debris (whether positive or negative) and explain why these guidelines / practices have such a dramatic effect. (3 marks)

Answer (scored 10)

- a) CWD is important for a variety of reasons. CWD provides soil nutrients, soil stability, wildlife habitat, stability for water courses, fish habitat and structure to the forest. Of the 11 FRPA Resource values, 5 are affected by CWD:
- Soils
 - Wildlife
 - Water
 - Fish
 - Biodiversity

CWD is important on a specific site as it directly impacts long-term site productivity. Soil gets its nutrients from the breakdown of CWD. In a natural, un-harvested forest, this nutrient cycling is ongoing and continuous as trees die, fall over and decompose on the forest floor. In a stand that has been harvested and replaced with a young plantation, there is very little CWD available, other than what was left after harvesting. The retention of CWD after harvesting is thus critical to long-term nutrient levels and productivity of the site.

Although CWD is important for other values as well, at the site level its importance is primarily as a nutrient source. At a watershed level, CWD is also important as a nutrient source, but more importantly as habitat for wildlife and fish and a means by which run-off and soil erosion can be controlled. At a landscape level, CWD is important for all of the factors mentioned so far. Its most important function, however, is in providing biodiversity. The great abundance of wildlife species in this province depends on a diverse environment in which to survive. To provide this diversity CWD should be a variety of sizes, species and amounts to provide as great of variety of habitats as possible.

- b) The criteria I would use would be based on the Canadian Council of Forest Ministries (CCFM) criteria and indicators framework (2003). I would first look at biological diversity, the status of forest associated species at risk, the population levels of selected forest associated species, the distribution of these species and how and if they depend on CWD

for some part of their life cycle. If they do, I would have to determine how much CWD is required for them. The availability of CWD is strongly related to the areas of forest by type and age class. I would likely base my CWD assessment on the requirements for soil productivity and wildlife habitat and by default manage for water quality and biodiversity.

I would also have to examine the various ecosystems and their ability to generate CWD over time. Of particular importance are wildlife trees. They are important both standing and down. Many red and blue listed species rely on wildlife trees. Wildlife trees or trees suitable for eventual wildlife trees must be available in sufficient numbers at a watershed and landscape level.

A CWD plan requires that the manager know and understand what the optimum level of CWD is for all forest values in the present. He/she must then attempt to determine if these levels are being met and can be met in the future. To conduct such an analysis would require the input from many resource professionals considering factors such as the cumulative effects of forest harvesting practices, climate change etc. The optimum amount of CWD would be determined by the public. How much do they value certain wildlife species or protection from wildfire?

c) The two most significant guidelines/practices that affect the levels of coarse woody debris are:

- 1) A Site – the CWD retention guidelines for harvesting. This is a positive affect as a long-term nutrient base is retained on site

Riparian Reserve Zones – protecting areas adjacent to streams and wetlands creates a standing source of CWD. Again a positive affect for the protection of stream stability, water temperature control. Provides an on-going source of CWD as trees mature, decay and fall over.

- 2) A Watershed – At the scale of a watershed, we start to see the impacts of the cumulative effect of our forest management practices. At this scale it becomes important to consider the age and species of the various forest types. Requirements for several classes, old growth etc. become more important. Green-up guidelines and Wildlife Tree Patch Retention held ensure that forests are diverse both in their structure and their ability to provide CWD (habitat) for a variety of species. This is positive guidance.

- 3) At a Landscape Level, one important/significant practice that has affected levels of CWD is our Wildfire Exclusion Policy. In some cases, this policy has resulted in in-growth and a build up of CWD on the forest floor. Although some species may have benefited from this, it is an unnatural state which has increased the potential for catastrophic wildfires. These intense fires remove all or most CWD – a negative effect.

Close utilization standards. This practice, if occurring across large areas may be reducing the long-term availability of CWD across the landscape – a negative consequence. This may be compounded by harvesting methods such as full tree

skidding to roadside or landings. CWD is then piled and burned rather than left scattered on the site. This could be a long-term negative consequence.

Answer (scored 10)

- a) Coarse Woody Debris (CWD) is important because in some disturbance types, it provides ecological stability to forests for a variety of different things.

On the site level, CWD maintains:

- Nutrients necessary for healthy soil, plants and root growth (Carbon on site)
- Surface flow interception – water flow across the surface is interrupted by CWD and its presence can affect or prevent terrain stability, slumps, mass wasting
- Habitat for animals of all species
 - i. Birds nest and get food
 - ii. Varmints use CWD for cover as well as hunting
 - iii. Predators hunt the animals for food that rely on this wood on the ground of standing
- Streams – fish habitat and stream bed stability

Watersheds needs CWD to:

- Stabilize the timing and volume of peak flows in streams. CWD provides this by slowing down surface runoff and breaks up snow pack with shadows and bare spots to stabilize melt.
- CWD in streams provides for a healthy watershed as it “locks up” streambeds to keep bed load and sediment from unravelling downstream.
- Temperature moderator for watershed stream and site maintenance of natural processes.

A landscape requires CWD to provide the stability of the populations that inhabit it:

- CWD provides corridors for movement of animals and food chain maintenance
- CWD ensures stability of temperature so the landscape can recover quicker from disturbance
- Healthy site functioning is apparent in healthy landscapes, one cannot exist without the other.

- b) Criteria that can be used to determine whether or not there is enough CWD and CWD for the future is going to require the use of all available information including science, research, inventory and on the ground estimates (surveys)

To advocate good forest stewardship, a framework of background information for every area must be on hand. Staying informed on the best available science will go a long way towards being able to know what information is necessary. When trying to decide on how much CWD is enough you must first know how much is on the ground. Comparing these numbers to standards, if available, can at least quantify your situation.

There is also other areas that will be similar to yours that could be looked at and compared using inventory.

Looking outside of actual numbers on the ground, you can incorporate other indicators of a healthy forest. Wildlife populates, fish populations, stream health/functioning and performance or success of silviculture in your area. A system of guidelines could be imposed from some other area or you could create your own based on the best science available. To this, a proper Functioning Assessment could be used to ask the necessary questions required of a healthy functioning ecosystem. If there are terrain issues, stream bed load movement or sediment delivery problems, or plant survival issues, they will be answered in your assessment. As well, CWD inventory and qualitative approaches combined will help decide whether there is enough CWD for today and tomorrow. If you are not competent in making these calls, seeking the advice of other professionals will help sort through the data, reports or assessments to concur with your specific criteria.

Specific Criteria Summary:

- Inventory, comparison to other areas
 - Wildlife populations (connectivity with other populations)
 - Wildlife populations (all levels. Birds to predators – Ungulate)
 - Wildlife populations (hunting/recreationalist surveys)
 - Wildlife populations (stream health – fish)
 - Stream Assessments – indicators of properly functioning and stable streams
 - Proper Functioning Condition Assessment
 - Site health and plant performance
- c) Site Level – Wind throw – Wind throw places standing timber on the ground where it can be utilized by the land driven process while also contributing to recruitment of CWD in streams for stability and fish habitat purposes. Though too much at once is negative, the majority of wind throw is positive. The actual practice or guideline responsible for wind throw is retention of standing trees in cut blocks and in riparian reserve zones.

Another site level practice is the removal of trees from the site in its entirety. Instead of processing the tree where it is cut and leaving the unusable portions, the whole tree is taken out with the remaining wood burned or the landing. Negative for CWD recruitment.

Watershed – Current legislation to expedite MPB killed forests timber supply, uplifts may result in more removal of CWD than an ecosystem can successfully handle. A negative reaction. Equalled Clear Cut Area looks at the watershed as a whole and ensures that there is enough standing timber present to allow for natural processes to occur. Keeps the link or connectivity amongst stands of timber for wildlife and other forest users. Both for habitat and for migration. Positive reaction.

Landscape

- Fire Management Plans / Suppression of Forest Fires
- For communities, managing the areas surrounding will help prevent forest fires and keep CWD available

- Same for all areas under forest fire prevention and suppression. Keeping these fires from burning up CWD is paramount. Positive.
- Bark Beetle Regs. This allows tenure holders to react quickly to MPB infestations and slow or spread the advance of MPB which leads to removal of CWD via logging or catastrophic fires. Positive?

Question 13 (Short Answer)

A community forest can be described as any forestry operation managed by a local government, community group, or First Nation for the benefit of the entire community. There are several examples of community forests in BC, including those on private land and those issued as pilot community forest tenures and Community Forest Agreements by the Ministry of Forests and Range (Ministry). The Ministry is in the process of reviewing their community forests program.

Describe, using examples:

- a) The roles of community forests in BC. (4 marks)
- b) The merits and disadvantages of community forestry in BC. (4 marks)
- c) Any improvements warranted to meet ongoing program needs/objectives in the future. (2 marks)

Answer (scored 10)

Community Forest Licence and Agreements were introduced by government in July 30, 1998. Pilot programs were established first with a term of 5 years and were intended to test the legislation and legal process of the agreements. Provisions for Community Forest agreements (CFA) are described under the Forest Act. CFA are area based and can be directly or competitively awarded. They have a term of 25-99 years and are replaceable every 90 years, longest tenures. The licensee holder has a responsibility for strategic and operational planning, inventories, reforestation and stumpage payments. CFA issues the exclusive right to harvest an AAC in a specific area to licence holder. First Nations municipalities, towns, cities, member of the public can apply for a CFA. In March 2006, an independent review of CFA program was initiated to detect the viability of the program and recommend changes if warranted to policy, legislation and direction.

- a) Roles of community Forests in BC:
 - Government objective with the issuance of a CFA was to provide for community management of crown forest land and provide communities with greater flexibility to manage local forests.
 - CFA will provide for long term opportunities for achieving a range of community objectives such as employment, forest related education skills, training and other social and environment, and economic benefits.
 - CFA hope to balance uses of forest resource (ie. manage for other resources besides timber such as botanical and other non-timber forest products.
 - CFA must meet the government objectives in respect to environmental stewardship including management of timber, H₂O, fish, wildlife, cultural heritage resources.
 - CFA will encourage co-operation among stakeholders
 - CFA will provide economic and social benefits to communities and SRPS who hold the licence (Policy Review Binder)

- Under the Forest Revitalization Act, more tenures will be issued as CFA – the interest is to diversify and strengthen BC forest economy and make it easier for new participants to enter the industry, and with them, bring new ideas and innovations. Volume to CFA and other small tenures will increase by 1.2 million m³

b) Merits of Community Forestry in BC:

- CFA provides people living in forest communities with the ability to develop and work towards forest management goals that reflect their collective values to priorities.
- Diversified tenure system
- Promotes innovative forest practices because it is a long term investment
- Increases SFM awareness
- Facilitates investment into community priorities and enhances sustainability of rural communities and SRPS.
- CFA can include provisions for rights to harvest, manage and charge fees for botanical forest products thus increasing cash flow to community
- Helps communities diversify forest economy and build on opportunities
- Longest form of tenure, promotes investment

Disadvantages of Community Forests in BC:

- Legislation (current) is not specifically written for CFA yet. (ie. provincial legislature and policy is designed for major industries and CFA are no longer managed under Wood Lot Registers.
- Many communities with CFA do not have milling facilities therefore they may have problems finding buyers for timber, timber could be too expensive to have to nearest milling facility.
- Percentage of BC timber sold competitively is still very small which could result in lower selling process for independent sellers
- Probationary period of 5 years is seen as a constraint for securing initial investment
- Size of CFA are seen as too small to be profitable and sustainable.

c) Potential Improvements:

- Remove probationary period to facilitate initial investment
- Increase volume of timber sold on open market so CFA holders will have best opportunity to receive fair market value for timber
- Improve legislation, tailor it specifically to unique situation of CFA

- Promote/educate on the benefits and options available in the non-timber forest products market.
- Increase education to facilitate maximum benefit from CFA to new licensee holders such as First Nations.

Community Forest Agreements are a unique opportunity to increase the diversity and innovation in BC Forest markets. However, CFA cannot just be granted the tenure and left alone. Special legislation and programs must be developed so licensee holders can maximize the benefits of the licence.

Answer (scored 9)

a) The roles of community forests in BC are as follows:

- To place the control of the forestry around a community under the control of that community, such as the case around Nelson; where the case is that the community is dis-engaged with industrial forestry and forest licensee's and distrustful of the management of the resource in this light. This allows the "community" to manage the forest for resources other than timber products, including formal and informal recreation use, water supply and quality; non-timber/botanical forest products; local wildlife interests and so forth. The emphasis being upon locally responsive forestry with empathy for the community cultures.
- Other uses of community forests are the control of harvest around the community, for aesthetic and continuity of timber supply.
- To provide greater opportunity to local businesses and employment, including local entrepreneurs, prevention of rural to urban population drift , and development of value added industries.
- Management of the urban/wildland interface for fire management and community, fire safety issues, eg. Tumbler Ridge.
- Minimize controversial industrial issues, such as pesticide use.
- Access forests around communities that licensees avoid due to their increasing negative publicity averse character.
- Diversify the tenure of BC, especially in light of the increasing combining of licensees into super-licensees. Also of use in obtaining settlement of Softwood Lumber Dispute.

b) The disadvantages of Community Forest Agreements are as follows:

- Most harvest volumes/AAC's are such that employment and community benefits to not accrue, relative to a larger tenure. This limits the benefit to the community and reduced employment prospects.
- The licences issued are seldom of large enough AAC to influence local markets, especially where licensees have been consolidated into a single market. As such,

the product of the community forest can be virtually discounted as part of the mill input in the immediate area. Local businesses can seldom achieve capacity to fill the role, especially in the short term.

- While the product may have limited market power, most community forests are still paying industrial stumpage rates. This is further complicated by reduced ability to achieve economics of scale.
- Higher likelihood of within community conflict on the issue of management and direction of the forest.

In the merit column, community forests

- Allow sensitive harvest around the community
- Avoid corporate control of the forests around the community
- Diversify tenure, with respect to the number of licensees and softwood lumber
- Allow local implementation of innovative and intensive forest practices.
- Provision of fire wood for the community (controlling unmanaged firewood harvest)
- Provision of local employment and business opportunity
- Holistic value to community of "ensuring" forest
- Bring areas into production around community
- Consider community VQO's
- Development/maintenance of Botanical Forest Products (BFP)
- Wildland/urban interface management
- Watershed and drinking water management
- Management of BFP extraction eg. Pine mushrooms in the Niagra area, to prevent over exploitation.

c) Improvements that are warranted to the community forest program are:

- Increase the land base and AAC for each community forest. This would facilitate the hiring of full time staff to manage and work in the forest. Current AAC's are insufficient to retain an RPF, provide an office and vehicle for the RPF's use. This results in part time management, to the detriment and loss of the community forest. A larger licence would remedy this issue.
- Increase the AAC to the CFL, through takeback from the industrial licensee. This would ensure the local market for the product of the CFL, and ensure the continued and successful existence of the CFL. To fail to do so is an apparently cynical expectation of failure through lack of provision of beneficial stand up conditions.
- Assign a greater population of the Provinces AAC to BC Timber Sales. Only when more of the AAC is proved in the open market will fair market price be achieved.

This would be to the benefit of the community forest (and community), the revenue of BC, (through the influence of the evaluation system under the recent modifications to the appraisal system) and to the continuity of the forest industry, through removal of the *caus belli* of the softwood lumber dispute.

- Introduce BC MoF foresters as CF advisors, especially during initial stages, to ensure success of CF program. MoF should split into Authority section and Enterprise section (ie. BC Timber Sales). This division occurred in the UK Forestry Commission, eliminating the dichotomy of the government being business and authority, though the government is now supervising the activity of government.

Question 14 (Essay)

The role of First Nations in forest management in BC has increased with the issuance of a variety of timber tenures for the harvesting and management of forest resources on Crown land, and with forest land allocations made under Treaty settlement processes.

Describe the key roles and responsibilities of professional foresters in the management of forest resources with respect to:

- a) timber tenures held by First Nations on Crown land whether or not the tenure is in their traditional territory;
- b) lands that have been included in a treaty negotiated with First Nations in BC.

(4 marks)

(6 marks)

Answer (scored 9)

First Nations (FN) role in BC forest management has increased with changes in the tenure system brought about by the Forest Revitalization Act and the treaty settlement process. As a result the forest professional's role in BC has grown to demand more knowledge on the professional's part regarding FN issues.

Forest Professionals have legal, ethical and forest management responsibilities with respect to tenures held by First Nations on crown land whether or not the tenure is in their traditional territory. Forest professionals must follow the Forest Act and "Haida" supreme court rulings in 2002 & 2004. These rulings state that the crown and crown licensees must consult and accommodate claims of aboriginals right to title and crown must consult whenever government has knowledge, real or constructive of the potential existence of aboriginal rights and title. Professionals must also follow the Foresters Act and ABCFP Bylaws, including the Code of Ethics and Standards of Professional Practice. Professionals have a duty to have meaningful consultation with FN and advocate and practice good forest stewardship. Members also have the responsibility to work to extend public knowledge of forestry. This being said, many First Nations may lack the experience, knowledge and education to effectively and legally manage their tenure. If this is the case, members have a duty to inform and educate if requested to do so (11.3.9). An interim agreement available to FN in lieu of a negotiated treaty is the Forest & Range Agreement (F&RA). F&RA is a strategic policy approach to fulfilling provincial duty to consult with FN with respect to possible infringements of potential FN or treaty rights when there is uncertainty of FN claims yet to be proven. The F&RA is an interim agreement between the MOFR and FN's until FN interests are resolved through treaty settlement. Therefore, forest professionals must be aware of the F&RA and their legal responsibilities. It is important to note that some FN SRPS are nervous to sign these agreements in fear they will hurt subsequent treaty negotiations, however, F&RA are not part of any treaty settlements.

The key responsibilities with respect to lands that have been included in a treaty negotiated with FN's. In the absence of treaties professionals must assume that the existence of FN rights to title exist, thus performing proper consultation procedures and adhering to COE, S of PP and promoting good forest stewardship. If it is proven there is no existence of aboriginal rights and title then the professionals ethical responsibility change in that they no longer have to provide for meaningful consultation and accommodation.

Once lands have been included in a treaty, forest professionals must be proactive in including FN in the planning process. It is best if discussions and consultation can occur at the ground level and relationships can be developed and worked on. It will be important to establish open relationships based on trust. During the consultation and accommodation process professionals have to consider the impacts of their decisions on FN interests and if infringement occurs, would be justified. It is up to the forest professional to seek and work towards workable accommodation of FN interest and negotiate a resolution.

As stated earlier, the key roles and responsibilities (adhering to current and relevant legislation and following Foresters Act and ABCFP Bylaws) will not change for the forest professionals when working with FN that have treaties established or not. What will change is the forest management practices employed such as the level of consultation and accommodation. In working with FN, it may be all that more important to remember that your responsibility are to the public, professional and employment and that you must promote good forest stewardship and work towards extending knowledge of forestry.

Answer (scored 8)

- a) The key roles and responsibilities of professional foresters (RPF) in the management of forest resources remains the same regardless of the tenure holder. As an RPF I have a professional responsibility to the public, the profession, my employer (in this case the First Nations tenure holder on crown lands) and other members of the ABCFP. I have a responsibility to ensure public values are protected and that I promote and practice good forest stewardship. I am bound by the ABCFP Code of Ethics, however and wherever I may practice (11.1).

I am to remain competent, independent, accountable and with integrity at all times and to all decisions in my employment and elsewhere.

The First Nations tenure holder may own that tenure, but at all times I must remain professionally reliant, exert professional independence and adhere to all legislation. I must have due diligence in all aspects of my work and consult other professionals when I feel it's necessary, maintain standards of professional practice (bylaw 12).

My employer may change over the course of my career, yet my professional accountability, integrity, independence and competence must always be to the highest level as set out in the Foresters Act (Sect. 1-5) and ABCFP Bylaws. Timber tenures held by FN may be a result of the "take back" in which case they would be a part of the FRPA.

- b) My roles and responsibilities as a RPF remain the same as above. I am still managing a forest resource and although the scope of the "public" is to the FN treaty holder, I am still responsible to this public as they have entrusted me with their forest resource.

Under the ABCFP, my responsibility is to the public (the FN treaty holders). I would also consider the public to be any user of that affected area within the treaty area. There may be non-first nations individuals, recreational users, tourists, and visitors. First Nations individuals may have conflicting interests. I would advocate and make those points during discussions with

my employer, in order to remain objective about decisions and consider all viewpoints. My responsibility is to the profession, to maintain the Code of Ethics, reputation and other standards of professional practice (as stated in 14A), my responsibility to my employer and the other members.

Part of the ABCFP Code of Ethics states that I am to uphold existing legislation and regulation. As a treaty holder, the FN holding that treaty now have treaty rights which are rights held by that aboriginal group under that particular treaty. The treaty rights are recognized and affirmed in Section 35 of the Constitution Act, 1982. Treaty rights vary depending on the scope of the treaty, and I would be responsible for familiarizing myself with that specific treaty.

Because I am not a lawyer, I may want to consult professional legal advice by a person with such expertise. I would check their reputation, education experience prior to taking advice. The FN may already have such. Other legal obligations I must consider are any bylaws the FN may have created within their own community or community within the defined treaty area.

Because FN treaty negotiations are complex and treaty settlements have been varied, I must familiarize myself with the legal components.

As the FN is my employer, I will also need to understand what their objectives are for the land management (Bylaw 11.5.1 – 11.5.8) and maintain the Code of Ethics.