

# SIMON FRASER UNIVERSITY

S.78-130

## MEMORANDUM

As adjusted and approved  
by Senate November 20, 1978

To..... Senate .....	From..... N. R. Reilly, Chairman .....
	Senate Committee .....
	on Undergraduate Studies .....
Subject Program Proposal, Kelowna School .....	Date..... 1978-11-10 .....
of Resource Management .....	

Following the Winegard Commission's Report in 1976, Universities Council provided funds to enable Simon Fraser University to develop a detailed plan for providing degree completion opportunities to non-metropolitan areas in the Province. The resulting SFU plan contained proposals for seven regional university schools as well as a package of distance learning systems. General endorsement of the concepts contained within the Interior Programs Planning Committee Report was given by SCAP and Senate in the Fall of 1977. In late 1977, the former Interior University Programs Board approved initiation of a Kelowna-based School of Resource Management and sent a recommendation to this effect to the Universities Council of British Columbia with a request that funding be provided over a five-year period. This was initially rejected by the Program Coordinating Committee of UCBC but a revised proposal for a Kelowna School of Resource Management was approved in principle by SCAP and Senate in early 1978. The Universities Council of British Columbia approved the program in principle but requested more detailed information on curriculum and program delivery before providing major funding. Funding and authorization were given, however, for a year of more detailed planning. Extensive investigation and planning has led to the current more detailed proposal.

The present proposal for the Kelowna School of Resource Management was discussed in considerable detail at the meeting of the Senate Committee on Undergraduate Studies on Tuesday, November 7, 1978. The Senate Committee on Undergraduate Studies recognized that, in the absence of the faculty who would be responsible for mounting and teaching the program, it was not reasonable to expect so much by way of detailed course outlines as is customary for courses to be taught on campus, developed by the faculty who expect to teach them. The Committee's approval of the courses in the Kelowna School of Resource Management was therefore on a "pro tempore" basis on the understanding that the courses would be brought back to SCUS for review within one year of first being offered.

Action at the meeting of the Senate Committee on Undergraduate Studies on Tuesday, November 7 gives rise to the following motion:

MOTION: That Senate approve and recommend approval to the Board of Governors the proposal for the Kelowna School of Resource Management as set forth in S78-130, including in particular, the following features:

- i) the establishment of two degrees:
  - Bachelor of Science (Resource Management)
  - Bachelor of Science (Forest Resource Management)

- ii) that both degrees be General Degrees/<sup>but</sup>without a specific Major subject, with a requirement of a graduation grade-point average of 2.0 calculated on all the courses taken from the Kelowna School of Resource Management used for credit toward the degree (excluding duplicate courses), and subject to the fulfilment of the requirements as outlined in paragraphs (iii) and (iv) below;
- iii) students transferring into the School may be given course transfer credit for specific KSPM 300- and 400-division courses. However, at least 60 hours of the 75 hours required for the B.Sc. (Resource Management) and at least 75 hours of the 90 hours required for the B.Sc. (Forest Resource Management) must be taken from the Kelowna School of Resource Management;
- iv) Curriculum requirements:
- a) first and second year required courses as outlined on page 13A;
  - b) first and second year recommended courses, as outlined on pages 13A and B;
  - c) program for semesters 5 and 6 as specified on page 14;
  - d) program for semesters 7, 8, 9, and 10, as specified on pages 15 and 16.
- v) Approval "pro tempore" of each of the new courses proposed on pages 27-32:

KSRM 300-3	-	Introduction to Resource Planning and Decision Making
KSRM 301-3	-	Natural History of British Columbia
KSRM 302-3	-	Introduction to the Study of Soils
KSRM 303-3	-	Map and Air Photograph Interpretation
KSRM 305-3	-	Quantitative Methods in Resource Management
KSRM 306-3	-	Biological Management of Natural Populations
KSRM 307-3	-	Natural Resource Economics
KSRM 308-3	-	Geomorphology and Hydrology
KSRM 310-3	-	Agroecosystems
KSRM 311-3	-	Regional Economics
KSRM 312-3	-	Tree Physiology
KSRM 315-3	-	Animal Physiology
KSRM 316-3	-	Resource Management and Traditional Culture
KSRM 317-3	-	Principles of Surveying
KSRM 319-3	-	Managerial Economics
KSRM 322-3	-	Techniques and Systems Analysis
KSRM 323-3	-	Modelling and Analysis of Natural Resource Systems

- KSRM 324-3 - Climatology
- KSRM 326-3 - Environmental Ethics
- KSRM 400-3 - Management of Non-Renewable Resources
- KSRM 401-3 - Regional Planning
- KSRM 402-3 - Environmental and Resource Law
- KSRM 404-3 - Behaviour and Decision-Making in Business Organizations
- KSRM 405-3 - Public Policy Analysis
- KSRM 406-3 - Environmental Impact Assessment
- KSRM 408-3 - Individual Study Project
- KSRM 410-3 - Introduction to Forest Resource Management
- KSRM 412-3 - Forest Ecology
- KSRM 413-3 - Forest Mensuration
- KSRM 414-3 - Range Management
- KSRM 415-3 - Forest Harvesting
- KSRM 416-3 - Silviculture
- KSRM 420-3 - Introduction to Fish and Wildlife Management
- KSRM 421-3 - Limnology
- KSRM 422-3 - Fish and Wildlife Ecology
- KSRM 424-3 - Oceanography
- KSRM 425-3 - Fisheries Management
- KSRM 426-3 - Wildlife Management
- KSRM 440-3 - Introduction to Water Resource Management
- KSRM 441-3 - Management of Water Quality
- KSRM 442-3 - Forest Watershed Management
- KSRM 444-3 - Water Resource Management
- KSRM 452-3 - Recreational Resource Planning
- KSRM 453-3 - Public Participation Procedures
- KSRM 454-3 - Sociology of Leisure
- KSRM 455-3 - Rural Planning and Development
- KSRM 491-3 - Fire Protection
- KSRM 490-3 - Forest Pathology
- KSRM 493-3 - Forest Entomology
- KSRM 494-3 - Advanced Silviculture
- KSRM 495-3 - Evolution of Forest Policy in British Columbia

*Norman R. Reilly*

N.R. Reilly

SIMON FRASER UNIVERSITY

SCUS 78-59

MEMORANDUM

N. R. Reilly, Chairman Senate Committee on Undergraduate Studies	From: J. M. Munro, Director Kelowna School of Resource Management
Subject: Program Proposal, Kelowna School of Resource Management	Date: October 30, 1978

Attached is the program proposal for the Kelowna School of Resource Management. This is a revision and elaboration of the program considered by SCAP and Senate earlier this year. The earlier program was considered by Universities Council last April but did not receive final approval. Instead, the University was authorized and funded to undertake another period of planning. The current program proposal reflects this additional planning effort.

Both SCAP and Senate gave approval in principle to the Kelowna School of Resource Management program earlier this year. This followed general endorsement of the concepts contained within the Interior Programs Planning Committee Report by SCAP on September 21, 1977 and by Senate on October 3, 1977. (S. 77-101). At its meeting of January 25, 1978, SCAP approved the following motion:

"that the Senate Committee on Academic Planning approve in principle the general philosophy of the program for the Kelowna School of Resource Management and recommend approval to Senate."

At the Senate meeting of February 6, 1978, the following motion was approved:

"that Senate approve in principle the program as set out in the attached report (S. 78-13) regarding the School of Resource Management in Kelowna."

Because of these earlier approvals, the Chairman and Secretary of Senate have agreed that SCAP consideration of this detailed program revision is unnecessary.

The program planning process is outlined in the program document. It has involved extensive consultation inside and outside the University. I draw your attention particularly to the contribution of the Curriculum Planning Committee. Thus, while the Kelowna School of Resource Management program proposal has not been considered by a Faculty curriculum committee (the School is not designed to be part of a Faculty), it has been widely reviewed. I am sending a copy of this program proposal to Chairmen of the Faculty curriculum committees and informing Department Chairmen of the proposal.

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If SCUS approves the proposed program, it will be considered at a special meeting of Senate on November 20, 1978. Approval at this stage would permit consideration by the Program Co-ordinating Committee of Universities Council on December 8th and by Council itself on December 18th. Approval at each stage with this timing is virtually essential if the School is to begin offering courses in September, 1979.

*J. M. Munro*

JMM/lmb

cc: H.M. Evans

# SIMON FRASER UNIVERSITY

## MEMORANDUM

To See distribution list below.

From Dr. J. M. Munro, Director

Kelowna School of Resource Management

Subject Program Proposal, Kelowna School of  
Resource Management

Date October 31, 1978

Attached is the Program Proposal for the Kelowna School of Resource Management. It will, I understand, be considered by the Senate Committee on Undergraduate Studies at its meeting of November 7, 1978

Prior to your receiving the SCUS papers I thought I would draw your attention to the issue of overlap between Kelowna School of Resource Management (KSRM) courses and departmental courses at Simon Fraser. Some proportion of the KSRM course material is contained in courses presently included in departmental curricula. However, the overlap between KSRM courses and departmental courses seems inevitable and, in fact, necessary. Regional University Schools have been conceived as self-contained academic units operating in a location remote from our main campus and offering an integrated curriculum. The curriculum of the Kelowna School of Resource Management focusses on the management of natural resources and necessarily contains material in the natural and social sciences that is contained in departmental courses. However, few of these courses would in practice be exact counterparts to KSRM courses because of the special professional orientation of the KSRM program and because different faculty will be teaching the courses. For these reasons, we hope that SCUS will accept the overlap between the KSRM courses and existing departmental courses.

The issue of transfer credit between departmental courses and KSRM courses still remains to be dealt with. As pointed out in Section VII of the course proposal, decisions of this type must await the appointment of School faculty and the development of detailed course outlines and bibliographies. Only then will the necessary discussions with departments concerning course equivalencies be possible.

*J. M. Munro*

Distribution: Dr. W. Roberts, Chairman, Faculty of Arts Curriculum Committee  
Dr. M. Wideen, Chairman, Faculty of Education Curriculum Committee  
Dr. J. Dickinson, Chairman, Faculty of Interdisciplinary Studies  
Curriculum Committee  
Dr. L. Kemp, Chairman, Faculty of Science Curriculum Committee

cc: Department Chairmen. (Copies of the program proposal can be obtained by telephoning Linda Bradley at 4797.)

D. R. Birch  
N. R. Reilly  
✓ H. M. Evans

PROGRAM PROPOSAL  
Kelowna Programs Board  
Management and  
KELOWNA SCHOOL OF RESOURCE MANAGEMENT

I. Simon Fraser University Plan for Interior University Programs.

In the Spring of 1976, the Government of British Columbia established the Winegard Commission on University Programs in Non-Metropolitan Areas. Later in the year the Commission recommended that a new division of Simon Fraser University or, alternatively, a new university, should have responsibility for providing degree completion programs in the non-metropolitan areas of the Province. The Commission's report was considered in detail by Simon Fraser University during the Fall of 1976 and, as a result of internal deliberations, money was sought and received from the Universities Council to develop a detailed plan. The S.F.U. Interior Programs Planning Committee Report was submitted on September 15, 1977 to the Universities Council and to the Ministry of Education.

The S.F.U. plan provided a two-pronged approach to degree completion. It included a basic distance learning system developed to meet British Columbia's unique needs which would largely be based, like the Open University in the United Kingdom, on correspondence materials supplemented, as appropriate, by tutorials and radio and television broadcasting. This responsibility is now to be shared by the universities and the Open Learning Institute. Rather than the university centres suggested by Dr. Winegard, which we felt to have limited viability both economically and educationally, we developed the concept of the Regional University School.

A Regional University School would be a university unit placed in an Interior location, establishing a university presence in the area and offering classroom-based instruction to students in a focussed interdisciplinary completion program. A School would be an integral part of Simon Fraser University, making use of the full range of the University's academic support

services, but designed to operate with a considerable degree of administrative autonomy. Faculty members would be appointed to the School, not to academic departments, and the School would not be part of one of the University's Faculties. Faculty members would, of course, be members of Joint Faculty and Convocation.

In the development of a School program, a curriculum would be designed to meet the needs of the region and the teaching and research functions of a School would complement each other. The research would take advantage of the opportunities and problems presented by the region in which a School would be located. An overall assumption was that students, attracted by the uniqueness and excellence of School programs, would come from all of British Columbia, including the Lower Mainland, and perhaps from other provinces as well.

In appendices to the Report, we suggested certain kinds of programs which we felt would be viable in different locations within the Province. One of these was a School of Resource Management.

## II. School of Resource Management Proposal.

Simon Fraser University selected the School of Resource Management from the seven Regional University School models for development in the Fall of 1977. The Resource Management model appeared to be easier to develop than some of the others and it was believed to be capable of meeting important educational needs in the Province, particularly in the Interior. Kelowna was designated as the location of this School because of the strong interest there in university degree programs that was made apparent during the Winegard Commission and the work of S.F.U.'s Interior Programs Planning Committee. Other important factors were the rich mix of resource endowments in the Okanagan region and our previous experience in offering degree completion programs in Psychology and Biological Sciences in Kelowna.

In late 1977, the former Interior University Programs Board, <sup>University presently</sup> approved initiation of a Kelowna-based School of Resource Management and sent a recommendation to this effect to the Universities Council (UCBC) with a request that funding be provided over a five-year period. The Program Coordinating Committee of UCBC did not concur with this recommendation. Subsequently, UCBC approved the program in principle but requested more detailed information on curriculum and program delivery before providing major funding. Funding and authorization were given, however, for a year of more detailed planning.

Since last Spring efforts have been concentrated on appointing a Director and, with his appointment, on undertaking an accelerated program planning effort. The details of that planning effort are described in the next section.

### III. Program Planning Process.

A. The major planning task has been to develop a curriculum and, based on it, a budget for submission to Universities Council in December 1978. Other aspects of planning for the Kelowna School of Resource Management are discussed in Sections VIII through XII below; none of them, however, have been advanced to the same point as the curriculum and related matters.

B. Our original intent last Spring was to submit a skeleton program proposal. Believing that the faculty who will teach in the School must, and will, have a decisive role in shaping its curriculum, we decided last Winter to submit only a very general overview of the curriculum. After approval and funding, faculty appointed to the School would have revised and elaborated the program. However, it became apparent during consideration of the School of Resource Management proposal by Universities Council and its committees that a skeleton program proposal provided

insufficient description and explanation of the program for the necessary approval to be obtained.

Accordingly, the present proposal includes considerably more detail concerning program structure and courses than was presented earlier. We would expect the broad outline of the program to be consistent with the philosophies and ideas of faculty appointed to the School. However, the program presented here will undoubtedly change as faculty are appointed and as we gain experience through teaching the program.

C. The curriculum planning process has included the following elements:

1. A review of available material concerning the curricula of other university programs in natural resource management and related areas.
2. Visits by the Director to six universities offering programs in this area. The focus of the visits was on four key areas:
  - program objectives;
  - curriculum design and rationale;
  - nature of student interests;
  - post-graduation employment experience of students.

The following universities were visited:

- a. University of Alaska
- b. Humboldt State University (California State University system)
- c. State University of New York, College of Environmental Science and Forestry
- d. University of Wisconsin, Green Bay
- e. University of Wisconsin, Stevens Point
- f. Western Washington State University.

Other U.S. universities offering undergraduate major programs in natural resource management and environmental management

are listed in Appendix A. No Canadian University presently offers an undergraduate program of the type we are proposing for the Kelowna School of Resource Management although the University of Waterloo comes reasonably near and the professional forestry courses offered by Canadian universities have been taking on a more general resource management orientation, although not to the same degree as their U.S. counterparts.

3. Discussion and review of draft program proposals by a Curriculum Planning Committee consisting of six faculty members from the Departments of Biological Sciences, Economics and Commerce, Geography, and Political Science. Committee membership is shown in Appendix B.
4. Consultation with an Advisory Committee drawn from government, industry, and education. Committee membership is shown in Appendix C.
5. A questionnaire survey directed at a sample of sixty potential employers of resource management graduates. The questionnaire is designed to elicit responses concerning overall professional manpower needs, needs for resource managers, and preferences in program design and emphasis. The survey's main purpose is to provide information for the presentation to Universities Council. The results are not available yet. A report will be added to the documentation later.

#### IV. Program Objectives.

The establishment of the Kelowna School of Resource Management is being proposed to serve two important objectives. The first is to provide an Interior community and region with a University degree program that exhibits focus, excellence, continuity, and identification with the community and

region. The second objective is to offer a professional degree in resource management leading to employment in the public or private sectors. This requires an understanding of the basic natural and social scientific characteristics of natural resources and their use and development of an integrated approach to the tasks of managing resources. Through such a professional education, it is expected that students' intellectual curiosity will be excited and deepened in ways that will assist them to explore – independently – other fields.

There is no program of post-secondary education more relevant to British Columbia than one centered about the orderly development and management of its natural resources. British Columbia is heavily dependent for its prosperity upon use of these resources; hence, there is a clear and urgent need to ensure that the resources of the Province are developed, husbanded, and conserved in a wise and informed way and in a manner that serves long-term as well as short-term goals. The appearance, quality and productivity of the environment and the prosperity of British Columbia's citizens will increasingly depend on resource management decisions that are being made now and that will be made in the next decade. A body of trained resource management personnel and a citizenry informed regarding the characteristics of its lands, the principles of its ecology, and the potentialities and limitations of its productivity are essential if wise proposals are to be made and supported.

We expect that the intensity of management of British Columbia's natural resources will increase considerably in the next few years, thereby reinforcing the relevance and importance of the proposed program. Certainly, despite the increased sensitivity to natural resources evident over the last decade, resource management activity in British Columbia lags, both quantitatively and qualitatively, behind good practice in the United States and Western Europe.\*

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\* These views are reinforced by a reading of the 1976 Report of the Royal Commission on Forest Resources. There, present shortcomings and future .....

V. Aspects of Program Design

The curriculum proposed for the Kelowna School of Resource Management reflects the above objectives. The curriculum has the following basic characteristics:

- A. a basic background of relevant courses in the natural and social sciences;
- B. an integrated view of the processes and problems of natural resource management;
- C. opportunity for specialization in one of *four* fields of resource management;
- D. additional opportunity for specialization in the field of forest resource management because of the importance of this resource in British Columbia.

Other curriculum emphases are possible: one would be to offer a liberal arts and science degree with an emphasis on natural resource or environmental studies; another would be to offer a degree that had a stronger natural science component; another would be to offer a professional degree with heavy specialization in management of particular types of natural resources. It is our view that the proposed curriculum is the most suitable for meeting the needs of the Province in resource management education and for offering a sound university degree program in the Interior with potential for expansion and, in time, diversification.

Several factors have acted as constraints in designing the curriculum for the Kelowna School of Resource Management.

... needs of forest resource management are discussed in considerable detail. One relevant comparison is between the responsibilities of the U.S. Forest Service and the B.C. Forest Service (equivalent in terms of forest area and timber harvest) and the staff of professional foresters (4,897 in the U.S. Forest Service and 327 in the B.C. Forest Service).

- A. Because it is designed to offer an Interior-based degree program, the School will not teach first and second year courses. These will be taken at community colleges in the Interior (or elsewhere in the Province), at the universities, or through the Open Learning Institute. This makes it impossible to require courses from entering third year students that are not generally available at the community colleges. However, we do intend to press for the offering of a general lower division course in natural resource management at some colleges, the universities, and through distance education.
- B. The curriculum includes a core of courses in the natural and social sciences and in the techniques of resource management and planning. Each student selects a "stream" containing courses of particular relevance to one type of natural resource. Initially, four streams are proposed: forest resources, fish and wildlife resources, water resources, and resource planning. Both the core and the streams contain required and elective courses. Some of the courses are sufficiently broad and integrated to require team teaching.
- C. The concentration of all specialized courses in the last  $2\frac{1}{2}$  years means that in-depth specialization will not be possible within the proposed  $4\frac{1}{2}$ -year B.Sc. (Resource Management) program. The only in-depth specialization offered will be in the proposed 5-year B.Sc. (Forest Resource Management) program.
- D. The curriculum is designed and the budget based on an initial complement of 15 faculty members and 150 students. Additional instructional assistance will be required from Laboratory Instructors and, perhaps, Teaching Assistants.

- E. Initial explorations have been made of the possibility of graduates <sup>meeting</sup> requirements from the Kelowna School of Resource Management obtaining registered professional status in the Association of British Columbia Professional Foresters, the Canadian Institute of Planners, or the B.C. Institute of Agrologists. It appears that this would be possible in the first two groups but not in the third. Registered Professional Forester status would be easier to obtain for students who had taken the extra tenth semester of specialized courses in forest resource management.
- F. Articulation with various two-year programs in resource management technology offered by the British Columbia Institute of Technology and three community colleges (Malaspina, New Caledonia, Selkirk) presents a difficult problem. These technology programs include some courses in the same areas as those offered in the last five semesters of Kelowna School of Resource Management. However, these technology courses are not preceded by the basic science prerequisite courses of the first two years. Because of this, we do not feel that it is appropriate to grant general transfer credit for technology courses. However, we are prepared to make all Kelowna School of Resource Management courses available for credit via the course challenge mechanism and to consider direct course transfer credit for selected technology courses.
- G. Some courses in the Kelowna School of Resource Management will be available on a credit basis to students who are not pursuing a degree program. In addition, we expect to institute an "Extended Studies Diploma" for persons who have university degrees but who wish to augment their academic background by taking a co-ordinated set of Kelowna School of Resource Management

courses. We expect to offer part of the program in the evening to facilitate the attendance of part-time students.

- H. We intend to develop extensive related work experience for students in the summers of the third and fourth years. Student summer employment in jobs related to their academic program is regarded as an important and valuable feature of many resource management programs. The extensive resource management activities of the Okanagan and the rest of the Interior should allow the School to make arrangements that reflect the importance of related work experience.
- I. Graduate students from the three British Columbia universities could be accommodated at the Kelowna School of Resource Management where their areas of research coincided with particular areas of interest of faculty members or where there were particular regional research opportunities. Such students might be employed as teaching assistants by the School. We do not plan, however, to offer graduate courses or a graduate degree program at the Kelowna School of Resource Management, at least in its initial phase.
- J. Students obtaining a B.Sc. (Resource Management) should be eligible for entry into the following types of master's level graduate programs:
- planning;
  - forestry;
  - biology or geography (with a qualifying year);
  - Master of Business Administration;
  - Master of Pest Management;
  - Law

Students will be advised that information on course requirements and admission should be obtained directly from the university offering a particular graduate program.

The new Master of Resource Management program at Simon Fraser University is a professional degree program designed for students with a disciplinary major in a B.A. or B.Sc. program. Thus, the program is not particularly well-suited for direct entry for graduates of the Kelowna School of Resource Management. However, a student with a degree from the School might find the M.R.M. program more suitable following a few years of experience in the field of resource management.

#### VI. Degree Requirements.

Both degrees are general degrees without a specific major. The degree, Bachelor of Science (Resource Management), will require a minimum of 135 semester credit hours, as shown in the next section. The degree, Bachelor of Science (Forest Resource Management), will require a minimum of 150 semester credit hours, as shown in the next section. Graduation will require a grade-point average of 2.0 calculated on all the courses taken from the Kelowna School of Resource Management used for credit toward the degree, (excluding duplicate courses).

#### VII. Program Structure and Courses.

A. Some general comments are required to introduce this section.

1. Appendix D contains the following information for each course: course title, credit hour value, vector, pre-requisites, course description. Course outlines and bibliographies are not included - these must await the appointment of faculty.
2. The number of credit hours per course has been set at 3. It is conceivable that modification in the standard 3-hour

credit per course will be sought once course content has been more finely determined.

3. No seminar or tutorial hours are indicated in the vectors, the allocation of class time being only to lectures or to laboratories. However, many of the courses would undoubtedly be taught with seminar or tutorial format, as determined by faculty members.
4. Some KSRM courses are equivalent to courses offered in S.F.U. departments and these equivalencies should be noted so that students may transfer from the Kelowna School of Resource Management to the Burnaby campus with a minimum of difficulty. However, this cannot be done until detailed course outlines are available.
5. Students transferring into the School may be given course transfer credit for specific KSRM 300- and 400-division courses. However, at least 60 hours of the 75 hours required for the B.Sc. (Resource Management) and at least 75 hours of the 90 hours required for the B.Sc. (Forest Resource Management) must be taken from the Kelowna School of Resource Management.
6. Laboratory hours will consist of a mixture of regular laboratory and field experience hours. It is highly desirable that extensive field experience be available at all levels in the Kelowna School of Resource Management.

B. Curriculum.First and Second Year Required Courses (Semesters 1-4)

	<u>S.F.U.</u>	<u>S.F.U. TITLE</u>	<u>O.C.</u>
Biological Sciences	BISC 101-4	Introduction to Biology	Biol 121-3 or 122-3
	BISC 102-4	Introduction to Biology	Biol 111-3 or 122-3
	BISC 204-3	Introduction to Ecology	Biol 222-3
Economics	ECON 200-3	Principles of Economics (I) Microeconomic Principles	Econ 211-3
	ECON 205-3	Principles of Economics (II) Macroeconomic Principles	Econ 221-3
English	Any ENGL 100- division course-3	Introduction to Fiction, or Introduction to Poetry, or Introduction to Drama	Engl 111-3 or 121-3
Geography	GEOG 111-3	Physical Geography	Geog 121-3
	GEOG 112-3	Introductory Geology	Geol 111-3
Mathematics	MATH 101-3	Introduction to Statistics	Math 121-3
Political Science	POL. 221-3	Introduction to Canadian Govt.	Poli Sci 111-3
TOTAL HOURS	32 (35)*		30

\* In addition to this list of courses, students will be expected to have completed a 3-hour course (not yet developed) entitled "Introduction to Natural Resource Management."

First and Second Year Recommended Courses\*

	<u>S.F.U.</u>	<u>S.F.U. Title</u>	<u>O.C.</u>
Anthropology	S.A. 140-3	Introduction to Anthropology	Anth 121-3
Biological Sciences	BISC 306-3	Invertebrate Biology	
	BISC 336-3	Vertebrate Biology	
Chemistry	CHEM 104-3	General Chemistry I	Chem 111-3
	CHEM 105-3	General Chemistry II	Chem 112-3
	CHEM 115-2	General Chemistry Laboratory	
	CHEM 251-3	Organic Chemistry I	Chem 212-3
	CHEM 256-2	Organic Chemistry Laboratory I	

	<u>S.F.U.</u>	<u>S.F.U. TITLE</u>	<u>O.C.</u>
Commerce	COMM 221-3	Introduction to Accounting	Buad 111-3
Computing Science	CMPT 105-3	Fundamental Concepts of Computing	CoSc 111-3
Mathematics	MATH 154-3, MATH 155-3 or MATH 157-3, MATH 158-3	Calculus I and II for the Biological Sciences	Math 112-3 Math 122-3
	MATH 157-3, MATH 158-3	Calculus I and II for the Social Sciences	Math 112-3 Math 122-3
	MATH 232-3	Elementary Linear Algebra	Math 221-3
	Physics	PHYS 101-3 PHYS 102-3	General Physics I General Physics II
Political Science	POL. 222-3 POL. 251-3	Introduction to Canadian Politics Introduction to Canadian Public Administration	
Psychology	PSYC 101-3	Introductory Psychology	Psych 111-3 or 121-3
Sociology	S.A. 150-4 S.A. 202-4	Introduction to Sociology Modern Industrial Society	Soci 111-3

\* Elective courses in the first and second years should mainly be chosen from this list. Courses should be selected according to students' program goals and in light of pre-requisites for third and fourth year courses. Students are strongly urged to contact the Kelowna School of Resource Management for course selection advice no later than the end of their first semester of post-secondary education.

Admission to the School requires completion of a minimum of 60 semester hours of S.F.U. courses with a grade-point average of 2.0, or of work transferable to Simon Fraser University under the normal calendar regulations of the University as to transfer credit and grade-point average for admission to S.F.U. (Subject to the details of the specific regulations this normally represents an admission grade-point average of 2.0 on transferable courses from the B.C. Regional Colleges and Public Universities, and of 2.5 from other Canadian Universities.)

Semesters 5 and 6

Students take the core courses and one elective course in each of the 5th and 6th semesters. Electives should be selected after consultation with a faculty advisor and with reference to pre-requisites required for fourth year "stream" courses.

Semester 5 - Core

KSRM 300-3	Introduction to Resource Planning and Decision-Making
KSRM 301-3	Natural History of British Columbia
KSRM 302-3	Introduction to the Study of Soils
KSRM 303-3	Map and Air Photograph Interpretation

Semester 6 - Core

KSRM 305-3	Quantitative Methods in Resource Management
KSRM 306-3	Biological Management of Natural Populations
KSRM 307-3	Natural Resource Economics
KSRM 308-3	Geomorphology and Hydrology

Elective Courses

KSRM 310-3	Agroecosystems
KSRM 311-3	Regional Economics
KSRM 312-3	Tree Physiology
KSRM 315-3	Animal Physiology
KSRM 316-3	Resource Management and Traditional Culture
KSRM 317-3	Principles of Surveying
KSRM 319-3	Managerial Economics
KSRM 322-3	Techniques of Systems Analysis
KSRM 323-3	Modelling and Analysis of Natural Resource Systems
KSRM 324-3	Climatology
KSRM 326-3	Environmental Ethics

Semesters 7, 8, and 9

Students take the core courses and 24 hours of elective courses, 9-18 hours of which must be in one "major" stream, as shown below. Course selection is made after consultation with a faculty advisor.

Semester 7 - Core

KSRM 400-3	Management of Non-Renewable Resources
KSRM 401-3	Regional Planning
KSRM 402-3	Environmental and Resource Law

Semester 8 - Core

KSRM 404-3	Behaviour and Decision-Making in Business Organizations
KSRM 405-3	Public Policy Analysis

Semester 9 - Core

KSRM 406-3	Environmental Impact Assessment
KSRM 408-3	Individual Study Project

Forest Resource Stream

KSRM 312-3	Tree Physiology
KSRM 317-3	Principles of Surveying
KSRM 410-3*	Introduction to Forest Resource Management
KSRM 412-3	Forest Ecology
KSRM 413-3	Forest Mensuration
KSRM 414-3	Range Management
KSRM 415-3	Forest Harvesting
KSRM 416-3	Silviculture
KSRM 442-3	Forest Watershed Management

Fish/Wildlife Stream

KSRM 315-3	Animal Physiology
KSRM 420-3*	Introduction to Fish and Wildlife Management
KSRM 421-3	Limnology
KSRM 424-3	Biological Oceanography
KSRM 425-3	Fisheries Management
KSRM 426-3	Wildlife Management

Water Resource Stream

KSRM 324-3	Climatology
KSRM 421-3	Limnology
KSRM 424-3	Oceanography
KSRM 440-3*	Introduction to Water Resource Management
KSRM 441-3	Management of Water Quality
KSRM 442-3	Forest Watershed Management
KSRM 444-3	Water Resource Management

Resource Planning Stream

KSRM 311-3	Regional Economics
KSRM 316-3	Resource Management and Traditional Culture
KSRM 322-3	Techniques of Systems Analysis
KSRM 323-3	Modelling and Analysis of Natural Resource Systems
KSRM 326-3	Environmental Ethics
KSRM 452-3	Recreational Resource Planning
KSRM 453-3	Public Participation Procedures
KSRM 454-3	Sociology of Leisure
KSRM 455-3	Rural Planning and Development

Tenth Semester Program in Forest Resource Management

(In addition to the "Forest Resource Stream" requirements, 15 semester hours from the courses shown below or additional approved KSRM courses.)

Additional Forest Resource Courses

KSRM 490-3	Forest Pathology
KSRM 491-3	Fire Protection
KSRM 493-3	Forest Entomology
KSRM 494-3	Advanced Silviculture
KSRM 495-3	Evolution of Forest Policy in British Columbia

\* KSRM 410, 420 and 440 cannot be used as part of the stream requirements.

C. Sample Student Program

A student pursuing the fish/wildlife stream might, for example, have the following sample program in semesters 5 through 9.

Semester 5

KSRM 300-3	Introduction to Resource Planning and Decision-Making
KSRM 301-3	Natural History of British Columbia
KSRM 302-3	Introduction to the Study of Soils
KSRM 303-3	Map and Air Photograph Interpretation
KSRM 326-3	Environmental Ethics

Semester 6

KSRM 305-3	Quantitative Methods in Resource Management
KSRM 306-3	Biological Management of Natural Populations
KSRM 307-3	Natural Resource Economics
KSRM 308-3	Geomorphology and Hydrology
KSRM 315-3	Animal Physiology

Semester 7

KSRM 400-3	Management of Non-Renewable Resources
KSRM 401-3	Regional Planning
KSRM 402-3	Environmental and Resource Law
KSRM 421-3	Limnology
KSRM 454-3	Sociology of Leisure

Semester 8

KSRM 404-3	Behaviour and Decision-Making in Business Organizations
KSRM 405-3	Public Policy Analysis
KSRM 424-3	Oceanography
KSRM 316-3	Resource Management and Traditional Culture
KSRM 440-3	Introduction to Water Resource Management

Semester 9

KSRM 406-3	Environmental Impact Assessment
KSRM 408-3	Individual Study Project
KSRM 425-3	Fisheries Management
KSRM 426-3	Wildlife Management
KSRM 452-3	Recreational Resource Planning

D. Our plan is to introduce the 5th and 6th semesters in 1979-80 with the remaining semesters being introduced in 1980-81. This would require hiring six faculty to begin teaching in September, 1979. It is unlikely that the full list of 300-division courses would be offered in this first year. Indeed, difficulties in

hiring faculty could cause a reduction in the range of electives. <sup>research reputation</sup>  
 Fourteen courses would represent an approximate minimum number to constitute a viable third year.

- E. The School will initially operate for a five-year trial period with an extensive external review in its fourth year (1982-83). A decision will be made by July 1, 1983 whether or not to continue the School on an ongoing basis.

### VIII. Students

- A. Student interest in the Kelowna School of Resource Management can be inferred from the following information.
1. The continuing flow of inquiries from students despite the absence of recent publicity concerning the School.
  2. The popularity of technology programs in related areas at B.C.I.T. and the community colleges.
  3. Healthy enrollment levels at U.S. universities offering similar undergraduate programs.
  4. The shortage of applied programs of this type at B.C. universities and the success of new programs. (e.g. Criminology at S.F.U.)
  5. Encouragement from a wide variety of informed, impartial persons in the resource management community in British Columbia.
- B. As indicated in Section III, a survey of employer interest in the program is presently underway, partly to serve as input in

the program design process and partly to provide information on employment opportunities. Information from U.S. universities suggests that employment prospects would be reasonably good — over 50 percent of the graduates from most of the programs visited move into directly-related employment soon after graduation. Two factors deserve emphasis — pre-graduation employment in internship or cooperative education arrangements can be very helpful in obtaining jobs after graduation and, to a considerable extent, the graduates of the Kelowna School of Resource Management will have themselves to create the demand for their education and expertise.

- C. We expect to have to admit students in the first years of the School who are missing some of the required first and second year courses. Make-up courses can be taken at Okanagan College. Once the School and its curriculum are known, the number of incompletely prepared applicants should diminish. Admission requirements will be the same as those established for admission or transfer from community colleges or B.C. universities.

#### IX. Research.

One of the justifications for the Regional University School concept was that it would encourage scholarly interaction among a necessarily small and isolated group of university faculty through their common interest in the interdisciplinary field of resource management. In this way the dissipation and eventual disappearance of scholarly research activity often noted in faculty groups of similar size and location would be avoided.

Achieving this objective and establishing a good research reputation <sup>will be necessary</sup> for the Kelowna School of Resource Management will obviously be enhanced if the research potential and performance of new faculty are strong and if there is evidence that they can function in, and contribute to enhancing, the type of academic environment that will exist at the School. Beyond this, the following measures would support attainment of these research objectives.

- Provision of necessary research facilities, equipment, and financial support early in the School's history. Granting agencies will not be able to be relied upon initially for extensive funding of an interdisciplinary program. The School and its faculty will have to develop good research reputations before significant support will be available from this source.
- According research an appropriate weight, along with teaching, student services, and program development, in the activities of the School and the evaluation of its faculty.
- Offering faculty every assistance for liaison with their colleagues at the Burnaby campus, including Associate Member status (AC29) where appropriate.

#### X. Facilities and Services

- A. The provision of suitable teaching, research, and office space from the beginning of the School's operation will be one of the more difficult challenges. Space must meet the following criteria:
  - near Okanagan College;
  - all space contiguous;
  - functional and attractive;
  - promotion of the School's identity.

A more detailed description of space needs will be made later.

- B. Efforts to secure access to appropriate field teaching and research facilities should be made as soon as possible. Field facilities, combined with appropriate summer employment experience, will enhance the quality of the program and the employment potential of its graduates.
- C. The Library of Okanagan College, supplemented by acquisitions from the KSRM budget, will be used by the School, assuming approval and suitable arrangements with Okanagan College.

#### XI. Faculty.

- A. Approximately 180 persons applied for the positions advertised in our recruiting campaign last March. This was despite the lateness of this effort and the inclusion of "subject to budgetary approval" conditions. About one-half of these applicants appeared to be worthy of further consideration for possible appointment in the School. A better-timed and more extensive recruiting campaign should produce at least 200 "reasonable" applicants for the 6 positions we need to fill on or before September 1, 1979.
- B. Appointments procedures will be based on AC1. A single Appointments Committee, appointed by the Vice-President, Academic and chaired by the Director, will be established to review applications and make appointment recommendations for all positions. Liaison will be maintained with Department Chairmen.

- C. Some of the faculty should have previously taught in undergraduate Resource Management programs. This may require recruiting from outside Canada; recruiting activity and recommendations for appointment will be consistent with AC 26. It will be necessary to place recruiting advertisements to appear before final program approval is obtained from UCBC. However, no commitments will be made without this approval and advertising copy will include a statement concerning the status of program approval.
- D. Four types of regular faculty appointment are envisaged:
1. Visiting appointments for one or two years;
  2. Term appointments without tenure. Appointment terms would be as specified in AC2 and the tenure track would normally lead to 3, below;
  3. Appointments with "project" tenure\*;
  4. Appointments with "project" tenure with guaranteed S.F.U. departmental tenure if KSRM is not continued beyond the five-year trial period. Departmental concurrence would be required.

Further discussion of terms of faculty appointments will be required before final decisions are reached.

\* "Project" tenure means an appointment without term for the life of the School (a minimum of five years from September, 1979).

E. Current plans are to staff the School with 15 faculty plus a Director. A first iteration of staffing requirements by discipline area is as follows:

Biological Sciences	- 2.5
Resource Management	- 2.5
Forest Resources	- 2.5 *
Fish/Wildlife	- 2.0
Water Resources	- 2.0
Geography	- 1.5
Economics	- 1.0
Political Science	- 1.0

The specific competencies of faculty appointed will ultimately determine the actual discipline area of appointment.

## XII. Budget.

A tentative 1979-80 budget request of \$663,780 (\$726,110 annualized) was submitted to Universities Council at the beginning of October. This will be followed by a more detailed budget request in December, together with a budget projection for the full five-year trial period.

\* This does not include full staffing for the 10th semester Forest Resources courses.

Appendices

- A. Programs in U.S. Universities.
- B. Advisory Committee Membership.
- C. Curriculum Planning Committee Membership.
- D. Course Descriptions.

Undergraduate Resource Management Programs  
at United States Universities

University of Alaska  
Ball State University (Indiana)  
Central Michigan University  
Colorado State University  
University of Connecticut  
Humboldt State University  
Kansas State University  
Lehigh University  
Michigan State University  
University of Michigan  
University of Montana  
University of Nebraska  
State University of New York, College of Agriculture and Life Sciences  
State University of New York, College of Environmental Science and Forestry  
North Carolina State University - Raleigh  
Ohio State University  
University of Rhode Island  
University of Tennessee  
Troy State University (Alabama)  
University of Vermont  
West Virginia University  
University of Wisconsin - Green Bay  
University of Wisconsin - Stevens Point

(In addition, another 50 or so universities have undergraduate degree programs in Environmental Studies and related areas.)

Source: *The College Blue Book*, Vol. III, *Degrees Offered by College and Subject* (New York: Macmillan, 1977).

## Appendix B

Curriculum Planning Committee Membership

Dr. J. M. Munro, Director  
Kelowna School of Resource Management

Dr. Mary Barker  
Department of Geography  
Simon Fraser University

Dr. Audrey Doerr  
Department of Political Science  
Simon Fraser University

Dr. Glen Geen  
Department of Biological Sciences  
Simon Fraser University

Dr. Michael Roberts  
Department of Geography  
Simon Fraser University

Dr. A. L. Turnbull  
Department of Biological Sciences  
Simon Fraser University

2-0-2

3-0-0

## Appendix C

Advisory Committee Membership

- Dr. Mary Barker  
Department of Geography  
Simon Fraser University
- Mr. Don Barcham  
Director of Planning  
Central Okanagan Regional District
- Dr. Tony Dorcey  
Westwater Research Center  
University of British Columbia
- Dr. Glen Geen  
Department of Biological Sciences  
Simon Fraser University
- Mr. R. R. Jeffels  
Principal, Okanagan College
- Dr. Alan Moss  
A. Moss and Associates
- Dr. John M. Munro, Director  
Kelowna School of Resource Management
- Mr. Dennis O'Gorman  
Environment and Land Use Committee Secretariat
- Mr. Sheldon Paulger  
Crown Zellerbach
- Dr. Mark Sproule-Jones  
Department of Political Science  
University of Victoria
- Dr. A. L. Turnbull  
Department of Biological Sciences  
Simon Fraser University

Appendix D

KSRM COURSE DESCRIPTIONS

2-0-2

(Prerequisite courses are shown in brackets after course titles. Prerequisites are only designated for elective courses and only elective courses are shown as prerequisites.)

KSRM 300-3	<u>Introduction to Resource Planning and Decision-Making</u>	3-0-0
An examination of the decision-making process in resource policy-making and planning, emphasizing principles essential to analysis, understanding and management.		
KSRM 301-3	<u>Natural History of British Columbia</u>	3-0-3
An introduction to the plants and animals of British Columbia, with emphasis on their ecology, distribution, and biological characteristics.		
KSRM 302-3	<u>Introduction to the Study of Soils</u>	2-0-2
Physical, chemical and biological properties of soils; soil formation, classification, use and conservation.		
KSRM 303-3	<u>Map and Air Photograph Interpretation</u>	2-0-2
An intensive survey of the measurement, analysis and interpretation of maps, aerial photographs, and remote sense materials.		
KSRM 305-3	<u>Quantitative Methods in Resource Management</u>	2-0-2
Applications of probability and statistics in natural resource management; use of computers in quantitative analysis.		
KSRM 306-3	<u>Biological Management of Natural Populations</u>	3-0-0
Factors influencing the fluctuation of animal and plant populations and techniques available for regulating and managing these fluctuations.		
KSRM 307-3	<u>Natural Resource Economics</u>	3-0-0
The economic characteristics of resource industries; analysis of efficient management practice; benefit-cost analysis.		
KSRM 308-3	<u>Geomorphology and Hydrology</u>	3-0-0
Processes, laws, and theories of development of land forms with an integrated introduction to the principles of hydrology.		
KSRM 310-3	<u>Agroecosystems</u>	3-0-0
The ecological basis of agriculture. The properties, production systems and processing of plants and animals used as agricultural products.		



- KSRM 324-3      Climatology      22-0-22
- An introduction to the fundamental processes and concepts of climatology. Study of interactions between the atmospheres and soils, vegetation and water.
- KSRM 326-3      Environmental Ethics      3-0-0
- An examination of philosophical dimensions of man-environment relations, with emphasis upon ethical problems.
- KSRM 400-3      Management of Non-Renewable Resources      3-0-0
- Characteristics of occurrence and extraction of non-renewable resources. Emphasis will be given to public policy considerations and ecological relationships with renewable resources.
- KSRM 401-3      Regional Planning      2-4-3
- Principles, problems, methods and techniques of regional planning. Emphasis will be given to the role of natural resource development in regional planning.
- KSRM 402-3      Environmental and Resource Law      3-0-0
- Review and analysis of provincial federal legislation dealing with the environment and natural resources. Emphasis will be given to policy goals and resource management consequences of this legislation.
- KSRM 404-3      Behaviour and Decision-Making in Business Organizations      3-0-0
- Basic behavioural concepts pertinent to an understanding of rational and behavioural decision-making processes in business organizations.
- KSRM 405-3      Public Policy Analysis      3-0-0
- Analysis of the structures and processes surrounding major contemporary policy issues and an examination of the nature and substance of those policy issues. Particular attention will be paid to policy issues affecting natural resources.
- KSRM 406-3      Environmental Impact Assessment      2-0-2
- Principles and theory of environmental impact assessment and procedures for preparing statements of environment impact.
- KSRM 408-3      Individual Study Project      0-0-0
- Independent supervised research on a topic in resource management selected in consultation with a faculty advisor. The course will normally include the preparation of a substantial research paper.

- KSRM 410-3     Introduction to Forest Resource Management     3-0-0
- Principles and problems of managing forest resources. Designed for students who are concentrating in either the fish/wildlife or water resource streams. Cannot be taken to satisfy the stream requirements of the forest resource stream.
- KSRM 412-3     Forest Ecology (KSRM 312)     2-0-2
- Form and functioning of forest ecosystems. Interaction of organisms with their physical and biotic environments. Ecological basis for silviculture.
- KSRM 413-3     Forest Mensuration     2-0-2
- Measurement and inventory systems for forest resources. Prediction of growth and yield.
- KSRM 414-3     Range Management (KSRM 310)     2-0-2
- Range ecology, animal husbandry and management aspects of range resources.
- KSRM 415-3     Forest Harvesting     2-0-3
- The study of forest harvesting as a production system, including equipment costs and manpower and transportation systems. Evaluation of various harvesting systems in terms of ecological impact.
- KSRM 416-3     Silviculture (KSRM 312, 412)     2-0-3
- Theory and practice of controlling forest establishment, composition and growth; methods of establishing and influencing natural and artificial regeneration.
- KSRM 420-3     Introduction to Fish and Wildlife Management     3-0-0
- Principles and problems of managing fish and wildlife resources. Designed for students who are concentrating in the forest or water resource streams. Cannot be taken to satisfy the stream requirements of the fish and wildlife stream.
- KSRM 421-3     Limnology     2-0-2
- Biological, physical and chemical conditions in inland waters, with emphasis on the conditions that are most important to the well-being and productivity of fishes.



KSRM 444-3 Water Resource Management,

Economic, social and ecological considerations in managing and allocating water resources.

KSRM 452-3 Recreational Resource Planning

2-0-2

Recreation resource analysis techniques and problems; components of regional recreation plan formation and implementation.

KSRM 453-3 Public Participation Procedures

3-0-0

Institutions and procedures for obtaining satisfactory public participation in planning and managing natural resource use.

KSRM 454-3 Sociology of Leisure (S.A. 202)

3-0-0

An introduction to the problems of leisure in the modern world, focussing upon the sociological analysis of outdoor recreation.

KSRM 455-3 Rural Planning and Development

2-0-3

Principles and practices of rural land use planning.

KSRM 491-3 Fire Protection

2-0-2

Principles of control and managed use of fire in forest resource management.

KSRM 490-3 Forest Pathology

2-0-2

Study of forest tree diseases and the principles of control and managed use of disease agents.

KSRM 493-3 Forest Entomology

2-0-2

Study of forest insects; decision-making in the protection of forests from insects; bases of biological and economic evaluation and choice of control methods.

KSRM 494-3 Advanced Silviculture (KSRM 416)

2-0-3

Advanced topics in silviculture - commodity, production, green-space environment and integrated forest resource use.

KSRM 495-3 Evolution of Forest Policy in British Columbia

3-0-0

A survey of the history of forest resource exploitation in British Columbia and an analytical overview of the development of government policy towards the forest resource.