SCOMM

#9:97

DISCUSSION PAPER FOR ALASKA RESOURCES
RESEARCH AND DEVELOPMENT AD HOC COMMITTEE

There's nothing new in the statement that the politicians of this state or any other state are sometimes bewildered with the kind or degree of research that is being conducted by agencies to which the politicians must appropriate monies. The statement does not apply to all research or even the majority of research, but most likely is nurtured by the usual circumstance which periodically arises where a seemingly superfluous research endeavor is highlighted; or in a situation where it would seem that some research should be ongoing, but is being inadequately addressed by the scientific community. The major problem, then, is one of communication between the scientists and the politicians. However, other problems fuel this conflict: (1) an unclear identification of what is expected by the politicians; (2) inarticulated rationale for why the research community is conducting the particular research which it is asking the political machinery to fund; (3) and a lack of coordination between the many research entities which possess overlapping talents and research areas.

As a result, the politicians perceive voids of research activity, overlapping research activities, and inefficiencies of operation. The researcher is frustrated by unexplained funding decisions, fickle support of research, and varying degrees of cooperation (or antagonism) from other research agencies.

The basic question then becomes, can something be designed to replace the status quo which can better (1) support communication

between researchers and funders, (2) enforce greater cooperation and efficiency within and among research agencies, and (3) decide specific research priorities based upon sound analysis and interaction between policy makers and research personnel.

A system of determining State research priorities would appear to be a viable suggestion through which to ameliorate many of the aforementioned problems. At present, there is no thorough multidisciplinary analysis of the present state of affairs which could be applied to determine long-range applied research priorities. Present research is not necessarily geared to the need of consumers or resource exploiters. The several interfaces between one resource use and the effects upon other resources seem to contain many voids of information. At present, some research agencies are not utilizing the information developed outside of their own agency. Too often, one agency or even one government depends upon the research endeavors of another agency or government while not actively supporting the research activity or articulating the specific needs which they are depending upon the second agency to address.

Just as obvious is the capricious manner often used to determine research funding in the political process. Researchers dependent upon several years of uninterrupted funding to achieve some goal are too often stifled by unexpected losses of funding from previously supportive sources.

Another issue pertinent to this discussion of research and development is the question of the desirability of a central resource data repository. Several presentations of late have proposed the creation of such an agency, while several existing data repositories attempt to

fulfill the need of the many resource information users. A discussion of the experience of AEIDC and similar existing data repositories and the proposed Alaska Resource Information System and similar suggestions would seem to be an integral part of an effort to address the current state of affairs of Alaska resource research and development and to suggest viable alternatives.

Objective of Ad Hoc Committee

The objective of the ad hoc committee on Alaska resource research and development is to describe the present state of affairs which determine the scope of Alaska resource research and to suggest new and improved means to guarantee that priority research areas are adequately addressed by the research community and supported by the political process. One suggestion that will be before the committee from the beginning is the idea of creating an Alaska resource research and development council which would be charged with determining the State's long-range priorities of natural resource research. The initial conception of the council is that it will serve to identify research and development areas which need to be addressed and, then, to assist in the interaction of the several research agencies active in each priority area to assure adequate coordination, to encourage and support expanded research programs in those selected areas, and to use the influence of the State to assist in the development of new applied research efforts.

There are several concerns about the evolution of such a council. The legislature would not like to see such a group evolve into an omnibus research approval body, or to have an overriding influence in the total

scope of research efforts, funding areas or funding levels. We are concerned about creating a body of representatives from the major research agencies in this state which may become self-serving.

Committee Product

The ad hoc committee will meet three or four times during the remainder of the 1977 calendar year for one-day meetings. The first meeting will be an organizational meeting. After that time, it is our intention that each committee member would be responsible for preparing some information for the following meeting.

At the completion of the committee's deliberations, the staff and committee will prepare a final report of the activities. Should there be a committee desire to introduce legislation, the Legislative Affairs Agency will be responsible for bill preparation.

The Alaska Ad Hoc Committee on Alaska Resource Research and Development

Committee Function:

Exploratory and fact finding--to study and survey the present practices utilized to determine research funding and research scope and then to recommend feasible means (if any) to better insure a rational determination of priority research endeavors and guarantee the necessary political support.

Chairperson:

Representative Terry Gardiner, Vice-Chairman of the House Special Committee on the Alaska Permanent Fund (incorporating review of the Renewable Resources Fund).

Committee Members:

Kay Allred, Director
Program Coordination
Department of Environmental Conservation
State of Alaska

Stewart Eidelson, Economist
Alaska Teamsters

Lee Gorsuch, Director
Institute of Social and Economic Research
University of Alaska

David Hickok, Director
Arctic Environmental Information and Data Center
University of Alaska

Dona Lehr, Economic Policy Analyst
Division of Policy Development and Planning
Office of the Governor

Dean Olson, Executive Director
Ahtna, Inc.

Walt Parker, State Co-Chairman
Federal/State Land Use Planning Commission

Methodology:

The committee members will be asked to draw upon the previous experience and, to the extent possible, to utilize their staff to assist them in their assigned tasks. The committee will additionally be staffed with a research analyst from the Legislative Research Division. Committee staff will have completed a questionnaire, distributed it to Alaska research agencies, solicited input from presently

established research organizations in and out of Alaska, and will solicit information from additional Alaskan experts who are not formally on the ad hoc committee.

Reporting:

The committee will be an expert panel reporting to the House Special Committee on the Alaska Permanent Fund.

Date Due:

The committee will be expected to finish its deliberations by December 1, 1977. A final committee report, supporting documentation, and (if appropriate) draft legislation should be completed by this date.

Decision Flow:

Representative Gardiner will be directly responsible for carrying the legislative proposal of the committee, if one is developed. It is contemplated that committee members will become involved in informing both the legislative and executive branches about the merits of their proposal.

Meeting Dates and Times:

Three or four committee meetings will be called--each to last for no longer than one day. The first meeting is scheduled for July 22 in Juneau (House Judiciary Committee room in the State Capitol). Committee members will be paid for travel and per diem.

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02-0010

STATE
of ALASKA

MEMORANDUM

TO: All participants in the effort to develop a better integration of research and decision making

DATE: September 30, 1977

FROM: Fran Ulmer
Director
Policy Development and Planning
Office of the Governor

SUBJECT:

This memorandum is to confirm the existence of a working group consisting of members of the University community, the Legislature, the Executive branch and assorted other interested individuals all dedicated to a common goal: the development of mechanisms to coordinate and integrate research with governmental decision making.

For those readers who did not attend the Alaska Science Conference, perhaps some background information would be helpful. At the Alaska Science Conference held in Anchorage September 22-24, a popular theme repeated itself throughout the Conference: the research commmunity and governmental decision makers need each other in many ways. How can we devise a system to improve our ability to learn from and assist each other? A number of surprisingly similar answers were given by participants. Representative Terry Gardiner talked about the role that a research and development council could have, particularly as it would relate to the Renewable Resources Fund. David Hickok, Eugene Buck and Erwin Van Niewiveyse circulated a discussion paper on "An examination of the Alaska Academy of Science and Technology, Alaska Research Council Concept." Numerous Conference participants articulated the frustration of researchers who see missed opportunities for valuable research input and apparent disregard of scientific advice offered.

On behalf of Governor Hammond, a statement was presented to the Conference supporting the concept of a research foundation and committing this Division to pursuing that objective. We will be seeking a grant from the National Science Foundation to evaluate the alternative structures, procedures, funding mechanisms, organizational patterns, etc.. A copy of that grant proposal (in draft form) is attached for your review and comments.

file

On Saturday the 24th, at a meeting of the Ad Hoc Committee on Alaska Resource Research and Development, a consensus arose from the attendees that 1) work on an Alaska research foundation and academy of science should continue through the joint efforts of the University, the Legislature and the Executive branch; 2) the Resource Research and Development Committee would continue to be the "core" group; 3) I would co-chair the project and, in Representative Gardiner's

absence (for the month of October), I would assume responsibility for the working group's coordination; and 4) critiques of the three existing proposals (attached) should be mailed to the Division for review and distribution by October 10.

I want to close the memorandum as it began, by emphasizing that this project is a joint effort to develop a more productive working relationship between the research community and decision makers in both the legislative and executive branches. We all have a great deal to gain.

FU/TT/bb

STATE OF ALASKA
THE LEGISLATURE

POUCH Y - STATE CAPITOL
JUNEAU, ALASKA 99811
907-465-3800

LEGISLATIVE AFFAIRS AGENCY

MEMORANDUM

September 27, 1977

SUBJECT: Ad Hoc Committee on Research and Development

TO: The Honorable Terry Gardiner

FROM: John Williams
Research Analyst

In lieu of committee minutes, you have asked that we prepare a listing of task assignments which were accepted by individuals on behalf of the ad hoc committee effort.

(1) Ms. Fran Ulmer has accepted the chairmanship of the newly expanded committee.

(2) Ms. Ulmer is to request written responses from the committee and advisory group regarding the three proposals which have been disseminated and the National Science Foundation grant proposal, the funds from which she intends to utilize in addressing the subject matter being explored at this time. Responses are to be returned by October 10. A subcommittee (to be appointed by the chairman) will then prepare a working document which would incorporate the comments received and the concepts and critical aspects contained in the three proposals.

(3) Ms. Ulmer is to circulate copies of the statutes which address similar entities in other states.

(4) Mr. David Hickok is to prepare a briefing paper describing activities in other states and federal agencies which could serve as examples for structuring the proposed entities.

(5) Dr. Neil Davis is to prepare a discussion paper on the probable impact of these proposals upon established academic research activities.

(6) Mr. Dick Holden is to prepare a discussion paper on the probable impact of these proposals upon state agency research activities.

(7) Mr. Lee Gorsuch and Mr. Walt Parker are to prepare a discussion paper identifying the processes by which research dollars are allocated under present conditions.

It was suggested that the committee should plan to hold its next session sometime in late October. The work efforts listed above should be completed in time for them to be discussed at the October meeting.

JW:jm

cc: Fran Ulmer

DISCUSSION PAPER

on

AN EXAMINATION OF THE
A ACADEMY OF SCIENCE AND TECHNOLOGY
LASKA RESEARCH COUNCIL CONCEPT

Prepared by

David M. Hickok
Eugene H. Buck
Erwin Van Nieuwenhuyse

August 1977

INTRODUCTION

The need to establish a forum of the finest scientific and technological expertise in Alaska has long been recognized as an important step toward furthering science and its use for the general welfare of all Alaskans. For example, one of the many resolutions to come out of the 1969 "Conference on the Future of Alaska" sponsored by the Legislative Council in association with the Brookings Institution recommended that:

> A body of qualified Alaskans shall be recognized by statute and supported by annual state appropriation under the title, "Alaska Academy of Science and Technology." Its constitution and operation will be analogous to that of the National Academy of Science-National Research Council, so providing representation from all disciplines.*

The purpose of this paper is to provide an intellectual framework for establishing such an institution--the Alaska Academy of Science and Technology-Alaska Research Council. We will examine the structure as well as the various functions and responsibilities of both the academy and the council. In addition, we will evaluate the various options available for creating the academy-council, noting the benefits resulting from such an action and any problems which might be encountered along the way.

A. The Alaska Academy of Science and Technology (AAST)
Alaska Research Council (ARC)

1. Description. Initially, the academy would be comprised of 50 Alaska resident members, each distinguished in his or her field of inquiry and together representing all facets of

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*A Comprehensive Review of Policy Decisions/Seminars I, II and III, "The Evolution of an Alaska Policy," Dec. 10, 1969. p. 14.

scientific research, application, and education Subsequent membership could include both residents and nonresidents with appropriate backgrounds and a demonstrated in-depth knowledge of Alaska affairs.

The academy would be given the power to create its own organization, including a constitution, bylaws, and rules and regulations, and to add new members. Officers would include a president, vice president, secretary, treasurer, and five councilors elected by the membership at its first meeting. Plenary meetings would be held at least once a year at which time new members could be added. Officers and members of the academy would be treated as members of advisory boards with regard to compensation.

The academy would operate primarily through the Alaska Research Council (ARC) established under a separate title within the AAST enabling legislation. Seven of its 12 members would be chosen from the AAST membership, and all would require Alaska Senate confirmation. Under our suggested approach, the elected president of the academy would serve as chairman of the council. All members of the research council would be Alaska residents and would be responsible for formulating council rules and regulations.

The Alaska Research Council would carry out its major functions primarily through assemblies or special committees

which it would organize and dissolve as needs arose and were successfully met. Persons serving on these assemblies or committees would be selected by the council and would report directly to the council. Neither Alaska residency nor AAST membership would be required to serve as a member of an assembly or committee. A full-time salaried executive secretary and an assistant would be engaged by the chairman of the council to coordinate the activities of the various committees. Council and committee members would be compensated for expenses incurred in the course of their activities on the same basis as members of advisory boards.

All aspects of the academy-council's dealings, including all findings, reports, and recommendations, would be matters of public record. Sufficient funds for the academy to carry out the purposes set forth in its enabling legislation would be appropriated annually by the legislature. A separate appropriation would be made for the research council.

2. Purposes. The simultaneous creation of an Alaska academy and research council would assemble in one body the finest expertise in Alaska on science and technology and in turn provide it with an efficient means of carrying out its responsibilities. Such an assembly of distinguished persons would play an important role in shaping Alaska's future.

The academy, through the operation of the research council, would exercise this role in many ways. It would act

as an advisor to state government on scientific and technological issues; it would stimulate the translation of science into various technologies, especially those developed in response to Alaska's unique environment; it would act as a standard-setting body, supplying the criteria necessary to evaluate the quality of research endeavors and assist in the design of research programs; and it would stimulate communication and cooperation between scientists, engineers, and the public both in Alaska and the "lower 48."

Let us now examine in more detail these and other possible functions of the academy and the various ways in which they might be implemented.

a. The academy would advise in those matters involving science and technology referred to it by either the executive or legislative branch of state government.

Referring to the academy for nonpartisan advisory services would provide for continuity in scientific and technological planning and programming both at the state and local levels. The academy would effectively serve as a source of policy alternatives on matters of science and technology. When presented with a major problem by the legislature or the executive branch, the academy would recommend particular approaches and, if requested by either or both branches, would arrange for appropriate

studies. For example, a request for a review or a problem study might be submitted by a legislative committee or the commissioner of an executive department directly to the president of the academy who would then, as chairman, put it before the research council for consideration. If a majority of the council members voted to conduct the requested review or recommend particular approaches to the requested problem study, the council would then organize a special committee for those purposes. However, it should be carefully noted that the council would only arrange for requested problem studies; it would not conduct them.

The above example is only a suggested procedure. Other possibilities exist and could be adopted. For example, such requests might require the endorsement of appropriate representatives of both the executive and the legislative branches. This arrangement, however, has the inherent weakness that it is not consistent with the concept of balance of powers. For example, if the legislature questioned the policy of an executive department on a particular scientific or technological matter and wished the advice of the academy, the likelihood that the commissioner of that department would sign a request for such advice would be at best minimal.

Therefore, we feel that of the two approaches, the former, in which either branch could request the advice of the academy independently, is the more practical.

In the above example, the president of the academy also serves as chairman of the research council as is the case at the national level. It might be decided, however, that the Alaska Research Council should be given the right to elect a chairman from among its 12 members. In this case, the state government could:

1. Submit its request directly to the council chairman for consideration.
2. Submit it to the president who would decide whether or not to forward it to the council.
3. Be given the option to direct its inquiries to either the president or the chairman according to circumstances or preference.

The first option is logically sound and most consistent with the academy-council organization. As the operating arm of the academy the research council should receive all official requests for advice. This arrangement would also allow the council to act as an interface between the academy and state government. In addition, it would be the most efficient approach of the three. However, under this scheme the council might become too independent of

the academy and exceed the limits of its strictly "catalytic" role as the "steering committee" of the AAST. Under the suggested approach, the president of the academy would also serve as chairman of the council, thus minimizing the probability of such an occurrence.

The second approach is not a viable option for it is not consistent with academy-council organization. In addition, it would provide for no separation between the government and the academy and would be much less efficient.

The third possibility would be as unwise as the second is impractical, for it combines all the weaknesses of the first two approaches.

In view of the above discussion, it appears that the suggested arrangement is probably the most desirable. However, still other possibilities may exist and should be given proper consideration.

b. The academy would encourage further development of new techniques of applied science to fulfill the special requirements imposed by Alaska's unique environment.

In many areas of technology, traditional methods used to perform certain tasks or resolve particular problems in other parts of the world are simply ineffective or uneconomical when attempted in Alaska. Examples range from ice and permafrost problems encountered in planning for the offshore development of oil and gas in

the Arctic, to the extraction and transportation of coal by sludge pipelines in northwest Alaska, to the development of effective agricultural techniques in the Matanuska Valley.

Cooperation between Alaska scientists and engineers and their counterparts in industry and agriculture is essential to the development of new techniques which are both feasible and environmentally sound. The academy would play a key role in promoting this kind of interaction to the benefit of all.

c. The academy would clearly formulate and promote standards of scientific research in Alaska.

Science may be defined as an objective, logical, and systematic method for analyzing phenomena. It represents the best way humankind has thus far devised to permit the accumulation of reliable knowledge. The operational aspect of science constitutes what is known as the "scientific method." And, like all other methods, it can be carelessly or inappropriately applied.

The academy would serve the useful purpose of establishing standards for scientific research both operationally, in terms of the processes or operations performed when practicing it, and functionally, in terms of the services it can perform. It would also formulate guidelines which could be used to determine whether or not the scientific

approach should be used at all to solve a particular problem. These standards would provide a means of enhancing the quality of state-funded research activities and greatly increase their yield in useful knowledge.

d. The academy would allow experts to more freely express their educated opinions on events related to science and technology occurring in Alaska.

The AAST would constitute an invaluable source of knowledge and information, innovative ideas, viable options, thoughtful evaluations, and accurate predictions. If, however, an individual scientist's evaluation of a particular problem or situation lying in his or her field of expertise does not concur with those of government agencies, industry, or the public, he or she must make what is, under present circumstances, the rather difficult decision of whether or not to express his or her opinion publicly. Scientists, after all, are people, and as is consistent with human nature, would most often choose not to expose themselves to unnecessary inconvenience or possible ridicule. The academy would provide such experts with a forum in which to express their ideas under such circumstances and could then decide whether to take appropriate measures as a body. This would encourage scientists to give voice to their thoughts, to engage in

meaningful dialogue with other experts, and perhaps reach a consensus, thus minimizing situations in which an individual scientist finds himself "riding point" so to speak.

e. The academy would promote communication and cooperation with scientists outside of Alaska.

This would be accomplished in many ways--the committee system of the research council, AAST publications and articles in national magazines and scientific journals, and AAST-sponsored conferences or workshops. As the national reputation of the adacemy increased, so would the amount of direct contact with the outside scientific community. The academy would thus attract additional scientific and technological talent to Alaska.

f. The establsihment of an Academy of Science and Technology would create an atmosphere in which scientists would be encouraged to point out gaps in essential knowledge and initiate appropriate studies to fill them, to identify and expound on current trends and potential future problems, and most importantly, to devote some of their time and energies to the consideration of long-range goals and research programs.

The history of research in many government agencies has been the history of competition between short-term

immediate research in response to urgent problems on the one hand and long-term anticipatory research on the other. Needless to say, under such circumstances, usually compounded by chronically insufficient funds in both departments, it is invariably the long-term research which is sacrificed.

An excellent example of this phenomenon is the current siutation of the Environmental Protection Agency's research and development programs. As day-to-day regulatory problems occur, there is a strong tendency within any agency to transfer funds and personnel normally assigned to long-term research (characterized by more generalized, open-minded objectives) to short-term immediate research on current problems, which, of course, has entirely different, more clearly defined goals. In addition, the suddenness with which environmental problems arise also has a disruptive effect on fundamental environmental research because immediate problems have to be handled first. For instance, to deal with the recent Kepone disaster in the James River, EPA expended at least $1.65 million, of which $1.25 million was taken from the Office of Research and Development.

The Academy would actively voice the need for long-term research and promote it whenever possible. It would

provide the proper milieu for discussions of the long-range aspects of Alaska's development in the field of science and technology and permit the dissemination of the ideas resulting from such discussions to both the government and the people of Alaska.

3. Possible Establishment Procedures. The authorization of an academy-council would require an act of the legislature. It could be subdivided into two titles, Title I for establishment of an Alaska Academy of Science and Technology and Title II for the creation of an Alaska Research Council.

If it were prescribed in the legislation that the elected president of the academy would also serve as chairman of the research council, the selection of the academy membership would necessarily have to preceed the organization of the council. Several methods for choosing the initial membership of the AAST are conceivable. We suggest the following.

In the enabling legislation the governor would be directed to create a special committee for this purpose. This committee would be comprised of 10 resident Alaskans with statewide experience in affairs of science and technology. Its function would be to establish appropriate criteria for the selection of initial academy members and subsequently submit its recommendations to the senate for confirmation. Members of the

committee would not be prohibited from nominating themselves for membership in the academy.

Upon receiving senate confirmation the members would meet as a body to elect the officers of the academy. A requirement might be that the president receive senate confirmation before assuming office. This is probably not an important point, however, as the legislature would find it difficult to refuse confirmation to a man or woman regarded by the scientific elite of this state as the person best qualified for the office.

The president would then aid in writing the AAST consitution, bylaws, and rules and regulations as well as choose the members of the Alaska Research Council, subject to academy membership approval and legislative confirmation. The council would draft its bylaws and begin assuming its responsibilities as operating arm of the academy.

Under this kind of overall organization, the AAST and the ARC would be funded separately by annual legislative appropriation. Both would be required to submit annual reports to the legislature.

This general scheme, however, represents only one possible establishment approach. For every important point outlined above, there exist other options. For example, the selection of the initial membership of the AAST might be conducted by a

special committee of the legislature. This method, however, would exclude the involvement of the executive branch and thus represents a less balanced approach.

Another alternative might be to engage a private organization such as the Alaska Division of the American Association for the Advancement of Science, to submit a "list" of nominees for senate approval. However, this arrangement would combine the falacies inherent in the above approach with the fact that the majority of scientists in Alaska are not members of the AAAS, which is nevertheless the largest organization of its kind in Alaska.

By specifiying that the offices of president of the academy and chairman of the council could not be held by the same person would avoid the more sequential procedure imposed by our suggested approach, but we feel the possible disadvantages which might result and which have already been discussed would far outweigh any inconvenience which might accompany the delay in organizing the research council.

SUMMARY AND CONCLUSION Throughout this analysis of the structure, role, and possible modes of establishing a proposed AAST-ARC institution, a suggested scenario was used as a touchstone for discussing alternative approaches. Under the suggested arrangement the order of events subsequent to passage of the enabling legislation would take place as follows.

The Governor would appoint a special committee of 10 resident Alaskans to submit a list of 50 candidates for initial AAST membership

to the Alaska State Senate for confirmation. Upon its first meeting; the academy membership would elect its officers, including the president, who would then, as chairman of the authorized Alaska Research Council, select 11 persons to serve on the council subject to AAST membership approval and state senate confirmation (see figure 1).

The AAST would operate primarily through the ARC, which, in turn, would carry out its functions by organizing special committees. As the official advisor to state government on matters related to science and technology, all inquiries or requests for studies would be submitted by either the executive or legislative branch to the president who would then decide, with academy membership input, whether or not to initiate appropriate council action. The ARC would only arrange for requested studies which would actually be conducted by the special committees (see figure 2).

Once again it must be stressed that the role of the AAST-ARC would be strictly advisory. It would act as a catalyst for research or problem solving efforts but would not perform them. Its role would not be one of managing or coordinating state-funded research but rather in assisting those who determine its policy directives and priorities.

In view of the many benefits which would result from the establishment of an Alaska Academy of Sceince and Technology-Alaska Research Council system, we feel that it is in the interests of all Alaskans that enabling legislation be written and submitted as soon as possible for consideration by the Alaska State Legislature.

FIGURE 1. ESTABLISHMENT

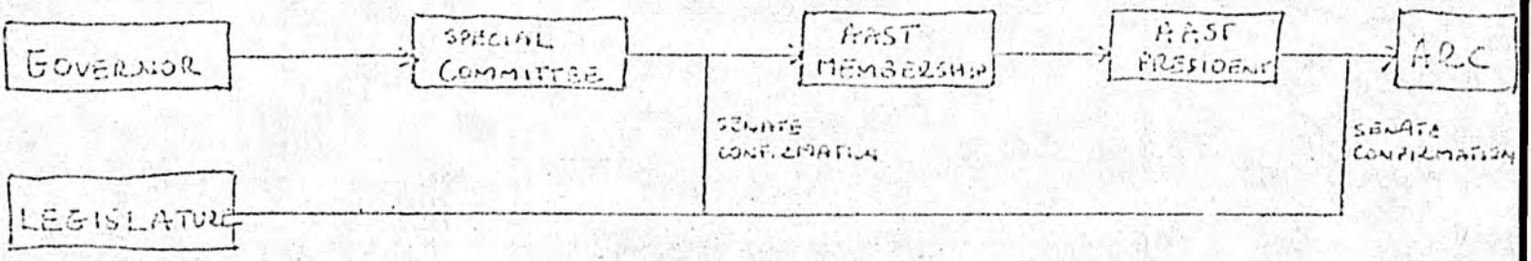
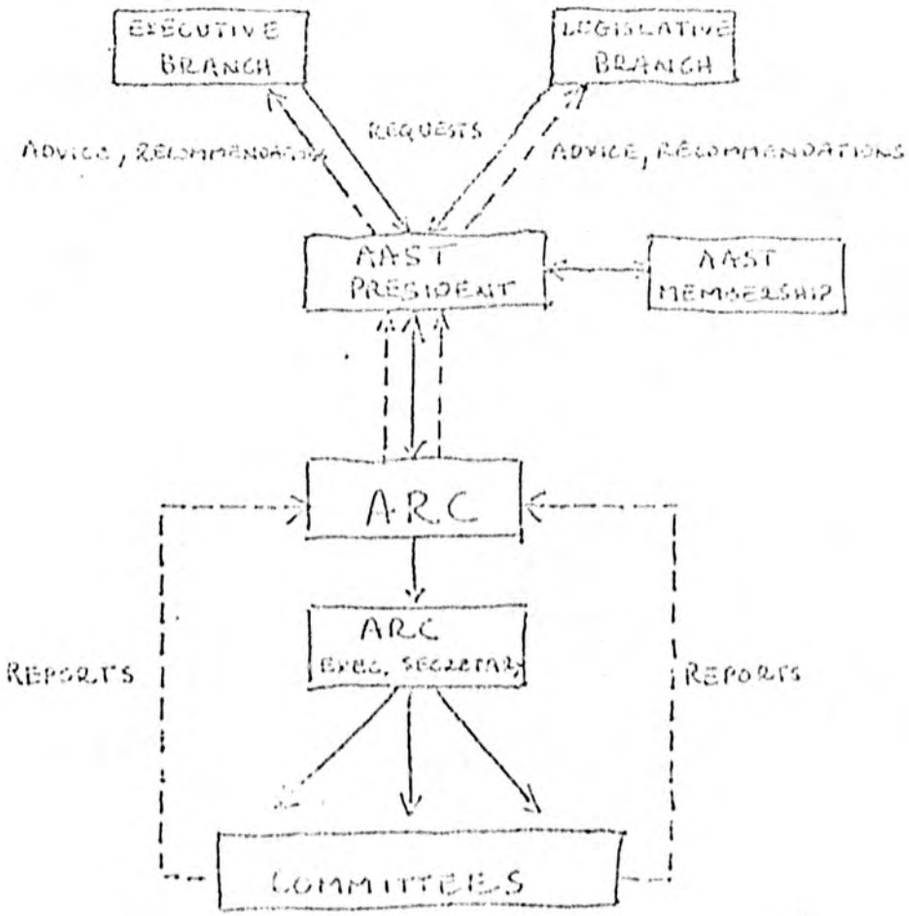


FIGURE 2. ADVISORY ROLE



MEMORANDUM

September 16, 1977

TO: Alaska Resource Research and Development Ad Hoc Committee

and

Committee Advisory Group

FROM: Terry Gardiner, Chairman

SUBJECT: Alaska Research and Development Council

During the first meeting of the ad hoc committee, I stated that I would expand on my thoughts about the potential role of the Alaska Research and Development Council in the future of Alaska. I will begin by describing my perspective of the research decision-making utilized to date in selecting resource related research projects and the changes which are occurring at this time which I feel add further to the need for greater consideration of research activity. Following that, I will propose a purpose and structure of the R & D Council and suggest some of the critical aspects of its formation and function. My perspective is intended to be one of a decision-maker in government; thus, I will stress the point of view of the need for state government to have its needs identified to the research community by a body which can most competently accomplish that end.

Probably the greatest problem that exists today with respect to meeting the state government resource research needs is that no single omnibus body exists which considers all the competing uses of Alaska resources or the competing demands placed upon research dollars. Those administrative agencies which do conduct resource related research are most likely addressing a statutory or policy mission. Typically, that kind of research is too myopic to accomplish the initiation of research activity which will typically return data in support of decision-making which must address future resource disposition.

Two recent activities of the Legislature would seem to serve as examples to articulate this problem. The most economically advanced of any of Alaska's renewable resource industries is undoubtedly fisheries. Within that sector, two recent decisions of the Alaska Legislature are the cause of great amounts of activity within the industry (their importance must be considered somewhat overshadowed by the enactment of the 200-mile limit legislation). I am referring to the creation of the Division

of Fisheries Rehabilitation, Enhancement, and Development and the private, non-profit hatchery legislation which was significantly amended this last year. Both of these bills were opposed by the department which would be responsible for administering the new programs; yet these two new laws, whether implemented for better or for worse, have caused more change in their short life than had occurred for some time in the salmon industry. The legislature's only available resident expertise opposed these two laws--which apparently had little effect in dissuading them from their actions. Apparently, the legislature felt that the information which the department used to support its viewpoint was inadequate and, thus, decided to oppose their recommendations. The question can be posed, how much better would these two resource related laws have been if the drafters had had access to better information about the subjects addressed? Surely, in light of limited entry and the advent of salmon enhancement techniques, a systematic look at resource research priorities would have prompted some research activity into enhancement practices and social structures to take advantage of the limited entry concept.

University-conducted resource research often addresses issues of great importance to state resource policy. However, the considerations most often utilized in deciding research activity do not include the state interest per se. This is to be expected; however, the failure here is that university investigators have not typically had access to information which describes what areas and activities would be considered highly important to the State. If such a listing did exist, we could expect that academic researchers would likely consider state research priorities in their research activity decision-making.

As things now stand, university research is usually geared to one of the following considerations: (1) pursuit of intellectual curiosity, (2) continuance of activity in a subject area familiar to the researcher (application of talent to experience area), (3) pursuit of available funding (research proposal designed to assure funding success based upon the perceived priorities of the funding agency), and (4) continuance of departmental or institutional missions. Other reasons for academic research activity surely exist--this is to demonstrate what the more accepted reasons for research activity are considered to be.

It is a fact that the State does not pay the major portion of university research. This does not, however, modify the fact that one of the unwritten goals of any state university is to assist in issue analysis and fact finding to support governance of that state. I feel that successful accomplishment of that goal would be more easily accomplished if the State communicated their desires to the university in a systematic manner.

The federal government is a major source of research dollars in Alaska. That research conducted by federal agencies suffers the same sorts of problems with respect to state resource research priorities as do state agencies--with the added problem of their missions being oriented to the

national perspective. For the sake of argument, though, let us assume that federal agencies would be more inclined to (at least on occasion) modify their research plans to address some state research priorities if they knew what those priorities were and had an opportunity to discuss their activity with individuals who could represent the state position.

The Legislature during its next session will be considering the implementation of two funds which will be vitally important to Alaska's renewable resource industries. They are the Alaska Permanent Fund and the Renewable Resources Fund(s).

The Permanent Fund dedicates a minimum of 25% of the rentals, royalties, and bonuses collected by the State from petroleum operations conducted on state land. The principal is to be invested in an "income producing" manner. Undoubtedly, a major portion of this savings account will be invested outside Alaska in secure investments. Just as likely, though, is the fact that some of this fund will be invested in Alaska. Much of this investment will likely occur in renewable resource industries. Since the fund is mandated to make money, it cannot be expected to conduct loan activities in high risk areas. Since risk is often lack of knowledge, research will, on occasion, diminish risk by supplying the information which will assist in proving the economics of particular activities.

The need for resource research is probably even greater for the Renewable Resources Fund. This fund is also created by a dedication of petroleum revenues (five percent of the rentals, royalties, and bonuses). The fund is charged with "investing" the money in the "rehabilitation, enhancement, and development" of Alaska's renewable resources. It is not restricted to income producing investments as is the Permanent Fund. It could be appropriated to grants, loans, equity investments, line-agency funding, acquisitions, and research.

An implied objective of the Renewable Resources Fund is to assist in the building of renewable resource industries. Knowledge about the resources and industries it is "investing" in will be paramount to the success of this fund.

CREATION AND PURPOSE

The findings and new developments discussed in the preceding section lead me to believe that there is a definite need for the creation of a body which is charged with addressing state priorities in the resource research area. David Hickok, an ad hoc committee member, has prepared a working paper on this same subject. My proposal will differ from his with respect to the implementation of this activity. It would seem appropriate that the committee have varying proposals before it for its consideration.

I propose the creation of an Alaska Research and Development Council which would serve as the major communication forum between the Alaska research community and state policy personnel. Its duties would be: (1) the prioritization of state needs for resource related research, (2) establishing standards of excellence for research conducted in this area (including the utilization of research results generated from all sources), (3) to respond to Administrative and Legislative needs for statements of scientific finding with respect to specific requests from either of these branches of government, and (4) to coordinate with an information maintenance and dissemination agency.

Research prioritization (1 above) would seem to be the major issue. As I have attempted to demonstrate in the first part of this memorandum, a major failing of the State thus far is the lack of declaration of priority research areas--not only with regard to in-house resource research, but also to identify to the research community what the State is most anxious to see answered by academic scrutiny. The R & D Council would allow for a forum to be developed to discuss the varying issues at hand, and to clarify the scope and description of these priority areas. During the process of prioritization, both state interests and research community comments can be considered to guarantee a proper ordering and adequate description of the priorities.

Standards of excellence (2 above) would seem to be an integral part of the description of the research priorities. The reports of the R & D Council should not only list the priorities, but should describe the scope of the investigations which need to be initiated to develop the information base. To a great degree, the standards of excellence can describe the application of the scientific approach to each specific priority area.

The first two functions of the proposed council describe a communication from the council to the State and research community. If the council is to serve as a major communication intersection between these two divergent interests, it is important to allow the State to develop systematic access to the research community through the council. Therefore, directing the council to respond to Legislative and Administrative needs for scientific comment on specific issues (3 above) would seem imperative. The role of the council in this area would be to design an investigation of the problem posed by the requesting governmental branch and to create an ad hoc working group to consist of those people which the council feels could best address the problem. There would be no restriction on the personnel which the council could consider for the ad hoc group.

Since the agency is necessarily going to handle a great amount of information with respect to Alaska resources, it would seem appropriate that the council work closely with a data gathering and dissemination agency. Not only would that facilitate better data handling by the council, but by coordinating with the resource information dissemination source, the

council will have direct information from the users of resource information about what the major calls for information are and in what areas. Hence, the council will have direct access to a source of information which can, to a great degree, identify the major information needs of the public, but can also directly identify where the interests lie with respect to the future utilization of Alaska's resources.

For the purpose of discussion, I would propose that the R & D Council be statutorily placed in the Office of the Governor, and the council consist of seven members. The legislature could be charged with selecting one member, and the governor selecting the rest with the legislature confirming those six selections. Two of the members could represent the Administration, two the research community, and two the public.

It is obvious to me that there is much more work that needs to be accomplished on this subject. We have not as yet made the contacts with the people and agencies that could supply us with further guidance as we proceed. State and federal agencies need to be contacted, as well as private foundations and industry. I hope the committee will assist in expanding our information base.

September 15, 1977

PRELIMINARY

GOALS

1. Establish state research needs.
2. Establish funding mechanisms.
3. Ensure that expenditures produce acceptable products.
4. Ensure that the State University can assist in the solving of State research oriented problems.

OBJECTIVES

1. Creation of an organization to assess research needs and plan, coordinate and propose priorities for the expenditure of State funds for research purposes.
2. The organization will determine the most cost effective expenditure of its research funds, including the maximizing of benefits to the State through the expenditure of federal research funds.
3. The organization will develop methodologies for assessing the value to the State of University of Alaska research proposals with a view to State monetary participation.
4. Develop techniques to minimize redundance of State funded research activities.
5. Act as a standard-setting body, supplying the criteria necessary to evaluate the quality of research endeavors and assist in the design of research programs, and stimulate communication and cooperation between scientists, engineers, and the public both in Alaska and the "Lower '48."
6. Advise in those matters involving science and technology referred to by either the executive or legislative branches of state government.

PRELIMINARY

7. Serve as a source of policy alternatives on matters of science and technology. When presented with a major research problem by the legislature or the executive branch, recommend particular approaches and, if requested by either or both branches, would arrange for appropriate studies.
8. The development of an adequate information dissemination system.

Proposal

The Creation of a State Research Foundation and an Alaska Academy of Science and Technology

The Research Council would have authority to address goals and objectives as heretofore outlined. The Alaska Academy of Sciences and Technology would bring together multi-disciplinary expertise as an advisory body to the Research Foundation for the furtherance of State research goals and objectives.

The Research Foundation would have authority to plan and budget for the funds necessary to adequately address State research needs. It would be empowered to cooperate with the University of Alaska and other institutions in the furtherance of its objectives.

It would determine the most cost effective means of producing research projects, both in short and long range. It would be empowered to create its own organization, including a constitution, bylaws, rules and regulations, and the ability to add members. Its function would be to manage research expenditures by disseminating and monitoring funds to other agencies. It would be prohibited from spending research funds internally.

Problems

The proposal to create an organization as outlined above will generate fear within the academic community that control of other agency accounts, e.g.

the State University, will lead to dissipation of effort and loss of funding for other agency-initiated proposals. The Foundation must not act in any manner which would inhibit other agency research proposals from being submitted to other funding sources.

Other problems include the development of methodologies to establish State related needs and stimulate cooperative effort among the Research Foundation, the State executive and legislative branches, the State University, other institutions and interest groups. For example, expenditures of State funds made by the Research Foundation must be auditable; therefore, research funds dispersed by the Research Council to the State University must be preceded by adequate specialized business office management within the University. The University could accomplish such a goal by the establishment of a specialized business office for research.

STATE of ALASKA

MEMORANDUM

TO: Resource Research and Development Committee

DATE : September 30, 1977

FROM: Fran Ulmer, Director
Policy Development and Planning
Office of the Governor

SUBJECT: NSF Grant

As you know, this Division is now preparing a proposal to the National Science Foundation for funding to investigate ways to improve coordination between research efforts and State decisionmaking. The $25,000 grant ($12,500 State match) from NSF will be used to:

(1) assess existing procedures for use and availability of scientific expertise to decision makers;

(2) analyze alternative approaches for setting up a formal mechanism(s) to integrate academic research into the policy formulation process, and;

(3) develop specific recommendations and implementation strategies.

Attached is a draft copy of the narrative portion of the proposal. Included in the final document will be explanatory cover sheets, an abstract, a budget breakdown, and appendicies. Your review and comments on the narrative would be appreciated. In particular, your thoughts on the following are needed:

(1) project objective and work program task descriptions; and

(2) scope of the overall effort envisioned.

We need to submit the application to NSF by October 30th. In order for us to incorporate your thoughts, please forward your comments to me no later than October 12th.

FU/BL/bb

A. Project Objective and Introduction

The project objective is to improve the quality of policy decisions by assuring decision makers timely access to relevant scientific information. At present, no formal mechanism exists for the integration of research products into the policy formulation process. Nor does information on State research needs and priorities flow systematically to the scientific community. Even within the public sector, communications problems exist which reduce the usefulness of extensive research expenditures by Federal and State agencies.

For Alaska, the SSET program occurs at an opportune time. The inefficiencies of the current ad hoc system have become obvious to both governmental decision makers and the scientific community. Actions to improve the situation have been initiated by members of the Executive and Legislative branches of government, and individuals from the academic community. The Alaska Division of the American Association for the Advancement of Science recently held its 28th Alaska Science Conference on the theme "Science Information Exchange in Alaska." Several papers and much discussion centered on the very topic addressed by the SSET program - the integration of science, engineering, and technology resources into the policy-formation process. There is general agreement among concerned parties that a formal mechanism and process is required to achieve this desired integration. It is the intention of the applicant to utilize the NSF funds to assess alternative structures and recommend to the Governor and the Legislature promising options available for obtaining the project objective.

B. Background Material

As mentioned above, although no formal integration mechanism now exists, several efforts are underway as concerned agencies and individuals attempt to improve shortfalls in existing procedures. This section briefly describes some of the efforts now underway. This discussion is meant to be illustrative rather than exhaustive. An early work program task must be a comprehensive assessment of the existing structure, procedures and related activities.

i. The Executive Branch

Several actions to improve the utilization of scientific data have been initiated by the Governor's Office, Division of Policy Development and Planning (DPDP). Of major importance is an inventory of physical, social and economic data collected by State agencies. It has often been the case that data gathered by a particular agency is duplicative of efforts already completed or underway in other agencies of State government. The publication of this data inventory should substantially increase

agency awareness and thus reduce duplicative efforts and search costs. Efforts toward improving the coordination of data generation, display and use are ongoing in the Division of Policy Development and Planning.

In conjunction with the State Library, DPDP is working toward publication of an inventory of State agency special studies and reports. This index of completed research should likewise improve State research efficiency.

Centralized data management has been a topic discussed with increased frequency during the past six months. Alternative proposals have been advanced and a committee of data users chaired by a DPDP staff member, has been formed to pursue analysis of these alternatives.

Also within the Division of Policy Development and Planning is the State Clearinghouse. The Clearinghouse functions as a reviewing mechanism for proposals requesting funding from Federal agencies. To some extent the Clearinghouse has an opportunity to review proposals from various departments and institutes within the University of Alaska statewide system. However, because so few federally funded research programs require a Clearinghouse review, this mechanism is not comprehensive in nature. Nor is it designed to mesh State policy requirements to the University's research program.

Within the last several months some discussion has been held between the Clearinghouse Coordinator and the University's Vice-Chancellor for research. The point of discussion was the possibility of funneling University proposals for federal grant assistance through the Clearinghouse for review. It was envisioned that such a procedure would only be informational. It would allow State and local agencies an early warning of University research plans, while providing the University with additional information as to the perceived benefits of its research efforts.

One structural problem still to be addressed by the University is a unification of the research efforts under one central administrative director. Absent such a centralized system through which all university research proposals would flow, the difficulties in coordinating university research seem enormous.

Aside from the principal instructional departments, the University of Alaska supports or is affiliated with the following research institutes: Geophysical Institute, Institute of Marine Science, Institute of Water Resources, Agriculture Experiment Station, Institute of Arctic Biology, Institute of Social and Economic Research, Center for Northern Educational Research, Alaska Sea Grant Program, Arctic Environmental Information and Data Center, Biome Center, Alaska Cooperative Wildlife Research Unit, Mineral Industry Research Laboratory, Forest Soils Laboratory and the Naval Arctic Research Laboratory. Not listed are a variety of research efforts carried out in conjunction with graduate student programs, which are not assigned to one of the units of organized research.

As can be seen, the scope of research within the University of Alaska system is extensive, covering a variety of disciplines. If there is a common thread running through most of the programs, it is an emphasis within each of the disciplines on its relationship to Alaska's unique cultural and physical characteristics. Indeed, because of Alaska's location straddling the arctic and sub-arctic, research programs emphasize the investigation of the meaning of the North.

Concomitantly, the problems facing State decision makers are most often associated with Alaska's location. Research results which may be valid in more temperate zones do not necessarily hold true in the northern latitudes. The problem of extreme cold, darkness, isolation, cultural diversity, changing economic and social institutes require research efforts which must take arctic realities into consideration if results are to be applicable to Alaskan conditions.

ii. The Legislative Branch

The Legislative Division of Research has been actively interested in increasing the flow of science information to legislators. One project undertaken by the Division involved a compilation and publication of research in progress by State agencies. Another effort involved a survey of resource related research agencies and their activities. Further, a research analyst from this Division serves as staff to the recently formed Ad Hoc Committee on Alaska Resource Research and Development. The goal of this committee, co-chaired

by State Representative Terry Gardiner and Fran Ulmer, Director of DPDP, and including public, private and academic membership, is "to study and survey the present practices utilized to determine research funding and research scope and then to recommend feasible means (if any) to better insure a rational determination of priority research endeavors and guarantee the necessary political support."

There has been further evidence of legislative interest in the form of proposed legislation. During the last legislative session an Act was introduced which would establish an Office of Appropriate Technology, to be located in the Governor's Office, Division of Policy Development and Planning.

The purpose of an office of appropriate technology, as stated in HB 516, would be to provide State government with the means to take the leadership in "...developing small scale technologies appropriate to an era of limited resources."

This would be accomplished (citing HB 516) by:

(1) assisting and advising the Governor, the Legislature, and all State departments and agencies in developing and implementing less costly and less energy-intensive technologies of recycling, waste disposal, transportation, agriculture, energy, and building design;

(2) disseminating information pertaining to appropriate technology;

(3) as funds are appropriated, making grants of financial assistance to persons engaged in the development and implementation of appropriate technology; and

(4) assisting persons engaged in the development and implementation of appropriate technology to obtain financial assistance from all available sources.

While not yet acted upon, HB 516 is scheduled for legislative debate during the next session.

IV. Alaska Science Conference

As mentioned above, the recent AAAS Conference dealt with the closely related topic of information exchange. The major problems in this area as perceived by policy makers and scientists (and

some individuals who are filling both these roles) were clearly enunciated by the participants at the Conference. Possible partial solutions were introduced as resolutions for consideration by the membership. (These draft resolutions are attached as Appendix A). The AAAS Executive Committee is now preparing the final wording of the resolutions for submission for membership vote. These resolutions and much conference discussion centered on the possible formation of three organizations - an Alaska Academy of Science, an Alaska Research Council, and/or an Alaska Research Foundation. Further analysis and comparison of these proposals is needed in developing an effective mechanism.

This brief sketch of selected elements of the current situation and activities gives an indication of the relevance and timeliness of the SSET program for Alaska. The work program outlined below is intended to bring together the various efforts and interests now being expressed in this topic, in order to design an effective mechanism for integrating and improving scientific input to policymakers.

Many of the necessary pieces for such a mechanism exist now, albeit in a disjointed array. A clear and simple procedure is needed to bring scientific resources and policy decisions together in an orderly, systematic and coherent fashion.

C. Work Program Tasks

1. Complete the assessment of the existing procedures for use and availability of scientific expertise to decision-makers.

2. Delineate those portions of the current system which are most in need of improvement, with particular emphasis on gaps in the existing procedures.

3. Review mechanisms which exist elsewhere, with particular attention to their successes and failures, and their relevance to the Alaska situation.

4. Coordinate with and utilize input from numerous interested individuals from public and private sectors.

5. Analyze alternative approaches to accomplishment of the project objective. Among these alternatives will be current recommendations for establishment of a research council, foundation, and/or Academy of Science.

6. Develop recommendations and implementation strategies for presentation to the Governor and the Legislature regarding actions necessary for accomplishing the project objective.