14.02.91

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

AGENDA

Exxon Valdez Oil Spill Trustee Council
Public Advisory Group
Fourth floor conference room
645 G Street, Anchorage, Alaska

Tuesday, July 17, 2001 – 1:00 PM
Public Advisory Group workshop

DRAFT **DRAFT**

PURPOSE:

Discuss GEM program elements

1:00	Science advice, public involvement, and community involvement
2:00	Data and information management
3:00	BREAK
3:10	Administration
4:00	Summarize for presentation to full PAG
5:00	Adjourn

from NRC Interim Report on GE
Feb. 2001

ADMINISTRATION

The EVOSTC has administered its research program to date using a combination of a small paid staff (responsible for most aspects of program planning and implementation), paid peer reviewers (responsible for judging quality of proposals), and scientists (through participation in an annual workshop devoted to presentation of research results and discussions of needed future directions). This approach has increased in effectiveness over the years. With the new GEM program, with its large mission and long time horizon, the Trustee Council consciously sought to evaluate its approach and make adjustments as needed to ensure the program's long-term success and scientific credibility. How best to administer the new GEM program over time again emphasizes the importance of being clear about the program's focus – who sets it and how it is implemented.

One of the most important administrative questions concerns the role of Trustee Council staff in the program plan. Is GEM to act like a science funding agency, where scientific questions emerge from outside the Trustee Council and are filtered and ranked by independent advisory groups and implemented by staff (a bottom-up approach), or more like a foundation, where questions and projects are identified by the leadership and staff and then proposals in those areas are sought (a top-down approach)? Most long-term science plans run on the former model, and the committee believes this would be best for GEM as well. We recognize, however, that the program will always have some elements of both approaches, given its origins and the strong role of agency leaders on the Trustee Council itself. Furthermore, detecting change will require that a core set of variables be measured over a long time period, which is most likely to occur if the Trustee Council makes those studies a priority.

Implementation of the GEM science plan will raise many questions requiring input from scientists. The committee believes there will be a long-term need for an independent scientific advisory committee, peer review of proposals by individuals outside Trustee Council agencies, and periodic reassessment of monitored variables. We had significant discussions about the degree to which the administrative structure facilitates managing and sharing data. Information gathered in GEM should be accessible to the general public, managers, and other scientists in a coherent and understandable form within several years of its collection. Such data management requires in-house expertise, recognized as expensive but necessary.

ORGANIZATION AND GOVERNANCE

Other large, long-term research programs have struggled with how best to organize and make decisions (NRC, 1999b) and GEM planning staff should establish strong ties with other ongoing ecological programs such as the Northeast Pacific Global Ocean Ecosystem Dynamics Program, the NSF-funded Long-Term Ecological Research Network, and NOAA-funded programs in the Gulf of Alaska and the Bering Sea. The committee reviewed a number of these programs to draw lessons about how other programs handled common issues, such as how long the programs took to develop (Box 2-4), how strategic guidance and peer review were obtained, and how the programs balanced the need for stable commitment to a long-term vision and flexibility to take on newly identified issues.

BOX 2-4
THE EVOLUTION OF MAJOR SCIENCE PLANS TAKES TIME

The creation of all long-term science plans takes time because the process of developing the plan is as important as the details included in the plan. For example, the U.S. portion of Joint Global Ocean Flux Study (JGOFS) had its beginnings in 1984, with the international component starting about three years later (NRC, 1999b). The formation of this effort was not simple.

Initially, the U.S. Global Ocean Flux Study (GOFS) was an outgrowth of three separate projects that were active in the early 1980s: the National Academies' Ocean Studies Board was investigating the feasibility of a program that would conduct long-term studies of the biological and chemical dynamics of the ocean on basin-wide and global scales; the NSF Advisory Committee for the Ocean Science Program was developing a long-range plan, and a separate National Academies committee had identified initial priorities for the International Geosphere-Biosphere Programme. As the relationships among these activities became clear, and with support from NSF, NASA, ONR, and NOAA, a group of scientists met in 1984 at Woods Hole under the auspices of the National Academies. This generated the basic scientific underpinnings that defined the proposed mission for GOFS and led to the GOFS Scientific Steering Committee, which was formed in 1985. Then, after continued discussion and planning, in 1987 an overview document was published that more fully outlined the program. Between 1986 and 1990, the science community produced nine reports that summarized the recommendations of workshops designed to expand on the general plans, covering topics such as water column processes, benthic processes, continental margins, data management, and modeling. Finally, in 1990 the JGOFS Long Range Science Plan was published, based in part on the recommendations of the workshops. It was 1995 when JGOFS released an Implementation Plan, which gave the status of the JGOFS research and future directions.

One strength of a major research program is the ability to draw and direct a significant amount of talent and scientific interest toward a large and often high profile scientific challenge. But to realize that opportunity requires significant advance planning and coordination, and one key element is taking the time necessary to allow wide participation in the program's definition and evolution.

Source: NRC, 1999b.

Overall, the structure currently in use by EVOSTC has worked well to date, but will need to evolve to handle GEM's broad, long-term, more scientifically complex goals. Based on its review and deliberation, the committee believes that the GEM program requires a more fully developed organizational structure to provide guidance over the long-term. To fulfill the potential of GEM, execute the scientific objectives, address the expressed interest in community involvement, and attain the best quality science, the management of the proposed GEM program is likely to need an enhanced administrative structure, perhaps similar to that used in other large research programs. Such a structure would likely include an Executive Director / Chief Scientist; a Program Advisory Committee (PAC); a Science Advisory Committee (SAC); a Community Advisory Committee (CAC); and, a Principal Investigator Coordinating Committee (PICC) (Figure 2-2). While the precise form, lines of authority, and responsibilities remain to be defined, the general roles of the important components would be as follows:

- *Executive Director /Chief Scientist.* The role of the Executive Director would be to interact with the Trustees, the public and scientists in the GEM program. The Chief Scientist's role would be to make certain the quality of science is maintained and properly executed. Whether this is one person or two is less important than being sure the person or persons are capable of both administrative and scientific communication and organization.

- *Program Advisory Committee.* The Program Advisory Committee (PAC) would be a rotating committee of scientists and community representatives external to the main scientific programs of GEM. The PAC would report to the Executive Director/Chief Scientist and the Trustees. The PAC would evaluate the selection of members for the Science Advisory Committee, and the Community Advisory Committee. The PAC would periodically review the GEM program and advise the Executive Director/Chief Scientist and Trustees on the progress, scientific accomplishments and the future course of development of the GEM program.

- *Science Advisory Committee.* The Science Advisory Committee (SAC) would be responsible for obtaining proposal reviews and ranking proposals. It would also address questions of scientific balance and how proposals relate to the goals of the GEM program. The SAC would be composed of scientists (academic, government, and/or agency) who have no direct stake in GEM. The composition and size of the SAC should be sufficient to bridge the range of scientific disciplines that are part of GEM. The suggested package of acceptable proposals would then be communicated to the Executive Director/Chief Scientist, who would clear the final proposal selection with the PAC. The SAC and CAC (described below) should have periodic joint meetings.

- *Community Advisory Committee.* The Community Advisory Committee (CAC) would comprise representatives from various communities interested in and affected by the Gulf of Alaska ecosystem. The CAC would provide input to the Executive Director and Trustees on issues of community importance in development of the GEM program and would work closely with the SAC. This committee would have a significant advice-giving role, with active involvement in setting priorities and defining questions. The committee could have a direct role in selecting community-based project proposals, if this approach is incorporated into GEM in the future. The CAC could also be helpful in suggesting ways to disseminate information to communities.

- *Principal Investigators Coordinating Committee.* The Principal Investigators Coordinating Committee (PICC) would be composed of the principal investigators and GEM Data Manager. The PICCs function would be to ensure coordination, where appropriate, plus certification of the quality of the data. The reports of the PICC would be vetted through the PAC who would advise the Executive Director/Chief Scientist of the status of the GEM program.

The tradition of having all program participants meet periodically (i.e., the annual Restoration Workshop) is likely to remain important, as this provides valuable opportunities to share data, form partnerships, and plan new activities; however, it is possible that the timing and design of the meetings will need to change to accommodate any new administrative structures and the needs of GEM as it takes shape.

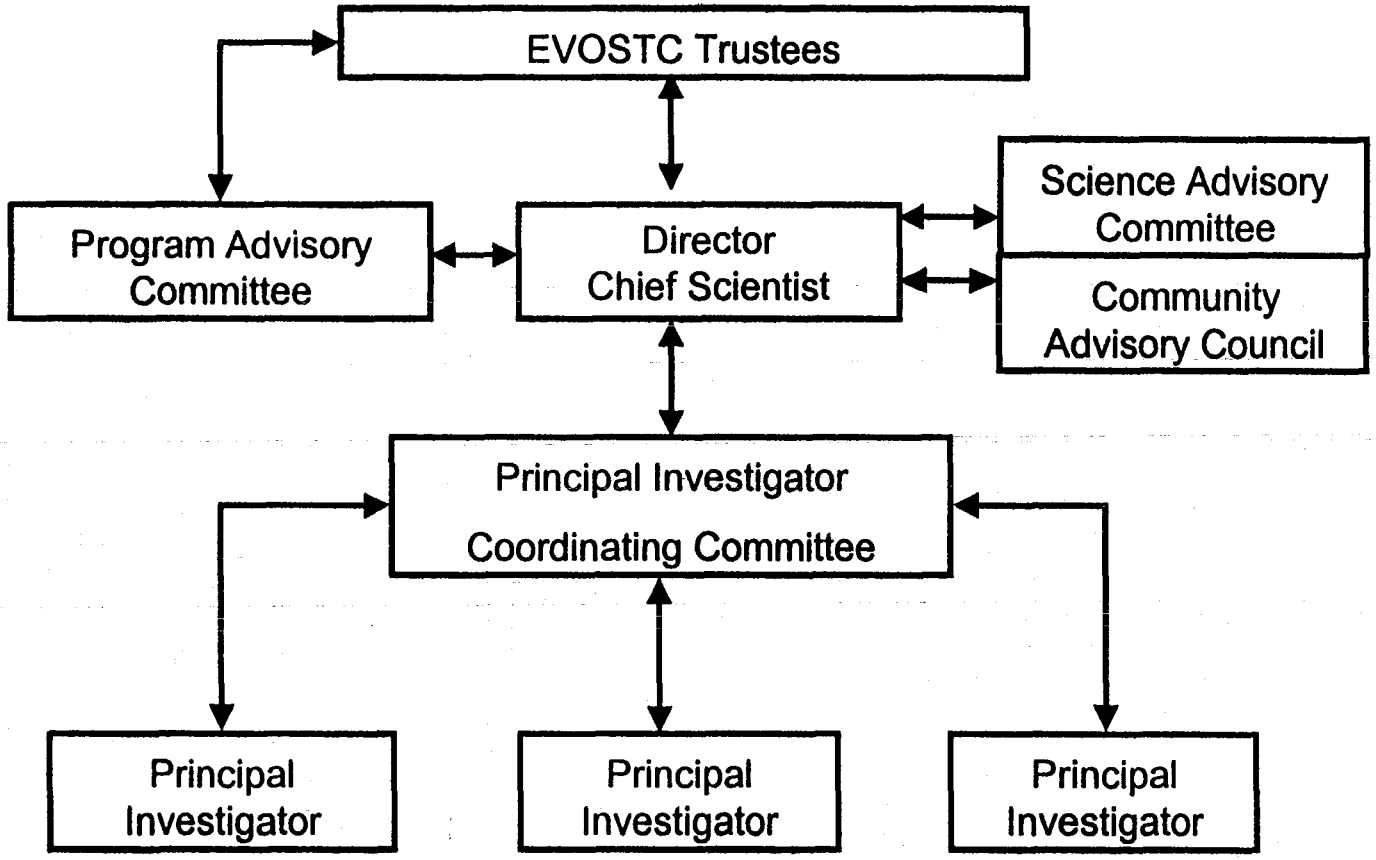

FIGURE 2-2 Possible organizational structure for the GEM program.

GEOGRAPHIC SCALE

The geographic scale currently proposed in the GEM document covers the entire northern Gulf of Alaska ecosystem, and this is appropriate given the current mission and goals. However, it is likely that such a large area will be a challenge given GEM's available resources at this point in time. A more feasible scenario for long-term monitoring over multi-decadal time-scales is to study a smaller area in depth. Selection of a tractable, well-delineated geographic 'core' area will allow GEM to maintain funding for the type of high density sampling, on both temporal and spatial scales (multi-station/multi-depth/multi-species; infaunal, epifaunal, pelagic) unprecedented in marine monitoring programs. It is critical that this geographic core remain unchanged for the life of the GEM program.

The committee recommends that the primary geographic focus of the GEM monitoring program begin with Prince William Sound (PWS). The PWS ecosystem received the greatest amount of oiling from the spill and might be expected to be among the last areas to recover. As such, PWS could be a useful indicator of wide-scale recovery of the area. In addition, since PWS will continue to receive some degree of anthropogenic impact (e.g., heavy commercial shipping traffic, fishing, harbor runoff, recreational boating), comparison of data on the PWS ecosystem with that collected at relatively non-impacted sites would allow separation of anthropogenically induced changes from natural changes. Importantly, data on the PWS ecosystem would be immediately useful to managers and of interest to local fishers, including PWS subsistence communities, increasing the likelihood of strong community support for long-term monitoring of this area as a starting point.

A focus on the Prince William Sound coastal ecosystem, defined according to physical and ecological boundaries, is logical. The coastal zone is the marine area most heavily affected by human activities and is typically the most productive marine habitat. It is critical with respect to issues of larval transport, recruitment, and growth for species living in, or passing through, the nearshore ecosystem. The nearshore region is believed to be the most critical habitat for salmon and serves as an avenue for marine mammal migrations. The marine ecosystem of the Sound is forced by offshore and along-shore influences, having responses that can be traced offshore to the central Gulf of Alaska and along-shore to the equatorial Pacific. It is not well defined according to depth since water depths of more than 200 meters are found throughout this coastal system. Other programs and agencies have as their mission research on fisheries and oceanography in the more offshore waters of the Gulf. Although this research is probably not as well integrated or synchronized as would be desirable, it would seem that use of GEM funding to carry out such research would be duplicative and less appropriate than focusing on the coastal ecosystem.

As monitoring programs progress, there is a tendency to continually expand ecosystem boundaries. Such boundaries must be rationally established based on resource limitations. Selection criteria for these boundaries should include not only contaminant status (oiled or non-oiled), but also the existence of data for these areas, and consideration of the physical (fronts and currents), chemical (sources and fluxes) and biological (populations) properties that delineate ecosystems.

It is imperative that the PWS ecosystem be seen in the context of the larger Gulf of Alaska and North Pacific ecosystems because it is hypothesized that these systems are strongly linked. The sound is influenced by oceanographic conditions on the Gulf continental shelf, which are, in turn, linked to even more distant oceanic and climate conditions. Clearly, GEM does not have the resources to make measurements on ocean basin or global scales.

Fortunately, the importance of most shelf- and basin-based influences on the PWS ecosystem diminishes with distance from Prince William Sound. Also, such data are available from other programs. For example, some hypotheses suggest that El Niño-Southern Oscillation processes in the tropical Pacific might influence marine and climate conditions in PWS. GEM

will be able to use data collected by NOAA's climate programs to explore some of those questions. While an understanding of the oceanographic conditions on the shelf will be essential to an understanding of the seasonal and decadal changes in Prince William Sound, other oceanographic sampling programs such as OCSEAP, GLOBEC and ARGO[1] Global Ocean Observing System have been or will be carrying out some of the critical measurements. GEM must integrate its observations with these efforts and should base some of its geographic site selections on these programs and their existing time series data.

Since no single person has the broad knowledge and background needed to select the boundaries for this program, it is recommended that an interdisciplinary workshop be held to discuss these boundaries. It should include participation from all disciplines and from similar ecosystem monitoring programs elsewhere (e.g., fisheries studies in eastern and western Canada).

High density, long-time scale data are essential to building well-parameterized dynamic ecosystem models. The strength of such models is determined by the quality and quantity of data available to build them. For the Gulf of Alaska, only GEM has the potential to maintain a core, geographic monitoring area for which such uninterrupted, long-term data could be generated.

DATA MANAGEMENT

As planning for GEM proceeds, it will soon need to deal with essential practical issues. One such critical issue is data management. The success of GEM will be critically dependent on a Data Management System (DMS). The DMS would be composed of a data manager and the necessary infrastructure to organize, disseminate and archive the data. The data manager would participate in the planning of the sampling program, organizing the data, assuring data quality, archiving the data and providing data to the PIs and public. The data manager must coordinate with researchers (e.g., serve on the PICC) and provide the "big picture" on variables being monitored (e.g., periodically report to the PAC). These groups would develop a GEM data policy which promotes the exchange of data between GEM investigators, makes the data available to the public in a timely manner, and insures that the GEM data are properly archived. To achieve the goals of the GEM program, a strong commitment to data management is required of the participating scientists. In accepting support from the GEM program, each investigator would be obligated to follow the data management requirements as an integral aspect of their participation in the GEM program.

The data sets would be organized in a manner that will be useable to both GEM scientists and the public via the Web or future global communication networks. Examples of these types of data management activities and policies can be found for other U.S. oceanographic programs (JGOFS = http://usjgofs.whoi.edu; GLOBEC = http://cbl.umces.edu/fogarty/usglobec; CoOP = http://starbuck.SKIO.Peachnet.coop). There would be several levels of data archiving and data management ranging from international archives to PI websites. The GEM data would also be submitted to the National Oceanographic Data Center (NODC) where it will be permanently archived.

There would be working data archives within the GEM program that contain the program data plus other data sets or Web links to data sets that will be necessary for the analysis of the GEM data. Examples of pertinent ancillary data sets are those from EVOS funded studies, NOAA's TAO (ENSO) data, PDO estimates, the Gulf of Alaska GLOBEC program, and historical regional oceanographic and climate data. Another example is the PICES TCODE

[1] OCSEAP is the Outer Continental Shelf Environmental Assessment Program. GLOBEC is the GLOBal Ecosystems dynamics program. ARGO is an array of temperature/salinity profiling floats and is part of the Global Climate Observing System.

(Technical Committee on Data Exchange) Web page that contains links to long-term, interdisciplinary data sets for the North Pacific.

Access to the data archives and software display will be an important component to the public outreach of the GEM program. There would be multiple levels of complexity to the data access ranging from users with limited backgrounds with these data, to use by the investigators who gathered the data. The data archives will be essential to ecosystem modeling and synthesis of the GEM program.

COMMUNITY INVOLVEMENT AND TRADITIONAL ECOLOGICAL KNOWLEDGE

The GEM program document (EVOSTC, 2000a) indicates a clear desire to incorporate community involvement and traditional ecological knowledge (TEK) into the overall GEM program. This is also seen in an earlier document (Appendix A, EVOSTC 2000b), a special edition of the regular newsletter that is distributed to keep people abreast of GEM, which provides even greater clarity as to the fundamental components envisioned for the GEM program. This newsletter summarized the GEM program by explaining that "GEM will have three main components:

1. long-term ecosystem monitoring (decades in duration);
2. short-term focused research (one to several years in length); and
3. ongoing community involvement, including traditional knowledge and local stewardship."

Although the rationale for the third component is never clearly stated in the GEM program document, the committee concludes that involvement of local Native, fishing, and other communities is an appropriate and necessary component of the GEM program. Questions about the relationships between local people and scientific researchers pervade the literature on TEK (e.g., Baines and Williams, 1993; Rose, 1993) and on local participation (e.g., Chambers, 1997; Holland and Blackburn, 1998). The close correspondence between issues present in the GEM program planning context and themes in the general literature suggests that the GEM program is not unique in terms of the challenges it faces with TEK and community involvement issues (see Box 2-5). Because the GEM program has an extraordinarily long time frame and strong ties to local communities, these challenges are likely to be exacerbated—not ameliorated—if left unanswered over time.

BOX 2-5

TRADITIONAL ECOLOGICAL KNOWLEDGE

As the pace of ecological change increases, so too does the need for baseline information with which to direct conservation and restoration activities. There are complementary sources of knowledge about local ecosystems held by people whose lives are interwoven in complex ways with particular lands and waters. Rich local knowledge accumulated over generations, embedding observations and corresponding cultural adaptations provides valuable information within a context of long-term ecological change. The language of Traditional Ecological Knowledge is not the language of scientific discourse. Mutual understanding requires mutual respect, an investment of time, and willingness on the part of Western scientists to accept that TEK is grounded in moral, ethical and spiritual worldviews that are not out of touch with reality (Martinez, 2000).

The challenge then is not whether community involvement is warranted, but rather how to build such involvement in a meaningful way. With respect to the first two of the three components identified above, the committee has stressed the need to provide the GEM program with a foundation that is simple, robust, and adaptable. Community involvement needs a similar foundation that permits the local issues to be addressed in a meaningful way from the very beginning of the program.

To provide a foundation for community involvement, there are three possible arrangements to consider. First, every project sponsored under the GEM program could be required to feature community involvement. But this first approach is fatally flawed because such formulaic insistence on community involvement in every project will do little more than encourage tokenism. Second, the GEM program could include a separate, distinct "community GEM program" that would operate with autonomy. However, this approach is vulnerable to the inevitable difficulties of allocating between communities, and would limit opportunities for exchange between scientific and local communities.

The committee therefore suggests an approach based on shared power and shared opportunity between the scientific and local communities (Box 2-6). As envisioned in Figure 2-2, the committee sees creation of a Community Advisory Council (CAC) that is parallel in function to the Science Advisory Council (SAC). The goal of real shared power requires community representation at the highest organizational level below the chief scientist. For community-originated studies to be effective, these structural provisions of power to communities must be accompanied by opportunities to gain funding. Also, to ensure genuine incorporation of community interests and local knowledge and experience, the program should avoid the temptation to fund only those proposals in the standard format and phrasing of the scientific establishment to the exclusion of projects that reflect local interests and knowledge. This approach to community involvement would have to be regarded as a work in progress because building the necessary relationships and developing a process that works will take time.

In many respects, the GEM program will be breaking new ground in terms of integrating community involvement into a long-term science plan. However, some principles apply throughout the structure envisioned in Figure 2-2. The goal for the selection of all projects (whether through the SAC or the CAC) is to have a process that is open, fair, and accepted by all. The necessity to rotate membership on advisory groups applies throughout the structure.

In summary, the committee recommends that community involvement be designed into the GEM program from the start in a manner that promotes meaningful involvement and provides for flexibility into the future as the GEM program evolves.

BOX 2-6
AN EXAMPLE OF COMMUNITY INVOLVEMENT:
THE FISHERMAN AND SCIENTIST RESEARCH SOCIETY

Community involvement in scientific research aimed at gaining a better understanding of marine ecosystems can bring benefits. However, for community involvement to succeed over the long term, it must be meaningful. That is, communities must have a role in helping to define what will be done and how it will be done. They must also be actively involved in conducting the research, analyzing data, and disseminating the results to members of the community and other stakeholders.

One example of this approach to community involvement, and how long it can take to develop, is underway among coastal fishermen and fisheries biologists from the Canadian Department of Fisheries and Oceans (DFO) in Nova Scotia, Canada. The Fisherman and Scientist Research Society was formed in the early 1990s to help develop a common understanding of the status of commercially harvested fishes and invertebrates on the continental shelf off Nova Scotia. Officers of the Society are fishermen elected by the membership. The Executive is advised by Directors at Large, drawn from the membership and participating member scientists, a Communications Committee and a Scientific Program Committee. More than 300 members from fishing communities across the province meet annually to discuss the results of research undertaken in the previous year and to plan new major initiatives. The first several years represented a difficult and uncertain period for the Society. It takes time, hard work, and a commitment to succeed to overcome existing biases and to build new relationships, based on mutual respect.

Over the past 8 years, however, the Society has made tremendous strides. It has undertaken collaborative research with the DFO on a range of topics including inshore fish abundance surveys, fish tagging, studies on fish diets and physical condition, lobster recruitment, and coastal ocean temperature. The impetus behind most of these studies has come from questions posed by the membership with their direct involvement at the community level. As the Society matures the range and scope of the research conducted continues to grow, providing fisheries scientists and oceanographers with an opportunity to address questions that would be difficult to address otherwise.

GEM Administrative Issues
- Decisions that Need to be Made -

By time of FY 03 Invitation (February 15, 2002):

- "bottom up" (scientific questions emerge from outside the Trustee Council and are filtered and ranked by independent reviewers --recommended by NRC) or "top down" (questions and projects are identified by the Trustee Council and then proposals in those areas are sought)
- proposal cycle (frequency of solicitation; key dates)
- application process (format, what information to require)
- budget rules (e.g., general administration/indirect rate definition and formula, equipment and travel eligibility, cost sharing, out-year estimates)
- reporting requirements (financial and project status, annual and final results, review process, no new funding if any report requirements unmet)
- workshop requirements (continue to require attendance at annual workshop?)
- publication requirements
- data requirements (when and how data must be submitted, other policies)

By time FY 03 proposals are received (April 15, 2002):

- peer review process (who, paid or volunteer)
- financial procedures (e.g., transferring funds within and among projects, lapse rules, disposition of equipment at project's end)

Other:

- audit requirements (continue with annual?)

Will continue to follow policies laid out in Restoration Plan (Nov. 1994):

Competition & Efficiency

- Competitive proposals for restoration projects will be encouraged.
- Projects will take advantage of cost sharing opportunities where effective.
- Projects must be conducted as efficiently as possible, reflecting a reasonable balance between costs and benefits.
- Priority shall be given to projects that involve multi-disciplinary, interagency, or collaborative partnerships.
- Government agencies will be funded only for restoration projects that they would not have conducted had the spill not occurred. [i.e., no normal agency management--language may need to be reconsidered and possibly modified]

Proposal Review

- Projects will be subject to open, independent scientific review.
- Past performance of the project team should be taken into consideration when making funding decisions on future restoration projects.

Data Management

- Timely release and reasonable access to information and data are required.

Public Participation & Community Involvement

- The program must include meaningful public participation at all levels -- planning, project design, implementation, and review.

REVISED 7/17/01

DISCUSSION GUIDE for PAG WORK SESSION
GEM Public Participation / Community Involvement

Overarching question:
How can the Trustee Council best promote public stewardship of marine resources?

Other key questions:

1. How can the Trustee Council best ensure public participation in its program?

- MOA (p. 11) requires the Trustee Council to "establish procedures providing for meaningful public participation in the injury assessment and restoration process, which shall include establishment of a public advisory group".

- Restoration Plan policies include, "The program must include meaningful public participation at all levels -- planning, project design, implementation, and review."

- NRC recommends (1) a community advisory committee comprised of representatives from "various communities interested in and affected by the Gulf of Alaska ecosystem", with a role much like that of the current PAG and (2) a program advisory committee comprised of scientists and community representatives that would periodically review GEM and advise on its progress.

  Follow-up questions:
  (a) How define community? As towns, as tribes, as interest groups?
  (b) What would the groups give advice on? What would their missions be?
  (c) Would emphasis be on consensus or on diversity of opinion?
  (d) Where would the current community facilitators fit in this structure?

2. How can community interests and local knowledge and experience be incorporated into a long-term science plan?

- Trustee Council policy, as spelled out in the annual Invitation, is to encourage PIs to inform affected communities about restoration projects and provide opportunities for their input, incorporate traditional and local knowledge in the development and implementation of restoration projects, communicate research findings to affected communities, and use local hire. TEK protocols adopted by the Council have been in effect since 1996.

- NRC recommends a community advisory committee, as described above -- this would allow communities to have a role in helping define what will be done and how -- and willingness to fund proposals "not in the standard format and phrasing of the scientific establishment."

3. How can the Trustee Council further meaningful dialogue between scientists and public?

GEM Science Advice

Key Questions

1. Should peer review be conducted by volunteers, or by paid contractors as it is in the restoration program? Should PIs be used as reviewers, or does this create a conflict of interest?

2. Should there be a separate GEM science advisory committee, or should a science advisory committee and a public advisory committee be merged?

3. Should the science advisory committee be formed under FACA, and subject to formal meeting notice and public meetings?

4. Should ongoing monitoring proposals still be reviewed and funded annually?