DR. COLEMAN: The last area is our attempt at governance. We believe that the National Ocean Research Leadership Council has been a tremendous benefit to the ocean and coastal sciences, but the major issue is that this Council should be given additional responsibilities and greater accountability to really achieve the goals originally set up under the National Oceanographic Partnership Act.

In the proposed act, we would amend some of the original responsibilities and accountability. First, we would remove "Research" from the name of the Council -- research is far too narrow; it has a much, much broader mandate -- and expand this mandate to include coordination, integration and planning of all federal marine facilities and operations as appropriate, for example, mapping and charting. We cite several other examples.
We would give to that council the explicit
responsibility for the national Integrated and Sustained
Ocean and Coastal Observing and Prediction System. They
would set the priorities, they would examine the
reliability of the prediction system, et cetera.

We would expand the membership of the present
council by including the U.S. Department of Agriculture,
the National Institutes of Health, the Smithsonian, and
there will probably be before the end several more that
we will recommend to go in there.

This fifth one is very important. Specify
that this council reports to and takes direction from
the National Ocean Council. We will hear more about
that when the Governance people speak. However, it
reports to and takes direction from the National Ocean
Council with respect to implementation of ocean policy.

It is an implementing body.

Finally, to establish a full-time Federal
support office adequately staffed and funded to meet the
mandated responsibilities.

Mr. Chairman, these are our recommendations.

If they are approved, that will essentially get from a public standpoint all of our recommendations for the
REMO Working Group. I will be happy to take questions.

MR. EHNRANN: Let me remind the commissioners of a couple of items, and then we will go back through slide by slide as we discussed earlier.

First, the purpose of this public discussion is to provide an opportunity for all of the commissioners to provide any reactions, questions or responses to the recommendations that are being put up in front of us which, as the Chairman indicated, have been discussed at the working group level but not yet at the full Commission level.

I would ask the commissioners to keep your comments to major policy implications, clarification, issues you couldn't live with or aspects of these topics that you think have been left out that should be considered down the road as these continue to be refined through the process. Obviously, wordsmithing and rationale and background information, as Dr. Coleman
indicated, will be supplied in the full draft later on.

We will apportion our time kind of going back through each of these topics making sure we provide adequate time for each as well as keep an eye on our
overall time line. As the indicators know, indicating you wish to speak by raising your placard is very helpful. I know some of the comments went up throughout the topics that Dr. Coleman covered. You can leave them up, that is fine, but I will just be testing to make sure I am not missing someone and I want to make sure I get everybody in who wants to talk about a specific topic. We will again take these in sequence, starting with the academic research funding in ocean sciences. I believe Commissioner Rosenberg had a comment on that and a couple of others.

DISCUSSION OF ACADEMIC RESEARCH FUNDING IN OCEAN SCIENCES

DR. ROSENBERG: The first one as to the recommendation with regard to a unified grant, which I think is very helpful and which I loudly support. However, I am a little concerned that we set up a
unified grants process within each agency, which implies to me that they are separate as opposed to a unified grants process with common software that is used and that each agency can utilize.
What I am concerned about here is that we would end up with five separate grants management processes when we could probably do with one, even though Fast Lane is something that I often throw darts at, but it seems like we would really want to have a unified process by having a single one that is managed in a unified way and then tapped into by each of the agencies that might be funding.

The second comment is concerning the recommendation about moving academic research to meet agency mission needs, which I again strongly support, although not quite so loudly this time. That is, there is nothing specific about the needs in both applied as well as basic research.

Academic research of course can be very much applied research, not just basic research. Currently, the funding for applied research is dealt with very
differently and at a much lower level in general because of the way that it is handled then for basic research.

I wonder if the working group has thought about that issue and made any specific recommendations with regard to applied research as well as basic
Thank you.

DR. COLEMAN: Thank you, Andy. I will take your last one first. I fully agree with you that we probably should not have said "academic research" there. I guess being an academician myself I always think I am doing basic research, yet much of it is applied. I think as a whole the academic community has not looked at the agencies’ need in terms of responding to their needs. That is basically what we were trying to say here, and I think we will go back and wordsmith that and probably do some changes to it.

On your second one, we had quite a long discussion of this. In fact, the discussion what did we really mean by a unified grants process in the rationale there is a much larger component to this, but I had not thought of the point you made of having a single process that the other agencies utilize versus one with
individuals. We did not discuss that, but I think we
will have some time and I would like to go back and look
at that. I will talk with you later about what you mean
by that.
That is a very, I think, bold step if we could do that. Now, whether it is possible within the agencies, I don't know. Right now, you are right, you respond to every agency in a different manner. Thank you.

MR. EHRMANN: Dr. Hershman?

DR. HERSHMAN: Thanks, Jim. On the first point, the last bullet, your first slide but the last bullet, you talk about "a mechanism -- for transition of -- research results to agency mission needs." I am not familiar with the ONR funding strategy. I have thought a bit about this, and it seems that the mechanism almost needs to be a different kind of an organization whose function is to know as much about the agency's needs or the management needs that the information serves as it does about the research world from which the information comes.
I am wondering if in your description of this if it goes that far as to say we need specialists or a special organization that is in that business of making the information usable by agency and management functions?
DR. COLEMAN: First, let me just pattern the comment pattern after ONR's funding strategy. ONR had its funding separated into various categories: 61 funding, for example, which is basic research, and 62 was semi-applied and that carried all the way through final development and implementation.

That is, what we meant by this transition from academic research is that we felt if the agencies could identify their needs they could parcel out pots of funds for each of these steps in the process. At least it would force a researcher to look at what the agency's needs are and have the ability then to go from the basic component to the next step and finally to the final step. Did that answer your question?

DR. HERSHMAN: Well, it does, but I guess maybe I am just making the point that at least in some experience that I have had you need someone who is in the business of translating from the research to the
management needs. It is not so much the progression from research to applied research to actual projects or applications, but it is the need for a translation activity. That is the point I would just like to leave
you with and ask you to consider.

DR. COLEMAN: All right, okay. You would indicate that this needs to be within the agency itself,
am I reading you right?

DR. HERSHMAN: Well, that is a good question. Do you mean within the research agency?

DR. COLEMAN: Yes.

DR. HERSHMAN: I guess it doesn't necessarily have to be, but its function would be to have its foot in both camps.

DR. COLEMAN: Right.

MR. EHRMANN: Mrs. Borrone?

MRS. BORRONE: Thank you. Jim, three observations, and I want to start with the last one on technology transfer. I have participated in the last year or so on a National Academy of Engineering study panel on the impact of research, academic research, on industrial productivity.
In that report, there are a number of suggestions that I think might help in this recommendation area because they look at both the structural impediments at university settings and in
industry to the ability to transfer results in an
effective way. That is one thought.

The second is that, at least in the
transportation community sector, we have had the benefit
from Secretary Volpe's era of technology transfer as
being something worth spending time and resources to do
and the Volpe Transportation Center in Boston,
Cambridge, has been a leader in that arena.

While it has gone up and down, depending on
resources obviously, there may be some examples of
technique as well as the structure, whether it really
needs to be in an agency or not. There are some other
examples that the Transportation Research Board uses
through special funding programs like what they call the
IDEA Program, "Innovations Deserving of Exploration and
Action," I think it is called. There are some good
examples that we might be able to use in illustrating
what you have in mind.
DR. COLEMAN: Excuse me. Is that a paper or published?

MRS. BORRONE: Yes. The third point is that like all of our other recommendations that involve
funding, we are going to be incorporating those into a single agenda and I think that will emerge as our first and second drafts start to really get better refined.

DR. COLEMAN: Yes, and that is basically what we are saying, that just from this academic research, this is what we feel is necessary and that will go into the larger recommendation.

MR. EHRMANN: Commissioners that wish to speak on this topic?

(A show of hands.)

MR. EHRMANN: Commissioner Kelly and all of you?

(Nodding heads.)

MR. EHRMANN: Okay, great.

MR. KELLY: Commissioner Borrone's question formed a good segue for my question because I had the basic question when we talk about arrangements being made to transfer the results of research to the
agencies, whether we had thought about transferring discoveries to the industrial sector or, for that matter, other ocean stakeholders. I think she just cited an example of how that could be very useful. That
was my only comment.

DR. COLEMAN: Yes. Paul, this is also part of the whole ONR funding strategy also. It did finally reach a point as it went along that panel as it went out to private industries for the development, et cetera, and so forth.

MR. EHRMANN: Commissioner Gaffney?

ADMIRAL GAFFNEY: Thanks. Of all the recommendations I have seen so far over the year, this is the one I like the best. Thank you.

DR. COLEMAN: Thank you.

ADMIRAL GAFFNEY: I have a couple of comments, positive.

DR. COLEMAN: I was expecting that.

ADMIRAL GAFFNEY: No, they are positive comments. The word "grant" is a word of art, it means something. It means something in the federal acquisition regulation. If it is grants and contracts
in science and technology, we should say it. If it is
grants, then there are different rules for grants than
for contracts.

In that regard, when you talk about a unified
process, I think you have clarified this by saying you
are really concerned about the administration of the
process not having unified rules for selection. Each
agency might have a different selection process. There
is something called the Federal Demonstration Project
Program that has been ongoing for several years that is
trying to do exactly this. It might be useful at least
for Ken to get a briefing on it.

The really big granting agencies -- NIH, ONR,
NASA and NSF -- have been working on this for some time.
They have some ideas on how to make it easier: BAAs,
electronic selection, electronic funds transfer,
closeout, equipment inventory, things like that. I
think it might be useful to find out what progress they
have made already, and then there may be some specific
things.

As far as the ONR funding strategy, Mark, I
think it is not a separate agency. I think it is a process and a culture. You don't advance in the system unless you aim your research -- at least you get the vector in the right direction. You are incentivized by getting more money for your program, getting advanced,
or whatever if you follow this.

I think it is a process thing. You will learn

as a plasma physicist about the use of free electron

lasers to defend ships pretty darned quick if your

funding next year depends on it. I think you learn to

be the translator yourself. You don't have to be a

naval officer or a NOAA officer or something.

Thank you.

DR. COLEMAN: Paul, thank you. I am glad you
called our attention to grants and contracts, and that

will be placed in there because they are different.

MR. EHRMANN: Yes, Commissioner Muller-Karger?

DR. MULLER-KARGER: Thanks. I want to comment

on this, since you are going around on this particular

issue. I do also strongly and loudly support the idea

of streamlining the funding process, because in some

agencies it is almost to the point of being broken. For
example, specifically NOAA and USGS have a very hard
time getting money out of the agency, and that is a
process issue. Some agencies like NSF have this process
very streamlined.

While I don't know if it is possible or useful
to have a completely unified federal grant processing system, I do think that agencies need to revisit the way that the money flows out of the agency and streamline it so that the people at the other end can get it in the time where it is needed. Some of the processing, for example, takes up to a year from the time that you are notified of an award to the time that you actually get the money. The same thing happens year after year, if you have renewable contracts. That is my comment on the granting.

MR. EHRMANN: I would like to take Commissioner Sandifer and Commissioner Ruckelshaus, and then we will move to the next topic.

DR. SANDIFER: Thanks, Jim. Like everyone here, I like this. I particularly like the first bullet. This is the first time that the Commission has confronted what is really going to be required in terms of significant investment. In many cases, we are
19 dealing with small pieces we haven't had a chance to add
20 up yet.

21 I applaud your working group for taking the
22 broad view of what is needed in the research arena.
That I very much applaud. I agree with your working
group and with the comments from the other Pauls and
Frank on the grant process as well.

The last bullet is the place I would suggest
one change. I am a firm believer in that transition
process that you were talking about taking research
results into things that really meet agency needs. I am
not convinced that that is a single agency issue.

It is not just a NOAA issue, and I really
believe that this is something for that Leadership
Council to do as a subset of the National Ocean Council
as opposed to an individual agency. Maybe ONR does it
best, or maybe some other agency does it best and can be
copied, but this is a matter for all of the agencies to
deal with. I suggest that we strike "NOAA" and replace
it with the "Ocean Leadership Council."

DR. COLEMAN: Very good. I would agree with
that, and we will make that change.
MR. EHRMANN: Okay. Commissioner Ruckelshaus?

MR. RUCKELSHAUS: Jim, the second recommendation on this slide it seems to me -- I am not sure why we are doing it, "Recommend a Federal research
policy," I am not sure who would do that, "which urges Congress to demand the Administration develop coordinated 5-year science plans." Why don't we just recommend that the Administration develop a coordinated five-year science plan as opposed to recommending "a policy which urges Congress to demand"? I don't understand why we are doing it that way.

DR. COLEMAN: That is a good point. We will go back, I will get with Ken and Ed and we will go back, and examine why we put it that way. However, I take your point.

MR. RUCKELSHAUS: Okay.

DR. COLEMAN: You are basically saying just say, "Recommend a coordinated five-year plan"? 

MR. RUCKELSHAUS: Yes, recommend the Administration.

DR. COLEMAN: Right, the Administration.
MR. RUCKELSHAUS: This says recommend a policy
which urges Congress to demand.

DR. COLEMAN: Right, yes.

MR. EHRMANN: Chairman Watkins?

CHAIRMAN WATKINS: Let me just follow up on
that a little bit. I agree with Bill. I think it is probably one of the most significant objectives that research groups have had over many years. We have talked about the non-defense agencies coming in line with the defense agencies.

The reason you have an ONR Program that works is not just because of ONR, but you have got a whole process cradle-to-grave from research, which can be discovery and it can be applied, and it moves out of there into the first passage into actual application through development, it then moves into test and evaluation, you find out all of the problems, and you go back to research and you solve them.

That has tremendous oversight all the way through a system. That is multiagency at that point, so there is a model there that is total. They have been allowed to have a five-year research package for years, the non-defense agencies have not.
The Administration, in my opinion, has to work closely with the Congress in allowing a five-year research package so that appropriators can take a look at this and agree, and not only that, but they expect to
see a five-year program come up.

If you look at the track record on five-year approaches, they have been piecemeal. For example, last year NSF was specifically given a task to develop a five-year program in a specific area. Well, that is okay, but that is just the tip of the iceberg.

If you want to stabilize the research base and do the other kinds of things that are in Jim's recommendations, I think that we have got to beef up this section. We have got to go back and get the National Academy reports. The Presidential Council and Advisors on Science and Technology have recommended a stabilized research base in past years. Bring up some of that in the narrative up front to justify a five-year program.

Now, we probably can get a maybe, if we are good at it, can get a five-year program for ocean research science and technology, but my feeling is it is
applicable across the research base in the country. We should go to the Defense model which has been so successful over many years. Anyway, that is one point.

Also, the other point in the very first slide
on academic research funding in ocean sciences, I agree
with it. In fact, I am a proponent of it, but I don't
like the rationale there that we are going back to
achieve 7 percent parity with 1982. That is okay, but I
assume that the narrative up front and the justification
is far more substantive than that.

I mean, we have heard presentations here where
peer reviewed research focused in accomplishing things
for the national need is only funded to one-third of the
research programs that have been submitted under the
RFPs. Well, I think that is constant across NSF and
everybody else.

We have an underfunded track record that needs
to be highlighted. It is not a matter of a sin of
commission here, it is the sin of omission. Nobody has
spoken up and said, "Stop it." Why did we drift down to
3.5 percent of the research base for the country. Why
did we go from 7 percent down? Well, the Russians went
away. Well, that doesn't make the oceans less important.

I think this needs to be beefed up to get the justification for the five-year program and for doubling
the base, which I think is probably under doing it because we are sensitive to the fact that we are proposing some cost increases. We are not going to eat this out of hide. We have to justify that thoroughly. That is just a comment.

I like your idea in your international component. I think you need to in the international leadership in ocean sciences recommendation find yourself inside the recent 1999 "National Academy of Science Report on Science Technology in Foreign Affairs."

It is a powerful document that admonishes the State Department to get their act together in this area and get the trained people out there and to get the sensitivity to these areas up very high within not just OES, which is the branch that now deals with the ocean in the State Department, but others.

There needs to be a linkage between OSTP and
the White House with the new National Ocean Council we are recommending, to really strengthen the ability to address science and technology in relation to foreign affairs.
We saw it in the Johannesburg Conference.

Johannesburg reported a very good report in the ocean area, and the Administration is proud of it. We need to applaud that and we need to say, "Okay, now you were a co-signer to that, we agree with it, we applaud you, let's do it now."

That is going to take resources, and those kind of resources are in the base that we are talking about here. There is a lot of justification. Let me see if I have any more items. Yes, there is one more item.

MR. EHRMANN: Yes. We will go through them category by category, sir.

CHAIRMAN WATKINS: Oh, I'm sorry. I thought you were getting them all at once.

MR. EHRMANN: That is okay.

I think, though, we just have one more quick comment on this one, and then we are going to move to
exploration, if that is okay.

DR. ROSENBERG: Just a very quick comment in support of what the Chairman is saying with regard to the five-year science plans. In some of the other
agencies like NOAA, there is often a call from Congress
to develop a five-year program that is totally delinked
from budget. You keep developing all of these plans,
but you don't have any place to go with them. Moving to
that model where they are actually linked would be
actually a major change.

DR. COLEMAN: That is a very good point, Andy.

DISCUSSION OF EXPLORATION

MR. EHRMANN: Let's move to the exploration
topic. There were four recommendations that Dr. Coleman
introduced under that that are now on the screen.

I think, Commissioner Hershman, you had a
comment?

DR. HERSHMAN: Just a quick question on
exploration, point three, "Exploring and mapping." I am
interested in the scope that you envision. Would this
be just the Exclusive Economic Zone or would it be from
the shore, from the baseline, let's say? Would it
include estuarine areas? I guess what is the scope of
the need in mapping?

DR. COLEMAN: That is a very good point, Marc.

We will probably change this one to be much more
inclusive. We put in a very generalized recommendation, but within the discussion and justification we are developing a strategy of who should do this, how is it prioritized, and where should it be.

We really are thinking all the way from the shoreline on out into the deep ocean. Bob Ballard, if he was here, he would be raising his hand. We know very little about the deep ocean, so it will be much broader than this.

DR. HERSHMAN: The mapping that is intended would be basic bathymetric or would it be mineral--?

DR. COLEMAN: Sub-bottom and water column.

DR. HERSHMAN: Okay. Thank you very much.

MR. EHRMANN: Commissioner Gaffney?

ADMIRAL GAFFNEY: Also, on the third bullet, Jim, I have no problem with the word "exploring." The word "mapping," to me that is a systematic mapping of, as Marc described it, from one inch to 200-plus miles at
There are two points I would like to make.

One is it might be worthwhile putting a sub-bullet in, and maybe it is in the background material, that when...
data is collected as quickly as possible after QC that it go to a central repository like the National Geophysical Data Center, which today links both NEMA and the Navy, the other two big hydrographic data collectors. That might be useful, because we are not sure that all agencies are actually doing that, sending information quickly to the NGDC.

Secondly, we haven't discussed how one executes systematic mapping. In the old days, only the government could do it for various reasons, but now with GPS and multibeam both being declassified and ubiquitous anyone can do it. The Corps of Engineers proves and others prove that industry is able to do this. There is a federal role in funding it for sure and in quality controlling it, doing the contracting for it.

Therefore, I think we ought to be looking at what is the proper role of the Federal Government here: How much should be outsourced? How do we take advantage
of the huge scale of NEMA, which "NEMA" stands for "national" and not necessarily defense? We also ought to be thinking about the incidental collection of information, of mapping information, that is collected
as a routine matter now when one does research at sea as opposed to the operational collectors for navigation and other operational purposes.

DR. COLEMAN: Paul, your point about the discussion between what should the Federal Government be responsible for and what should private, that will be discussed in the report.

MR. EHRMANN: Commissioner Borrone?

MRS. BORRONE: Thank you. Also, on that third bullet, I would like to go back to the concept of mapping as a broader topic area. We have in governance talked about coastal zone mapping the area, the watershed, as well as the coastal zone areas themselves. I really want to raise three points about this. One, perhaps, Jim, we need an overall recommendation on mapping that incorporates all of the different elements that we are talking about so that we can also lay out the expectations of both the ongoing
aid as well as the data management needs that Admiral Gaffney was talking about.

We need in the third area to talk about what I will call "incentives" and not about just the
availability of the data, but why sharing of the data by
either state or local entities or private contractors
who are not hired by the government, per se, why they
might be willing to exchange the information because of
the value it can bring them in other ways.

I think we really need to know for all mapping
recommendations that incorporate the different regimes
that are going to be needed in order for us to deal with
the different watershed coastal management and then
oceanographic issues.

DR. COLEMAN: Lillian, just to clarify it, you
would broaden this out and say not only is the sea
bottom and the water column itself, but there is the
atmosphere and the land and this should be looked at in
a broad vision?

MRS. BORRONE: Systemically.

DR. COLEMAN: Good.

MR. EHRMANN: Commissioner Muller-Karger?
DR. MULLER-KARGER: Thank you. I also had a

question on the issue of mapping. These comments

reflect that it is not just an exploration issue, but it

is an operational issue. I am glad that the issue of
outsourcing -- there is an incredible and growing
capability in the commercial sector to survey and map,
and I don't think that it is always used by the Federal
Government the way it should. In fact, the Federal
Government many times funds mapping internally and
doesn't outsource as often as it should. I am glad that
point came up, and I hope it is addressed in the report.

It is also not an issue of just mapping depth.
I mean, we need to map living resources and all sorts of
resources and put them in a spatial context. I don't
know exactly if that is all going through the same
agency, or do we have a strategy of how all these data
are going to flow? Does it flow through different
agencies? It is not just the symmetry in making the
standard navigational charts; there is a larger issue
there of mapping.

I want to expand on this issue of how the
Federal Government addresses exploration because it
permeates all of these other aspects of operation that can be satisfied by other sectors. The Federal Government should serve a coordinating role in that it develops a strategy for the needs of the nation, but the
funding itself should be put in the areas where there is capacity. The idea is not to create new capacity within the Federal Government, but to use the capacity within the localities, the regions, within industry and within academia where it exists and foster it, not inhibit it.

DR. COLEMAN: Frank, going back to your first point, we did not look at or discuss the living marine resources component of mapping. We dealt primarily with what we would basically call charting and mapping. I think to include mapping of living marine resources you are in a totally different area. Although I agree it is something that is very important, I think we probably should work with Stewardship in that area if we are going to include it.

DR. MULLER-KARGER: Okay.

MR. EHRMANN: Any other comments on this topic?

Commissioner Rosenberg?
DR. ROSENBERG: To that point, I don't actually agree. It is not a Stewardship issue. There is a substantial amount to be learned that is truly exploration in terms of what is out there in living
marine resources. This is not monitoring of routine resources. Of course, there are programs like census of marine life that have tried to do just that, figure out what is out there in lots of different areas. I do not think it is a Stewardship issue, but it is a straight research and exploration issue and should be included.

DR. COLEMAN: You would recommend that we do, at least in the discussion, broaden that definition to include living marine resources?

DR. ROSENBERG: Yes, because I do think that there is an important exploration component there.

MR. EHRMANN: Okay. Anything else on exploration from any commissioner?

(No verbal response.)

DISCUSSION OF INTERNATIONAL LEADERSHIP IN OCEAN SCIENCES

MR. EHRMANN: Let's move then to the international leadership in ocean sciences. Again, the
slide is up for recommendations in that area. Comments from the commissioners? Commissioner Muller-Karger and then Commissioner Sandifer.

DR. MULLER-KARGER: Thank you. I want to
emphasize what the admiral said earlier. I think that
the way that this text is written for international
leadership should also include efforts to develop a
management strategy at the international level and not
just research and education, but actually target
sustainable use of resources and get very involved in
following up on treaties that we commit to on the
international level.

MR. EHIRMANN: Okay.

Commissioner Sandifer?

DR. SANDIFER: Thank you. I think that
Jim Coleman and the REMO group have done an
extraordinarily fine job of highlighting the need here
in a little bit of a brief commercial message. A little
bit later on, when we do our Stewardship
recommendations, this particular area of leadership in
international living marine resource management, that is
part of what I think Frank is talking about now.
All of these things will need to be pulled together someplace in the report. The bottom line, actually two bottom lines: one is the importance of the United States' agencies and academic institutions taking
a focused leadership role in international living marine

science and conservation and resource management
efforts.

The second one is the last bullet here that
deals with the Department of State, we will come back
and talk about that a little bit later on. Jim, I would
like a little bit more explanation from you, if you can,
as to what you mean by this last bullet, "The Department
of State needs to improve communications" regarding the
research activity?

DR. COLEMAN: Basically, it is a cumbersome

process now to get the Department of State -- they
should be proactive, looking at what international
programs are going on, contacting the various federal
agencies and academia and saying, "Look, this is a

wonderful opportunity for the U.S. to participate."

They should be holding seminars, councils, et

cetera, that say, "Look, the U.S. is a leader in this
area. Let's go out and track and foster international participation." That was the gist behind it.

I do want to agree with you on your first comment. We probably should in that first bullet
replace "ocean" with "marine." I think that will make much more sense.

MR. EHRMANN: Good.

Commissioner Rasmuson?

MR. RASMUSON: I want to reiterate what Jim Coleman just said. We debated a long time on that fourth bullet point and we felt, a lot of us who have dealt with the Department of State felt, that they were obstructionists in many ways.

(General laughter.)

MR. RASMUSON: We are just sick and tired of it.

DR. COLEMAN: Thank you, Ed.

MR. RASMUSON: We ought to be more specific and say if they won't do it, we recommend to go to another department, to go somewhere else. I mean, seriously we are not getting anywhere with them.

MR. EHRMANN: What do you really think?
MR. RASMUSON: Well, what I really think is
the strong-willed will follow, you know.

(Laughter.)

DR. COLEMAN: We are not going to tell you
what Ed put down for the recommendation.

MR. EHRMANN: Thank you. Very good.

Any other comments on international leadership in ocean sciences?

(No verbal response.)

DISCUSSION OF TECHNOLOGY DEVELOPMENT

MR. EHRMANN: All right. Let's move, then, to technology development.

Commissioner Sandifer?

DR. SANDIFER: Again, I think these are excellent. I would hope that under the first bullet deals with "These centers should be federal-academic-private sector partnerships," this is extremely important along with the virtual nature of many of these that allows us to connect a leading research organization or people on the West Coast with the East Coast or the Gulf Coast to Alaska or wherever.

I think that to the extent possible, Jim,
there should be some really good examples given in the backup here of some of these partnerships. Some of the cooperative institutes and joint agreements and the various and sundry mechanisms that have been proven to
work, and so often are difficult to actually get to work
because of agency restrictions, but could be recommended
to the Congress as proven models that work, just put
them in place and let them go about. I would push that
as hard as you can.

We heard from a number of top scientists that
the NSF model of creating "centers of excellence" or
providing the opportunities for scientists to
collaborate across distances and institutions and
disciplines would be hugely important for the country
for the future. I think anything that we can do to push
that will lead to significant technology development.

DR. COLEMAN: Thank you, Paul. This is
particularly true and we will cite some examples where
because of broadband communication today it can simply
just be a station out there.

MR. EHRMANN: Dr. Muller-Karger?

DR. MULLER-KARGER: Thanks. This is something
that we have talked about before, and so this is basically just a cross-reference. When we are pushing the technology development, I would like to make a specific recommendation that they should include
technologies to satisfy living marine resource management requirements not only of the nation, but of the globe.

MR. EHRMANN: Very good.

Admiral Watkins?

CHAIRMAN WATKINS: Just as a follow-up, when we met many years ago with key leaders and the large industries, the old marine industries that were there during the Cold War, we were told that unless the United States had a commitment to do something serious there was no bottom-line enhancement for these organizations to get back in the game on small stuff. We have a lot of small businesses who are doing a wonderful job for academic research institutions and others building sensor systems and so forth, but they are all piecemealed around the country.

On your second bullet on technology development you have, "A key priority of the centers
should be technology in support of an ocean and coastal observing system." I guarantee you that if we really get serious and the nation makes the commitment to build such a system, just the architectural design, the RFP
going out that I hope will go out sometime, if it ever
does, and gets out there to respond by industry, you
will see the big boys coming back into the game, which
they need. They will contribute to the R&D base, it is
another funding source, if they see a bottom-line,
downstream opportunity to bid on system production.

We need to make some comment in the report
that if you want to get business and industry into the
game to help out, just don't talk about it. You better
have a program. Here is a major program with a
leadership role taken by the United States.

Other nations are ready to participate. They
have been waiting for the United States to take a lead
role here. We have talked about organizational
arrangements internationally through UNESCO, through
POGO and through a whole bunch of acronyms that are
ready to accept, if the United States commits.

Another funding source is business and
industry when there is an opportunity. I think we need to stress the fact that here is the first opportunity we have had for a national commitment on a large system built over time to do all of the things we need to do to
monitor what is going on in our most precious resource.

I just bring that up because I hope we don't continue the piecemeal, small level technology development for local use for the long haul; it should not be a long-range goal.

DR. COLEMAN: I agree with that, Admiral. Too often we think of technology of, "Just what do I need for my research," and we have to get out of that mode.

MR. EHRMANN: Any other comments on technology development?

(No verbal response.)

DISCUSSION ON EXISTING AND REQUIRED OCEAN SCIENCE INFRASTRUCTURE

MR. EHRMANN: All right. Let's move to existing and required ocean science infrastructure.

Admiral Gaffney?

ADimiral GAffNey: Amen. I would like to probe a little deeper on the second one, Jim. I wondered if
you considered on this money that the Administration is

20 going to request and the Congress is going to

21 appropriate for the UNOLS fleet?

22 I would also throw a forward pass here. I
could substitute "Fleet Replacement Plan" and put in the
"Ocean Observing System" in there, the same thing, the
same question.

Did you consider that the money might be put
in or controlled, absolutely controlled but may be
executed through another agency, but absolutely
controlled by the National Ocean Council before it could
be spent? Or, in the absence of that, would you pick a
single agency to be responsible for all ship
construction or all ocean observing rather than the way
it is now? It is a pickup game now. We have lots of
plans that are unfunded, and we have lots of funding for
unplanned assets. Maybe we have got to follow the
golden rule.

DR. COLEMAN: Paul, we had actually a lot of
discussion on that. Once we know that one of our
recommendations will define what the NOC would be, that
is essentially probably where they should be.
MR. EHRMANN: Commissioner Rosenberg?

DR. ROSENBERG: Thank you. I was a little concerned about this recommendation as well simply because of the highlighting of the UNOLS Fleet.
Replacement Plan. I guess I need to be more convinced that that is, in fact, the highest infrastructure priority not because I don't think it is important, but because it needs to be in some kind of prioritized list.

It is not clear to me that that investment is ahead, for example, of the Ocean Observing System investment as Admiral Gaffney points out. I also want to agree that the acquisition mechanisms, just like the grants discussion earlier on, really do need to be unified and streamlined.

We are chewing up incredible amounts of time and resources in creating one-off acquisition strategies sometimes by people who haven't a clue of how to do the acquisition. I just don't understand why we would want to create that system or perpetuate that system in four or five different places. It doesn't make any sense to me.

I think the difficulty is that you have to
have a positive mandate that says, "Yes, this is your responsibility," not put it in your priority list, but it is somebody else's job. That is part of the problem that I have had some experience with, something that is
not clearly a mandate for the people who know how to do
acquisition well is why are they going to get involved,
particularly on the smaller projects.

This is another area where some unifying to
address acquisition, just like with grants, could go a
long way. That does not mean that the individual
agencies don't get to specify the requirements.

I would again echo what Admiral Gaffney said
earlier on in the grants discussion. Of course,
different agencies have different requirements and need
to have tight control of those requirements, but that
doesn't mean procedurally we have to replicate the
process in different places.

DR. COLEMAN: Andy, as far as the comments on
the prioritization, we did have quite a bit of
discussion. We felt as a working group that way,
because the replacement plan already exists and it has
been approved but there has been no appropriations, so
that is why we placed it very high on the list. As part of that plan, it also does include some of deep submergence assets in it.

DR. ROSENBERG: Just very briefly, I
understand that but I know of other fleet replacement
plans that are also not funded, and so I need to
understand. I mean, is it fleet replacement that has
been planned for that we want to fund, or is it UNOLS?

DR. RASMUSON: It is UNOLS.

DR. COLEMAN: UNOLS.

DR. ROSENBERG: I know. That is what I am
questioning.

DR. RASMUSON: Yes. You see, that has been
debated and approved, but it just hasn't been funded.
We had to start somewhere. Congress hasn't debated yet
and not even funded yet this coastal remote system. If
you put that up in the first priority, where does UNOLS
fall in, then? It has already been approved. We had to
start somewhere and say, "Let's get on with this thing."

MR. EHRMANN: Admiral Gaffney on this point?

ADMIRAL GAFFNEY: Yes. I think Andy has a
good point. It is actually one of the reasons I think
all of the money should be coagulated into one place and then parceled out. You have got fisheries research vessels issues, you have got NOAA survey fleet, you have got ocean drilling program, you have got the UNOLS
fleets, you have got the Navy operational fleet. It is all ship construction money; it is shipyards. There are a few shipyards in the United States; they are in trouble.

We ought to have a consolidated plan so that learning curves are taken advantage of, et cetera, et cetera. Putting them all in one place and prioritizing operational versus research ships makes sense to me. That is why I would recommend the NOC actually control the money and the prioritization process or give some agency, as Andy said, the baton and they have got to carry it.

DR. COLEMAN: Paul, we will go back and we will put it within the discussion. Very obviously, which was apparent at our discussion, is that it should be under NOC control.

MR. EHRMANN: Okay. Dr. Sandifer and then Dr. Muller-Karger.
DR. SANDIFER: Jim, I don't have a problem with your listing of potential priorities as long as these are given as examples and not the final conclusions. I do believe perhaps, stealing from
Paul Gaffney, that we need to include a data infrastructure here on bioinformatics as specific examples of needs.

Regardless of how far we push the coastal and ocean observing systems, the platform side of it and the submergence and the vessels and whatever else, if we don't have a good data management, acquisition management and access system on the shore side, we are going to have some problems. I do believe that this is an appropriate place when we are talking about essential infrastructure, infrastructure at a national scale, that it be plugged in here.

DR. COLEMAN: That is a very good point. We really did not discuss that, but we will go back because I happen to agree with you that the data infrastructure is just as important.

MR. EHRMANN: Dr. Muller-Karger?
DR. MULLER-KARGER: Thank you, Mr. Chairman.

We have heard testimony for almost two years now, and I think that we have a good sense of what is important out there and what needs to be done. A lot of these things that you have on your list have been
debated in umpteen committees.

As you see, there is some sense of priorities within those committees, some committees push those while others push those aside and try to push their favorite technologies or observing systems or ships first. I think a lot of these committees are looking at us, at this Commission, to try to put some order to that process.

I appreciate it, and I would like to see your full list of priorities. I don't know if it is five items long or ten items long or how far, how deep you have gone into the infrastructure requirements.

However, I do think that we do need to provide some sense of order and priority to what is needed for the country.

DR. COLEMAN: Well, Frank, we will address the priority again. I think I can tell you at least in the discussion the three of us, the three on our committee
had the UNOLS Fleet because it was already approved,
and so forth, was the highest on our list.

DR. MULLER-KARGER: I tend to agree.

MR. EHRMANN: It sounds like, in terms of that
particular issue we were just discussing, there is going to need to be some work done to blend together the sense among the commissioners that some priorities have already been established, and also Admiral Gaffney's suggestion that the National Ocean Council needs to play a role in setting these priorities.

I think there is a way that actually you can express your preferences and ask the Council to make this a very high priority to make decisions going forward. I think that, perhaps, would reflect not starting with a clean slate, but reflecting the history that a couple of the commissioners mentioned, but also putting the NOC in a position to be able to continue to make those priority decisions going forward.

Does that make sense, Commissioners?

(Nodding heads.)

DISCUSSION OF NATIONAL OCEAN RESEARCH LEADERSHIP COUNCIL
MR. EHRMANN: Okay. We have one remaining issue that was introduced by Dr. Coleman on behalf of the REMO Working Group, National Ocean Leadership Council. Comments?
Chairman Watkins?

CHAIRMAN WATKINS: The Congress has in words and language coming down in bills last year basically gave this or suggested that the development of the ocean and coastal ocean observing system and prediction system be given to the NORLC. They did that because there is no other vehicle. The law only establishes the Research Leadership Council, not a national ocean council.

What I am saying is we need to go back and make sure we understand what the Congress has already said because it is consistent with what their direction has been. They recognize, fully recognize, that more changes to this statute will probably be necessary to round out the passage from research to application.

This is the first time that I know of that we have peeked over the research wall to see, "Okay, what do we do now, NORLC, with your plan, with your architectural design?" You are talking about integrated
program management with multiple agencies involved

including states and coastal observing concepts that

have to be developed, the biological sensors, all of

those play into the game.
It is a huge issue. Changing the title of "research" implies that these people are now going to run something. My feeling is that they have the responsibility for running it, but, again, the National Ocean Council should oversee any of the integrated program management things including such things as NASA's NPOESS Orbital Ocean Satellite System, which is now an integrated program and probably needs more support and funding. But, there are models out there for integrated program management.

You are throwing something very large into a system that cannot handle it right now. I would want to expand this even more so that when you are giving the new NOLC I guess you have come up with here this responsibility, again it should be within the context of the oversight and coordination of the National Ocean Council.

We should bring in those other integrated
programs that say, okay, there has got to be a process
to go from ocean science technology research into
application, finding out what those lessons are, feeding
it back into research, and then to start building this
closed-loop system that is going to demand this
five-year stabilized base and all of these other things.
It is a total process that you are talking about here. It sounds like it is a little piecemeal for one application when it has much broader ramifications. I would think we need to expand a little bit to get a little bit broader.

We are opening a new door for integrated program management across very large numbers of agencies and the states and coastal regional concepts, that we have talked about in ecosystem-based management, about how we are going to integrate that into the coastal observing component like GoMOOS is up in Maine, the Gulf of Maine.

It is a huge issue here that you are talking about, and maybe we need to get a little bit broader set of words to make sure this is encompassed within a broader concept of a modification of the existing law.
DR. COLEMAN: Admiral, that is exactly right.

We had a good bit of discussion I think you will see in the written aspect that there was much broader vision of this particularly in that number five. We had a lot of
discussion that this council, or whatever it ends up being called, that it reports to and takes direction from the NOC. We did not capitalize the "national ocean council" until we hear from Governance that it is going to be recommended.

MR. EHRRMANN: Okay. Dr. Muller-Karger and then Dr. Rosenberg.

DR. MULLER-KARGER: This is a small point, but I wanted to highlight the potential for confusion here. I know that Bill Ruckelshaus always likes to be crisp and clear and to the point. We have now a National Ocean Research Leadership Council. We have a concept of a National Ocean Research Leadership Council, and we have a National Ocean Council. They all sound awfully similar in naming. I think that we need to be careful that when we talk about things that we don't let the names be so close to each other that we end up confusing one with the other.
DR. COLEMAN: I second that, okay. We will take it into consideration. Since we presented first, the NOLC stands.

(General laughter.)
DR. COLEMAN: Bill, it is up to you now.

MR. EHRMANN: To come up with a new name.

Thank you.

Dr. Rosenberg?

DR. ROSENBERG: I have the same concern, and I actually think that there are two parts to this. First of all, I strongly agree that this Council should be reporting to the National Ocean Council. If we are trying to focus on science and engineering, then I would suggest we use those words somewhere, "It is a national ocean science and engineering council," or something like that.

I also think that we have had discussions in earlier meetings about National Ocean Council and having an advisory body for that National Ocean Council. I think if you are going to have a sub-body that focuses on science and engineering in order to make sure that you have academic and other agent research institution
representation, you need an advisory body that talks to these people, and that we focus their task very clearly. It is fine to have implementation as the direction, but it should be implementation for science
and engineering, not broaden it out from that mandate
such that we have too many groups that are dealing with
broader aspects of ocean policy. It does seem to me
that then the support office should be part of whatever
support structure exists for a national ocean council,
so we don't set up yet more competing organizations.

DR. COLEMAN: That is a very good point, Andy.
I do like your concept of renaming, putting the science
and engineering component. I think that is very good,
because that establishes it immediately.

MR. EHRMANN: Admiral Gaffney?
Oh, go ahead, Jim, if you have more.

DR. COLEMAN: No.

ADMIRAL GAFFNEY: I am just going to reach
back and remind you, Jim, that I mentioned the last time
that I spoke that I wanted to see this money controlled
by the NOC, even though you may deploy to an agency to
execute.
DR. COLEMAN: Yes. We had that discussion and that is, indeed, what we have in mind. There is one other aspect that we have --

CHAIRMAN WATKINS: Could I follow up, Jim, on
the same issue?

DR. COLEMAN: Oh, I'm sorry.

CHAIRMAN WATKINS: You know, in the modification of that Act, there are many other features that I think we should touch on if we are going to talk about taking out the "R," which may not be the only thing we want to do.

Remember, along with Andy's comments, there is an Ocean Research Advisory Panel that is mandated in that law, and that does exist. They are the ones that came up with the integrated ocean observing prediction system. We want to take a look at that and make sure that we don't throw out any babies with the bathwater here.

There is a lot of good stuff in there that we need to, say, modestly attune to the National Ocean Council ownership of any of these big programs that,
hopefully, will evolve from our Commission work here in

time, and make sure that the National Ocean Council is

ever aware of the integrated program with multiple

agencies, states involved, and so forth, that they under

our design have the capacity to do.
Again, I think it is a vehicle to ride because, in the first place, Congress likes the Act of 1996. It is a wonderful one to ride and dovetail in with ours without losing any of the existing things that actually are working.

DR. COLEMAN: That is a good point. We did not discuss that, but I will ask Ken and the staff to go back and look at that. John, we had one other area that will just take a few minutes.

At our previous meeting, we had gotten public approval for our recommendations on satellite systems, remote sensing. One of the commissioners, Dr. Muller-Karger, brought up another aspect and would like to get this approved at the public meeting. I will turn it over to Frank to discuss this.

DISCUSSION OF NATIONAL POLAR-ORBITING OPERATIONAL ENVIRONMENTAL SATELLITE SYSTEM
DR. MULLER-KARGER: Thank you, Jim.

There is something that I think is very specific, but I also think that it is not covered in the statements that we approved earlier, and it is something
that even though we have had testimony from agencies that deal with satellites, I don't think it is being covered.

In fact, Admiral Watkins just brought up the issue of NPOESS funding. In fact, NPOESS funding was cut this year. What is being cut, the way I understand it, are some of the things that are going to hurt science and research because that is pretty much the first thing that always goes.

NPOESS is being planned by operational agencies with a minimal involvement by NASA. The problem is that these items that I have listed here are not being addressed in the strategy and in the plans that are being developed for NPOESS.

I think we need to recommend very strongly, since it is going to be the satellite system for ocean observation on the global level, that it be calibrated and validated so that the products are useful for ocean
research and for climate research.

We should also design a science and data product archive that is long-term that integrates our existing satellite products and makes them compatible.
with whatever we are going to do for this NPOESS system.

That is not happening. There is a little bit of talk, but nobody is funding either the first point or the second point on this, and I think we need to do that.

I also think that within the national ocean observing strategy for satellites that we have there are no high-resolution coastal sensors being planned. The constant complaint that you hear from people in the regions and the states and the cities is that you do not have access to data from space that is of a resolution in time and the spectrum and in space that can help you manage your coastal resources.

Also, as part of the NPOESS, there is no altimetry program that is long-term, and that is a concern. There are a couple of altimeters that are going to be flown over the next ten years, but by the end of the decade although altimeters are being used by operational agencies, Navy and NOAA, they are not part
of our long-term strategy for ocean observation. That is actually amazing. I think that we need to recommend that these kinds of programs are continued.

DR. COLEMAN: Thank you, Frank. What we need
from the Commission is our working group has approved this as a recommendation. It will be added on to those that we have already developed. I would ask that the Commission, after questions, that they would approve the addition of this.

MR. EHRMANN: General Watkins?

CHAIRMAN WATKINS: Another follow up to the discussion we just had prior to this, here is an example of an existing interagency program office, multiple agency involvement, a key link in the change of ocean observations to ground truth correlation, it is everything.

I see the National Ocean Council, were it to exist as we are recommending, would be one that would be crying, "Foul, don't let this linchpin disappear."

There is nothing like that that exists today. It is an example, I guess, of what we need in the way of a relationship between the National Ocean Council and the
subsequent integrated program management of existing and
planned programs that are coming down so that they are
not underfunded and shortchanged for no reason.

Who squawks about it? We don't hear it. I
would like to put it in that context rather than us
supporting a particular program. We are supporting a
system that is vital to the integrated ocean observing
system. We need to put it into that context rather than
having it as a separate item. We have tried to stay
away from in this Commission supporting specific
programs. As you know, we have a constant stream of
people coming in and saying, "You've got to support my
program. You've got to support my program."

Well, we have to stay out of that. We have to
say, "High tides lift all boats, and we are going to try
to get the whole national visibility on this up and the
investment strategy up." Let us make this an example of
the kinds of things that can fall through the cracks,
unless we have a National Ocean Council with strength to
keep it alive.

MR. RASMUSON: We certainly agree with you.

We don't adopt a concept like this or this type of a
broad concept. What are we doing here? I mean, we have
lost a lot of our scientific basis there. We don't have
to have a specific system. When Frank and Jim and I
were mulling it over this morning, we felt that we have
to keep a system available that has all of the bells and
whistles that gives everything that we really need in
order to advance our scientific knowledge.

DR. COLEMAN: Admiral, I like your point very
much using this as an example. I will work with the
staff to get that accomplished. Admiral, if there are
no other questions -- oh, I'm sorry.

MR. EHRMANN: Commissioner Rosenberg?

DR. ROSENBERG: Just a comment. While I
support this recommendation, I think it should be
included in the infrastructure discussion, and that
again goes back to the priority issue because it is part
of infrastructure. I certainly agree with what the
Chairman said, but I would rather see it under that
overall heading than out on its own.

DR. COLEMAN: Thank you, Andy.

Mr. Chairman, that essentially from REMO's
standpoint, with the exception of our final report that is due in from the contractor which the Oceans Act mandates the Commission to do, and that is, the facilities, we heard the report, as I mentioned, this morning and it is on track.
I think this is going to be a very important aspect, because it is the first time that there has been an inventory of existing ocean and coastal facilities. We will be waiting for that before we end up writing something on the discussion. Many of our recommendations are broad enough that we can take from that report and fit them underneath it. Well, that is our next job.

CHAIRMAN WATKINS: Well, I think the Research Group has done a wonderful job in putting this together. I think we are going to stress all of these. They will have to be packaged up, as you know, Jim, within the context of what we are going to hear from Stewardship and what I expect we will hear from Governance. However, I think this has been a very good discussion, a very helpful discussion, here today on this.

Does that wrap it up here?

DR. COLEMAN: Yes. Thank you, Mr. Chairman.
CHAIRMAN WATKINS: We are going to enter then

the next -- oh. I want to ask staff, are there any

hands that go up from the REMO staff or my Ocean

Commission staff that want to ask questions?
Yes, Ken?

DR. TURGEON: (No microphone.) Not so much ask questions. I think it is pretty clear we have got the gist fully what the commissioners have said. A lot of the points that were raised we have already taken into consideration, because of our familiarity with the literature out there. We just could not capture all of that on these slides. We have taken notes and highlighted those to make sure we emphasize them, so I think we are on a pretty even keel there, Admiral.
FOR THE TRANSCRIPT OF THE DISCUSSION ON THIS TOPIC, GO TO:

National Ocean Research Leadership Council

This workgroup presented all of its draft policy recommendations and then moved to the discussion phase, which included all of the following topics:

- Academic Research Funding in Ocean Sciences
- Exploration
- International Leadership in Ocean Sciences
- Technology Development
- Existing and Required Ocean Science Infrastructure
- National Ocean Research Leadership Council