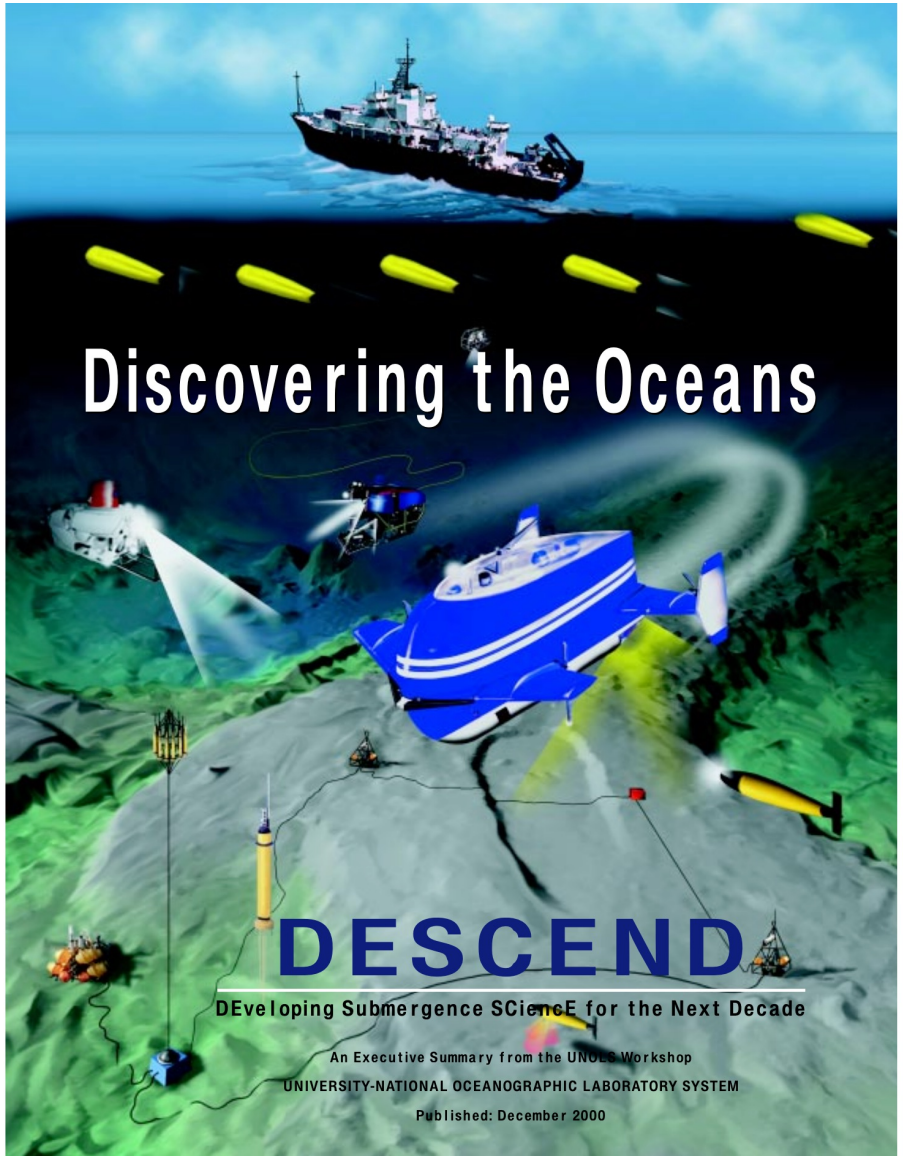
Both DESCEND workshops were prompted by the need to define:

- The critical scientific goals for the deep-sea research / deep-submergence community

- The technological directions that will be required to take deep-sea research into new realms of discovery in the coming decades.



DESCEND2 meeting

- January 2016 at Harvard University

Meeting details

Report on three areas, with short- and long-term goals:

1) Which existing technologies can be better deployed to help address the science questions

2) Are there existing technologies that are unavailable to the scientific community due to logistical or financial constraints (and how might we alleviate those constraints)

3) What new technologies are needed to address these long-standing science questions.

Some key overall conclusions

Technology solutions to long-standing problems.

- Increased deployment and access to deep submergence vehicle
  - *E.g. ROVs and AUVs for near-polar or polar research*
  - *Dedicated vehicles for forthcoming icebreakers*
  - *Increased usage of AUV-HOV combination for hypothesis-driven exploration*
- Autonomous data collection when appropriate
- Computer-aided data analyses
- Higher-resolution models of deep sea processes
- Continue to push for advances in sensors (OTIC!)

Some key overall conclusions

Cultural changes would benefit deep sea research

- Break down cultural/funding stove-pipes !!
  - Inter-agency collaborations, NOAA, USGS, NSF, ONR
  - Fed. and NON-fed. collaboration, e.g. SOI and NSF
  - Broader engagement with commercial operations

- Improved standardization of - and ACCESS to- data archives
- Promote interactions with other communities, e.g. coastal investigators
- Coordinated efforts toward OPEN-ACCESS sensor development
- Increased emphasis on societal engagement

Some lessons learned

Put a lot of thought into:

1) **Picking a location that is optimal for your needs**
   a) Geographically easy to get to (I would suggest major cities)
   b) Consider holding the meeting at a university = cheap/free rooms, but make sure you have a "rep" at that site
   c) Put genuine effort into remote participation and how to do it well (I've got lots to say on this topic)

2) **Who you pick for your "fully funded invite list"**
   a) Balance disciplinary needs, career stage, institutional representation, socio-economics

1) **How you set the "tone" for the meeting**
   a) Do everything you can to stop people from complaining about the lack of money
   b) Try to write your guiding questions to they encourage "big picture" thinking

2) **How you will respond to unforeseen disruptions**

3) **Picking "meeting staff" who are effective under pressure**

4) **Who is taking notes. Do not let it fall solely to "competent notetakers" or early career folks.**

Some items to budget in the proposal:

Request funds to:

1) **Pay a local administrator (part-time) to coordinate the honorarium checks, venue reservations, etc**

2) **Cover the full travel costs of <u>invited participants</u> (in 2015, it was $36K to fully cover their travel)**
   a) Some of your invitees, e.g. NSF, NOAA and other agency reps, as well as philanthropic reps, will cover their own costs

3) **Offset the cost of other participants (we asked for $15K)**

4) **Cover venue costs ($20K)**

5) **Pay for group dinner one night ($5K)**

6) **Provide an honorarium** to select individuals who will lead the effort to write a chapter**
   a) We did something like $500 for 6 people, whom I tasked to corral their community and write a chapter
   b) NOTE: This did not work out well in all cases, so be prepared to do some wrangling as well.

7) **Cover the cost of childcare both on- and offsite**

8) **Print out some small number of hardcopies to mail to federal agency reps, congress, etc**

Post-meeting considerations

It will take more time and effort than you think to:

1) **Synthesize the information you get from the meeting**
    1) Balance disciplinary needs, career stage, institutional representation, socio-economics

2) **Write up the report**
    a) Again, pick some theme “captains” to lead the effort but be prepared to nag them
    b) Budget funds for some help in writing and editing

3) **Garner feedback from federal agency reps**

4) **Print and mail report hardcopies**

5) **Disseminate the information via society meetings, social media etc**