ing the space station because of another worry. The specific type of aluminum of which the workshop's outer skin is made loses a great deal of strength, according to Schneider, when the temperatures rise. This damage to the structural strength of the space station was a major concern. As temperatures inside the station rose to 100 degrees F. there was also concern about damage to film, equipment and food.

The major difficulty about the electrical and thermal problems, said Schneider, was that they imposed conflicting requirements. To maximize the electrical power it is desirable to point the solar telescope arrays at the sun constantly. But this orientation of the space station causes the skin of the unprotected workshop to heat up excessively. "This thermal question . . . has given us more concern [than the electrical power], because if we can't solve the thermal problem, then we have a very hot space station."

As the week progressed, engineers were shifting their major attention from the electrical to the thermal problem. Consideration was being given to all kinds of schemes—some more bizarre than others—to have the astronauts carry something into space to shield the sun side of the space station. Engineers at the Marshall Space Flight Center in Huntsville, Ala., were examining the possibility of emplacing the same kind of aluminum Mylar reflective material used in the Apollo spacesuits. In Houston the Skylab 1 astronauts began walking through procedures to spread the material out over the sun side of the station like a curtain. This would require a spacewalk after the crew docked with the space station.

NASA has in the past recouped remarkably from major mission failures such as Apollo 13. The same expertise was being mobilized this week to work through the Skylab failure, and there was every indication NASA would salvage something out of the laboratory. But the laboratory failure has much broader implications than any one single mishap in the past. The most obvious are the direct effects on the three manned missions which would have taken astronauts up to live and work in the laboratory for a total of five months between now and January 1974. While the focus this week was on the feasibility of the first shortened Skylab mission, no one was predicting what would happen to the two following missions originally planned for 56 days each. Nor was anyone holding out any hope for securing the $200 million necessary to put together another space laboratory from duplicate hardware at various NASA centers and contractors' plants. □

Solar flares and the length of day

Solar flare storms generate an influence that spreads through the circumsolar space and extends far out into the planetary system. One of the effects of that influence, it now appears, is a sudden increase in the length of the day, a slowing of the earth's spin.

In the May 4 NATURE John Gribbin of NATURE and Stephen Plagemann of the NASA Institute for Space Studies in New York call the occurrence a glitch, borrowing the terminology from pulsar astrophysics, where sudden changes in spin rate are also of interest. The terrestrial glitch comes as a superimposition on the increase in the length of the day that is always taking place as the earth gradually spins down.

The occurrence of such glitches as a result of solar storms had been predicted by a French scientist, A. Danjon, who was, however, unable to derive unequivocal evidence of one. Gribbin and Plagemann have found such evidence: a glitch that happened shortly after the great solar storm of August 1972. Because of the prediction they believe that "after" may well equal "because of:"

"[The glitch and attendant changes in the rate of the spin down] are not so dramatic that one would necessarily attribute them to an outside cause on the basis of these data alone, but they take on a greater significance in the light of our prediction, following Danjon, that just such a change should occur soon after a great solar flare. We are confident that the effect is real, and that the glitch was indeed caused by events associated with the solar activity of early August 1972."

The mechanism that links solar flare with earth glitch is not entirely clear yet. The effect of solar storms is to produce an increase in the flux of solar cosmic rays and changes in the interplanetary magnetic field. This has well-known effects on the earth's magnetosphere and outer atmosphere, as auroral displays and disturbances in radio transmissions following solar storms indicate.

Down near the surface of the earth, wind and weather can cause changes in the spin rate. If the wind blows steadily in the direction of the earth's spin, it can increase the spin slightly; if it blows against the spin, it can slow the spin. The problem is to make a connection between the magnetosphere, where the solar particles have a known effect, and the troposphere, where the weather takes place. "How the solar particles disturb the weather is unclear," says Plagemann, and he is now analyzing meteorological data for the period to look for a connection.

There is also a possible connection between earth glitches and earthquakes. The glitches cause "tremendous accelerations," Plagemann says, and these lead to irregular earth tides. The tides could trigger quakes along the margins of tectonic plates. He is checking earthquake data for six months before and after great flares to see if there is any increase. □

Anthropology, films and the changing world

"If picture taking is an anthropological activity, it would seem quite reasonable to expect to find a body of literature which demonstrates that anthropological picture taking is scientifically justifiable. . . . Obviously, this is not the case," says Jay Ruby of Temple University. Ruby was talking about still photography but his concern includes motion picture taking.

Several moves have been taken, however, to establish such a body of literature. Ruby and a group of interested anthropologists and film makers have been presenting papers and participating in seminars on film making at meetings of the American Anthropological Association and at Temple University's conferences on visual anthropology. They are also attempting, with the Smithsonian Institution, to establish a national anthropological film archive. And last week in Washington more than 350 anthropologists and film makers attended the Smithsonian's first anthropological film conference.

William W. Warner of the Smithsonian explained the purpose of the proposed archive and the goals of the conference. Large and valuable quantities of film—especially out-take footage —are often lost because of improper storage or inadequate notation. At a national archive such film would be preserved as a scientific record and made available for research and training. Opening the three-day conference, Warner said, "There is the need to accelerate the filming of rapidly disappearing cultures, before the research value that these cultures have for all mankind is irreversibly lost." There is also, he said, the need to develop the full educational potential of ethnographic film.

Neither of these goals can be achieved properly unless the anthropologists and film makers communicate with each other and learn from each other. This is just what participants in the conference attempted to do. Discussions centered around such things as requirements for research use, extraction of data from large bodies of film, the differences between observational and interpretive films and the use of anthropological films in all levels of education.

The film makers, always ready with a reel or two, showed their work and explained their methods. Methodology, however, is something anthropologists and film makers haven't been able to decide on. Purists, for instance, claim that anthropological films must be straight recording of behavior with little or no interference from the film makers. Three hours of handshaking at a wedding certainly wouldn't make it on prime-time television, but it could be very informative to an anthropologist doing cross-cultural research on greetings. At the other end of the spectrum are the makers of pop anthropology films—films with popular or commercial appeal in which the maker attempts to photograph as much exotic excitement as possible. Such films can be entertaining but may be worthless to an anthropologist who suspects that scenes may have been staged and that authenticity may have been sacrificed for the sake of the film maker's art (or pocketbook).

There is, of course, a middle ground which says naturally occurring patterns or sequences of behavior can be recorded objectively and fully and then edited either artistically (for popular consumption) or scientifically (for anthropological use).

The fact that these and other problems were discussed, if not solved, indicates that someone is at least looking for a solution. The film maker and the anthropologist, the artist and the scientist are attempting to get it all together and come up with the body of literature Ruby called for and systematic and valid ways of recording changing civilizations before it is too late. "We all need to see ourselves, as much in the multi-cultural nations of the Western world as in the multi-tribal nations of the developing world. In my opinion," Warner told the film makers and anthropologists, "there is no more powerful instrument for doing so than your work, or the sounds and images of modern anthropological film." □

Biting the bullet in New York Bight

The New York Bight is the most. The 15,000 square miles of water bracketing New York Harbor from Montauk Point, Long Island to Cape May, New Jersey are the most complicated, most trafficked and most polluted large marine area off the United States. And it is about to become the most studied.

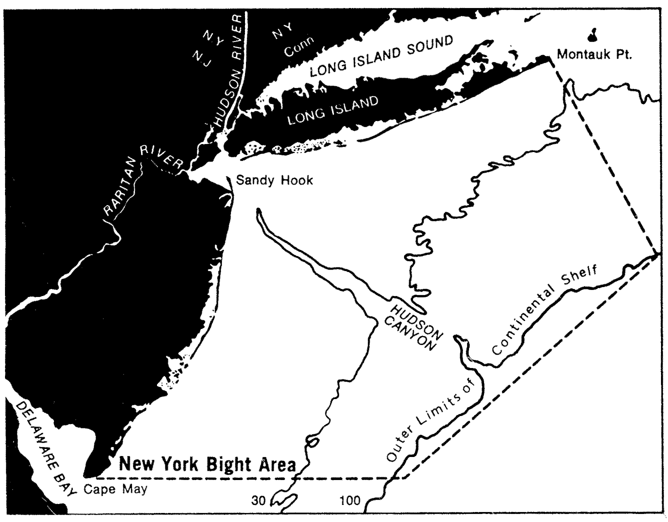
As the pilot project for the MESA program, the New York Bight is the subject of a vast five-year Marine Eco-Systems Analysis plan to learn everything possible about the area's waters, in hopes of offering guidance to future developers.

MESA is not a program of research for research's sake. In fact, a fundamental precept of the plan is that its results must be made not only available to, but readily usable by, anyone whose activities will affect the water. Currents, sediments, resident life forms, effluents, manmade events and natural changes are all within the broad MESA bailiwick, with the strongest emphasis on turning the tons of data that will result into workable tools.

The New York Bight is an almost inevitable starting point. Countless studies have been made of the area—about 130 are going on right now according to Robert Swanson, MESA's acting project manager for the bight investigation—yet a detailed overview is simply nonexistent. To provide one, MESA, run by the National Oceanic and Atmospheric Administration, may spend as much as $20 million.

Most of the first year's effort will be devoted simply to organizing the mass of existing data on the bight into some coordinated, understandable form. A relatively complete bibliography of past scientific reports is one goal, along with a computerized system for digging out desired kinds of information. An overall interpretive atlas of the bight is also planned, but its final form is uncertain because of the insistance on making sure its data are as usable as possible. "Endless lists of numbers," says one official, "just won't get used."

Also in the first year will be a pilot-within-a-pilot study of an arc about 20 miles long around Ambrose Light near New York Harbor at the apex of the bight. As many as six oceanographic research vessels will collect data on sediments, waste input, dredging effects, circulation patterns, the impact of natural and manmade events and the factors affecting and fish and other sea creatures in the area. The localized effort is intended to show the MESA team how to manage their research before they expand to the ponderous matter of the whole bight. These initial results will be in the form of environmental baselines that will be models for the large project. An area subject to regular, strong waves, for example, might be one to be avoided by planners of offshore construction.



Understanding of everything that affects the ecology of the New York Bight is the goal of the exhaustive pilot project of the MESA program.

NOAA

Although the MESA group plans to use as much off-the-shelf technology as possible, some new devices are being developed. Current-measuring meters that record less extraneous noise than present ones are being designed, for example, as are coring devices that can collect bottom samples with a minimum of disturbance to the vertical arrangement of sediment layers.

The idea for MESA in its present form was born in the spring of 1971, and began with NOAA evaluating its own member divisions (such as the Marine Fisheries Service and the Environmental Data Center) to see what expertise it already had. The plan was for the New York Bight to be the first of many areas to get the full ecological analysis treatment. The Gulf of Mexico, the Southern California Bight, Delaware Bay and other sites were envisioned as future subjects as MESA progressed.

Limited budgets have afflicted MESA along with everything else, however, and officials these days are less than expansive about predicting the program's spread. At present, the hope is to start a second area study in fiscal 1975, with a similarly detailed analysis running from Prince William Sound in Alaska to Puget Sound in Washington, the shipping route for oil taken from the proposed trans-Alaska pipeline. If funds still hold up, next on the list is southeastern Florida, where the coastal waters interact with the Gulf Stream current.

Meanwhile, the New York Bight project grows. Starting at the end of this month, MESA administrators will begin the process of selecting a cor-