As is the case for scientific missions, profiling allows a better understanding of the transition from mission through objective to capability because “capabilities required to accomplish mission” is the essential input both to the designers of the replacement system and the AoA process that follows.

Since the replacement for the NR-1 would likely be in service over a time period of about 40 years, the objectives noted below are both retrospective and prospective. They include the results of reviews of prior NR-1 missions, and necessarily include projections of future likely objectives by participating experts.

INITIAL MILITARY MISSION PROFILES

Recovering Objects

Mission description: On these missions NR-2 would be used as a military asset to recover items or assets of value or interest on or near the ocean bottom. Refer to the NR-1 historical missions listed in Chapter Two for several examples. These could be covert or overt missions.

Mission objectives could include the following:

- Covert/overt recovery of sensitive military or other items of national interest.
- Covert tagging of wreckage for tracking upon recovery by other nations.
• Recovery of sensors previously implanted for national or military purposes.
• Recovery of components for later forensic analysis.

**Systems Manipulation/Implantation/Control**

Mission description: On these missions NR-2 could be used as a military asset to operate on the sea bottom to service fixed or temporary arrays, to implant sensors as necessary for added Combined Joint Task Force surveillance capability, and to assist in servicing assets on the seabed in the case of their failure. NR-2 could be used as a primary platform to assist in testing and support of advanced surveillance systems. These would generally be covert missions.

Mission objectives could include the following:

• Covertly implanting sensors for detection of evidence of chemical and biological warfare production activity.
• Covertly implanting sensors for detection of arms control treaty violation activity.
• Manipulating and disrupting various systems for specific purposes.
• Site survey/object deployment, subsequent object relocation, repair, and maintenance.

**Disabling/Removing Objects**

Mission description: In this mission NR-2 can be used to enable Special Operations Forces/Advanced Swimmer Delivery System (SOF/ASDS) operations by surveying/disabling and removing route interference from the ocean bottom. Additionally, NR-2 was envisioned as a covert military platform for use in cases when undersea covert support on the seabed is required.

Mission objectives could include the following:

• Site survey, object location, object fine manipulation, object retrieval stowage and transport.
Forensics/Investigation

Mission description: In this mission NR-2 would be employed as a military or national asset to collect samples of the water column and/or ocean bottom for analysis. Also, it would survey the ocean bottom to locate evidence of interest and if directed conduct recovery operations. These missions could be both covert and overt depending on tasking requirements.

Mission objectives could include the following:

- Gathering evidence from bottom sites or regions for in-situ or postmission analysis.
- Region location; surveys; debris or object examination, manipulation, and recovery.
- Activity monitoring and sampling.

Area Sanitization/Investigation

Mission description: In this mission NR-2 would be employed as a covert asset and military platform to help assure decisionmakers that the knowledge of threat condition in selected areas was enhanced. Additionally, NR-2 would be employed to ensure that continued or interim monitoring of AOIs not easily accessible to normal SSNs can take place.

Mission objectives could include the following:

- Covertly implanting undersea arrays in normally inaccessible areas.
- Conducting periodic area surveys (self/ROV) for intruders via passages that would impede the normal SSN.
- Appropriate placement and maintenance of tactical sensor systems.
- Covertly monitoring choke points for high-interest naval activity.
- Covertly tagging those who transit choke points to enable follow-on tracking.
ISR
Mission description: In this mission the NR-2 would be used to provide responsive intelligence to a commander concerning intelligence requirements within her unique capability set.

Mission objectives could include the following:

• Covertly providing responsive intelligence to the NCA or a military commander concerning the adversary’s use of the ocean bottom.
• Support of amphibious warfare requirements.
• Assisting in defense of our ocean resources and enterprises (e.g., oil platforms, fisheries).
• Undersea survey of potential amphibious landing sites.

Military R&D Support
Mission description: In this mission NR-2 would support military R&D through on-vehicle (or offboard) test or NR-2 cooperation in testing. Missions can entail taking objects to their test depth, observing installed performance, or providing “deep target” services.

Mission objectives could include the following:

• Testing next-generation submarine class modules.
• Testing installed hardware, such as sonars.
• Serving as a conventional threat submarine surrogate in at-sea testing.
• Setting up/maintaining at sea test ranges (e.g., exercise minefields).

Gatekeeper
Mission description: This NR-2 mission was envisioned as a multifaceted mission in which NR-2 because of her capabilities, would enhance the Navy’s ability to monitor choke points or militarily important sea-lanes either herself or by implanting appropriate
monitoring devices with the capability necessary to remotely moni-
tor for traffic of interest.

Mission objectives could include the following:

- Covertly implanting and servicing of acoustic/other detection
devices in normally inaccessible areas.
- Providing capability to monitor choke points/areas beyond reach
of normal SSNs.
- Covertly placing/maintaining tactical sensors.
- Assisting in assurance of security of U.S. sensitive areas in a
manner beyond the capability of other SSNs.

Diver/Special Operations Support

Mission description: In this mission NR-2 would be available to
provide a range of support enhancing the capability of SOF and the
planned ASDS system and their likely mission success.

Mission objectives could include the following:

- Conducting covert prehostilities bottom surveys of planned but
unsurveyed ASDS routes for obstacles/impediments.
- Providing the option to ASDS of “piggyback” services to objective
area to allow conservation of ASDS energy.
- Providing piggyback services from objective area.
- Being available to provide alternative for SEAL “wet ride” to/from
objective area.

Search and Rescue

Mission description: In this mission NR-2 would provide a tailored
sea-bottom-focused search capability for acoustic and nonacoustic
search in support of submarine rescue and salvage. Additionally,
NR-2 would provide a shuttle support capability between a disabled
submarine on the bottom and a support rescue ship on the surface.

Mission objectives could include the following:
• Responding on warning to the indications of a missing or possibly sunken submarine.
• Conducting both acoustic and nonacoustic search of the ocean bottom for evidence of sunken submarines.
• Establishing communications with potential survivors of sunken submarines.
• Providing logistic support to potential survivors of submarine disasters.
• Taking initial steps to effect rescue of surviving personnel on board sunken submarines missions.

**Underwater Logistics**

Mission description: In this mission the NR-2 would transport objects or personnel to forward deployed systems to extend their on-station time.

Mission objectives could include the following:

• Transporting weapons or other equipment to forward deployed units.
• Providing logistic support to forward deployed units.

**REFINED MILITARY MISSIONS**

**Selected Covert Operations**

Mission description: NR-2 would be a military asset employed independently or in support of operations on the bottom in littorals, including harbors and shallow water, using both traditional and nontraditional means to neutralize adversary assets/systems (including vessels in port or at anchor). In addition to neutralization, this mission could include “tagging.” This mission could also include covert or clandestine IPB or ISR of the ocean bottom—that is, requiring capabilities unique to NR-2.

Mission objectives could include the following:
Military Mission Profiles

- Impeding adversary vessels’ propulsion.
- Covertly tagging adversary assets to enable tracking at suitable ranges.
- Support of covert missions into highly defended waters to degrade or disable enemy forces.
- Support of shallow water/littoral reconnaissance.
- Support of ASDS missions.
- Subverting threat sensors on the sea bottom in both shallow and deep water.
- Covert or clandestine IPB/expanded ISR (below).
- Covert offensive information operations.

**Protection of National Assets on the Seabed**

Mission description: In this mission NR-2 would be used as a national and military asset to ensure the integrity of national and allied seabed information infrastructures, thereby impeding any adversary attempt to physically degrade these systems.

Mission objectives could include the following:

- Providing covert capability to monitor integrity and security of U.S. and allied undersea information infrastructure.
- Providing covert capability to monitor the capability of adversary platforms/systems to degrade U.S./allied seabed information infrastructure systems.
- Responsive (all-condition) surveys of national (East and West Coasts) and military seabed infrastructure for any evidence of potential tampering or intent to tamper.
- Periodic seabed surveys of U.S. (CONUS and overseas) and allied undersea information infrastructure as required to ensure infrastructure security.
- Responsive (all-condition) deployment in the case of evidence of tampering with U.S. or allied seabed information infrastructures.
• Demonstrating U.S. capability and resolve to monitor and maintain undersea infrastructure security.

Forensics/Investigation

Mission description: In this mission NR-2 would be employed as a military or national asset to collect samples of the water column and/or ocean bottom for analysis. Also, it would survey the ocean bottom to locate evidence of interest and if directed conduct recovery operations. These missions could be both covert and overt depending on tasking requirements.

Mission objectives could include the following:

• Gathering evidence from bottom sites or regions for in-situ or postmission analysis.
• Region location; surveys; debris or object examination, manipulation, and recovery.
• Activity monitoring and sampling.

IPB

Mission description: In this mission NR-2 would contribute to the ongoing process by which uncertainties concerning the potential adversary, environment, and terrain for all types of operations are reduced. These missions would deal specifically with developing an understanding of threat networks deep under the sea and in the littoral and the extent to which adversaries were exploiting the seabed for military purposes.

Mission objectives could include the following:

• Covert sea-bottom mapping in support of potential future battlespace operations.
• Support to Special Warfare (SPECWAR) and amphibious operations by battlespace data gathering in a manner beyond other SSN capabilities.
• Assisting in maintenance of database of selected and prioritized maritime targets in support of CINC Operating Plans.

• Providing unique inputs based on capabilities (direct inputs or leave-behind sensors) including bottom terrain, and tidal, current, and SVP data.

• Detailed mapping of adversary’s sensors on the (deep and littoral) seabed.

• Bathymetric/oceanographic surveys of ASDS ingress/egress routes.

• Bathymetric surveys in support of amphibious landings.

• Supporting other intelligence missions by ensuring battlespace is free of adversary tripwires.

• Supporting combat missions by helping assure commanders that battlespace is free of antiaccess systems.

• Monitoring installation of adversary subsurface sensors.

• Tracking physical connectivity of adversary subsurface sensor capability.

• Covertly laying acoustic surveillance systems sensors in adversary-controlled waters.

**Expanded ISR**

Mission description: In this mission NR-2 will be employed as a military asset to be used in prehostilities to collect (image intelligence, environmental, or selected other) information other SSNs or military assets cannot collect (however, this does not imply that NR-2 can collect the intelligence other SSNs can collect) in a covert non-provocative manner (deep littoral). During advanced stages of hostilities, NR-2 can continue to provide any tactical reconnaissance associated with the deep seabed or deep littoral.

Mission objectives could include the following:

• Sampling effluents for evidence of weapons of mass destruction production.
- Imaging adversary undersea systems for analysis.
- Examining the seabed and littoral for indications of weapon or sensor implantation.

**Offensive Information Operations**

Mission description: In this mission NR-2 would be a national and military asset able to covertly affect an adversary’s actions by interfering with or destroying an adversary’s information assets on the deep seabed. These missions would deal with affecting the adversary’s information assurance to achieve or promote specific objectives.

Mission objectives could include the following:
- Covert destruction of an adversary’s commercial or military communication or information assets.
- Implantation of devices able to sever commercial communication cables on command.
- Covert destruction/interference with dedicated military communication assets.
- Overt operations (by NR-2 or a known NR-2 support ship) in the vicinity of an adversary’s communication cables. This would degrade the adversary’s confidence in assured communications.

**Defensive Information Operations**

Mission description: In this mission the NR-2 would be a national and military asset capable of denying adversaries the opportunity to freely exploit friendly information and information systems on the deep seabed for their own purposes.

Mission objectives could include the following:
- Examining commercial/military information and communications systems for signs of tampering.
- Recovering computer and communications equipment from crash/wreck sites.
The first of these seven missions (covert operations) could be directly related to greater/impending hostilities in the case that it involved application of force. The first mission could be conducted in littoral waters—frequently in shallow waters, less often working on the deep seabed. The other five missions, in contrast, could relate to peacetime and wartime intelligence and information-gathering activities. They could be conducted in littoral and nonlittoral waters, often in deep water and would most often be conducted on the seabed.