The
Aids to Navigation Bulletin

National Aids to Navigation School **Winter 2011**

National Aids to Navigation School
US Coast Guard Training Center, Yorktown, Virginia

ATON systems of the United States and its territories are established, operated, and maintained by the Coast Guard to assist mariners in locating their position and to warn of nearby dangers and obstructions. This is done for the benefit of commercial vessels, recreational boaters, and to support the operations of the Armed Forces. Title 14 of the US Code makes this a responsibility of the Coast Guard.

The Bulletin is published to support the individuals and units involved in providing a reliable ATON system for the mariner. The Bulletin seeks to meet the following objectives:

- To provide a means of circulating job skill information among ATON technicians,
- To increase the professionalism and knowledge of all ATON personnel,
- To act as a channel for information flow amidst the ATON servicing units, Sector Office staffs, District Office staffs, Headquarters staffs, and units, and
- To publish articles and photographs about people, units, or events which may be of general interest to the ATON community.

To satisfy these objectives, it's necessary for all who read the Bulletin to take an active part in determining its contents. If you have found a "better way" or performed a unique evolution, share it with other people in the ATON field. Submissions are welcome in any form. Articles and images may be submitted electronically to the editor via email at tracy.m.speelhoffer@uscg.mil or mailed to:

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Yorktown, VA 23690

Electronic submissions are preferred. Please keep photographs in original electronic form, and send them as separate files; do not imbed or copy them into word documents.

The articles contained herein are non-directive and non-record material. They are published for informational purposes only.

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On the Cover: *FIR surveys the scene of Quillayute River LB 2, which bounced off the bottom and washed ashore during a recent storm.*

photo by Mr. Doug Cameron, Thirteenth District AtoN

IN THIS ISSUE . . .

Crewmembers of CGC WILLIAM TATE perform Elk River, MD seasonal buoy replacement operations on a snowy day in December.

Photo by PA1 Michael Lutz, AIRSTA Atlantic City

Passing of Torch at The AtoN Bulletin

by LTJG Nick Monacelli , NATON School

Hello AtoN faithful! I'd like to take the opportunity to formally introduce myself, although I have had the privilege of meeting a few of you already. I'm Nick Monacelli, the new Operations Section Chief at NATON School and Editor of our beloved Bulletin. I reported aboard NATON at the end of August, having been released from Deepwater Horizon duty on the mighty Cutter CYPRESS (WLB 210), where I completed my first tour as a deck watch officer. I had an amazing two years serving onboard and would like to thank LCDR Riley Gatewood, LCDR Paul Morgan, and the entire crew of CYPRESS that I had the honor to serve with during that time. I'm very excited to be at NATON and am looking forward to meeting all of you!

Captain W.J. Milne, TRACEN Yorktown Commanding Officer, congratulates LT Speelhoffer and presents her with a Coast Guard Commendation Medal on her last day at NATON

With that said, I would also like to thank LT Tracy Speelhoffer for setting me up for success. As many of you know, Tracy has moved on, but I would like to take the chance to recognize her hard work at NATON over the past three years. She was the first to bring us the AtoN Calendar (my personal favorite), and was always at the ready to provide exceptional mission support to the field, through individual technical issues and an exceptional training program. She was witness to many changes in the way we do AtoN business during the last 3 years and made sure to include insightful and detailed information in The Bulletin to keep the field up-to-date. I know that I don't speak only for myself when I say she's made an indelible mark on the AtoN community and will be sorely missed. We all wish her the best of luck on her future endeavors. I'll be striving to follow her footsteps during my time here – thanks for everything, Tracy!

In closing, I'm ready to get to work to continue making The Bulletin something that you look forward to four times a year, and endeavor to maintain the publication as "ours." That means I'm counting on you to help me fill the pages of this Bulletin each and every issue. No photo, comment, article, or e-mail is too small – let me know what you are doing out there! Also, I am always looking for feedback on how to improve The Bulletin, so let me know how we can make this publication better – after all, it is "our" bulletin. Thanks for reading!

A Close Call for the "Happy Hooker?"

by BM1 Stacy Thomas, NATON School

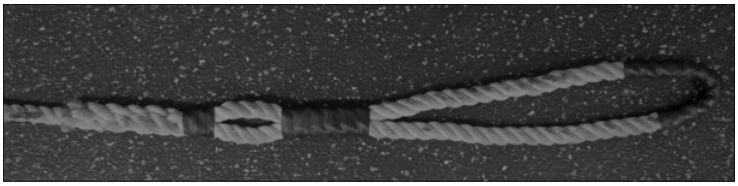
Recently, we have been fielding calls from units who were having difficulty finding, or were unable to find, the "Happy Hooker." An invention of Mr. Anthony Wemyss of England, the "Happy Hooker" has made the reeving of lines through bails and eyes easier worldwide. The torment of many break-in riggers, once understood and perfected, the "Happy Hooker's" use has made buoy evolutions much more efficient.

One view of the Buoy Deck Training Team's "Hard Eye" for reeving a line through a buoy bail.

In the U.S., Stearns originally distributed the "Happy Hooker." When the Coleman Corporation acquired Stearns, they decided to discontinue distribution due to lack of demand. While called the "Happy Hooker" in North America, it is known as the "Swiftie-Matic Rope Installer" elsewhere, including its home in the United Kingdom. According to the manufacturer, there are no distributors currently in the U.S., though you may be able to find a vendor that still has them in stock. That said, They are in stock and available from SFLC. SFLC reports that they have a steady demand and have no intention of dropping support for this item.

NSN: 2040-01-254-5284
ITEM NAME: Line Reeving Device
PRICE: $307.08 EA

They can also be ordered directly from the manufacturer (P/N is 70466). The manufacturer contact information is:



A close up of the rigged "Hard Eye."

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So, what do you do if your “Happy Hooker” is broken or “misplaced?” As far as alternatives, during a recent BDS class, we fashioned and used a "Hard Eye." This was a fairly common way of reeving a line through a bail before the advent or wide-spread usage of the “Happy Hooker.” It is basically a 12-14" eye in some three-strand, 21 or 24 thread stuff of which should be a sufficient size. A piece of metal coat hanger is threaded through the middle of the strands to provide stiffness to the eye. Just up from the throat of the eye is another, smaller (approximately 2") eye in line with the large eye to receive the tip of a boat pole. It might not be a bad idea to fashion one of these for the time when you are underway and your “Happy Hooker” becomes unavailable. Additionally, there are a couple Fleet Drawings to fabricate a line reeving device at the unit (FL-2605-5 and FL-2604-4). These drawings can be found in NE-TIMS and for the enterprising Damage Controlman onboard, could pose a unique challenge.

Quick Note

The NSNs for 2nd and 3rd Class Rivet Pin Shackle Assemblies have changed to NSN 4030-00-290-4092 and NSN 4030-00-240-4717, respectively. The AtoN Technical Manual will be updated in the next revision.

NATON Mythbusters!

by LTJG Nick Monacelli , NATON School

Fact or Myth: Completion of the NATON Aids Positioning course is a requirement to qualify as AtoN Coxswain.

MYTH!

Here at NATON, we get a great deal of training requests from aspiring coxswains at ANTs which detail a need to attend the excellent Aids Positioning course here. Though the course is helpful in learning all about positioning, admin, and policy, it is not a COMDT requirement for the qualification. The Aids Positioning Class was designed and is funded to train positioning technicians on AtoN cutters according to a platform-specific MTL. If you are an ANT positioning tech and have had a hard time getting into the class, that’s the reason! We at NATON have to clear the list of cutter requests before granting quotas to ANTs, which we work very hard on trying to fill. If you are looking for some additional training information while you are waiting to attend the class, most of our class resources are available 24/7 from a SWIII on the NATON Resources website (bookmark this one!):

http://cgweb.tcyorktown.uscg.mil/NATON/download.asp

Fact or Myth: When you tow an aid back on station, you should get your set fix using excursion.

MYTH!

There may come a time when a positioning tech is tempted to get a set fix using excursion. For example, you may be responding to a cutter’s discrepancy using a BUSL. However, under no

circumstances should a set fix be recorded using excursion; the only method for obtaining a set fix is "shortstay." Instead of using excursion for your set fix, simply overwrite the previous found fix and be sure notate your procedures in the comments.

The VLB-44 Light Emitting Diode Beacon Brings AtoN into the 21st Century

by ET2 Jason Vande Wettering, NATON School

The introduction of Light Emitting Diode (LED) beacons, specifically the VLB-44, has improved visibility, increased battery duration, and reduced maintenance on Coast Guard aids to navigation. This unit, being self-contained, requires only a simple, periodic wipe-down to keep dust build-up from forming. These lights are programmable with different intensities (including different intensities for daytime and nighttime use), flash characteristics and even synchronization with another VLB-44.

For a list of common programming steps and options, each VLB-44 comes with a mini-manual which includes instructions. For Coast Guard specific programming, visit the Ocean Engineering website and go into the Products/Services tab, to the LED Lantern Instructions, and then into the Vega VLB-44 LED Lantern link:

http://www.uscg.mil/hq/cg4/cg432/2a_ledinstructions.asp

The non-programmable features of the light include the color, divergence and number of tiers. These non-programmable features must be ordered in the correct configuration and cannot be changed. Unlike some of the optics currently in use, the VLB-44's color cannot be modified with a simple colored slip cover. The color of each VLB-44 can easily be seen by simply looking at the base of the unit (a red base means a red LED). VLB-44s used on buoys must be ordered with a 10 degree divergence, while lanterns used on structures or lighthouses must have 5 degree or 2.5 degree divergences respectively. The numbers of tiers are simply going to affect the visibility range of the light. Make sure to check the Federal Aid Information Document (FID) to ensure a newly-installed VLB-44 will correctly represent the characteristics associated with the given light.

A problem we are starting to see with installation of some of these lights:

When installing the VLB-44 with a Solar Aid Controller (SAC) or Audio Visual Controller (AVC), keep in mind that the internal Day Light Controller (DLC) on the VLB should be disabled with programming. The reason for this is twofold; for starters, most SACs and AVCs have an external DLC attached to them, meaning the two DLCs could conflict with each other. The second reason to disable the internal DLC on the VLB-44 is that both the SAC and the AVC have types of current detectors monitoring the current output by the light. If the VLB-44 shuts itself off, the current detector will not see activity and will shut the main light off and turn the auxiliary light on. This could result in an improper characteristic and reduced battery life as

Signifying the light should operate in both day and night, and then key in the two digits associated with the required lux levels (05 is a mid-level setting). Keep in mind that every keystroke you input into the remote should give you instant feedback in the form of a quick flash from the VLB-44. If you do not see this feedback, either your remote is not working correctly, the remote is not configured for use with the Vega, the VLB-44 is not in daylight mode allowing for programming, or the VLB-44 is not working correctly.

For more information on the VLB-44, reference the Vega website, Ocean Engineering website, or check out the ANC-LT course.

How the FIR Uses the "Double Nut" to Combat Northern Pacific Conditions

by LTJG Kevin Carmichael, CGC FIR

In an effort to keep aids on station in the extreme conditions of the Pacific Northwest, USCGC FIR (WLB-213), home ported in Astoria, Oregon, has placed two-sinker mooring configurations on aids that are highly susceptible to getting pushed off-station on the fourteen river bars of the Washington and Oregon coasts. A river bar is a unique geographic feature where a relatively shallow river pours directly into the deep ocean. When an ebb current, which can reach seven knots at the mouth of the Columbia River, meets the powerful and large swells of the Pacific Ocean that frequently reach thirty feet, hazardous "bar conditions" are created. In essence, the strong ebb meets the sea head on and quite literally creates a wall of ocean. The Columbia River, also known as the Graveyard of the Pacific, is home to over two-thousand shipwrecks, and the majority of the Coast Guard's 9' x 35' buoys. No standard mooring configuration will survive even a single winter; 31/32^{nds} of an inch annual chain wear is not uncommon on some bars.

Sinkers sit in mechanical and hydraulic chainstoppers in preparation for setting the mooring of Dunzte Rock "2D"

The double mooring configuration, known as the "double nut" aboard FIR, utilizes the combination of either a Dormor and a concrete sinker or two concrete sinkers to secure buoys on AP despite difficult bar conditions. Thirty-nine of FIR's aids feature a "double nut" mooring con-

figuration, most of which are 9'x 35' or 9'x 32' hulls. The first sinker, the set rock, is attached to the second sinker, or Dormor, by an entire shot of up to 1 and 7/8^{ths} inch chian. "Inch and seven" as it is called, is unique to FIR. The second sinker, the bounce rock, is connected to the bottom chain, chafe, riser, bridle and then to the buoy as normal. The concept is that the bounce rock may move around, but will always be held near AP by the additional holding power of the set rock and chain.

Setting a "double nut" is a ballet of steel and concrete. To begin the evolution, the OOD conns the ship approximately 60 feet from AP, toward the most predominant element, e.g. wind or swells. The BDS places the chain connected to the first sinker in the mechanical chain stopper and hangs the sinker over the side. On the CO's command the BDS sets the first sinker. The OOD then conns the ship to AP, stretching the spreader across the bottom. When over AP, the second sinker connected to the bottom chain is rolled to the bottom from the forward stopper. The remaining shots of chain are rolled down normally, and the buoy is set on AP.

One "double nut" configuration in FIR's AOR, though not on a river bar, is of particular interest. Duntze Rock Lighted Whistle Buoy "2" located just northwest of Cape Flattery, Washington, near the entrance to the Straits of Juan de Fuca, is set in over 300 feet of water. The moor consists of a spreader shot, four shots of "inch and seven" as bottom chain and chafe, then 180 feet of nylon line, and a final shot of inch and a half riser secured to the bridal. Two rocks, an 18K and a 12.5K, are placed on the underwater rock shelf in the vicinity of Dunzte Rock, the hazard to navigation that the aid marks. Unfortunately, the rock bottom is slippery and apparently sloped. So, the entire mooring occasionally slips off the rock shelf into very deep water and takes the buoy into Davey Jones' Locker, or casts the 9' x 35' buoy adrift. In December 2008, Duntze Rock LWB 2 was recovered by Canadian Buoy Tender, CCGS BARTLETT, off the coast of British Columbia. In May 2009, CGC SYCAMORE recovered it drifting in the inbound traffic lanes off Neah Bay, Washington. The buoy has disappeared altogether on at least five occasions. The double nut has not solved the problem, but it has greatly decreased the frequency of lost hulls.

A common discrepancy is a sinking hull, when one or both sinkers slip off the rock shelf.

What is especially unique about Duntze Rock is that the first rock must be dropped from the aft mechanical stopper, even though it won't reach the bottom. In other words, an 18K rock is dropped 90ft allowing it to fetch up on the 12.5K second sinker while it is hanging in the forward stopper. Yes, is quite a sight and sound. Once steady, both rocks are then lowered from the forward stopper, until the first rock reaches the bottom. Then the ship moves to AP, while simultaneously lowering the second sinker into place roughly 60-80 feet from the first sinker, achieving maximum spread between the rocks.

ATON Island Style: Coast Guard's Best Kept Secret

by PA3 Michael De Nyse, Fourteenth District External Affairs

Members of ANT Honolulu pose atop Kukuihaele, Hawaiian for 'lighthouse.' The tower was built in 1937 and is the only remaining concrete light structure in Hawaiian Islands.

"I don't remember seeing this on the recruiting poster," exclaims DC2 Jose Gomera, as he reluctantly leaves the tranquil safety of his truck to unlock a rusty gate, allowing access to the lighthouse. Suddenly and with great haste, he slams the gate, locks it and races back to the truck, sweating much more than before. "Those bulls are not happy to see us."

For the members of ANT Honolulu, dodging massive bulls, herding wild pigs, and corralling ill-tempered cows are just a few of the challenges they face during their annual mission to service aids to navigation on Hawaii's "Big Island." Their most recent trip began Sept. 3, and lasted two weeks.

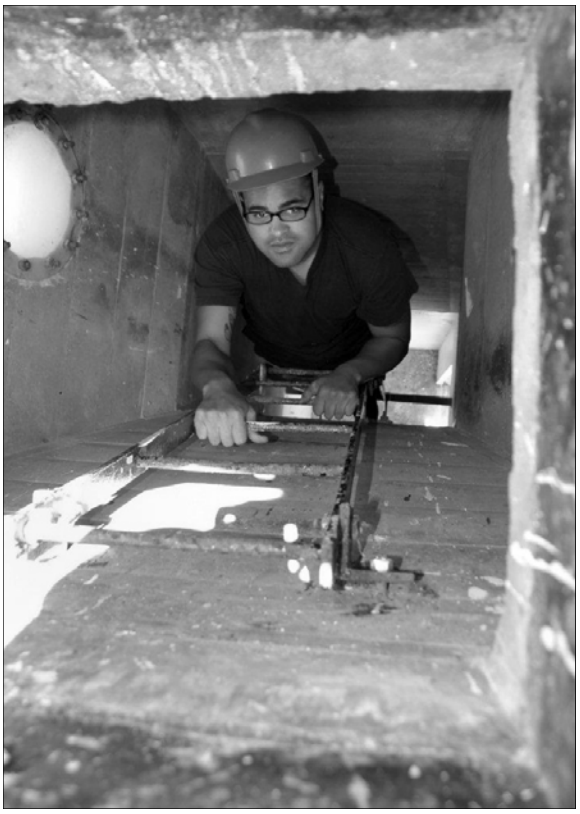
One of the ANT's aids is positioned on the northeastern side of the island and is named Kukuihaele, which means 'lighthouse' in Hawaiian. The present 34-foot concrete tower was built in 1937 and is accessed by a bumpy road and is inadvertently defended by a herd of approximately 150 livestock. The ANT must open a series of three gates to access the light, leading to interesting encounters along the way. "Watch out for that one; the one with the horns!" yelled MK3 Fritz VonSchlegell, alluding to the ill tempered bull glaring at them. The Kukuihaele is the only remaining concrete light structure in Hawaii, which has an interior ladder used for accessing the lamp.

Despite the bulls, the team made it to the structure in one piece, serviced the lighthouse and returned back to town for the day. "Everything on the island that serves as a maritime navigation aid is our responsibility," said Chief Petty Officer Robert Petrillo, officer-in-charge of ANT Honolulu. "We're very fortunate to have a great crew here; my team is a group of qualified-hard working guys who are up for a challenge," said Petrillo. The team also tackled Hilo Harbor's rear range light, a 110-foot structure built in 1982. "These guys are self starters, they know what needs to be done, but most importantly they remain safe while they complete the mission," said VonSchlegell. "Safety is paramount while working tall structure such as these because one

mistake and it could be your last," VonSchlegell said.

After a finishing at the Hilo Harbor's rear range, it was off to the next structures. Generally, navigational aids in Hawaii are in remote areas and are difficult to get to; just getting to the structure often requires off-road driving over rough terrain. The next stop was at Cape Kumukahi, located 25 miles southeast of Hilo on the easternmost point of the Hawaiian Islands. Originally, this Cape's light was a 32-foot wooden tower capped with an automatic acetylene gas light. Before arriving at the structure, there is a long bumpy paved road, and lava fields stretch out as far as the eye can see. "I take a lot of pride in knowing that what we're doing out here makes a big difference," said VonSchlegell. "I don't see it as turning a wrench or changing a light bulb. I see it as keeping people safe and that's why I joined the Coast Guard in the first place." A day in the life of the ANT Honolulu can be difficult, dangerous and exciting; however, it certainly has its perks. This team is living proof that just because the job isn't glamorous or on the recruiting poster doesn't mean it's not a rewarding Coast Guard career field.

SN Joseph Calderon checking a battery with the beautiful Hawaiian coastline as a backdrop.



DC2 Jose Gomera climbs the ladder to the top of Kukuihaele Lighthouse

The "Flying" ANT: Kodiak, Alaska

by BMC James Brumley, ANT Kodiak, and
PA3 Walter Shinn, Seventeenth District External Affairs

ANT Kodiak is one of only two "flying" Aids to Navigation Teams in the Coast Guard. We only service about 9% of our 127 aids by boat. The remainder are serviced via HH-60s, C-130s, and HH-65s by coordinating our efforts through Air Station Kodiak. We deploy to destinations that span from Kayak Island, near Cordova, to recently Point Hope, some 250 miles north of Nome. This includes the Pribilof Islands of St. Paul and St. George, and the Alaska Peninsula from King Salmon down to Dutch Harbor.

The recent trip to Point Hope was especially unique because Air Station Kodiak is unable to safely land in the vicinity of the area, presenting the challenge of getting a 1944 tower with fifteen foot legs onto a commercial plane. Many ideas were bounced around the shop and we decided to cut the legs to five foot sections to be re-assembled with pipe couplers at the build site. The deployment team consisted of MK1 Craig O'Brien, BM2 Case Loken, BM3 Chris Mackey, and BMC James Brumley. In preparation for the trip we assembled a 1944 tower in our shop, giving the team the necessary experience for a smooth build. We were able to arrange a C-130 flight to Kotzebue, AK, but that still left us the last 150 miles that we needed to cover with a chartered flight.

BMC James Brumley getting a taste of the "icy shrapnel" danger inherent to digging through permafrost.

We contracted "Bearing Air" to do the honors with two small planes; one was loaded with 2500 lbs of AtoN equipment and the tower, while the other carried our team of four. We enjoyed the flight, even with a pilot that apparently didn't know how to fly a straight line. About 250 miles later, we arrived at Point Hope, met up with our rental truck, and proceeded to our lodging at the Whaler's Inn. The accommodations were "adequate," comprising of little more than a roof and four walls; it was more of a camp than a hotel. Several connex boxes had been joined together forming a sturdy, albeit oddly shaped, building. The Whaler's Inn

proprietors were quick to advise us to secure all of our gear, including the tower, inside the "building" to ensure that it didn't walk away.

MK1 Craig O'Brien tightens up the hardware on a support beam for the tower.

The morning after arrival, we drove out to the build site and began digging four (4) three-cubic-foot holes to anchor the tower's sand feet. In most places in the world, this would not seem so bad. However, 200 miles north of the Arctic Circle, we hit permafrost only nine inches below the surface. Let me tell you a little about digging permafrost with a pick axe and shovel– it can only be explained by comparing it to concrete, except concrete would chip off. permafrost either absorbs the blow and holds your pick, or explodes sending icy shrapnel directly at your face. After five hours of digging, we ended the day with the decision that any more would result in a wayward strike into a foot and/or leg.

Day two was more of day one, a lot of grunting and bursts of fatigue-generating adrenaline dumps, ending in four symmetric holes, waiting for tower legs. On day three, we hand loaded the 1600 lbs of tower for the short drive to the site. Once on scene, the team had to carry the tower and equipment nearly 1/4 mile uphill. We carried 100 to 150 lbs loads on frame packs to the site. I couldn't help but to think how we resembled an actual team of ants carrying these heavy loads, making trip after trip to get our payload on-scene. The build went on without a hitch; the tower was constructed and awaited the AtoN hardware.

The next day arrived with a sense of relief, an hour or two of lighting the aid and we were done. To our delight, things went as planned with the equipment install. With the aid watching properly, we took a few cool pictures and were finished. The pride of a job well-done would work wonders to smooth out the bumpy flight home. Everyone agreed that our efforts would surely aid the safe navigation of not only transiting ships, but our beacon was also sure to help the residents of Point Hope during their long dark winters and their upcoming whaling season in May. This story would not be complete without mentioning the members of our service that made it all possible: LT Kelley Hansen, D17(dpw), whose commitment to the construction of this aid was unwavering, BM1 Robert McCormick, D17(dpw), who coordinated the land use, including trips to Point Hope to locate and serve the build site. Thanks also go out to DC2 Michael Thomasson, ANT Kodiak's AtoN operations Petty Officer who coordinates all aspects of our

Lighting the Present, Preserving the Past

by CWO Christopher Runt, Sector Baltimore

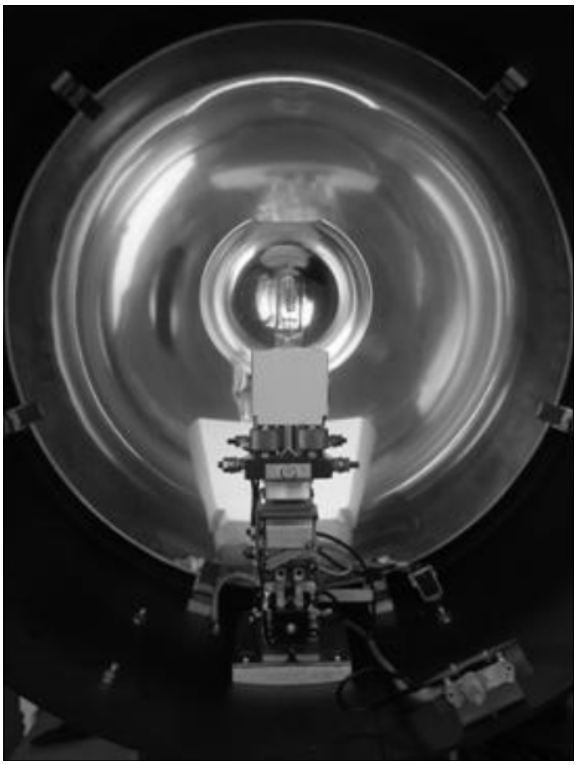
The historic Fourth Order Fresnel lens at the Craighill Range Rear Light, stationed at the entrance of the Patapsco River in Baltimore, was removed August 2010 after 111 years of service as part of a two-light system that guides mariners through a five-mile channel into Baltimore Harbor, one of the nation's largest and busiest ports.

Present-day Craighill Range Rear Light serves as an aid to mariners transiting the upper Chesapeake Bay

The process to replace the priceless lens began in 2008 when the light was listed as "operating at reduced intensity" by the Coast Guard. Due to the state of the lens, missing prisms, a Pyrex substitute focal "bulls-eye," and the fact that these historical lenses are irreplaceable, ANT Baltimore, the Fifth District, CEU Cleveland, the Coast Guard Curator and the Maryland State Historic Preservation Officer carried out the order to stabilize, remove and replace the lens with a modern lantern as its relief.

The beginning steps of this delicate operation called for members of CEU Cleveland and ANT Baltimore to use water to clean the circular glass prisms prior to stabilizing them to the brass skeleton frame using museum-quality archival tape. This tape is acid free and will not leave residue on the glass and frame but is strong enough to help hold the artifact together while being transported. Once stabilized, the team carried the lens and its antique stand down two floors to a trap door where they carefully secured the items in a crate and lowered it to the base of the light using a block and tackle. Following the removal of the Fresnel lens from the lighthouse, CEU Cleveland personnel and the Coast Guard Curator transported the lens to shore. Future restoration and ownership of the lens will be determined at a later date.

Rear view of the Fresnel lens showing the light energized and operating at "reduced intensity" in 2009



The new CG-2P lampchanger installed in the RL-24 range lantern

The 160-pound RL-24 range lantern and its new stand, fabricated by Coast Guard Sector Baltimore's Engineering Division, were hauled to the top of the tower with the block and tackle, and then hand-carried up the spiral staircase the remaining 20 feet to its current location by ANT Baltimore crewmembers. The new lens emits a high-intensity pencil beam and is equipped with a 120-volt, 1,000-watt lamp in a CG-2P lampchanger and is capable of producing 2.5 million candelas. This lampchanger automatically detects when a lamp has burned out and changes to the next position to keep the light watching properly.

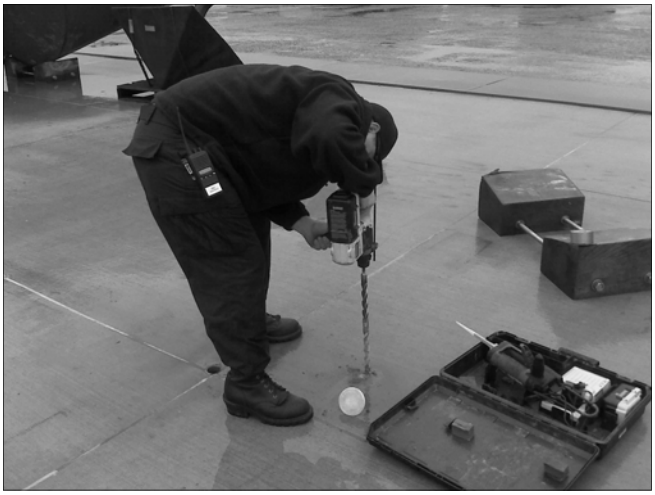
ANT and Sector Baltimore personnel installed the lantern on its stand and secured it in place. During the course of the hot and humid August day, the crews had to climb the 105-foot tower to the lantern room about six or seven times. Finally, an ANT Baltimore electrician finished the wiring process. He energized the breaker and the light is now "watching properly" at its full intensity, guiding mariners on their journey into Baltimore Harbor.

Please check www.craighillrange.org for more information and history on the Craighill Range Front and Rear Lights.

Go Get Your Own Benchmark!

by BM1 Hector Ruiz-Santana, CGC FIR

Normally verifying the GPS antenna on our ship is a simple process, or so I thought after learning the proper way at ATON Positioning School. Just find a benchmark close to your unit, measure the distance to the reference point, etc. Sounds easy, right? The problem is that our nearest benchmark is about 100 yards away, over water, at an impossible angle. To measure, I would have to either pull out my geometry books, or learn to walk on water. So we thought of the next best thing. What if we had a benchmark that was placed in the best possible location, near our ship's berth? I decided to explore this possibility, not really expecting much. Seemed like at some point I would find and insurmountable road block, right? Nope!!



It didn't take much to drill the mounting hole for the brass plate on this typical, rainy, Oregon day

I called the National Geodesic Survey (NGS) office in Salem, OR, and spoke to Mr. Mark L. Armstrong (Oregon Geodetic Advisor, National Geodetic Survey) about our issue; he graciously agreed to certify a position on our pier if we had a permanent monument, such as a brass disk. He also said that with a fixed position on our pier, he could verify our antenna within centimeters of precision!! That was more than I could ever ask for; it couldn't possibly be this simple.

We procured a 3.5 inch brass marker disk form a survey supplies distributor and installed it by drilling a hole on our concrete pier and affixing it with epoxy to ensure it would stay put. Since our new pier had two faces to which we could moor, we found a location that would allow for verification in any condition without having to move the ship and that we could accomplish fast enough without impacting the operational schedule. We then called Mr. Armstrong and set up a time to get he and his gadgets to our pier. He did have some requests, including a 5 ft radius around the marker clear of obstruction to set up

A close up look at the newest NGS benchmark, USCG Base Tongue Point (CGPR)

With a benchmark so close to the FIR (background), equipment verification is faster than ever

his equipment, a logged data file from our base receiver, and model numbers from our GPS receiver.

After working through some scheduling issues, we agreed on a date. The day came and Mr. Armstrong set up his equipment on top of our marker, giving us a four letter designator. We called it USCG Base Tongue Point GPS Verification Marker, "CGPR". The GPS equipment he used took readings every five seconds for approximately four hours, ensuring the most precise position. Mr. Armstrong sent us all the information in about a week and we were ready to do our verification. Then we just followed the instructions from NATON and had a new verified GPS antenna in AAPS.

If you are looking to install a benchmark yourself, you just need to get in contact with your National Geodetic Survey advisor. The advisors are located in many Coast Guard states, and if there isn't one in your state, just look for the closest one. Once you make initial contact, you will want to request that they come to observe the mark and submit the data they collect to the NGS Online Positioning User Service (OPUS). The NGS Advisor will need at least 4 hours, the time it took with the FIR, though it may take longer. It seemed to work best to have the brass mark in place before the Advisor came to visit. Once everything is done, you will be able to print off a Survey Datasheet for your mark like the one on the next page. For more information, the following links are great references.

NGS State Advisor Listing:
http://www.ngs.noss.gov/ADVISORS/AdvisorsIndex.shtml

OPUS Submittals:
http://www.ngs.noaa.gov/OPUS

Interactive map from OPUS Database (click on 'Map View')
http://www.ngs.noaa.gov/OPUS/view.jsp

SURVEY DATASHEET (Version 1.0)

PID: BBBR27
Designation: CGPR
Stamping: CGPR 2010
Stability: Monuments of questionable or unknown reliability
Setting: Large structures with deep foundations
Description: Mark is 'Coast Guard GPS Verification Marker' (brass disk) set in the approximate center of the concrete slab near the end of the pier (dock) at the Tongue Point Coast Guard (Buoy Tender) Station located approximately 2.5 miles East of Astoria, Oregon. This mark is used as a reference for ship docking location verification for the Coast Guard Ship (Buoy Tender) 'FIR'.
Observed: 2010-02-02T18:50:00Z
Source: OPUS - page5 0909.08

Close-up View

REF_FRAME: NAD_83 (CORS96)	EPOCH: 2002.0000	SOURCE: NAVD88 (Computed using GEOID09)	UNITS: m	SET PROFILE	DETAI

LAT:	46° 12' 27.71939"	± 0.020 m
LON:	-123° 46' 7.81171"	± 0.020 m
ELL HT:	-17.842	± 0.034 m
X:	-2457757.708	± 0.016 m
Y:	-3675677.811	± 0.039 m
Z:	4581241.778	± 0.013 m
ORTHO HT:	5.158	± 0.087 m

	UTM 10	SPC 3601(OR N)
NORTHING:	5117412.044m	287484.916m
EASTING:	440690.423m	2247788.079m
CONVERGENCE:	-0.55500329°	-2.31821320°
POINT SCALE:	0.99964324	1.00005947
COMBINED FACTOR:	0.99964604	1.00006227

CONTRIBUTED BY

mark.l.armstrong
National Geodetic Survey

Horizon View

The numerical values for this position solution have satisfied the quality control criteria of the National Geodetic Survey. The contributor h verified that the information submitted is accurate and complete.

This is the datasheet for the FIR's new benchmark. They are easily accessible online and should find their way into your hard-copy information folder once you complete your verification.

Texas ANT Saves Coast Guard $100K with Jetty Build

by BMCS Daniel Plumley, ANT Port O'Connor

The U.S. Army Corps of Engineers, Galveston District, recently completed the construction of a new east jetty at the mouth of the Colorado River on October 1, 2010, in Matagorda County, Texas. After the completion, USCG ANT Port O'Connor was tasked with constructing a new Jetty Light 2 and converting the old jetty light to a non lateral obstruction light. The newly built jetty, which is parallel to the existing west jetty, is 2,700 feet, of which 1,140 feet projects into the water. The new jetty will help reduce dredging frequency and channel maintenance costs at the mouth of the Colorado River. On September 2, 2009, a $20.4 million contract, funded by the American Recovery and Reinvestment Act, was awarded for the completion of the project. The two parallel jetties in the project are 400 feet apart which provide for an authorized navigational channel that is 150-feet wide and 12-feet deep.

ANT Port O'Connor crewmembers hard at work on the jetty.

Working hand in hand with the Army Corps of Engineers, CEU Miami, District 8 (dpw), and Sector Corpus Christi, ANT Port O'Connor developed a construction plan to construct the new light while keeping the waterway open for navigation. We would end up using an 8,000 pound, 42 foot shooting boom, off-road forklift, a 185 CFM 125 PSI diesel air compressor, and a 50 pound air rock drill with a 1 ½" x 3' granite rock bit to install a 10 ft modular tower at the end of the new jetty. We were able to use this option because of land access through the Matagorda County Jetty Park. Operating heavy equipment in the sand and on the jetty rock would be extremely challenging, but possible.

The first thing we did was transport the bottom section of the modular tower, air compressor, and drill assembly to the end of the jetty. Then, we drilled the holes directly into the granite rock. In the past, this was a labor intensive, time consuming process, but given the proper tools and accessibility, we were able to finish in less than one-minute-per-hole. The hardest part was controlling the drill as it chewed through the granite at breakneck speed to the target depth of 3 feet. After that, REVO 50 A&B, which is one of the strongest epoxies in the stone industry, was pumped into the holes, the 1in all-thread was set, and the bottom section of the tower was leveled; we allowed that portion to set for 12 hours. The next step involved using the forklift to attach the top section and install the lighting gear, day boards, and bird spikes. Once we completed that procedure, we moved on to converting the old existing jetty light to an obstruction light, completing the work order.

Not only was having ANT Port O'Connor construct this aid the quickest option, but it was also at a savings of nearly $100K to the Coast Guard and the taxpayers. The total cost of the project was only $10,533, broken down as such:

- $1554.09 rental equipment
- $178.35 epoxy
- $310.50 travel orders
- $8490 ATON supplies including tower and lighting gear

The finished light

Santa uses CGC SEQUOIA as His Sleigh

by LCDR Matthew Salas, CGC SEQUOIA

On 21 December, Coast Guard Cutter SEQUOIA returned from a four-day mission, Operation Santa Sleigh, to deliver holiday donations to the remote atolls of Ulithi and Woleai in Yap State of the Federated States of Micronesia.

A combined effort from Coast Guard families, the Guam Naval Officer Spouses Club, and Boy Scout Troop 23 of Navy Base Guam collected nearly 1,000 pounds of goods including clothes, shoes, linens, camping equipment, and tools. The GNOSC also contributed $1,000 towards the purchase of new items including reef shoes, hygiene products, towels, and garden tools.

As Commanding Officer, I was very pleased with the effort of the crew and the community to help these islands during the holiday season; many of the islanders will find the items extremely useful.

SEQUOIA's first stop was at Ulithi Atoll, located 340 miles Southwest from Guam. Using a small boat, crewmembers transferred items to the main island of Falalop, the atoll's population center. SEQUOIA's crew were assisted by a group of Ulithi men to help with the transfer of

goods. All of the donations were taken to a secure place at the local high school where the village chiefs from each island in the atoll would gather and distribute the items to the families.

For many of SEQUOIA's crewmembers, it was their first opportunity to visit such a unique island. As a staging point during World War II, Ulithi still had remnants of U.S. military presence including the structure of an abandoned Coast Guard station.

SEQUOIA next anchored in the turquoise lagoon of Woleai atoll, located 370 miles south of Guam. The first crewmembers ashore were warmly welcomed by the village chiefs and the island community. Before the official welcome ceremony began, one
SEQUOIA crewmember, Seaman Alexus Martin, was granted special permission by all of the chiefs to be allowed into the men only assembly area where formal greetings were conducted.

The crew of SEQUOIA transferring donations to their small boat for delivery

"I felt very honored and privileged by the whole experience," Martin said. "I'm so glad I got to be a part of a rare moment."

The Woleai island chief, Chief Francisco, thanked SEQUOIA for their visit. "I am very happy that the Coast Guard has not forgotten us," said Francisco through an interpreter. "It has been nearly 10 years since the last visit by a Coast Guard Cutter."

Once the donations were brought ashore, they were immediately taken to the men's meeting area where they were evenly distributed to the families while the village chiefs from each island in the atoll observed.

After the distribution, the women of Woleai gathered in their colorful ceremonial dress to perform dances for the crew of SEQUOIA. Forty women cheerfully clapped and sang in unison to show their gratitude for the generous gifts.

During the short visit to Woleai, one of the villagers had asked if the Sequoia could replace the battery of their Emergency Position Indicating Radio Beacon (EPIRB). CPO Allen Hunter, a

SEQUOIA crewmembers LTJG Andrew Haley and BMC Allen Hunter inspect the island's EPIRB and instruct the locals on proper use

boatswain's mate aboard the SEQUOIA inspected the EPIRB and demonstrated the proper technique for testing and operating the device. The EPIRB was in fine working condition and
operated normally. To promote safety, SEQUOIA also provided several adult and children's personal floatation devices to the villagers.

"The visit was truly heartfelt from both sides," Hunter said. "This was an experience the crew will forever remember."

DHS Secretary Visits CGC ANVIL

by PA1 Christopher Evanson, Seventh District Public Affairs, with BMCS Robert Harlacher, Officer in Charge, CGC ANVIL

Secretary Napolitano toured ANVIL and saw first-hand the joys of ATON work.

Secretary of the Department of Homeland Security Janet Napolitano was in Charleston Oct. 21, 2010, to visit the crew of the ANVIL. The all-enlisted crew was excited to demonstrate an unheralded mission of the Coast Guard, aids-to-navigation. The ANVIL crew departed their berth on the banks of Charleston Harbor and provided an up close view of ATON operations. The crew constructed a new fixed aid-to-navigation. More impressively, Secretary Napolitano insisted she be on the deck during operations, giving her a proverbial court side seat to the workhorses and often forgotten members of the Coast Guard - black hull sailors.

"The purpose of the Secretary's visit was to learn more about the unique world of construction tenders," said Senior Chief Petty Officer Robert Harlacher, officer-in-charge of the Coast Guard Cutter Anvil. "The visit also provided an opportunity to provide insight into the challenges posed by the aging WLIC fleet."

The proud crew of ANVIL poses with the Secretary

ANT Boston Wins Kimball Award

by PA3 James Rhodes, First District Public Affairs

MCPOCG Michael P. Leavitt presented Aids to Navigation Team Boston with the Sumner I. Kimball Readiness Award Oct. 15, 2010. The Kimball Readiness Award recognizes excellence in crew proficiency, boat and personal protective equipment condition and compliance with established training documentation requirements as essential readiness components.

The crew of ANT Boston celebrates their award

Gettin' Good to Go!!

by BMC R.C. Patten, NATON School

Greetings fellow ATON professionals! I have no doubt that all of your units are extremely squared away in the I-ATONIS and AAPS arena. But, just in case, we here in the Operations Section of NATON have developed a list of things for you to complete and/or correct. With these tasks done, your unit will be ready to stop reading this article and get to work!

This list is provided to graduates of our Aid Positioning (AP) course, but I've provided it here for all to enjoy.

Back Home AP To Do List

1. Find the hard copy folder
   - Verify the existence of the hard copies of vessel configurations for positioning.
   - Verify that the measurements are correct.
   - Check that the configurations in I-ATONIS are correct and not duplicated.
   - Make sure you have everything you need for DGPS equipment verifications. This list is not everything you COULD have, just what you definitely SHOULD have.
   - There should be NGS or CEU datasheets for all of your benchmarks.
   - There should be a printed copy of all of the AAPS screenshots for your Target Position/Fixed Aids created from the datasheet information.
   - There should be a printed copy of all of the AAPS screenshots for verification vessel configurations for all positioning assets. The serial numbers on these should match the equipment serial numbers that you are actually using.
   - Make sure the APRs are within the standards and have remarks that explain what and how you did the process. The remarks should also have the serial number of your antenna.

2. Find the section of your district SOP that outlines your Aid Folder organization.
   - Check all of your aid folders for compliance with your SOP (See 3 through 6).
   - If you have an aid folder that looks like the Los Angeles phone book, determine how much information should be in your primary aid folder and archive old information in an additional folder(s) and store somewhere safe.

3. While in the aid folders, see if your DRF1 seems too high or low.

4. While in the aid folders, see if your SIF intervals seem too high or low.

5. While in the aid folders, make sure an Accuracy class is assigned to your floating aids and see if they make sense.

6. While in the aid folders check your latest APRs to see if they are valid (hope so) and that if excursion was used, the method makes sense, etc.

7. Run the I-ATONIS battery reports and check for accuracy. If your batteries are additionally tracked anywhere other than I-ATONIS (i.e. green book), compare the information and make sure I-ATONIS is accurate.

8. Finally, go into the Control Panel of your Panasonic Toughbook and find out what mouse is listed in your hardware. P-Touch the name of the mouse or mice and put that somewhere on your computer. Once that's done, if you experience a "jumpy mouse" in the future, return to the Control Panel and disable the mouse that shouldn't be listed in your hardware. ***Note: This fix will no longer work after you upgrade to Image 6 with Windows Vista.***

Saving AAPS Reports to PDF

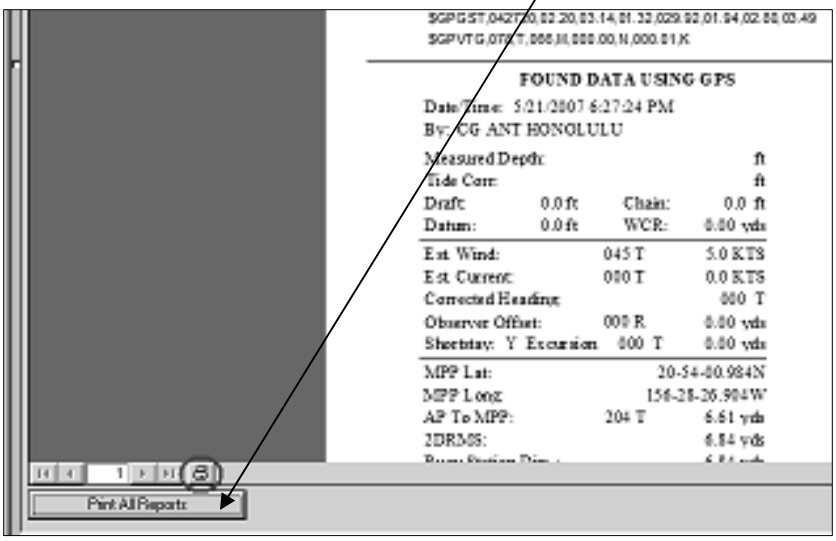
by Mr. David Gass, NAVCEN

When an AAPS report is generated it can be printed or saved. AAPS reports output in the SnapView format. Unfortunately, this document type is not viewable by non-AAPS users due to the recent removal of SnapView viewer from the Coast Guard standard image.

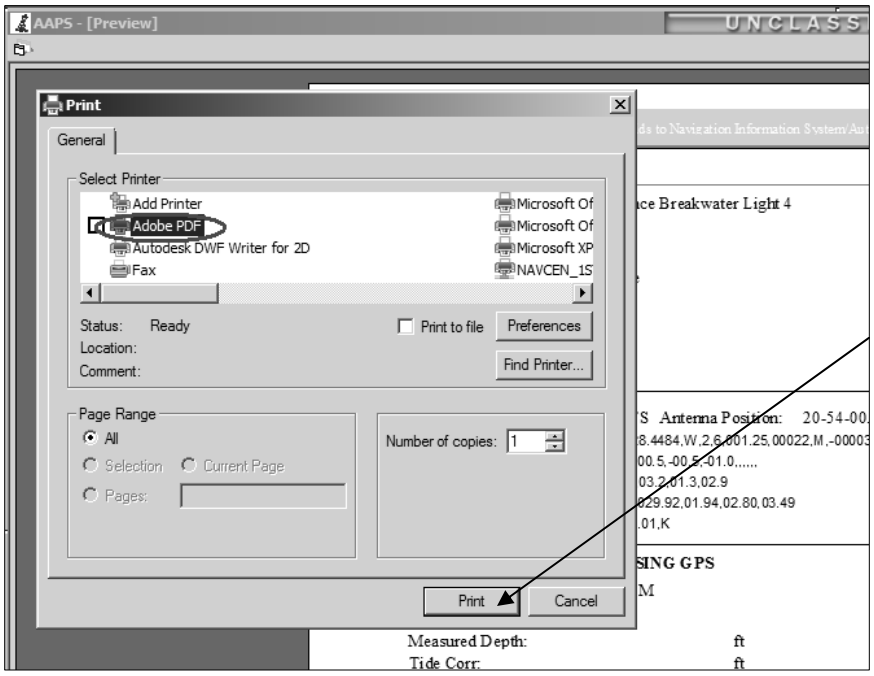
The workaround to this problem is to save any AAPS report as a PDF file if you intend to e-mail it to someone who doesn't have AAPS installed, e.g. District office. This can be done by using AAPS or using SnapView Viewer.

Using AAPS:

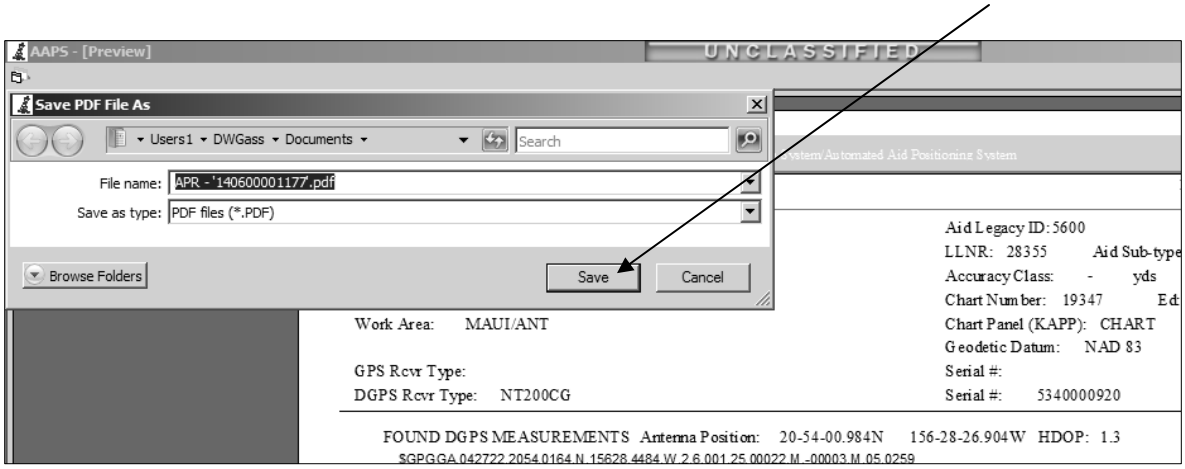
1. Generate the report. An APR is shown as an example but any AAPS report can be used. Single-Click on the **PRINT** Icon (Circled)



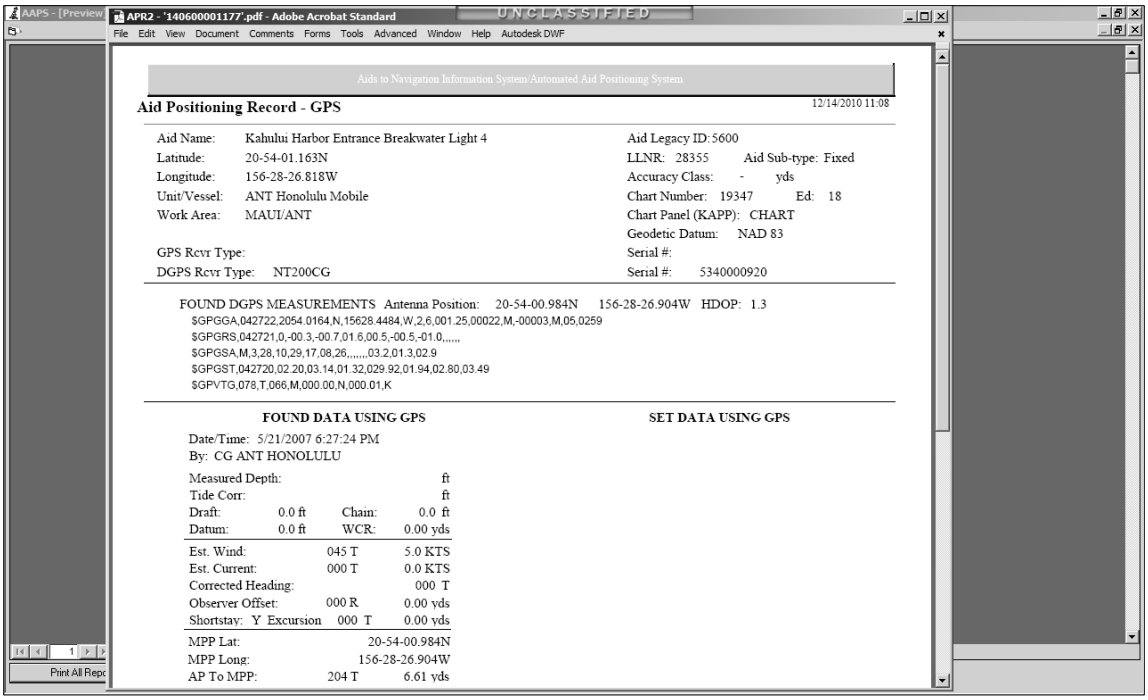
2. Select “Adobe PDF” as your printer and Click the **Print** button



3. A filename will be generated, but you can change it. By default, the file will be saved to your home directory. Click on **BROWSE FOLDERS** to change the location. After entering the file name click on the **SAVE** button.



4. After few seconds, the PDF file will be created:

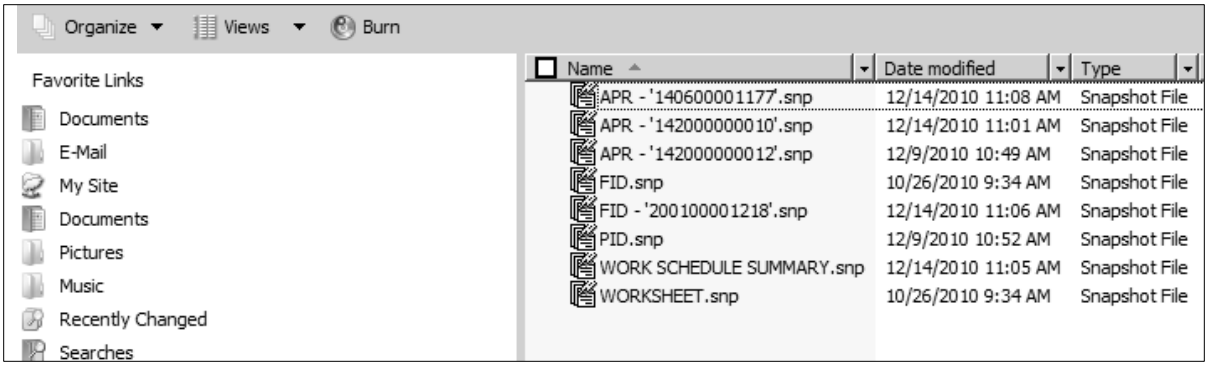


Congratulations! You can now e-mail the file to someone, save it to a folder, etc. To e-mail the file as an attachment click on **FILE** from the Adobe Acrobat menu and Select **Attach to Email.**

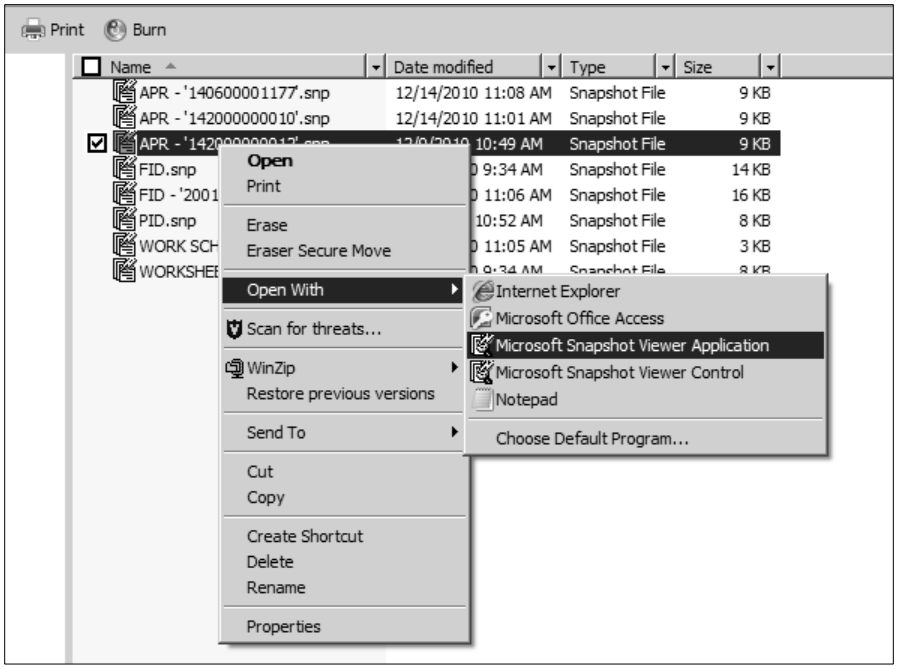
Using SnapView Viewer:

You may already have some reports that you have generated from AAPS and want to e-mail them, save them as PDF, etc.

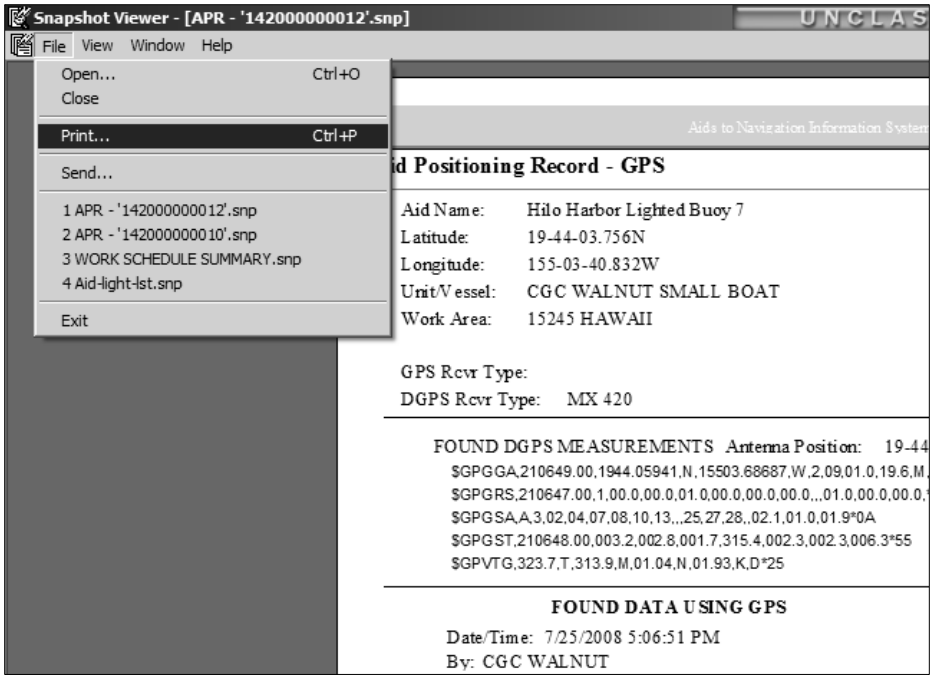
1. Browse to the folder where the reports are located. They should be in C:\AAPS\Reports and will have a .snp extension.



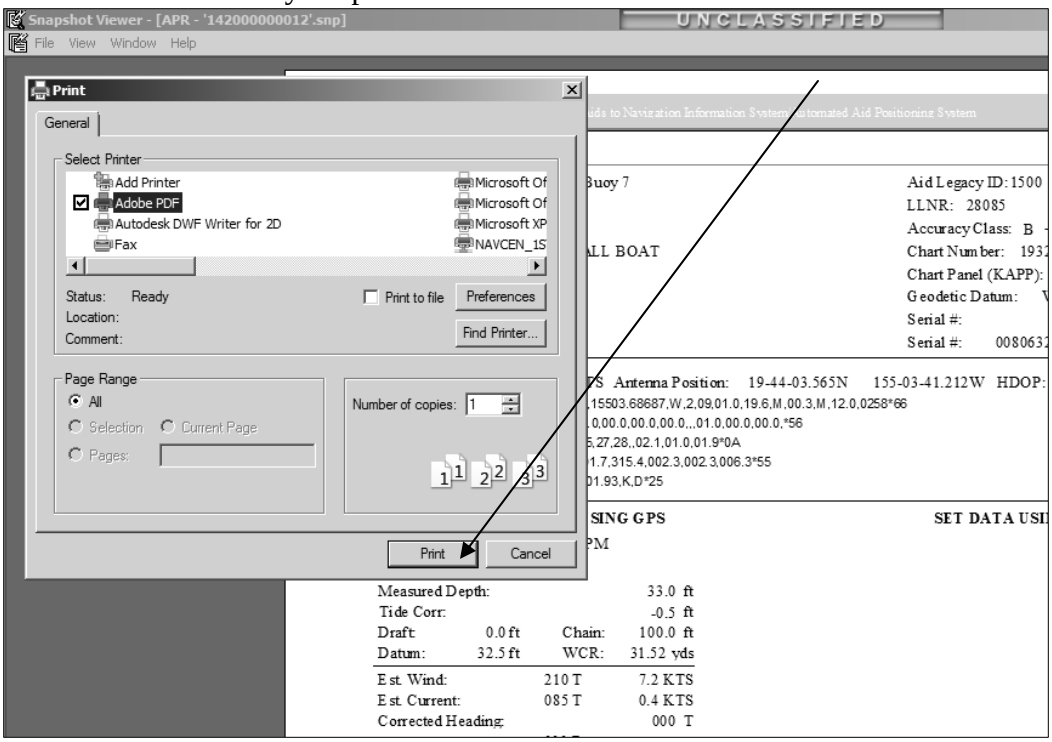
2. Right Click the file and **Open With** Microsoft Snapshot Viewer Application



3. Select **FILE** and **PRINT**



4. Select "Adobe PDF" as your printer and Click the **Print** button



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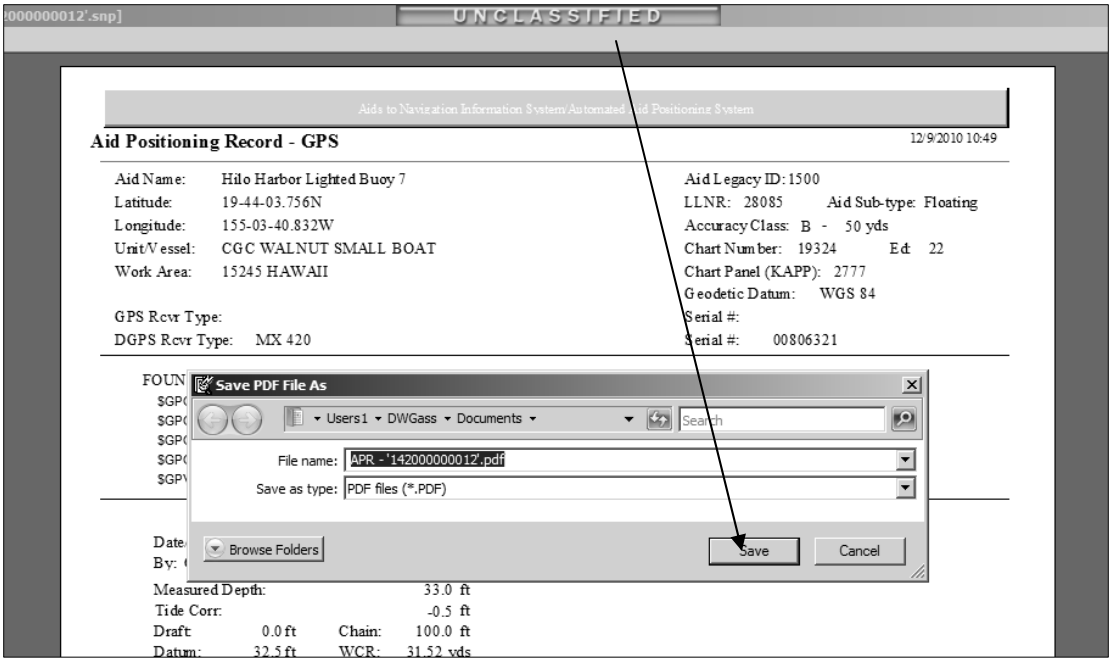
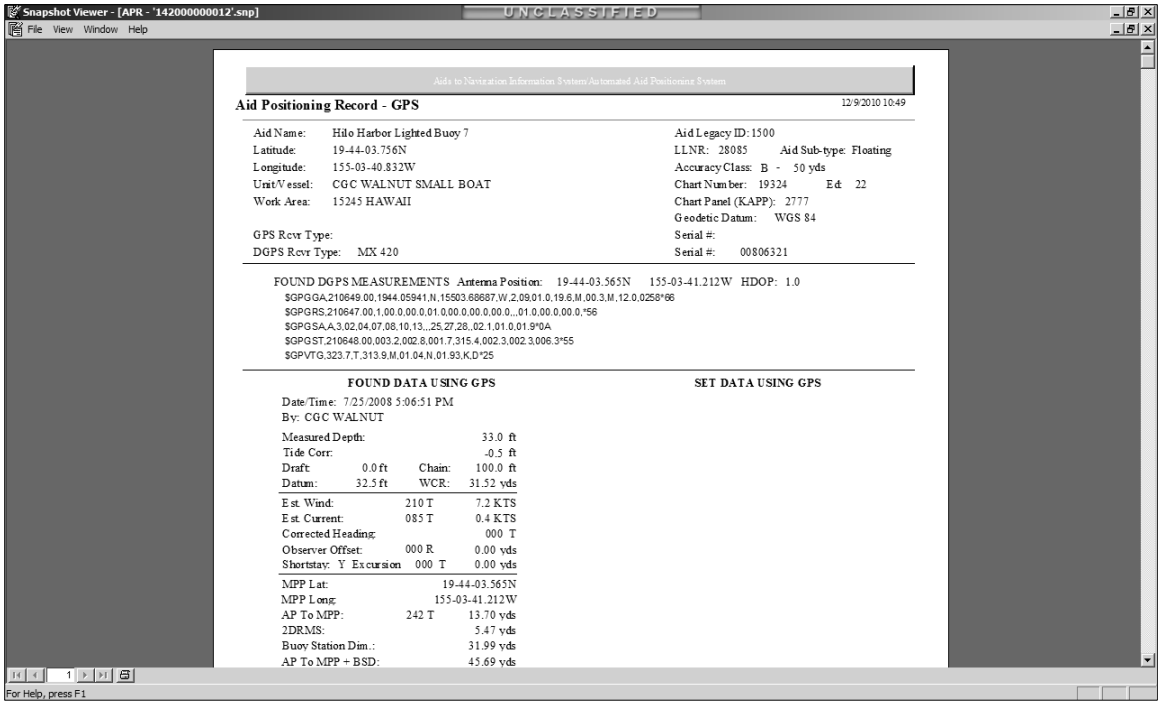
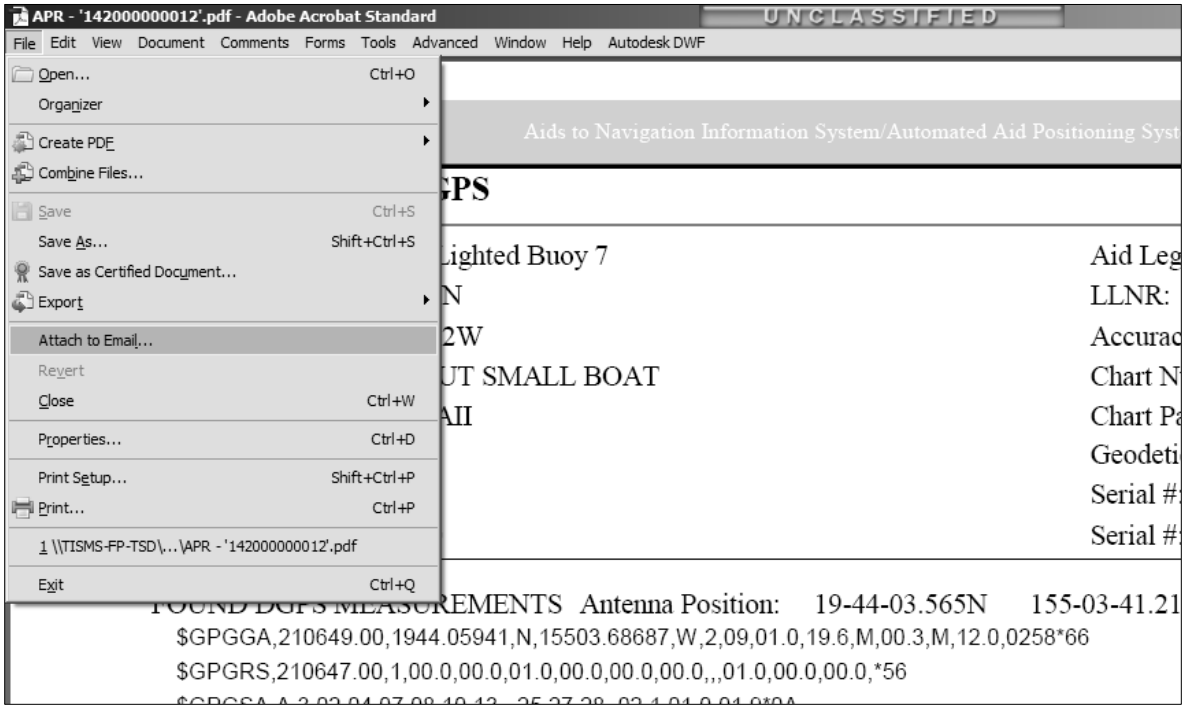


6. After a few seconds, the PDF file will be created:



Congratulations! You can now e-mail the file to someone, save it to a folder, etc. To e-mail the file as an attachment click on **FILE** from the Adobe Acrobat menu and Select **Attach to Email.**



Editor's Note: When I first arrived, one of the many things that amazed me was the volumes of ATON history contained in the more than four decades worth of archived Bulletins at NATON. I want to share some of these articles with you to show you some of what has changed over the years.

The Ants Are Coming

originally submitted by LT R. F. Doughty, CGHQ(oan)
reprinted from Winter 1971 Bulletin

Everyone who has ever been on a picnic knows what an ant is, that pesky little insect who always manages to get into the chow. But in the Coast Guard, ANT comes up with an entirely different meaning, and what this ANT does is no picnic. ANT is an acronym for Aids to Navigation Team, a new name for an old way to service aids, but with some new twists. This team, skippered by a Chief Boatswain's Mate, will consist of eight men who have the necessary skills, training, and experience to service and maintain all types of short range aids to navigation.

If all goes as planned, the first ANT, a Headquarters evaluation project, will be established this fall in an East Coast district. Servicing aids and correcting discrepancies on a full-time basis will be its only mission. This evaluation should continue for about one year.

Basic equipment for the ANT will be a fast, aids to navigation boat about fifty feet long known as an ANB, a smaller trailerable boat such as a TICWAN, and a pick-up truck. The ANT will be shore based, provided with moorings, berthing, messing, equipment storage facilities, working and office space for members of the team. The ANB, a new piece of equipment to be added to the ATON inventory, is "on-order" and expected delivery is late this summer. It will be a modified version of a gulf coast crew boat, 45 to 50 feet long, 4 foot draft, all welded aluminum construction, twin screws to push it 300 miles at 22 knots, living accommodations for four, a small (1000 - pound capacity) hydraulic extension crane, radar, radios, fathometer and numerous other items peculiar to aids to navigation work. I'll have more on this in a future Bulletin.

Since the ANT will be responsible for routine scheduled servicing of buoys and structures and for the correction of all discrepancies, tenders in the area will only be responsible for those operations that call for lifting a buoy or its moorings or major repair of construction of minor structures. Tenders won't get called out in the middle of the night, or on a weekend to relight extinguished buoys. The ANT will even be able to take care of off-station or missing buoys with an aid called a Discrepancy Buoy. I'll cover discrepancy buoys in detail next issue.

Maximum use of land travel is another one of the prime operating concepts of the ANT. They will have the equipment necessary to drive to the nearest Coast Guard or other facility convenient to the area to be worked in an launch its trailerized boat, correct discrepancies, or perform routing servicing operations, and on some occasions, use another station's boats, and return home. If the work area is very far from base, then "home" could be a camper or trailer.

Training requirements for ANT members will be conducted at the ATON school and on the job, and will emphasize the basic concepts of aid installation, maintenance, operation, and the importance of doing a thorough and correct job of servicing. Since the ANT will not be assigned responsibility for any other missions, all servicing functions will thus be conducted by trained men working full-time on aids to navigation. Therefore the servicing will be done by people dedicated to the ATON mission and fewer discrepancies and a more effective aid system should result.

ACVs for ATON?

originally submitted by LCDR D. S. Smith, CGHQ(oan)
reprinted from Winter 1971 Bulletin

Is there an ACV (Air Cushion Vehicle) in your future? Will the Coast Guard actually make practical use of some hot air? Can we use a servicing craft that makes between 40 and 70 knots?

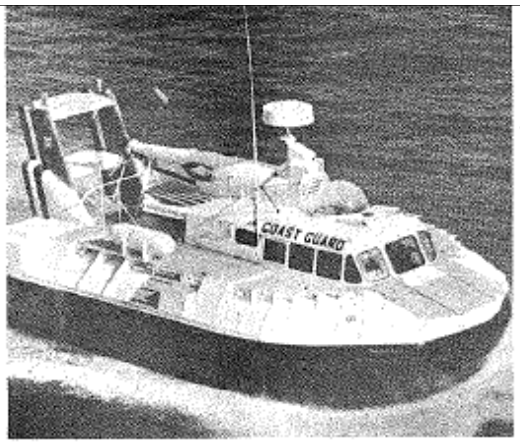
These questions are now being studied by Headquarters in an attempt to utilize the unique capabilities of ACVs. There are two main types of these vehicles. The primary type is called a fully skirted or peripherally skirted ACV. This type is fully amphibious, being able to move at high speed across almost any fairly regular surface such as mud flats, ice, water, rough fields or paved highways. Depending on the design, most fully skirted ACVs can negotiate 2 or 3 foot obstacles on land and 4 to 6 foot or higher waves (at reduced speed) at sea.

The fully skirted ACVs are supported by air compressed by a fan mounted on the structure of the craft. This compressed air is held under the craft by the flexible skirt forming a cushion which can lift the hull of the craft 3 or 4 feet above the surface to be crossed. Propulsion of this type craft is usually by air screws mounted aft. Another standard arrangement, as used on the Coast Guard's SK-5 craft is for one engine, in this case a gas turbine, to drive both lift fan and propeller.

The Coast Guard's ACV Evaluation Unit at Fort Point, California is now evaluating fully skirted ACVs for their usefulness in several of the service's missions. Aids to navigation is one of the areas being evaluated. The ACVs have been used to service all types of buoys and structures with positive results. ACVs are excellent platforms for approaching and laying alongside aids. With suitable modification, their low center of gravity and high stability would allow them to be used for recharging even the largest buoys. The Fort Point ACVs have also been used for various ATON logistics applications, making runs to the San Francisco Light Vessel and Farrallon Islands in record time.

Another type of ACV which is less exotic than the fully skirted craft and more like a boat in operation, design, and cost, is the hard sidewall ACV. This type craft is essentially a catamaran barge with relatively narrow hulls or sidewalls, and flexible skirts at the bow and stern. A single marine diesel engine drives a lift fan which pressurizes the area between the sidewalls and skirts, lifting the vessel until only a foot or so of the sidewall is in the water. Two other marine

diesels drive water screws or water jets to move the craft at about 40 knots in seas up to 4 or 5 feet high. This type of craft, although not amphibious, is easily handled and provides a wide, stable, working platform.

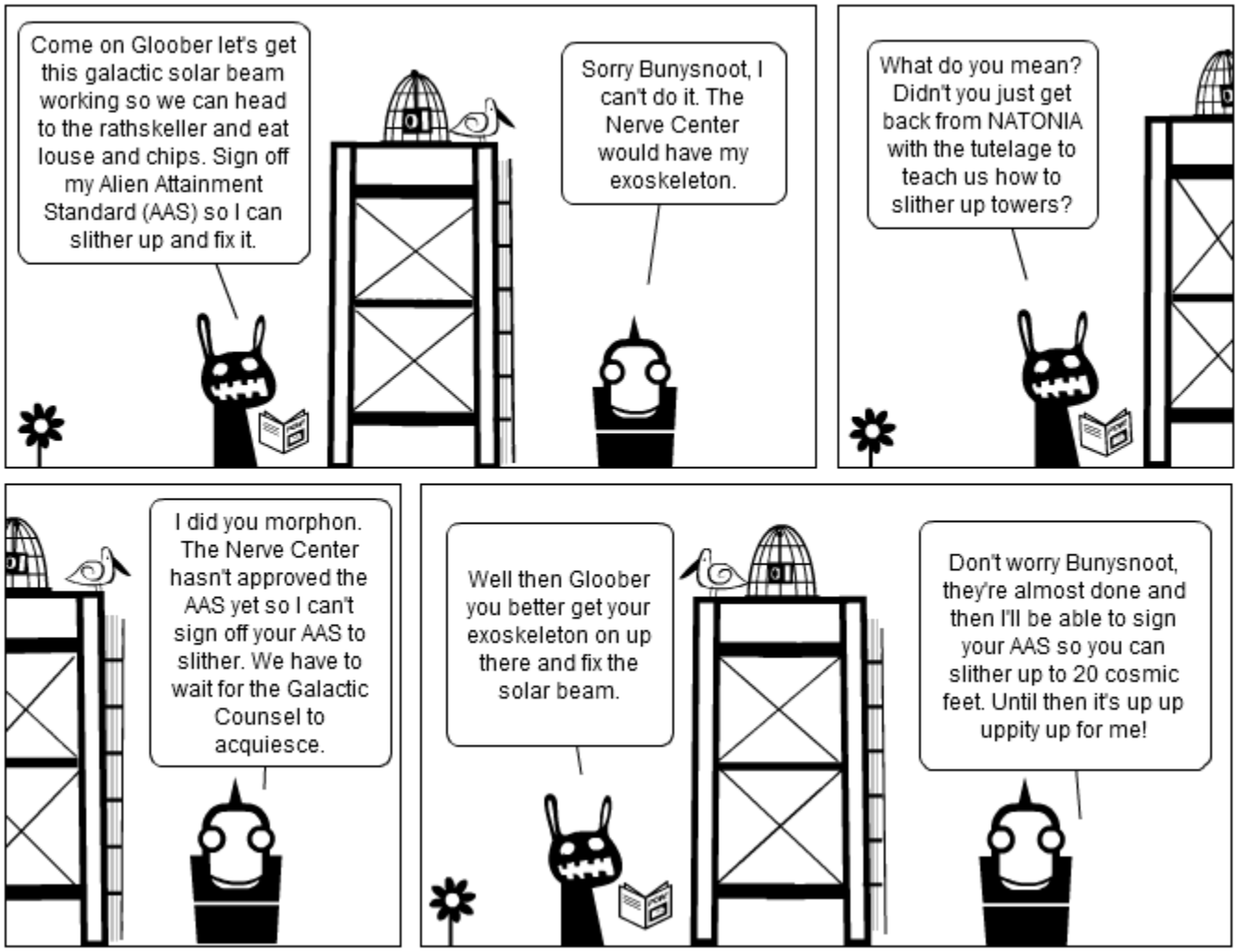


U.S. COAST GUARD
SK-5 Air Cushion Vehicle

Plans are now being made to set up a comparison between a hard sidewall ACV and a high speed displacement hulled "crew" boat to see which vehicle would be better suited for our operations. As discussed in previous editions of the ATON Bulletin, we are planning to move toward an ATON servicing team concept built around two types of servicing craft, i.e., a trailerable boat and a larger (50'-55') high speed servicing craft. We are now looking for a boat to fill the latter category. Possibly the hard sidewall ACV might be the one chosen.

The 1971 Bulletin version of "Good Times" (2011 version on next page)


RIDICULOUSLY AWESOME!
NATONIA
THE PLACE TO BE!


Come on Gloober let's get this galactic solar beam working so we can head to the rathskeller and eat louse and chips. Sign off my Alien Attainment Standard (AAS) so I can slither up and fix it.
Sorry Bunysnoot, I can't do it. The Nerve Center would have my exoskeleton.
What do you mean? Didn't you just get back from NATONIA with the tutelage to teach us how to slither up towers?
I did you morphon. The Nerve Center hasn't approved the AAS yet so I can't sign off your AAS to slither. We have to wait for the Galactic Counsel to acquiesce.
Well then Gloober you better get your exoskeleton on up there and fix the solar beam.
Don't worry Bunysnoot, they're almost done and then I'll be able to sign your AAS so you can slither up to 20 cosmic feet. Until then it's up up uppity up for me!

National Aids to Navigation School

AFTER HOURS
Technical Support Hotline

(757) 449-3681

Call for after hours and weekend technical support questions!

Underway on Friday night? Sunday? Have a Question?

WE CAN HELP!!

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Commanding Officer
US Coast Guard Training Center
Yorktown, VA 23690-5000

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