**Shawn Dilles**

**Presentation**

**IFPA-Fletcher Conference**

**MR. SHAWN DILLES:** Good morning. I'm pleased to represent Vice Admiral Murrett today. If the admiral were here, he would personally congratulate you all. For 30 years, the IFPA has provided government, industry and public policy leaders with the information they need to make informed choices on national security, foreign policy and defense issues.

I'm going to touch on today the increasing availability of commercial satellite imagery, precision revolution for both navigation and weapons systems driven by GPS, and the implications of all that for the foundation data needed to support MDA requirements in nine minutes. [laughter]

At NGA, our mission is to provide timely, relevant, accurate geospatial intelligence, which we call geo-in in support of national security objectives, where both the National Intelligence Agency, supporting the director of national intelligence and a combat support agency supporting the Secretary of Defense.

NGA never operates as a single entity, but instead works as part of a team responsible for many missions and operations worldwide. That strategy served us well in many fronts, including our agency's role in providing global maritime geospatial intelligence in support of national security objectives, including safety of navigation, intelligence activities and joint military operations. NGA supports a range of national priority issues including counterproliferation, counterterrorism, homeland security, disaster assessment, arms transfers, port security and navigation. And we partner with 81 organizations at 150 locations, including all the major combat and commands, national intelligence agencies, the service Intel centers including ONI and MCIA and also with NAVO.

Geospatial intelligence, or geo-in, encompasses topographic, bathymetric, geomagnetic, gravity, mapping, charting, and geodetic survey data. We maintain one of the most comprehensive maritime databases in the world, the digital nautical chart, or DNC. This includes critical foundation data on the sea lanes, anchorage areas, port data and environmental information equivalent to about 5,000 charts worldwide. This information can help form part of the common operating picture supporting maritime domain awareness.

In addition, we also provide MDA with worldwide sailing directions, the world port index, worldwide warning service broadcast messages with information on threats to shipping, piracy and maritime closure areas. I'm pleased to see all the white suits in the room. I didn't know how much detail to go in on some of these products, but I think we've got a lot of our customers here.

Geo-in leverages remotely sensed imagery from across the electromagnetic spectrum. Electro optical, infrared, radar, multi-spectral, hyper-spectral and LIDAR and motion imagery. Our analysts at NGA transform complex spatial, spectral and temporal information into actionable intelligence.

In the intelligence arena, NGA and other agencies must balance current intelligence with longer term, painstaking work that leads to critical new insights. We also need to invest in the acquisition and maintenance of a central foundation data to achieve the aims of MDA and to support operations. I'd like to underscore the importance of this foundation data and introduce some of the ways that we're working to improve the currency and accuracy of it with geospatial intelligence. Although our data is the most comprehensive maritime information available, it's far from perfect. It's been compiled from thousands of sources and foraging an interoperable global view from dozens of local survey datums and literally hundreds of vertical datums. It's not a trivial task. Large areas of the ocean have not been adequately surveyed, and traditional survey techniques are expensive and time consuming. In many areas of interest, especially the ones of most interest, access is

either denied or restricted and as we saw in the Indian Ocean, even in well surveyed areas, critical features can change rapidly in this dynamic environment.

When the *U.S.S. San Francisco* struck a seamount, an uncharted seamount, in 2005, NGA undertook an effort to use multi-spectral imagery to locate and chart new shoals. These slide shows the top of that sea mount and the inset shows the feature in different spectral bands. We can determine the water depth because the light in different bands selectively penetrates the water, with blue the most and red the least.

When we searched the area within about a hundred miles of that seamount, we discovered 23 additional uncharted shoals shown in red. I think it's important to point out, before I go further, that when I say uncharted, this is based on any available information over the last 150 years; the local charts, the local nations, don't include this even on their own charts.

Since then, we have expanded the search for shoals worldwide and we've focused that search by using gravity data. Another effort that we have under way combines digital terrain elevation data from the space shuttle radar topography mission with global shoreline data extracted from Landsat. By comparing those data sets with our digital chart data, we're able to determine their accuracy worldwide, accuracy in this case refers to the absolute position of an island or a coastline compared to a WGS84, what you'd get with a GPS coordinate. Areas in blue show shorelines that are more than 500 meters from that absolute position, and the areas in red are a kilometer or more off.

This slide shows the section of the southwest Pacific Ocean, and it's pretty much the extreme case. And it's a study in cartographic data transformation issues. Some of the data used in this chart are accurate, like this long island in the middle, some are fairly accurate, but the datum has shifted, like that island on the bottom left where that coastline is charted well but in the wrong place. And if you look at the islands on the top right, they're three miles from their absolute position. Now, in the days before GPS, this might

have even gone unnoticed for the most part, but today this kind of error is unacceptable, even and especially in remote areas.

One final example, again from as close as the Caribbean where a small island off Montserrat was, again, charted fairly accurately but just out of position relative to that WGS84 standard. We're also using high resolution commercial imagery to improve the accuracy and currency of our harbor charts. We use change detection software to compare imagery to the existing source charts. And again, these are often from host nations. The change detection highlights the differences and speeds up our ability to change and update the charts. So by and large, we're getting to the point where the data that we use to support our customers is more accurate, in many cases, or more current, rather, than the charts used by those host nations.

In conclusion, these are just a few of the ways that we're working to provide the best possible information and support of MDA. And there have been a lot of cultural changes and some cultural challenges and some technical challenges to moving forward in doing so. We feel it's absolutely essential for meeting accuracy and currency requirements to our customers. Using satellite information like this, and from other sources, has allowed NGA to rapidly assess damage from the 2004 Indian Ocean tsunami to support disaster relief operations and to quickly update the charts in the areas where the shoreline has changed. Thank you. [applause]

## Q&A for Entire Panel

**DR. MARTEL:** We have plenty of time for questions. I guess the following rules, keep the questions brief rather than longer. We can do more short questions than long questions. Second, please tell us who you are and where you're from. And I mention to the panel as well, use their judgment, but not everybody has to respond to every question. With that, we're open to questions. Yes, sir, in the back? And please wait for the microphone, thank you.

**AUDIENCE:** My name is Jadon Beans (?) of General Logistics. I was trying to get this question in earlier on some of the previous panels. Considering that we acknowledge the importance of the Malacca Straits for the international trade, and the panel had referred to the A. Q. Khan network which had used Malaysia as a platform, any comments on the importance of the Malaysian navy, considering their absence in the recent multilateral exercises in the Indian Ocean where you had the Australian navy, Indian navy, Japanese navy, and the U.S. navy and the Singapore navy? Thank you.

**DR. MARTEL:** Whoever would like to take that question, please?

**__:** Okay. [laughter] You know, I think the importance to recognize the Malaysian navy makes significant contributes to security in the Malacca Straits region, they've been working very, very closely with Indonesia and Singapore in order to work that problem. I don't think the measure of effectiveness or the value of the contribution should be does every single force participate in every single opportunity to participate? They're going to figure out where they can leverage best their capabilities, what their resources are, and then they're going to make decisions that are based, as all countries do, on what their interests are and where they can get the most return on the interests.

So I think that we recognize the value, and Admiral Mullen specifically recognized the utility there, and I think it's—What we're looking for, I think, in the development of this new maritime strategy, these global maritime partnerships, is to create the venues where every country that has maritime forces to contribute, and whether we call them navies, whether we call them Coast Guard, whether we call them anything else, the forces that have the ability to go where the security challenges are, whether those are very, very close into shore, out in economic zones or whether it's on the blue waters is really immaterial. It's creating the venues, the personal relationships, creating the trust and then the ability to operate together in a professional manner that's the importance piece.

**DR. MARTEL:** Yes, sir?

**AUDIENCE:** Hello, Eric Kulisch, *American Shipper* magazine. Wanted to get back to Mr. Oxford's point about the protection—I guess he countered Mr. Flynn's point on protection of the Navy, using Coast Guard or homeland security assets to protect the Navy. You seem to suggest that you didn't agree with that. Wouldn't it be potentially better, or couldn't there be an argument that DOD should use some of its larger resources than what DHS has to provide that protection? And maybe Mr. Hormats wants to comment on prioritization here. And I guess the counter to that is if the Defense Department is protecting military assets here domestically and feel that's important, maybe we need more resources. Do we need more resources to protect critical private infrastructure as well?

**MR. OXFORD:** Let me address kind of two concerns, and Eric, I'd ask you to address one of those specific questions to either Admiral Salerno, who will speak later, or Admiral Eilan (?) when he talks about how well their assets are able to do these multiple jobs and how far stretched they are.

My point was we are looking at port security in a more holistic way. In this case, the ability to deal with the small vessel threat, we looked at the strategic value of San Diego and the Puget Sound as very critical areas, and we need to bring in the extended capacity that comes with the air and maritime security committees and the local law enforcement agencies that have marine operational capability so we're not drawing only on the Coast Guard assets, we get expanded capacity to do the detection and interdiction method. It isn't just a federal issue, we're not just protecting the naval port, we're protecting the key civilian assets in those locations as well.

I think Steve was suggesting that maybe we're ignoring L.A./Long Beach, but there are other assets in L. A./Long Beach as well that are looking at port security more broadly there. Plus, he was trying to bring up some infrastructure protection issues that I think maybe go beyond the maritime.

**DR. HORMATS:** I'll just follow that up, the other part of the question. I think the issue in substantial measure is we're probably doing what we need to do with respect to the military. But a substantial portion of the funding required for dealing with the domestic infrastructure issues that Steve raised today, and has raised for the last several years, effectively so in my judgment, a lot of that money simply has not been forthcoming, as you doubtless know, because you follow these things. And therefore, I do think hardening the infrastructure, protecting parts of the infrastructure that don't necessarily relate to the Navy or the Coast Guard is important.

I mean, if you live in New York, the corridors you go up, the New Jersey turnpike right outside New York, you see all those chemical plants. Jon Corzine, who was a former colleague at Goldman, now governor, constantly makes the point that there are lots of vulnerabilities there. I mean, they're right off the highway, chemical plants, places to store fuel, very vulnerable. There are a lot of parts of this country that are still very vulnerable and do not get the kind of protection that's needed.

And the second point is the broader point, and the point I was trying to make earlier, that we have many common interests with other countries that are building their naval capability. This is really on the blue water side. And it strikes me that partnerships with countries like China and India and Japan who have a very keen interest in keeping the sea lanes open and avoiding disruption of energy supplies, partnerships with them would, first of all, avoid misunderstandings with them. And second, enhance our capability of dealing with some of these issues before they get to our shores. Because they have as much of an interest in avoiding disruptions in the sea lane as we do. Lots of countries want to make sure that there are enhanced capabilities of keeping these sea lanes open. So those kinds of partnerships will enable us to utilize more of our resources, perhaps, closer to home if we can cooperate with them more broadly. Because the interests are very similar. We all have an interest in open sea lanes, and they're going to put more of their resources into it, we probably are as well. So we could get a lot more effectiveness if we worked more closely with them.

**MR. OXFORD:** Let me add one thing to that. One of the reasons we chose both San Diego and the Puget Sound area was because of their proximity to both the Canadian border and the Mexican border. We looked at the number of small vessels that are cleared by U.S. customs on an annual basis. The Puget Sound area, sail Tacoma, they cleared—That's the number one port for clearing small vessels coming into that—Into any U.S. port, and San Diego is number six. So there's practical reason why we would worry about a threat coming through the small vessel channel and the number of small vessels that come into those ports on an annual basis as well.

**DR. MARTEL:** Yes, sir? And we'll work our way back here, great.

**AUDIENCE:** Good morning. I'm Captain Matt Feely from the Defense Logistics Agency. It seems to me that when we've been talking about deterrence, we've been using the term in the context of days past when the enemy was an identifiable state actor who could be held account. Now, of course, we see non-state actors emerging as a potential enemy, and I think that Rear Admiral Tidd mentioned that it is perhaps possible to deter those non-state actors through probing and perhaps attacking or addressing somehow the supply chains that may allow for a non-state actor to deliver some kind of weapon of mass destruction. I wonder if any of the panel members might want to expound upon the strategies that could be used to deter non-state actors? It seems to me that what Rear Admiral Tidd had suggested may be more disruption, appropriately termed disruption rather than deterrence. So I'd be interested to hear in any more detail of what we could do for non-state actors? Thank you.

**ADMIRAL TIDD:** I'll start off, and then I think everybody else may have something to contribute as well. Disruption is a separate—It's a different phase. What I'm talking about is dissuading all of those sorts of intermediaries involved in the supply chain; the gray marketer, the scientist who might be tempted to contribute his technical expertise, obviously a potential state supporter or facilitator who might be interested in turning a blind eye to the transshipment of goods, those sorts of things. So each one of them may

be amenable to a particular dissuasion method or dissuasion message or a deterrence message.

Do I think that the guy at the far end who's actually got his finger on the button can be dissuaded from pressing that button if he has that opportunity? I think that's a different series of problems, and that's typically what we have focused on up to this point, is the apocalyptic actor, and can you deter him? Maybe not, but he's got to get his finger onto a button in the first place, and you've got to tackle every single element along the way to minimize his opportunity to ever get to that point of getting his finger on the button.

**__:** Let me add that our defensive strategy that is very much a layered strategy, starts with doing everything we can to secure nuclear and radiological material, both overseas and domestically. So every layer that we enhance our protection value to will also serve as a deterrent. And we finished that with things like if you go to any of our southern border crossings right now, our ports of entry or our seaports where you see officers with canines, with guns, you see radiation portal systems, that layer is pretty well becoming secure. So there's a deterrent value to every one of those steps.

On top of that, the interagency has recently come together and we're moving out aggressively in what we call nuclear forensics and attribution, the ability to essentially fingerprint nuclear materials, both domestically and around the world, so that if it's ever used, we can quickly lay claim to where it came from and who the potential prosecutor of that potential attack. So the ability to defend and also attribute the attack, we think adds to an overall deterrence strategy that is much different than the ones we used in the past.

**__:** If I could just comment on the deterrent piece as well, part of what I talked about was the proliferation of dual use technology, where it's very difficult to understand what the difference is between a baby milk factory or a biological weapons facility. That's becoming increasingly more challenging to determine. So the value of intelligence can't be overstated, as well as understanding intent. And the deterrence piece, almost all these facilities, even those used by terrorists, have to be aided and abetted, for lack of a better

word, by a state actor. And so can you deter a terrorist? Well, perhaps that's a subject of debate. But there is a much greater opportunity to deter a state actor that would have to facilitate the transfer or production of those dual use facilities than a terrorist would.

And if I could, everybody seems to focus on nuclear and I certainly would not wish to demean the importance of the nuclear threat. However, chemical is still a very real issue and the one that truly scares me is the biological piece because we're addressing the issue, but that is one that is truly beyond the imagination as to the possible consequences of a biological event. Thank you.

**DR. MARTEL:** We have time for a couple more questions. Back left, please?

**AUDIENCE:** Commander Carl Forkner, I'm faculty at the Air War College. Looking at the topics here on interdependence of world markets and economies, threats and so forth, we've heard a lot of discussion about some of the most pervasive threats and the most important ones that we perceive and the most important economies with whom we deal. But much like the post Vietnam era, it seems the discussion, as we look at a global maritime strategy, seems virtually mute on Central and South America and we limit ourselves in the security strategy realm to thinking of the hemisphere only in terms of ourselves, Mexico and Canada. Over the last 15 years, some of the South American navy has added to their riverine and littoral expertise by demonstrating back blue water competency, or giving us blue water aspirations.

We have dissonant groups, non-state actors that have been pervasive within South America, we have a number of economic concerns that we are—With South America in terms of agriculture, energy, textiles and other things. Hugo Chavez not only has been more of an influence within South America, but has reached out globally to other leaders with likeminded ideologies and ideas of where they want to go in a non-supportive role as far as American and western values. And I just wonder why we continue to be somewhat mute on the hemispheric maritime security that should include Central and South America?

**DR. MARTEL:** Thank you. Maybe none of us what to upstage Admiral DeVrietas (?) when he comes, but I think nobody is ignoring what's going on down there, and I would just observe the deployment of *U.S.S. Comfort* and the deployment of *H.S.V. Swift* as a prototype doing some experimental work, testing out this notion of global fleet stations in order to bring capacity building tools to be able to work closely and create those personal relationships with the various and sundry navies down there and to work the maritime security issues to better understand what their concerns are so that we can work together.

And I think that's just the beginning of what will be a process of working more closely together with them. At the same time, we've got a long history of working together in the whole UNITAS series of exercises. So I don't think there's been an ignoring as much as perhaps just difficult to get space above the fold.

**__:** Can I just add one comment? The point about the *Comfort*, which reminds me—Governor Thompson, I think, has referred to, has talked about medical diplomacy. And it strikes me that one of the objectives of whoever's going to be President next is going to have to be to improve America's image in the world. Our reputation has suffered over the last several years, and I don't want to fix blame for that, it's bipartisan. But the fact is, we're going to need to do something about it, and probably one of the best ways of doing it is what Governor Thompson's called medical diplomacy, and the Navy has a wonderful capability with the *Hope* and the *Comfort* and their other ships. And we could do it with other parts of our armed services, as well as the civilian parts of our government.

This could be an enormously powerful initiative, dealing with all sorts of diseases, waterborne diseases, viral diseases, infectious diseases around the world. This could be a very powerful thing for our national security and helping in Latin America and Africa, which is another area that could benefit, and which we're increasingly dependent on, also, for oil and for natural resources. So this could be a very powerful new initiative, and the Navy really could be at the forefront of this initiative.

**DR. MARTEL:** We have time for one more question. Yes, sir?

**AUDIENCE:** I'm Michael Mendelson, Intelsat. Thank you, gentlemen, for a very interesting panel this morning. It sounds to me, from what I've been hearing, that both the armed services and the federal agencies are not only being asked to do more with less from a budgetary perspective, but also to step outside of some of their traditional roles and look at new, creative ways to counter threats and to address force projection. So going back to something that was mentioned in the first panel, I'd like to know the extent to which you are, and extent to which the current legal environment allows you to, explore some creative public/private partnerships outside of the traditional defense industry? Thank you.

**__:** We're looking for the lawyer and we can't find one. [laughter]

**__:** Remember that next time for the next panel.

**DR. MARTEL:** I think that'll do it. I'd like all of you to join me in saying thank you very much to the panel this morning. [applause] I think this is the time to adjourn for lunch, and then we'll see you after lunch as well. Again, thank you.