

**BOTTLENOSE DOLPHIN TAKE REDUCTION TEAM MEETING  
JUNE 5-7, 2013, WILMINGTON, NORTH CAROLINA**

**KEY OUTCOMES**

**I. OVERVIEW**

NOAA's National Marine Fisheries Service (NMFS) convened the Bottlenose Dolphin Take Reduction Team (BDTRT) June 5-7, 2013, in Wilmington, North Carolina. The primary purpose of the meeting was to assess the Bottlenose Dolphin Take Reduction Plan's (BDTRP) progress at meeting its short- and long-term goals for each affected strategic stock. Specific objectives were:

- Review updated bottlenose dolphin stock structure, abundance and mortality estimates, and PBR for each stock
- Review and discuss observer data and strandings showing fishery interactions and the nature of interactions/entanglements
- Provide updates on commercial fisheries and research
- Identify and discuss any needed research priorities, additional conservation measures, and/or BDTRP revisions
- Review and discuss draft monitoring plan for BDTRP
- Plan next steps

This summary report, prepared by CONCUR Inc., provides an overview of the meeting's key outcomes. It is presented in the following sections: (1) Overview; (2) Participants; (3) Meeting Materials; (4) Presentations and Meeting Discussion Topics; (5) Consensus Recommendations; (6) BDTRP Monitoring Plan; (7) Other Agenda Items and Public Comment; and, (8) Next Steps.

**II. PARTICIPANTS**

The three-day meeting was attended by 24 of the 46 Team members. Participating Team members were: Debra Abercrombie, Dean Cain, Sammy Corbett, David Cupka, Laura Engleby, Joey Frost, Lewis Gillingham, Kenneth Heath, Jimmy Hull, Raymond King, David Laist, Kristy Long, Beth Lowell, Bill McLellan, Red Munden, Jim Page, Tom Pitchford, Andy Read, Richard Roberts, Richard Seagraves, Mark Swingle, Courtney Vail, Randy Wells and David Woolman. Robert West and Chris Hickman also participated by phone at various points in the meeting.

L. Engleby and Stacey Horstman with NMFS' Southeast Regional Office (Protected Resources Division) convened the meeting. Scott McCreary with CONCUR and Bennett Brooks from the Consensus Building Institute served as the neutral facilitators. Staff from the Southeast Regional Office (Jessica Powell, David Hilton), the Northeast (Marjorie Rossman, Mike Tork) and Southeast Fisheries Science Centers (Patricia Rosel, Barbie Byrd), NOAA's Office of Law

Enforcement (Agent Wilson) and the U.S. Coast Guard (Katie Moore) supported the deliberations. Several members of the public attended the meeting.

### **III. MEETING MATERIALS**

A meeting agenda and a number of background meeting materials were provided in advance to support the group's deliberations. NMFS also conducted an orientation for new Team members two weeks prior to the meeting. Copies of meeting materials can be found on-line at:

<http://concurinc.com/wp/bottlenose-dolphin-take-reduction-team/>

Documents can also be obtained by contacting S. Horstman at 727-824-5312 or via email at [stacey.horstman@noaa.gov](mailto:stacey.horstman@noaa.gov).

### **IV. PRESENTATIONS AND MEETING DISCUSSION TOPICS**

Below is a brief summary of the main topics and issues discussed during the meeting. This summary is not intended to be a meeting transcript. Rather, it provides an overview of the main topics covered, the primary points and options raised during Team discussions, and areas of emerging or full consensus.

#### ***A. Welcome and Introduction***

L. Engleby opened the meeting by welcoming participants, including new members, and reviewing the meeting purpose. She encouraged the Team to identify consensus recommendations for those stocks of bottlenose dolphins where commercial fisheries takes appear to be causing serious injury and mortality to exceed PBR (potential biological removal). She particularly called attention to North Carolina commercial gillnet fishery interactions with estuarine bottlenose dolphin stocks and trap/pot fishery interactions with estuarine bottlenose dolphin stocks off South Carolina, Georgia and Florida. L. Engleby noted that a number of gillnetters were unable to attend the meeting in-person (due to in-season fishing and other commitments), but stressed that the Agency would be taking the unusual step of working to arrange for their participation (via phone) in key plenary and caucus discussions and keep them apprised of Team deliberations.

S. McCreary walked Team members through the agenda, and B. Brooks briefly reviewed the revised draft BDTRT ground rules. B. Brooks noted that the ground rule addressing contact with media and political representatives is not intended to prohibit such dialogues, but – rather – reiterate Team members' commitment to negotiate in good faith at the table and not through other channels. Additionally, K. Long noted that the Agency is looking to develop consistent operating protocols across Take Reduction Teams. There were no Team comments on either the agenda or ground rules.

## ***B. Background Briefings and Updates***

To inform Team discussions, Day One focused on a series of updates and information related to bottlenose dolphin stock structure revisions, stock assessment data (e.g. abundance and mortality estimates, PBR), observer coverage, BDTRP compliance, relevant fishery and research updates. Below is a brief synopsis of the various updates; more detailed materials (presentations and handouts) are available on the Team website (see link provided earlier).

- **BDTRP Overview and General Updates.** S. Horstman reviewed updates on recent and forthcoming BDTRP regulatory amendments, accomplishments related to non-regulatory recommendations and BTRT member updates. Presentation highlights included the following:
  - ***Regulatory Amendments.*** The final rule amending the BDTRP making the North Carolina nighttime medium mesh gillnet restrictions permanent (a consensus Team recommendation at its 2009 meeting) was published as a final rule in July 2012. The proposed rule amending the BDTRP for Virginia pound net gear modifications – requiring modified leaders consistent with current sea turtle requirements per the Team’s consensus recommendations reached at its 2009 meeting – is currently in clearance. Anticipated publication of the proposed rule is during the fall. Once NMFS receives public comments, they will immediately begin drafting a final rule.
  - ***Non-Regulatory Accomplishments.*** The agency has made significant progress on accomplishing the BDTRT’s top research priorities identified via consensus at its 2009 meeting. Most notably, the Agency has worked with a range of partners on research initiatives intended to (1) determine stock identity of bottlenose dolphins documented in observed takes or stranding events with evidence of fishery interactions by matching dorsal fins to the mid-Atlantic Bottlenose Dolphin Catalog; (2) improve abundance estimates for each bottlenose stock; and (3) refine its understanding of the Northern North Carolina Estuarine System (NNCES) stock distribution in Pamlico Sound during the summer and ocean waters with overlapping stocks. All three research priorities are in progress. Other non-regulatory accomplishments include: increased observer coverage for the North Carolina inshore Spanish mackerel fishery in Pamlico Sound; establishment of a joint enforcement agreement with the Virginia Marine Resources Commission (VMRC) in 2012 to monitor the Virginia pound net fishery; and, additional genetics research to help assign dead or seriously injured dolphins to specific stocks.
  - ***Team Membership Updates.*** S. Horstman reviewed recent membership changes, including: industry (Sammy Corbett for Dave Beresoff; new members Richard Roberts and Jimmy Hull; Mike Baker resignation with replacement to be determined); conservation/environmental (Beth Lowell replacing Elizabeth Griffin, and Amanda Keledjian as her alternate; Jane Davenport replacing Sierra Weaver; Courtney Vail filling Nina Young’s vacant conservation seat); and, state

representatives (Debra Abercrombie for Steve Heins; Peter Himchak for Hugh Carberry and Jim Page replacing Spud Woodward/Doug Haymans).

- **Bottlenose Dolphin Stock Structure Revisions.** P. Rosel with the Southeast Fisheries Science Center (SEFSC) first summarized the underlying purpose behind, and importance of, correct stock delimitation for effective management and then described the history of NMFS' understanding of bottlenose dolphin stock structure along the Atlantic Coast. She described the various datasets (telemetry, photo-ID, genetics) collected and analyzed over the past 10-15 years that have resulted in the evolution from the original, single coast-wide stock delimited in 1995 to the current delineation of 15 distinct stocks (10 estuarine and 5 coastal). P. Rosel also provided a detailed look at North Carolina stocks – an area of particular importance given the partial overlap in time and space of four stocks (NNCES, Southern North Carolina Estuarine Stock - SNCES, Northern Migratory Stock, and Southern Migratory Stock) coupled with evidence of bycatch in the area. Team members posed a handful of clarifying questions on the presentation; there was only limited discussion on this update.
- **Bottlenose Dolphin Abundance.** P. Rosel reviewed the SEFSC's latest abundance estimates, PBR, and serious injury determinations (work prepared by the SEFSC's Lance Garrison who was unable to attend due to a family emergency). The presentation focused on the following main points: (1) coastal stock abundance estimates have been updated based on surveys conducted in summer 2010 and 2011; (2) observed minimum mortality levels are well below PBR for coastal stocks; (3) most estuarine stocks lack current abundance estimates and therefore valid PBRs; and, (3) minimum mortality estimates are a concern for small estuarine stocks where few takes can exceed PBR. P. Rosel also reviewed the new guidelines used to define serious injuries and mortalities. Team members posed a handful of clarifying questions on the presentation; there was only limited discussion on this update.
- **Gillnet Bycatch Mortality.** M. Rossman with the Northeast Fisheries Science Center (NEFSC) provided a detailed overview of gillnet bycatch and mortality from 2007-2011 for the NNCES, SNCES, Northern Migratory, and Southern Migratory stocks. The detailed presentation included updates on: (1) fishery-related mortalities by bottlenose dolphin stock and geography; and (2) description of the analytic methodologies used (both Observer Program and Marine Mammal Stranding Network data) to estimate and then assign mortality to specific stocks. M. Rossman reviewed information on assigning minimum/maximum mortality estimates as a risk-based approach to account for stock-ID uncertainty. She also reviewed mortality estimates from one observed fishery take<sup>1</sup> in 2009 and in consideration of minimum counts from stranding data and their percent contribution against PBR. Based on the analysis, M. Rossman offered the following observations: (1) stock assignment uncertainty is a significant challenge to assigning

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<sup>1</sup> The observed take occurred 0.10 km outside the 1km from shore stock delineation for the NNCES stock. As a result, mortality estimates for this observed take were generated for the Southern Migratory, Northern Migratory, and NNCES stocks based on stock-ID uncertainty. The estimated maximum mortality based on the observed take for each stock was: (1) 6.77 (CV=0.32) for the Northern Migratory stock, which is 7.87% of PBR at 86; (2) 10.94 (CV=0.30) for the Southern Migratory stock, which is 17.36% of PBR at 63; and (3) 16.23 (CV=0.30) for the oceanside range of the NNCES stock, which is 205.44% of PBR at 7.9.

mortality; (2) migratory stock gillnet bycatch mortality is reduced to insignificant levels approaching a zero mortality and serious injury rate (defined as 10% of PBR and commonly referred to as Zero Rate Mortality Goal or ZMRG); (3) there is a strong correlation between total trips and fishery interaction (FI) strandings with the Southern Migratory and NNCES stocks; and, (4) both NNCES and SNCEs stocks are of greatest concern given that the maximum mortality estimates and/or strandings exceed PBR.

Some Team members sought to better understand how the Science Center accounts for stock uncertainty in apportioning serious injury and mortality (SI&M) determinations. M. Rossman explained that in areas where there are overlapping stocks and a specific stock designation can not be determined, each SI&M is assigned to all potential stocks present in that area/time (consistent with a precautionary approach); she noted that takes are not apportioned across the potential stocks and they are not additive. Several Team members questioned whether the 2009 observed take should be assigned to the NNCES stock for the purposes of calculating takes against PBR. Agency staff suggested the assignment is appropriate given the potential for estuarine stocks to range further than the designated stock delineation. Moreover, Agency staff and several Team members noted that – even without the observed take – FI stranding data suggest these exceed PBR. Team members requested more detailed information of the 2009 observed take, including the observed take and set logs. (This information was provided later in the meeting.)

- **Observer Coverage.** Two presentations provided updates on observer coverage and compliance with the BDTRP’s regulatory measures based on observer data. M. Tork (NEFSC) summarized recent observer efforts and coverage rates, and M. Rossman reviewed Observer Program compliance data.
  - M. Tork’s presentation centered on challenges to observer program implementation, including: (1) competition from sectors in the Northeast for staffing; (2) the distant location of program headquarters in New England; (3) funding uncertainty, which leads to staffing turnover and a lack of continuity with the fishery; (4) frequent change in observer contractors; and (5) limited effectiveness of pulse operations in the Southeast Region. He strongly recommended that the Observer Program establish an office in North Carolina, and he also noted that he expects Observer Program sea days to increase next year in the mid-Atlantic to help increase coverage during spring to fall seasons.
  - M. Rossman’s review of recent Observer Program data suggested there is generally good compliance with the BDTRP, but there are some compliance concerns related to southern Virginia large mesh fishery. However, the small sample sizes from Virginia make it difficult to determine if the low compliance is real. In addition, there was one observed take in non-compliant small mesh gear. Overall, the observed sample sizes are too small to evaluate the TRP’s effectiveness. M. Rossman also said that it is not possible to gauge compliance with nighttime proximity restrictions in New Jersey, Delaware, Maryland and Virginia from observer data. She further noted that in regards to TRP

effectiveness, significant reductions in medium mesh soak duration still persist under increasing spiny dogfish quota.

Team comments and observations centered on the following: (1) noting the low number of observed trips in North Carolina; (2) voicing concerns that the lack of active enforcement cases will likely hurt compliance over time; and (3) citing the enforcement challenges associated with the lack of a Joint Enforcement Agreement (JEA) with North Carolina.

- **Gillnet and Trap/Pot Fisheries.** A series of updates related to both trap/pot and gillnet fisheries were provided.
  - South Carolina, Georgia, and Florida Trap/Pot fisheries - South Carolina (D. Cain), Georgia (J. Page), Florida (T. Pitchford) and North Carolina state representatives each provided detailed overviews of state information pertaining to trap pot fisheries (blue and/or stone crab pot). Presentations focused on highlighting state gear and harvesting regulations, licensing requirements, participation trends, landings amount and value, distinctions between commercial and recreational fisheries and gear practices, derelict gear retrieval programs, and other relevant details.
  - North Carolina Inshore Gillnet fishery - North Carolina State representative R. Munden provided a detailed overview of the state's background and regulations for its inshore gillnet fishery, emphasizing past litigation related to sea turtle takes and the state's development of an observer program as a provision of its receiving an incidental take permit for sea turtles. He noted the state has implemented new restrictions in the large mesh gillnet fishery as stipulated by the terms of a recent Settlement Agreement with the Duke University Environmental Law and Policy Clinic. M. Tork also provided a brief update on NMFS Observer Program activities related to characterizing North Carolina's inshore gillnet fishery, with the focus primarily on the Spanish mackerel gillnet fishery per the BDTRT's 2009 recommendations. Characterizations, he said, took place via both land and water-based surveys using an alternative platform. He, in particular, underscored the challenges of carrying out a traditional water-based observer program of inshore gillnet vessels. These included: small vessel size, difficulty locating vessels on water, fishermen launching from private home docks, small and widely scattered ports, and new observers unfamiliar to vessel operators. Accordingly, he advised the Team that NMFS is considering purchase of an "alternative platform" boat to help monitor fishing by vessels too small to take observers.
- **Research.** The last portion of Day One focused on several research updates. Below is a brief synopsis of each of the three research efforts discussed.
  - Kim Urian with Duke University Marine Lab provided an update on their efforts to distinguish between Southern Migratory and NNCES stocks of bottlenose dolphins during the summer along the Outer Banks using behavior, photo-

identification and the application of an “infestation index” to evaluate *Xenobalanus* prevalence on the dorsal fin. Biopsy samples were also collected for future genetic analyses by NMFS to further aid in differentiating between stocks. Based on the findings to-date, K. Urian suggested that: (1) there are differences in behavior between Southern Migratory stock and NNCES stock animals; (2) photo-identification of both Southern Migratory and NNCES individuals is possible based on matches of biopsied individuals with known ranging patterns; and (3) there are significant differences in the distribution of stocks relative to depth and distance from shore, with the NNCES stock animals likely to be found closer to the beach (about 0.5 km from shore) and in shallower water (about 3 m depth). Work is ongoing to complete photo-identification and conduct a spatial analysis of genetic sampling locations and photo-identification sighting histories.

- K. Urian provided Team members with an interim summary of her ongoing work to identify specific stocks involved in FI strandings and observed takes by matching dorsal fins to images in the Mid-Atlantic Bottlenose Dolphin Catalog (MABDC) – the top priority research identified by the BDTRT in 2009. K. Urian requested dorsal fin images from stranding networks in Virginia, North Carolina, and South Carolina; the images must meet specific standards for quality and distinctiveness to be considered for this study. The computer-assisted matching software, Finscan, is used for comparing images between catalogs. All images received to-date were graded for quality and dorsal fin distinctiveness with 71 images for comparison with the MABDC and 28 processed for use with Finscan. The work is still ongoing, with results expected in late 2013 or early 2014.
- P. Rosel summarized progress in her ongoing efforts developing a genetic assignment test to assign bycaught animals to stock of origin. To-date, researchers have been collecting biopsy samples from known NNCES and Southern Migratory stock animals to serve as baseline data for those stocks. Laboratory efforts are focused on developing about 50 polymorphic microsatellite markers; 31 have been developed and optimized to-date while 19 are still being tested. Team members expressed interest in better understanding the subtlety of genetic markers (how easy/hard to discern); the ability to be specific in stock identification through genetics (not yet; work ongoing). Some members also called for a new effort for the SNCES stock given trends in the stranding data and the critical importance of delineating among stock types.

### ***C. Key Discussion Themes***

The Team spent the bulk of the meeting discussing North Carolina estuarine stock (NNCES and SNCES) interactions with North Carolina gillnet fisheries and bay, sound and estuary stock interactions with trap/pot gear in South Carolina, Georgia, and Florida following additional presentations on Day 2. Deliberations focused both on potential regulatory and non-regulatory measures. Team discussions resulted in a number of consensus recommendations, including management actions and non-regulatory measures (i.e., research priorities, observer coverage,

stranding information, etc). Below is a summary of relevant presentations and the Team's deliberations. The Team's consensus recommendations are provided in Section V below.

### **North Carolina Estuarine Stocks and Gillnet Interactions**

M. Rossman, B. Byrd and S. Horstman provided a detailed look at both the NNCES and SNCES stocks' interactions with commercial gillnets in North Carolina statewide, reviewing bottlenose dolphin FI strandings, fishery landings data, observer coverage rates, recent research results, and potential BDTRP regulatory gaps. The presentations highlighted the following key points:

- Five-year annual averages for FI strandings for both the NNCES and SNCES stocks have held steady from 2007-2011 and 2008-2012, respectively. For both time periods, the mean five-year average was 5.4 for the NNCES stock, which is 68.35% of PBR at 7.9. For the SNCES stock, the mean five-year average for both time periods was 2.8, which is 175% of PBR at 1.6. M. Rossman reiterated that in cases where stock identification is uncertain, strandings are assigned to all possible stocks as a risk-based approach.
- The five-year mean FI strandings in the NNCES stock range track closely with the number of gillnet trips, peaking in the September/October and March/April bi-monthly periods in North Carolina. North Carolina Division of Marine Fisheries (NCDMF) landings data show fish species targeted with small mesh gillnets, such as Spanish mackerel and spot, are the most prominent in times and areas with the most fishery interactions.
- There was one observed take in 2009 just outside (0.10km) the 1-kilometer distance from shore line that denotes the oceanside boundary for the NNCES stock in northern North Carolina. A closer look at the take shows the interaction involved small mesh gillnet gear targeting Spanish mackerel just north of Oregon Inlet. Science Center staff underscored that the 1-kilometer distance from shore, though informed by the best available data, has some uncertainty in regards to how often NNCES stock animals may move beyond this boundary when traveling in and out of inlets and when migrating through coastal waters.
- Based on the one 2009 observed take, the estimated maximum mortality (five-year mean; 2007-2011) for the oceanside range of the NNCES stock is 16.23 animals per year (CV 0.30), which is 205.44% of PBR.
- The five-year mean for FI strandings in the SNCES stock range do not mirror effort in the gillnet fishery, except during September/October. Peak strandings occur in the November/December bi-monthly timeframe, though at only a slightly higher rate compared with those in May/June and September/October.
- Only 7% (n=4) of the 56 fishery interaction strandings in North Carolina between 2007-2011 had attached gillnet gear; 3 of these were in the range of the NNCES and SNCES stocks. The remaining strandings showed evidence of gillnet entanglement on the carcass. In 2012, all 18 fishery interaction strandings showed evidence of gillnet entanglement; no animals stranded with gillnet gear attached.

- For the 3 animals stranded with gillnet gear attached, gear analysis or other reported information indicate:
  - One stranding had 5.5-inch stretched mesh and came from gillnet gear potentially targeting shad in internal state waters;
  - Another stranding had two different pieces of gillnet gear, both measuring 6-inch stretched mesh but one with heavier gauge and the other with lighter gauge. The heavier gauge is consistent with ocean side gillnets fishing for species such as dogfish; the lighter gauge is consistent with inshore gillnets fishing for species such as flounder; and
  - The last stranding had 3-inch stretched mesh gillnet gear targeting spot. This incident was known with certainty, as it was self-reported.
- A review of current BDTRP regulations suggest there are the following potential gaps for gillnet gear:
  - Small mesh in September/October off southern Virginia;
  - Small and medium mesh in March-June and September-October, and large mesh in March-April off northern North Carolina; and
  - Small mesh in March-June and September-December, medium mesh in May-June, and large mesh in March-April off southern North Carolina.

Team members posed numerous clarifying questions on the presentation, but the bulk of the time was spent both in plenary and caucus discussing the ramifications of the findings and considering possible regulatory and non-regulatory measures for NMFS' consideration. Key themes, summarized below, centered on (1) potential BDTRP regulatory measures for small mesh gillnets fishing off North Carolina; (2) challenges associated with small estuarine stocks and stock uncertainty, especially assigning serious injury and mortality to stock; (3) implementation strategy for small mesh gillnet regulations; (4) monitoring challenges; and, (5) research needs.

- **Potential changes in BDTRP regulations.** The Team spent the bulk of its discussion working to identify possible management measures for the small mesh gillnet fishery (oceanside only) to reduce bottlenose dolphin entanglements. Discussions focused on the following potential restrictions: setting small mesh nets (1) certain distances from the shore (i.e., “setbacks”) and/or (2) concentrated around inlets at specific distances. Team members also raised concerns about the large numbers of recreational gillnet fishermen whom fish in the same manner (with small mesh gillnets) from the beach. Fishermen, both BDTRT members and non members not at the table, were consulted by various BDTRT members and NMFS staff throughout the meeting to inform the Team’s deliberations on possible management options and likely impacts.

Team members discussed a variety of potential options that would restrict how far from shore small mesh gillnets are required to fish in specific geographic areas. The intent is to create a corridor, or safe passageway, for estuarine stocks along the beach that are known to spend significant time in the surf zone. A number of ideas centered around a

beach setback, with options discussed ranging from a minimum of 100 to 500 yards from the beach sand at any tide. A second set of options focused more narrowly on restricting fishing at/around inlet openings (distances ranged from fairly narrow setbacks to up to 1 mile) to create a “highway” through the inlet. A third idea sought to combine both beach and inlet opening setbacks. There was also a brief discussion of possible attendance/time requirements. As for location, recommendations ranged from statewide oceanside requirements (with or without exemptions) to more narrowly focused efforts around the oceanside of Pamlico Sound. The options generated the following comments and considerations:

- A 1-mile setback from inlet openings was said to be highly problematic for the Spanish mackerel fishery, as it would crowd fishermen into too limited a space.
  - Beach setbacks for the Spanish mackerel fishery, while cumbersome, could be workable if the distance from shore were not too great (i.e., no more than 100-300 yards, according to several fishery representatives) and much more acceptable than closures around inlets.
  - Beach setbacks were said to be highly problematic for the spot fishery in the southern portion of the state, given that fisheries need to set up onto the beach because the water is so shallow. Given the challenge, several Team members proposed exempting the spot fishery in specific geographic areas. If an exemption were considered, some members said it needed to be as specific as possible given the history of fishery interactions with the spot fishery in southern North Carolina and the small PBR for the SNCES stock.
  - Any beach setback for small mesh gillnets should be considered to be a minimum, and industry should be encouraged to provide as wide a berth as possible between the beach and their nets for dolphin conservation. Efforts should also be made to ensure the fishery clearly understands the scientific and conservation rationale for any setback.
  - Attendance/time requirements were considered unworkable given (1) the inability to effectively enforce measures without a constant presence; and (2) the short time required for an entangled dolphin to suffocate.
  - Any beach setback needs a clear working definition of “shore” both to ensure there is sufficient passageway for dolphins and flexibility for fishermen who need to deal with shifting tide lines. Several options were considered, with the Team eventually settling on “leave xxx yards of water at any tide” as the clearest way to communicate intent.
  - Setbacks from the beach would be for all small mesh gillnets except run-around, stop nets, strike nets or drop nets.
- ***Challenges given small estuarine stocks and stock uncertainty.*** In its discussion of possible management actions, Team members considered how best to account for the challenges associated with small stocks and stock uncertainty. During early discussions, several participants cautioned against being overly precautionary in recommending potential management measures given (1) the uncertainty in stock assignment; (2) the extremely small PBR in the SNCES stock; and (3) the reliance on a single observed take causing serious injury and mortality estimate to exceed PBR for the NNCES stock,

especially given stock assignment uncertainty. Several fishery participants, in particular, also underscored the need to weigh harmful impacts to fishermen and local economies associated with severe fishing restrictions, and they urged the Team to be targeted in its recommendations. Other Team members acknowledged the challenges in working with stocks with low PBRs and assignment uncertainty, but they said an abundance of caution is needed to ensure bottlenose dolphin stocks are maintained at viable levels. They also noted that, for the NNCES stock, concerns about takes relative to PBR were driven not only by the observed take but also by the high number of strandings. This was also later noted for the SNCES stock based on the animal that was taken in the spot gillnet fishery and other strandings with signs of fishery interactions during peak times of small mesh gillnet fishing. All Team members agreed that more research is needed to improve scientists' ability to more reliably assign observed takes and strandings to specific stocks. (See below for more discussion on research needs.)

- ***Small mesh gillnet regulatory implementation considerations.*** Team deliberations surfaced a number of implementation considerations, from strategies to foster quick adoption of any proposed regulatory changes to the mechanics of managing any exempted areas. Below is a quick synopsis of these issues.
  - Given the time required for the federal rulemaking process (and consistent with the approach used successfully several years prior with the Virginia Marine Resources Commission related to pound net fishery regulation modifications), Team members broadly supported immediate implementation on any proposed fishery regulations via the NCDMF proclamation process (including standard exemption language for strike nets). Team members also recommended NMFS pursue its rulemaking process concurrently to ensure a federal backstop is in place. R. Munden noted that a recommendation from the Team confirming a unanimous recommendation for a NCDMF proclamation would be helpful.
  - Spot fishery exemptions, if incorporated, need to be removed and required to fish the setback from the beach if and when there is a bottlenose dolphin “take” in the exempted areas. Team members interpreted a take as a reported, observed, and/or stranding with strong evidence of gillnet interaction. The Team also sought notification of any such take. Any exemption should be limited in duration (2-3 years), with follow-on measures to be determined based on the best available data at that time. There was limited discussion of a condition of the exemption to require carrying observers, but the option was not considered to be viable.
  - The team noted that the impact of recreational gillnet gear needs to be addressed, given the commercial-like gear used by recreational fishermen and the relative inexperience of many of those fishing. Although NOAA cannot address recreational gear under the take reduction plan process, members noted they can still make a recommendation to NCDMF about the concerns and potential remedies.

- **Monitoring gaps highlighted.** Team deliberations highlighted several needs associated with monitoring and the current observer programs at the state and federal levels. Among the concerns raised included the following: (1) the lack of an effective alternative platform makes it difficult to observe the fishery and heightens the emphasis on stranding data; (2) North Carolina and federal fishery data are not systematically integrated, making it more difficult to discern important fishery and bycatch trends; (3) federal and state funding constraints make it difficult to expand current observer coverage levels; and, (4) frequent staff turnover and the lack of an in-state presence in the federal Observer Program undermine the effectiveness of the program. Team members broadly agreed on the need to harmonize state and federal data (while acknowledging that creating a fully unified dataset was extremely challenging), establish a permanent alternate Observer Program platform and North Carolina-based NEFOP office, and prioritize coverage for several specific fisheries. (See consensus approach highlighted below for greater detail.)
- **Research needs.** Discussions highlighted broad team support for a handful of critical research recommendations focused primarily on better delineating estuarine stocks in North Carolina. This was considered to be the Team's highest research priority and continues the work identified at the Team's 2009 meeting. More specifics on this item are summarized in the section immediately below and in the BDTRP Research Priorities section.

Based on its deliberation of these various factors, the Team reached full consensus on a set of regulatory and non-regulatory measures intended to reduce North Carolina estuarine stock interactions with the North Carolina gillnet fishery. (See Section V below for the Team's consensus recommendations.) Research recommendations are also described in greater detail below.

### **Bay, Sound and Estuary Stocks Interactions with Trap/Pot Fisheries**

S. Horstman first provided a detailed look at bay, sound and estuary (BSE) stock interactions with trap/pot gear to provide context for Team deliberations. NMFS also summarized current BDTRP conservation measures, reviewed recent research results, and highlighted challenges and points for discussion on potential gaps. NMFS's upfront briefing highlighted the following points:

- Trap/pot fisheries (Atlantic blue crab trap/pot and stone crab trap/pot) are the two Category II fisheries that interact the most with BSE stocks, with 29 total confirmed and unconfirmed entanglements over the last five years, and 76% of the entanglements confirmed to the commercial blue crab fishery.
- The majority of BSE stocks do not have current abundance estimates, PBRs or both. There is no fishery observer program for trap/pot fisheries, so NMFS relies on stranding data, opportunistic at-sea observations, gear analysis and serious injury determinations to understand the extent and nature of trap/pot fishery interactions with BSE stocks.
- The most significant possible trap/pot entanglements appear to be with the Charleston Estuarine System, Northern Georgia/Southern South Carolina Estuarine System,

Jacksonville Estuarine System and Indian River Lagoon Estuarine System stocks. For these stocks, SI&M interactions range between 12-47% of PBR (five-year average; 2007-2011 and 2008-2012). Such figures are of concern to NMFS given that these are minimum counts (i.e. not estimated because stranding data) and occur in BSE stocks with smaller population sizes than coastal stocks.

- Detailed information on trap/pot interactions within the four BSE stocks above were reviewed to provide information on where, when, how many, and the nature of the entanglement and gear characteristics. Based on NMFS' review of stranding data, there are 1-2 animals per year consistently entangled in trap/pot gear. Dolphins appear to be getting entangled primarily around the fluke/fluke insertion. The seasonality of entanglements within the BSE stocks may vary but is still largely unknown. In the Jacksonville Estuarine System stock, one commercial fisherman has entangled four different dolphins in the last few years. In the Indian River Lagoon Estuarine System stock, one commercial blue crab fisherman has also entangled two different dolphins in the past few years.

Based on the presentation, the Team considered the need for new regulatory and/or non-regulatory measures. Key discussion themes, summarized below, focused on: (1) exploring potential regulatory measures to reduce dolphin interactions with trap/pot gear in BSE stocks; (2) developing best practices and conducting educational trainings; (3) researching gear modifications with potential to reduce dolphin interactions with trap/pot gear; and (4) better understanding local fishing conditions and practices.

- ***Range of regulatory measures considered.*** Team members considered but opted not to recommend a number of possible regulatory measures. Specific ideas considered included: (1) requiring gear marking on traps and line, in addition to buoys (already mandated in Florida, Georgia and South Carolina), to distinguish commercial from recreational gear; (2) requiring that *all* trap/pot fishermen be certified to ensure they are aware of best practices necessary to avoid entangling bottlenose dolphin; (3) prohibiting bait dumping at-sea by trap/pot fishermen to avoid further attracting dolphins to their boats; (4) requiring stiffer/thicker line and considering rope length requirements; and/or (5) requiring bait well modifications to make the bait less accessible to bottlenose dolphins. The ideas, while supported by some, did not generate consensus support. Some were seen by others as either not needed, unduly burdensome, too broadly framed, requiring additional research on fishability of gear modifications, or lacking sufficient support. In several cases, some Team members suggested additional research is needed prior to the imposition of new regulatory measures. There were also concerns about requiring a one-size-fits-all approach when fishing practices and environmental conditions vary from location to location. A training for new commercial trap/pot fishermen was the only regulatory measures supported and is described below. In response to S. Horstman seeking Team feedback on at what point regulatory measures are needed given the minimum interactions documented in BSE stocks and their percent of PBR, the Team recommended that ZMRG could be used as the trigger as to whether management measures are needed because anything above ZMRG requires action.

- ***Disseminating information on best practices seen as key.*** Team members broadly supported the need for greater education and outreach to ensure that fishermen are aware of and using best practices that diminish the likelihood of entanglements (e.g., minimizing extra line by fitting line to depth and conditions). Team members agreed that such training should be mandatory for first-time commercial trap/pot fishermen, but there was only mixed support for making such training required for more experienced trap/pot fishermen. Rather, Team members said, information on such practices should be disseminated when experienced fishermen renew their licenses. In considering education and outreach needs, the Team’s discussion generated the following additional points:
  - Focus trainings on: stating the problem and possible solutions; being best practice-centric; and providing recent research results.
  - Incorporate education, as possible into existing state programs and initiatives when implementing best practices training; focus on awareness more than a one-size-fits-all “how to” as local practices may need to vary given local conditions.
  - Work with states to educate recreational trap/pot fishermen given the MMPA commercial-centric focus.
  - Have NMFS prepare training materials for use by all states to foster consistent sharing of best practices. NMFS development of these materials should be informed by a BDTRT work team. (See Next Steps section below for a listing of Team members who offered to serve on the work team.)
  - Wherever possible, identify strategies that incentivize fishermen to employ best practices; consider using fishermen to help “market” those practices that reduce the likelihood of interactions. Best practices should also be discussed and informed by the work team.
  - Where gaps in local practice are identified, find opportunities (derby days, partnerships with local sponsors, etc.) to educate the fishing community (both commercial and recreational)
  
- ***Gear modifications explored but more research/information needed.*** Team members brainstormed a number of potential gear modifications to reduce bottlenose dolphin entanglements. These ideas, while not considered “ripe” for implementation at this time, included: shifting to a stiffer and/or thicker line (i.e., Esterpro), minimizing line lengths, modifying bait wells and changing bait used. Team members broadly recommended NMFS target future research to better understand the impact of specific gear modifications (i.e. stiffer line) on fishing practices, viability (for example, the extent to which line quality impacts cost to fishermen and potentially slows work), and applicability in all geographic areas. Research results would then be used to inform subsequent Team discussions regarding possible regulatory and non-regulatory measures; some Team members recommended that the research be conducted within the next 1-2 years. As well, to the extent NMFS pursues gear modification, some Team members recommended that changes be phased in over time to minimize the cost and impact to fishermen. Another Team member recommended NMFS review literature for what has been done to mitigate manatee/right whale entanglements, as well as talk with gear manufacturers.

- ***Deepening understanding of local conditions and practices.*** Before imposing new gear modifications, industry Team members underscored the imperative to understand local and environmental fishing conditions, as well as fishing practices, to ensure any potential proposed measures are relevant and likely to generate meaningful conservation benefits to dolphins. In addition to research on potential gear modifications, this was seen by several Team members as an essential precursor to additional regulatory requirements. To that end, the Team broadly recommended: (1) understanding local fishing conditions and practices; and (2) then identifying potential best practices and gear modifications to minimize interactions and account for local practices and needs.

The Team's discussions led to a series of consensus-supported management measures and research recommendations, both of which are summarized in Section V below.

### **BDTRP Research Priorities**

The Team spent a portion of the afternoon on Day Three taking stock of research needs identified over the course of the meeting and identifying top priorities. Key discussion points and consensus guidance from the Team are summarized below.

- Research focused on gillnet fishery interactions with bottlenose dolphin should, in general, take precedence over research focused on trap/pot interactions with bay, sound and estuary stocks.
- For bottlenose dolphin stocks overlapping off North Carolina, Team members were particularly focused on research that can help facilitate improved stock delineation and identify genetic distinctions, especially to help assign serious injury and mortality to stock, particularly with those stocks above PBR.
- Team members noted that research focused on trap/pot fisheries – and, in particular, work focused on stiff line, bait wells, and other fishing practices that can reduce entanglement – will benefit other BSE and coastal stocks of dolphins throughout the southeast region for which trap pot interactions are occurring.
- Several Team members underscored the importance of NMFS identifying resources to continue funding the stranding program given lack of future Prescott funding and stranding data's critical importance to the BDTRP and. Team members agreed to draft a letter – independent of the TRT process and Agency staff – calling for reinstatement of Prescott funding to continue support of the stranding program. B. Lowell is to take the lead on this task.
- The top priorities related to gillnet fishery interactions are as follows (listed in order of descending importance; first two items are considered to be of equal importance):
  - ***Priority 1A:*** Mine MABDC catalog to refine the understanding of the NNCES, SNCES, Southern Migratory and Northern Migratory stock distribution based on recent enhancement of catalog to increase power. This research is considered

essential as it will allow for prioritizing ongoing efforts to distinguish estuarine stocks from one another and coastal stocks. This will also help prioritize and focus biopsy-sampling needs and assign serious injury and mortality to stock.

- **Priority 1B:** Collate biopsy samples already collected from the SNCES stock to help refine areas in which additional sample collection is needed. This is considered a top priority as it will enable expanded efforts to biopsy samples from SNCES to enhance stock differentiation.
  - **Priority 2:** Conduct additional surveys and biopsy collection to better understand the range and boundaries of the SNCES stock and update abundance estimate, with a particular focus on the boundaries of the SNCES stock. This is considered a high priority since, within two years, the abundance estimate and PBR will be outdated.
  - **Priority 3:** Stratify stranding data by distance from inlets in North Carolina. This is seen to be important as it may provide insights into future management efforts needed to minimize gillnet interactions with bottlenose dolphin estuarine stocks as they move readily in/out of the inlets.
- The top priorities related to trap/pot interactions are as follows (listed in order of descending importance):
    - **Priority 1.** Conduct research on stiff line (e.g., Esterpro), line lengths, and bait wells in various regions (South Carolina, Georgia and Florida) to assess its fishability and assess impacts on gear performance, cost, etc. and in various environmental conditions. In designing this research, consider the opportunity to conduct studies using captive bottlenose dolphins.
    - **Priority 2.** Conduct research to better understand where bottlenose dolphins get entangled in gear. Such research should look to assess where on the line in relation to buoy or trap animals are entangled. Requires more and better documentation of nature of entanglement in stranding data.
    - **Priority 3.** Better understand trap/pot gear use and performance in different regions of South Carolina, Georgia and Florida to identify potential best practices and gear modifications to minimize interactions and account for local practices and needs. This has three separate facets:
      - Characterize gear being used to deal with local conditions (i.e. water depth, tidal changes, currents, etc.), bait wells, cords, line type, any gear modifications, etc.
      - Assess performance of potential gear modifications used in local areas and relative to dolphin entanglements (e.g., fishing practices used to deal with local conditions and/or reduced risk of entanglements)
      - Identify recommendations for subsequent Team consideration

- **Priority 4.** Determine if alternative baits (e.g, chicken instead of fish) are less attractive to dolphins and are likely to reduce the likelihood of entanglements.

## **V. BDTRT CONSENSUS RECOMMENDATIONS**

Based on its deliberations, the Team unanimously agreed to a number of consensus recommendations – both regulatory and non-regulatory. One set of consensus recommendations focused on North Carolina estuarine stock and gillnet interactions; the second on bays, sounds and estuarine stock interactions with trap/pot gear. Both sets of recommendations also incorporated Team consensus advice regarding research priorities. The Team’s consensus advice is provided on the following pages.

**BDTRT Consensus Recommendations**  
**North Carolina Estuarine Stocks and Gillnet Interactions**  
*(as confirmed by Team at June 2013 TRT meeting)*

**Regulatory Measures**

- State-wide (oceanside state waters) and year-round for small mesh gillnets ( $\leq 5$  inch stretched as defined in BDTRP): 100 yard setback to leave shoreside corridor to allow for dolphin passage, except from Bogue Inlet to Cape Lookout and Carolina Beach Inlet to NC/SC border (to be closed via NCDMF proclamation). If there is a take in these areas exempted from 100 yard setback, NCDMF will consult with NMFS, and NCDMF will require small mesh gillnets to follow 100 yard setback via proclamation. NMFS will notify the BDTRT of the take and removal of exemption. Take is interpreted as reported, observed, and/or a stranding with strong evidence of gillnet interaction.
  - 100-yard setback from beach sand (intent: leave 100 yards of water at any tide)
    - 100 yards seen as minimum; provide wider corridor as possible
    - Recommend NCDMF to extend this 100 yd setback requirement to recreational gillnets
  - TRT recommend immediate implementation through NCDMF proclamation
    - Include NCDMF standard exemption language for strike nets<sup>2</sup>
  - Include preamble to highlight intent
  - Intent is to have follow-on regulation at federal level under BDTRP, as well
  - Temporary exemption, as described above, is for 3 years to allow for potential economic impact and conservation efficacy of the 100-yard setback to be assessed (via stranding and observer data). Follow-on measures are to be determined after 3 years.

**Non-Regulatory Measures**

- Strengthen Observer Program data collection
  - NMFS observer program, prioritize observer coverage allocation in:
    - Spanish mackerel during the summer for the NNCES stock in Northern NC
    - Spot fishery in the winter in southern NC during “exempted” areas (identified in regulatory measures)
    - Spanish mackerel fishery in Pamlico Sound during spring and summer
  - Harmonize state and federal Observer Program data collection and reporting
  - Fund alternative platform; make permanent
  - Establish NEFOP office in North Carolina

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<sup>2</sup> The Team’s consensus recommendations included language about strike nets only. However, the earlier discussion included references to strike nets, drop nets, runaround nets and stop nets, as well.

- Provide dedicated funding to support stranding network based on the importance of strandings to the BDTRT in understanding extent of fishery interactions
- Recreational related:
  - Provide recommendation to North Carolina DMF to address impacts from recreational fishers using gillnet gear
- Undertake research to better understand estuarine stock (in order of priority – first two are equal priority):
  1. Mine MABDC catalog to refine the understanding of the NNCES, SNCES, SM, and NM stock distribution based on recent enhancement of catalog to increase power. Allows for prioritizing ongoing efforts to distinguish estuarine stocks from one another and coastal stocks. This will also help prioritize and focus biopsy sampling needs and assign serious injury and mortality to stock.
  1. Collate biopsy samples already conducted for the SNCES stock to help refine areas in which additional sample collection is needed.
    - Allows for expanding efforts to biopsy samples from SNCES to enhance stock differentiation.
  2. Conduct additional surveys and biopsy collection to better understand the range and boundaries of the SNCES stock and update abundance estimate, with particular focus on the boundaries of the SNCES stock. In two years, the abundance estimate and PBR will be outdated.
  3. Stratify stranding data by distance from inlets in NC

**BDTRT Consensus Recommendations**  
**Bay, Sound and Estuary Stocks Interactions with Trap/Pot Fisheries**  
*(as confirmed by Team at June 2013 TRT meeting)*

**Regulatory:**

- Potential mandatory education for first-time trap/pot commercial fishermen
  - Focused on best practices
  - Implemented by state partners or via MMAP
  - Details on feasibility/approach to be developed through Work Group

**Non-Regulatory:**

- Education/Outreach for experienced commercial fishermen
  - Focused on best practices; recent research results; statement of problem and possible remedies
  - Implemented by state partners with consistent material (potential pamphlet or similar tool) to be developed and provided by NMFS
  - Details to be fleshed out through Work Group
  
- Focused research for trap pot research (In order of priority, but secondary to NC gillnet research). These research efforts will benefit other BSE and coastal stocks of dolphins throughout the southeast region for which trap pot interactions are occurring.
  - Research stiff line (e.g., Esterpro), line lengths, and bait wells in various regions (SC, GA, and FL)
    - Assess fishability of using stiff line and any impacts on gear performance, cost, etc and in various environmental conditions
    - Consider studies using captive bottlenose dolphins
  - Better understanding where bottlenose dolphins get entangled in gear
    - Where on the line in relation to buoy or trap are animals entangled
      - Requires more and better documentation of nature of entanglement in stranding data??
  - Better understand gear use and performance in different regions of SC, GA, and FL
    - Characterize gear being used to deal with local conditions (i.e. water depth, tidal changes, currents, etc.); includes looking at bait wells, cords, etc.
    - Assess performance of potential gear modifications used in local areas and relative to dolphin entanglements
      - Fishing practices used to deal with local conditions and/or reduced risk of entanglements
    - Identify recommendations for Team consideration

- Determine if alternative baits (e.g, chicken instead of fish) are less attractive to dolphins
- Follow-on Team meeting or webinar to review research results (with regard to stiff line and bait wells) and assess implications for additional regulatory and non-regulatory measures

**Other Issues:**

- ZMRG could be formalized as the standard for whether regulatory measures are needed because anything above ZMRG requires action.

## VI. DRAFT BDTRP MONITORING PLAN

S. Horstman provided an overview of a draft Monitoring Strategy prepared by the Southeast Region to guide its tracking of BDTRP compliance and effectiveness. The strategy, which was required as part of an earlier Government Accountability Office review of TRT programs nationwide, has two primary purposes: (1) to evaluate and assess the overall effectiveness of the BDTRP in meeting MMPA-mandated goals; and (2) to track trends in BDTRP implementation, both identifying areas of success and flagging emerging issues and concerns. S. Horstman noted that the Monitoring Strategy is challenging given the large geographic area and number of fisheries and bottlenose dolphin stocks covered, as well as the limited data on stocks, the spatial and temporal overlap of stocks, the small stock size, and the limited to no observer coverage.

Several points of discussion and questions on the draft Monitoring Plan were posed to Team members. There seemed to be general agreement on approach, with no specific comments provided at the meeting. S. Horstman encouraged Team members to review the Monitoring Strategy following the meeting and forward any comments and suggestions to her by July 1.

## VII. OTHER AGENDA ITEMS AND PUBLIC COMMENT

Several other items were discussed during the Team meeting. Opportunities for public comment were also provided on each of the three days. Below is a synopsis of these issues and comments.

- ***VMRC Exemption Request.*** The Team considered but did not support an exemption request submitted by the Virginia Marine Resource Commission. The request – initially submitted and considered at the Harbor Porpoise Take Reduction Team’s May meeting – asked that the boundary of the Harbor Porpoise Take Reduction Plan’s Southern Mid-Atlantic Management Area be adjusted eastward from the Chesapeake Bay Bridge Tunnel to the COLREGS line to alleviate the burden on the state’s large mesh gillnet striped bass fishery. Several Team members were opposed to the request, stating it would increase risk to marine mammals.
- ***Virginia Pound Net Enforcement.*** K. Heath raised concerns that some fishermen are leaving pound net gear in the water off-season and recommended that the Team consider regulatory action to address the situation. After a brief discussion, L. Gillingham confirmed that Virginia state regulations are already in place to address de-installation for pound net gear. NMFS will inquire as to whether the Agency can work within its Joint Enforcement Agreement with VMRC to further enforce “derelict” gear. The Team opted not to put forward any regulatory recommendations.
- ***Public Comment.*** Sarah McDonald, a doctoral student at Duke University doing research into the national Take Reduction Program, encouraged Team members to complete the survey distributed to all current and past TRT members. There were no other public comments.

## VIII. NEXT STEPS

Based on the discussions, the meeting generated the following next steps:

- **Best Practices/Training Work Group.** Consistent with the discussion regarding bay, sound and estuary stock interactions with the trap/pot fisheries, NMFS is to convene a Work Group within the next six to eight weeks to: (1) help develop strategies for improving outreach; (2) identifying best practice education for participants in trap/pot fishery; and (3) further implement Team's recommendations. Work Group members are to include the following: R. King, J. Hull, C. Vail, D. Laist, T. Pitchford, D. Cain, J. Page and Wayne McFee.
- **Monitoring Strategy.** Team members are to review and provide feedback by July 1 to S. Horstman on the draft BDTRP Monitoring Strategy distributed and discussed at the June meeting.
- **Virginia Pound Net Enforcement.** NMFS will work with VMRC (through its Joint Enforcement Agreement) to identify any additional efforts needed regarding enforcement of Virginia pound nets, with a particular focus on abandoned gear.
- **Stranding Program Support.** B. Lowell is to draft a letter for Team members' individual signatures calling for continued funding of the stranding program. This effort is to be conducted independent of the TRT process and without the support or involvement of NMFS staff or consultants.
- **Key Outcomes Memorandum.** CONCUR is to distribute for Team comment and review a Key Outcomes Memorandum summarizing primary discussion points, consensus actions and next steps.
- **Meeting Materials.** CONCUR is to work with NMFS to post all meeting materials and presentations on the Team website at:  
<http://concurinc.com/wp/bottlenose-dolphin-take-reduction-team/>
- **Future Team Meetings.** NMFS will hold a BDTRT webinar within the next year to provide updates on any TRP-related actions and rulemaking. As well, NMFS staff will provide written updates, as needed, on the Virginia Pound Net rule and other actions.

Questions or comments regarding this meeting summary should be directed to S. McCreary, B. Brooks or S. Horstman. S. McCreary and B. Brooks can be reached at 510-649-8008 and 212-678-0078, respectively; S. Horstman at 727-824-5312.