Sustainable Fisheries Goal Implementation Team
Meeting Summary
December 19 – 20th Workshop
Crowne Plaza Hotel Old Town Alexandria

Executive Summary

The December 2011 Fisheries Goal Implementation Team (GIT) meeting was convened in Alexandria, VA to bring together a broad set of stakeholders to hear about the work of the Fisheries GIT and to develop ways to move all goals forward. The first day began with a field trip to the Alexandria Sanitation Authority that highlighted the increasing stressors land use practices are having on available resources.

The meeting then convened at the Crowne Plaza Hotel to review progress that had been made by GIT groups since the last meeting. Oyster metrics were discussed and the policy adoption statement was signed, putting the metrics in practice. For the first time in the Chesapeake Bay the oyster restoration performance metrics set criteria for evaluating success of oyster restoration projects at both tributary and reef spatial scales. The metrics will be used to track progress toward the executive Order 13508 goal to restore oysters in 20 tributaries by 2025 and may be considered as a model for evaluating restoration success nationally.

The agenda moved onto that status of Blue Crabs. The Chesapeake Bay Stock Assessment Committee 2011 Advisory Report recommendations to establish a new adult, female-specific, blue crab abundance target for the bay were presented. The new target will help maintain a sustainable stock of blue crabs and ensure a robust harvest over the long term. There was also broad agreement that a clear male reference threshold is needed in order to trigger conservation mechanisms in the future.

To close out the first day, the group expressed agreement that the Sustainable Fisheries GIT should support basic fishery science for the Bay and market the importance of Bay restoration as central to the vitality of the entire East Coast. Emphasis was placed on the importance of cooperation between GIT groups in order to maximize benefits to all. Collaboration will allow for the scaling up of efforts and the pooling of resources towards addressing targeted priorities.

The primary objectives of the second day of the meeting centered on making the connections between land use decisions and water quality as it relates to health and management of fisheries. Everything that happens on land affects the water. Even though there is no regulatory mechanism for fisheries to influence land use decisions, GIT members have an obligation to get involved with these decisions. Suggestions included the creation of citizen groups to bring these issues up in targeted localities, as well as giving fishermen the scientific information that, in combination with their personal stories, might persuade representatives to take action. A member suggested that the process of formulating local Comprehensive Plans, which entails high levels of public input, might serve as ideal opportunities for GIT members to become involved in the education of decision makers. It would be especially advantageous for GIT members to interface with localities about the issue of long term plans for water resources.

Members pointed to a need to inform citizens about how to get involved in the decision-making process. As with other audience groups, citizens need to be equipped with the right tools to affect the decisions being made. The GITs need people "on the ground" who can provide information about what is happening—both "good" and "bad"—at the local level. Simple opportunities to influence decisions are being missed. In the absence of citizen pressure, local officials hesitate to implement new or different ideas.

The meeting participants as well as any members of the public were then divided into three groups to work together to identify potential actions stakeholders, managers, and planners can take to improve fisheries management in relation to land use planning. Three stations were set up around specific topics and the three groups rotated to each section for discussion.

Group 1 identified opportunities and ideas for cross-collaboration among the GITs. There were several main themes that the group developed, including ramifications and opportunities of the TMDL process, a strategy of "following the funding," watershed auditing using the "Past, Present, Future" Model, research producing simple models that can cut across the GITs, understanding how much existing cross-collaboration there is currently, and a need for basic outreach on the GIT process.

Group 2 considered critical areas that could be targeted for protection and/or restoration to address land use and fisheries issues, as well as criteria for identifying these areas. Some of the main points discussed were using TMDLs and WIPs as a targeting tool, developing specific case studies such as the Pocomoke and Baltimore County, and using the case studies areas as communication tools/strategies to engage other potential sites, build community support and influence decision makers.

Group 3 focused on strategies and tools to assist stakeholders in understanding the connection among land use activities and decisions, the Chesapeake Bay ecosystem and a sustainable fishery.

December 19th – Day One

The Chesapeake Bay Program Sustainable Fisheries Goal Implementation Team (Fisheries GIT), chaired by the NOAA Chesapeake Bay Office, is composed of the state fisheries managers from around the Bay as well as a diverse group of stakeholders and scientists to improve management and recovery of fishery resources with emphasis on oysters, blue crab, menhaden, striped bass, and alosines. It focuses on advancing ecosystem-based fisheries management by using science to make informed fishery management decisions that cross state boundaries.

This meeting was convened to bring together the full Fisheries GIT and the other Chesapeake Bay Program Habitat, Water Quality, Healthy Watersheds, and Stewardship GITs for a larger discussion about what each group has been working on and ways to move all goals forward. The Sustainable Fisheries GIT chair, Peyton Robertson, opened the meeting by expressing gratitude for participation of all attending GIT members, especially with the meeting being held so close to the holidays. In addition to GIT members, the meeting was also open to the public and a public comment period was provided each day. Peyton provided an overview of the meeting agenda and expressed the desire of the executive committee to achieve real tangible results from this meeting. A field trip was taken in the morning before the meeting to the Alexandria Sanitation Authority; the highlights of the trip were briefly described as it relates to fishery issues.

Frank Dukes of the Institute for Environmental Negotiation, University of Virginia, facilitated the meeting. In his introduction he stated that his goal would be for no one to leave the meeting and workshop having held back any comment or question they wanted to express. He then asked for a round of introductions and laid down the ground rules for the meeting/workshop.

Progress Since Last Meeting Discussion

The meeting then shifted to presentations on the progress made by the Sustainable Fisheries GIT ad hoc groups charged with tackling specific topics since the June, 2011 meeting. The first presentation was given by Stephanie Westby of NOAA regarding Oyster Metrics and Adoption, then Lynn Fegley of MD DNR discussed the Blue Crab Advisory Report, and finally Tom O'Connell of MD DNR and Howard Townsend of NOAA discussed progress toward Invasive Catfish modeling and policy.

The following is a summary of GIT member-expressed comments regarding each topic.

<u>Oyster Metrics & Adoption</u>

- A member expressed the desire to use these metrics in all sanctuaries; metrics would be used as a tool to develop the minimum accepted criteria required in order for an area to be viewed as "restored."
- Comments emphasized the importance of knowing when a restoration is complete, which might involve defining variables such as how many individual reefs comprise an area, how many oysters are observed in an area, how long oysters remain in the area, and what ecosystem services are being offered by an area (the latter example being the most difficult but the most important to gauge).
- A member proposed a time span of six years of functional life as a criterion for determining a restored reef habitat.

- The group recommended that several documents be developed or compiled to inform oyster restoration: a map of currently restorable areas, including areas that were previously healthy habitats but have declined as well as information about possible reasons for this transformation; and a map identifying areas with the highest potential for restoration which would aid the efficient channeling of limited funding to the sites with the greatest potential for remediation.
- Members cited two existing documents as good resources for stakeholders: the Army Corps of Engineers Master Plan for the Bay and the Oyster Atlas.
- The amount of currently functioning acreage is an important point of reference that is currently being studied as part of a forthcoming survey. A stock assessment in targeted tributaries is also part of the survey, and the results will hopefully improve upon poor quality of previous assessment data, widely seen as unreliable.
- Concern was expressed about commercial interests being privileged to the detriment of public recreational access. In response, it was stated that the resources have been so depleted in the last 50 years that substantial restoration will be necessary before any harvesting on a commercial scale can be allowed.
- Participants also raised the issues of poaching and of restoring areas to include structural restrictions to harvesting, but these were not discussed in detail. A participant did note that poaching is taken very seriously by officials in Maryland, with increasing penalties, both regulatory and monetary, in recent years.
- Another question raised was how to finance projects. The GIT Executive Committee commented that particular projects could be used to demonstrate success, thereby making a case for attracting additional funding in the future. For example, by focusing on particular tributaries the GIT might demonstrate quantifiable improvements that "make the case" for additional investment. It was, however, pointed out that considerable funding is required in order to produce the data needed to demonstrate success. For example, the cost of purchasing shell for an oyster restoration project can be up to $5 million

<u>Blue Crab</u>

- The main topic of discussion on the Blue Crab Advisory Report involved the absence of a male reference point. Some concern was expressed at the lack of this metric and the consequent reality that the stock will be managed without the reference point. Some members pointed out that the population is being monitored with other available metrics; in other words, management is not "flying blind." There was broad agreement, however, that a clear male reference threshold is needed in order to trigger conservation mechanisms in the future. For the near term, the Advisory Report recommends the use of an operational sex ratio for male crabs. The report also suggests convening a workshop in 2012 to address the development of male reference points.
- Members discussed the lack of enforcement measures designed to counter over-fishing of the Blue Crab population. A participant suggested that a better monitoring system, with the involvement of commercial fishing operations, would help with enforcement. In particular, it was recommended that commercial fisheries be given better information about methods to stay within set limits.
- It is important to alert commercial fisheries about changing expectations on a year-to-year basis. A participant pointed out that a pilot program is currently underway in which

fishing businesses are asked to declare the amount they intend to fish when they obtain their licenses, as well as to purchase tags for their fishing gear (buoys or nets). As expected, initial reactions have been negative but enforcers feel that actions must be developed to dissuade and confront violators of threshold limits.

Blue Catfish

- A member argued that the best way to reduce the population of Blue Catfish is to reduce the nutrient levels in the Chesapeake Bay. Nutrient reduction makes the environment less hospitable to the species. This issue directly relates to land use decisions.
- A member pointed out that the Bay is not the only area in the US where this species has been identified as invasive. Control strategies deployed in other states such as Georgia could be used to create policies here.
- The species has migrated all the way to the mouth of tributaries, a pattern that results in problems for fishermen who find that Blue Catfish occupy net space that is needed for other species (especially striped bass). Although this has been happening in Virginia for years, the last season is the first in Maryland in which this phenomenon has been noted.
- There is already literature suggesting negative impacts are likely in the Bay if this issue is not addressed.
- One member suggested that there is sufficient research on Blue Catfish and on invasive species to allow for control of the population. Additional financial resources should not be spent on additional research at the expense of money being funneled to other critical projects (like determining a male reference point for Blue Crab). If the GIT determines that action should be taken now, then this information needs to be brought to the attention of higher authorities.
- In response, a GIT Executive Committee member noted that NOAA recognizes the issue and is moving towards action but has determined that more research is needed to fill critical gaps before any decisions or actions are made.
- The goal of action on this issue seems to be on track to be achieved. Common ground must be reached within the VDGIF and the Executive Committee to finalize the invasive catfish policy statement.

Public Comment Discussions:
The two-day GIT meetings accommodated public observers and included periods for public comment during each day. On Day One, the only public comment centered on the importance of marrying land use policies with sustainable fishery management. According to the commenter, land use policies are largely perceived as being political in nature and are relegated to local authorities who typically do not see the connection to fisheries. They are unaware of the work that is being accomplished at these GIT meetings. Political will needs to be built via alliances formed with decision makers at the local level.

Next Set of Fisheries GIT Priorities:
The meeting then moved to a forum that allowed members to take time to brainstorm and discuss the next big topics on which the Fisheries GIT should focus. In relation to Oyster tributary restoration (particularly the 50-100% restoration goal), members made the following points:

- The GIT needs to consider funding, substrate, and three-dimensionality. The latter two issues can lead to user conflict.

- The GIT should be in a position to develop multi-jurisdictional policy for oyster management and aquaculture (this would require involving the Coast Guard) to assist localities in dealing with user conflict and other hurdles. In essence, there is a need for policy consistency across jurisdictions.
- The GIT Executive Committee responded with four possible ideas: a) Convene a policy discussion among key actors across the jurisdictions; b) Workshops; c) Oyster Summit; d) Develop a strategy for implementing goals. In essence, the Executive Committee recognizes that there needs to be a transition from "what we want" to "how we achieve it."

In relation to Blue Crab, members proposed the following priorities:

- A member underscored the need to make the identification of male reference points a top priority. Once this is accomplished, the GIT should then determine a hard catch limit. Both efforts would ultimately benefit commercial as well as recreational interests.
- Another member suggested that it would be effective to first identify a hard catch limit, then allocate a certain amount to each local jurisdiction with autonomy to manage assigned thresholds "as they see fit."

In relation to the issue of the invasive Blue Catfish, the following priorities were highlighted:

- A GIT member emphasized the importance of managing the problem while maintaining adequate levels of the trophy population.
- A member argued that the GIT should spend more time considering Menhaden as an important ecosystem issue and pointed out the potential for a decrease in harvest limits.
- Another member pointed out that a James River mark-recapture study will begin in 2012.
- A member pointed out the Management Strategy Evaluation tool, used elsewhere, which allows for more adaptive management techniques and incorporates stakeholder involvement. This would be an ideal tool for Menhaden.
- A member suggested the development of a spatial model to provide aid the development of tributary specific mitigation campaigns

Aquaculture Policy

In relation to aquaculture policy issues, a member observed that the size of the operation is key to the impact. There needs to be research into the potential for aquaculture operations to actually contribute to building up populations. The industry involves more than just cages in the water, and additional processes need to be taken into account.

Other identified priorities included:

- The GIT should support basic fishery science for the Bay, and market the importance of Bay restoration as central to the vitality of the entire East Coast. Emphasis was placed on the importance of cooperation between GITs in order to maximize benefits to all. A member suggested that, as opportunities arise (perhaps identified by GIT staff), exchanges of presentations to and from the other GITs would help. The GIT Executive Committee responded by pointing out that it is currently working on finding ways to collaborate with mapping and geographic information.

- A member expressed the hope that the GIT will be able to move forward in educating the land use community and making effective connections. According to the member, GIT leadership in this regard will be essential to success.

December 20th – Day Two

The primary objectives of the second day was a workshop focusing on the connections between land use decisions and water quality as it relates to fishery management. Again the Chair emphasized the value of each member's full participation and highlighted the importance of understanding their roles and reasons for attending. The facilitator then reminded the group of their ground rules for the workshop and called for a round of introductions.

Setting the Stage Discussion:
The workshop began with presentations that introduced participants to land use decisions and their impacts on fishery management.

The following are key points raised in discussions during this phase of the workshop:

- A GIT member commented that localities are performing on-the-ground measurements in regard to gauging amount of impervious surface, which implies that the costs are being shifted to them to perform these calculations.
- Regarding the topic of future water quality and the impacts of poor quality on future fish production, GIT members discussed the need for a greater role in spatially managing fish populations as the effects of dissolved oxygen causes populations to congregate.
- Participants expressed a need for further research into the impact of water quality on changing migration patterns. It was noted that considerable data exist on migration patterns in the Patuxent River in Maryland, which already has a policy plan in place. Another GIT member offered that recent research around the historic migration patterns of striped bass in North Carolina suggests that, if proper food is available, then the dissolved oxygen "squeeze" is not as harmful.

GIT Executive Committee Perspective Discussion:

The workshop then turned to allow the Executive Committee a chance to explain why land use impacts are particularly important to the GITs overall objectives.

The following are key points made in discussion:

- GIT members discussed the fact that everything that happens on land affects the water. For example, impervious surfaces not only increase the amount of runoff but also the rate at which runoff occurs. Twice as much runoff occurs today at ten times the rate as compared to just 50 years ago, and this acceleration is due to impervious surfaces.
- A member emphasized that it is important to explain the overall long-term costs of poor land use decisions on municipalities.
- A member explained that local water quality departments might not be aware of the significance of clean water in the larger context of living resources; A watershed implementation plan can help to cultivate better understanding as connections are made

between water quality and living resources. There are numerous implementation plans already in place, so there is "no need to reinvent the wheel."

- The implementation of green infrastructure was mentioned as being a strategy for greatly improving water quality.
- Members then discussed Habitat Management, which occurs at a local level but does not currently use connections to land use decisions. If habitats were to improve over time, would fishery managers react to these changes (i.e. are there any mechanisms currently in place to help make these connections)? There needs to be an effort to manage fishermen's unrealistic expectations that catch levels will return to previous levels.
- A member of the GIT Executive Committee expressed that, even though there is no regulatory control of habitat through fishery regulations to influence land use decisions, GIT members have an obligation to get involved with these decisions. Suggestions included the creation of citizen groups to bring these issues up in targeted localities, as well as giving fishermen the scientific information that, in combination with their personal stories, might persuade representatives to take action.
- A member pointed out the reality that localities largely base their decisions on economic concerns.
- A GIT Executive Committee member then acknowledged the complexity of these issues and posed the question: are we trying to fix the situation or maintain the status quo? Being able to actually fix areas is not something with which anyone has a history of being successful. Identifying critical areas to protect could be the best strategy for moving forward. Members must think expansively, looking beyond water quality and fishery issues to focus as well on all land use drivers.
- One member responded that there is a need to better link the means and information by which local land use decisions are made with the broader ecosystem impacts that result from the cumulative effect of such decisions.

Stakeholder Panel Discussions:

The workshop then gave stakeholders the opportunity to give individual perspectives on how land use decisions have impacted their particular business or fishery.

The following are the discussions points made during this section:

- GIT members emphasized that not enough is currently being done to tackle water quality restoration. Projects that are underway are so isolated that success is difficult to measure.
- A member raised the importance of elevating the facts to motivate policy change; for example, a one page fact sheet would be useful to quickly quantify and convey the costs of inaction. A member echoed this view, urging the GITs to advocate with the facts we currently have and not wait for additional science to offer up new data. This is a primary method by which the GITs might influence decision making.
- A GIT member suggested how science-based facts might inform policy from a particular fishing industry perspective. The earlier topic of discussion around dissolved oxygen, which pushes fish or crabs into a concentrated area that supports appropriate temperature and oxygen levels, does not necessarily translate into ease of catching. In fact, species often are not in a feeding mode when concentrated in this way. Basic facts about issues like dissolved oxygen need to be amplified in order to facilitate a certain knowledge level

among public officials and the public. A one page fact sheet would be an effective tool in this regard. Any publication or researcher who uses these facts should be targeted so that the information can be disseminated to the greatest number of people.

- A member pointed to the problem of imperviousness, noting that an area that was once a productive area for clams can be devastated by one hard rain and all the runoff that is produced.
- A member suggested that the processes of formulating Comprehensive Plans, which entails high levels of public input, might serve as ideal opportunities for GIT members to become involved in the education of decision-makers. It would be especially advantageous for GIT members to interface with localities' around the issue of long term plans for water resources. GIT members might help to correlate information about the likely impacts of local waterway issues on predicted population growth. As a case in point, the state of Maryland is currently composing a state-wide Comprehensive Plan—the first of its kind—which will refocus state spending according to specific targets.
- A GIT member questioned how WIP IIs will be integrated into Comprehensive Plans, and whether watershed implementation plans might override other plans. Another member responded by arguing that WIPs provide a function that is different from Comprehensive Plans and have not been created to replace plans that address growth as a whole.
- A member cited the example of a 2007 Watershed Management Plan that greatly reduced the amount of impervious surfaces allowed in new developments, which will aid the curbing of runoff in the future.

Discussions then centered around ways to connect people with land use decisions. Members pointed to a need to inform citizens about how to get involved in the decision-making process, perhaps by offering courses at the grassroots level. As with other audience groups, citizens need to be equipped with the right tools to effect the decisions being made. The GITs need people "on the ground" who can provide information about what is happening—both "good" and "bad"—at the local level. Simple opportunities to influence decisions are being missed. In the absence of citizen pressure, local officials hesitate to implement new or different ideas. Other comments included the following:

- A member added that it is important to define audience in order to determine at what scale education should occur.
- Making simple connections is key to influencing land use decisions. By providing planners with the right data, GIT members can play a role in helping leaders understand environmental consequences of their decisions.

GIT Chairs' Perspectives Discussion:
The workshop provided time for representatives of the other Chesapeake Bay Program GITs (Habitat, Water Quality, Healthy Watersheds, and Stewardship)to give individual perspectives on how land use decisions have impacted their goals.

The GIT Chairs offered a "big picture" perspective, emphasizing that large-scale stressors require bigger responses. The following points were made by Chairs and members:

- In order to achieve the level of response needed, collaboration among the GITs is critical. Collaboration will allow for the scaling up of efforts and the pooling of resources towards addressing targeted priorities.
- Identifying the key areas of the Bay and correlating the state of those sites with local land use decisions is a promising strategy.
- There needs to be more emphasis placed on identifying a wide range of habitats, reflecting greater diversity. Protecting areas is just as important as restoring areas. If they are not protected they continue to degrade every day and will need to be restored in the future.
- Public access is an important part of connecting people to the waterways around them; a watershed-wide strategy is underway to add an additional 300 sites over the next 15 years. The public input process is being utilized to identify these sites.

The Scientific and Technical Analysis and Reporting Team (STAR) and Scientific and Technical Advisory Committee (STAC) groups offered to assist any GIT in obtaining the data or science it needs to accomplish strategic goals.

A GIT Executive Committee Member offered a simple schematic for envisioning how GIT members might communicate the importance and trajectory of restoration to different audiences. This schematic is reproduced in the below matrix:

PAST	PRESENT	FUTURE
Fish Lived Here	Fish Don't Live Here	Fish Could Live Here
Water Quality Was	Water Quality is Now	Water Quality Will Be
	TMDL Requirement	Time to Implement
$ of Historic Fisheries	Lost Value	Possible Value

Public Comment Discussion:
The second opportunity for public expression during the GIT workshop yielded the following comments:

- Ken Hastings, representing the Mason Springs Conservancy, stated that the information provided by the MD DNR proved highly valuable to citizens working on the Mattawoman Project. Having access to this type of information is critical to fighting successful battles "on the ground." Hastings noted that the Mattawoman project began as a smart growth issue but readily expanded to include fishery concerns. Smart growth is an excellent way to frame information about where we do not as well as where we do want to grow. It is more cost effective to preserve land than to restore water quality. Citizens can be the cheerleaders for positive change and can wield incredible power in the local arena. The Mattawoman project should be used as a poster child for restoration success.
- A GIT member added the fact that impervious surfaces play a major role in the level of pollution in Bay waterways. Comparable pervious products are increasingly being used, but more promotion is needed. Detailed information about pervious products, as well as all forms of green infrastructure can be found on the EPA website.

- Another member added that members need to promote the perspective of thinking globally but acting locally, which is more feasible and effective than the alternative. Public land owners could be used locally as a mechanism to create models, which can facilitate a starting point for dialogue as well as help garner public support.
- Bonnie Bick from the Mattawoman Watershed Society spoke about activating the youth into these movements, as they will be next generation to deal with these issues. She spoke of the importance of providing advocates like herself with scientific evidence in support of their positions. Substantive data are critical to achieving the change desired.
- A GIT member added that the current TMDL process offers an opportunity for public input. An idea would be to use TMDL funds to build parks as buffers, coupling TMDL implementation with parks and access improvements will appeal more to the public than classic retention ponds.
- TMDL credits pollution reduction but not prevention, so GIT 4 has worked on putting together a STAC workshop looking into how healthy streams assimilate pollution. There is a need to elevate land conservation in the TMDL schema.

Small Group Discussions:
The workshop participants as well as any members of the public were divided into three smaller groups to work together to identify potential actions stakeholders, managers, and planners can take to improve the available resources. Three stations were set up around specific topics and the three groups rotated to each section for discussion.

Group 1- Cross-Collaboration Among the GITs
Group 1 was charged with identifying opportunities and ideas for cross-collaboration among the GITs. Emphasis was placed on looking for ways that the GITs might better link nutrient management with living resource outcomes, although discussion covered other topic areas as well. Interrelated themes and ideas included:

<u>Taking the TMDL "For a Ride"</u>

- Much of the discussion dealt with the ramifications and opportunities of the TMDL process.
- Some participants argued that a reliable link between TMDL implementation and living resource outcomes has not been proven. Other stressors are critical and may be more important. In response, members asked whether it would be possible to relate TMDL to imperviousness and impacts on living resources. One participant pointed out that this is a non-linear, multi-step linkage at play: nutrient management impacts habitat, which in turn impacts living resources.
- There was a recommendation that a public education component be inserted into WIPs, especially in relation to making the economic case for *protection* and *preservation*. This was tied to the point that there is need to educate decision makers and the public about the history and legacy of land use decisions in order to create an appropriate and more complete context for management moving forward.
- A TMDL economic assessment is currently happening. Phase II WIPs are due to be released in June 2012. The opportunity to influence the WIPs needs to be capitalized on as soon as possible.

Funding

- The strategy of "following the funding" was emphasized. It was suggested that GIT 1 might take a lead in approaching TMDL implementation as an opportunity to determine which BMPs will be of most benefit to living resources.
- Is there an opportunity to make use of TMDL implementation funding for activities that benefit living resources?
- It might be most effective to try to concentrate resources on a particular case / location in order to (hopefully) develop a success story. This would also help to determine whether TMDL implementation would achieve a certain level of restoration in a particular case. There was some disagreement about whether the case selected should be in serious need of restoration or, by contrast, more easily restored. One participant pointed out that response time in terms of interventions and outcomes is always a challenge. This project could involve both modeling and monitoring efforts.
- One comment emphasized that directing money is important. TMDL implementation is seen by elected officials as a burden on taxpayers
- The Habitat GIT is currently working to track NRCS funding objectives in relation to its activities and goals.
- There may be federal funding for non-game animals from the Fish and Wildlife Service. There may also be federal dollars for game fish. The GITs could put in the effort to interact with state programs in order to determine if money might be available.

Watershed Auditing

- One suggestion is to audit watersheds, perhaps using the "Past, Present, Future" model offered during the larger group meeting.
- An audit might track resource change as well as development patterns.
- An audit might be tied to particular case studies (e.g. Severn River)

Research / Framing Needs

- There is a need for a concept/model/framework that ties DO (dissolved oxygen) levels to living resources outcomes to inform adaptive management. There is a need for simple models that can cut across the GITs. A member of STAR responded to this suggestion by explaining that STAR is currently in the initiation phase of creating a crude, simple conservation framework that will be acceptable and useful to all GITs. STAR has an idea to support this with (re)directed TMDL implementation funding. In other words, can the GITs use the TMDL process to drive this work?
- One suggestion is that the GITs ask STAR to determine the means to tie the TMDL drivers with living resource needs. This might involve looking at Phase II WIPs for opportunities to benefit habitat.
- Another suggestion is that STAR help to build the case for preservation by examining linkages between healthy watersheds and healthy fish habitats. Similarly, STAR might build the case for restoration by creating similar information materials for streams and tidal fisheries.
- In general, there is an important opportunity for STAR to analyze linkages connecting land use, water quality, and fishery quality.

- There is a need for better understanding on how climate change (warming) will impact living resources. It was suggested that the Water Quality GIT may be the right lead on this work.
- A participant noted that one problem with TMDLs is that there is no way to differentiate between low and high levels of sediment or the type of sediment (fine silts vs coarse grain and sand). There is a lack of technical understanding. Perhaps STAR can help with this?
- There may be an opportunity to tie land use decision making to the economics of small fishing towns. The Local Government Advisory Committee (LGAC) could be the right partner for this effort.

Overall GIT Integration

- Several GIT members wondered how much existing cross-collaboration there is, and in particular how frequently GIT coordinators and staff meet. General suggestion that there should be frequent meetings at the staff and coordinator levels.
- Suggestion that Fishery GIT staff set the policy of briefing all GIT staff after any major event like this meeting. This is envisioned as a 30-40 minute comprehensive briefing. Staff members noted that something similar has been in place since the last meeting.
- Suggestion that GIT Chairs meeting is broadened to include general membership
- Several key questions were raised:
    - Do all GITs have a common vision for management goals? Is there a need to ensure that GIT goals are not in competition?
    - Do all GITs follow a similar process? Is there a need for greater harmonization?

Other Cross-GIT Initiatives

- The Habitat GIT is looking to identify biological endpoints / indicator species. Is there an opportunity for GIT 1 to assist in moving this work forward?
- Is there an opportunity for GIT 1 to collaborate with the Chesapeake Stewardship GIT on recreational access? There was interest in incentivizing restoration and mitigation efforts, as well as providing education and interpretation at access points.
- There is a need to change the regulatory process for hardening shorelines in order to reduce the impact of this practice. Another GIT (not identified during discussion) should take the lead on this.
- A participant pointed to an opportunity for the GITs to initiate creative experiments, in both technical and governance issues, on federal facilities. These small engagements might include testing new BMPs or new forms of messaging and communication.

Education & Outreach

- There is a need for basic outreach on the GIT process, in general.
- One suggestion is that GIT staff create brief digests (ie. “one pagers”) of resources that would be helpful for members working on analyzing and engaging with Phase II WIPs. These resources should be posted on a Fish GIT website.
- There is a need to translate technical information into plain language in order to reach the general public.

- There is a need for two tiers of communication tools to reach: 1) land use managers and decision makers; and 2) the general population. Margaret Enloe at the Chesapeake Bay Program was noted as the key contact to assist with messaging.
- The annual "Environment Virginia" event could be an opportunity to link up land use and fishery management issues in Virginia. One suggestion is that GIT 1 could provide a talk like the one given at this meeting on Yellow Perch.
- Develop a case study of how community stakeholders have stewarded the process in the Mattawoman watershed. Have stakeholders tell their own stories to create powerful messaging. Suggestion that the creation of this case study could be done for free by a University of Maryland master's student.
- Improve collaboration between NGOs and agencies.
- Improve collaboration / connection between fishing organizations / fishermen and STAR / scientists. Translation work is needed here.
- Idea for the next GIT 1 meeting: have each member bring a state or local elected representative to the meeting!
- There is a need to address the issue of Smart Growth in relation to communicating the benefits of preventing decisions that result in degraded habitats. Information could be created to highlight the possible consequences of potential living resource losses. This approach might appeal to decision-makers. The GITs need to think about where in the process of degradation we can intervene with information, as well as what the messaging is for each audience.
- *All* GITs should develop educational materials on *protection* issues. GIT 1 might initiate this by contacting the Healthy Watersheds GIT (GIT 4) and offering to provide educational materials on living resources for the upcoming workshop (mentioned in the large group meeting)

Resources

- The Sustainable Sites Initiative (S.I.T.E.S.) has developed guidelines for sustainable landscapes. The GITs could look at this model and see if there is potential to adapt it for improving living resource habitat and populations. See: http://www.sustainablesites.org/
- Wetland Mitigation Banking could provide good examples of messaging around mitigation efforts.
- Living Shorelines was cited as another resource for messaging. See: http://ccrm.vims.edu/livingshorelines/

Group 2 - Critical Areas

The groups considered areas that could be targeted for protection and/or restoration to address land use and fisheries issues, criteria for identifying these areas, and case studies that could be used as examples of where living resource (fisheries) outcomes were included in the development planning process.

Protection:

- Criteria should be developed to identify areas that should be preserved. As a starting point criteria should include Jim Uphoff's impervious surface analysis narrowing focus with areas with less than 5% impervious surface.
- Develop a scorecard for areas based on criteria selected and display on map

    - Other criteria suggestions include-where there is strong citizen involvement and leadership, SAV presence and other high habitat value parameters, projected growth, socioeconomic data, multiple-use conflicts
    - In assessing high habitat value, look at productivity, resilience, stability, and persistence
- Look at aquaculture example in Virginia, a vulnerability and risk analysis that incorporates development projections to help site aquaculture operations.
- Improve early engagement in permit review processes to ensure living resource issues are considered.
- Maintain protection buffers between land and water (consider sea level rise projections).

Restoration:

- Start by targeting most threatened areas because restoration of these sites may be "biggest bang for the buck" while recognizing some areas may be impaired beyond repair.
- Develop criteria to set a restoration threshold that level of restoration potential.
- Areas for restoration should target NRCS hotspots and fish spawning areas.
- Focus on areas where you know you can achieve results and build public support.
- Use TMDLs and WIPs as a targeting tool.
- Develop spatial planning tools.
- Target areas with multiple restoration opportunities (shorelines, oysters, wetlands, etc).
- Develop a plan for sediment build up behind dams (contact suggested- Jeff Halka).
- Measure restoration outcomes for fish on Susquehanna and upper Potomac.
- Develop weighting system for watersheds based on ability to support desired fish outcomes.
- Target efforts on stocks that have broad constituent support, e.g., striped bass, which are a coastal migratory species.

Specific areas/case studies:

- Pocomoke- data rich area, NRCS investment, ability to monitor benefits of restoration, state, federal and NGO priority area.
- Mattawoman- use as an example of successful local engagement to protect habitat and living resource values from development. Advocates were able to influence planners.
- Lynnhaven River- a heavily populated area but has measurable improvements as a result of restoration efforts. Allows for community involvement. Scale of Lynnhaven may be important also in that it is all within one jurisdiction.
- Tangier Sound- High habitat value and vocal community but some concerns over sea level rise.
- Baltimore County- urbanized area with successful brook trout restoration. Zoning case study.

Communication tools

- Use the case studies areas as communication tools/strategies to engage other potential sites, build community support and influence decision makers.
- Develop and promote habitat initiatives for representative species (i.e. high ecological and social value).

- Synthesize existing science to identify and articulate "tipping point" for species.

Group 3 – Strategies and Tools to Assist Stakeholders
The third group focused on strategies and tools to assist stakeholders in understanding the connection among land use activities and decisions, the Chesapeake Bay ecosystem and a sustainable fishery.

The ideas from this group may be summarized as seeking leadership by the Fisheries GIT in developing a widely supported vision and strategy that would connect stakeholders concerned about the fisheries with those who make land use decisions that impact those fisheries. The stakeholders who may best influence elected officials are those who fish and their organizations, land-use planners, and a motivated general public. As one party suggested, there needs to be an advocacy movement of NGO's and others.

Enacting this strategy will require staff time. It also will require members of the GIT to identify and meet with key localities and parties (e.g. local elected officials and planning boards). Such meetings would be best hosted by respected NGO's.

This strategy would include an effective marketing campaign to tell the story of fisheries and land use. Two slogans were suggested: Everything put into the water matters; Land management is fisheries management.

Key to marketing would be the collection, reporting, and dissemination of specific knowledge:

1) The science that supports this linkage between land use and fisheries;

2) The economic impact of continuing the current trajectory or of improving water quality
- economic value of fisheries for commercial and recreational use and tourism
- costs of not protecting and enhancing the fisheries, e.g. economic damage to commercial and recreational fisheries and associated tourism industry
- contrast the cost of restoring already contaminated waters to the cost of preserving existing water quality
- costs of infrastructure for unmanaged growth versus smart growth

3) The fundamentals of land-use planning, delineating planning basics and local and state differences with the Bay watershed

(Ann Swanson offered to begin creating this document, which could be developed by the Stewardship G.I.T. and the communication team)

These materials should be targeted to user groups. They can be developed as simple handouts or more sophisticated web resources using knowledge management systems (e.g. DNR and VMRC have a one-page site with a sidebar to link what other organizations are doing, as Amazon does). Ideas for dissemination include:

- Fishermen: a handout with information could accompany their license
- LGAC and the Bay Journal

- Local watershed groups and Riverkeepers
- Networks of youth

Other material would be useful, such as how landowners can use existing funding tools for restoration.

A final related idea is to develop a pilot case study that would contrast two scenarios, a locality that is largely built out and for which restoration would be very expensive (e.g. Anne Arundel, MD) and one in which there already exists significant protection (e.g. Baltimore County, MD).

GIT Meeting Evaluation and Final Comments:
The two-day GIT meeting/workshop concluded with an opportunity for evaluation and final comments.

Suggestions for improving overall GIT management and coordination included:

- A member suggested housing all data in a repository for ease of access by all GIT members.
- A member suggested that, anytime the website is updated, GIT staff might alert all members to visit the site and learn about developments in the time between meetings.
- A member asked that information be posted about when and where other GITs are meeting. Available meeting summaries for all GIT meetings would help other members to participate more fully in connecting the various GIT efforts.

Suggestions for improving future GIT meetings included:

- Facilitate greater public participation.
- End earlier in the day.
- Incorporate two iterations of cycles through small groups.
- Build in more down time to connect with other members informally.
- Break up presentations into shorter segments.
- Allow for more Q&A time after short presentations, even if this means fewer presenters.
- To preserve more meeting time, re-think the timing of the optional field trip (perhaps on a third day at the end or beginning of the meeting).
- Involve state wildlife agencies.
- Capture unasked questions and save time to address them at another point.
- The six month meeting timeframe may be too long if the GIT wishes to influence the WIPs.

Appendix

An online survey was provided for all members who participated in the meeting, there were 18 respondents and the results are as follows.

1. What is your affiliation?
2. How familiar are you with the current status and health of the Chesapeake Bay fisheries?
3. How relevant is the health of the Chesapeake Bay to your work?
4. How important is the link between land use issues and the health of fish resources?
5. How important is the unification of the different areas of Chesapeake Bay management (i.e. land use and fisheries)?
6. How relevant is your expertise and influence to link fisheries resource management in the Chesapeake Bay to other areas of management?
7. (Optional) Do you have any comments or recommendations as to how to link fisheries management to other areas of management?

Comments:

1. Affiliations:

- Non Profit organization (Living Classrooms) that raises American shad with students,
- EDF
- Chesapeake Research Consortium
- Atlantic Coasal Fish Habitat Partnership
- MD Dept of Planning
- U.S. Army Corps of Engineers
- MDNR
- Maryland Fisheries Service
- Recreational fisherman, Crabber, etc. on VMRC blue crab and finfish committees.
- University of Maryland Center for Environmental Science
- NOAA
- Recreational Angler/Conservationist
- U.S. EPA, Coordinator, CBP Maintain Healthy Watersheds Goal Implementation Team
- Atlantic States Marine Fisheries Commission
- Senior Fisheries Biologist Omega Protein Corporation Member of the
- Sustainable Fisheries Goal Implementation Team
- Vice President for Conservation and Parks, National Recreation and Park Association
- NMFS Office of Science and Technology
- NOAA, NEFSC

2. Familiarity

- I would like to think I am very certain but there is always uncertainty as well as more to learn

3. Relevance

- My job is to maintain and monitor the health of the Chesapeake Bay

- NRPA has a national perspective. Health of the Bay is extremely relevant regionally as well as nationally for other coastal waters and estuaries. Lessons learned here are very relevant nationally

4. Importance of link

- Land use issues are of critical importance to the health of fish resources. Land use policies, practices, and laws have significant impact on economic, ecological, and recreational aspects of fisheries health and management

5. Importance of unification

- Goals of ecosystem based management cannot be met without this

6. Relevance of own expertise

- We're a young organization- figuring out how and where to best direct our efforts

General Comments:

- Land use issues are of critical importance to the health of fish resources. Land use policies, practices, and laws have significant impact on economic, ecological, and recreational aspects of fisheries health and management

- We need to better link the means and information by which local land use decisions are made with the broader ecosystem impacts that result from the cumulative effect of such decisions.

- Focus geographically to prove the concept. For example, analyze land use management needs to protect Choptank Striped Bass spawning an nursery habitats and production.

- The general public needs to be educated to the fact that decisions about development (alteration of natural systems) always have an impact on the natural systems, some to a lesser degree and some to a lesser degree. Books like Jared Diamond's "Collapse), which I am currently reading, can go a long way toward explaining how and why ecosystem damages occur and what they mean to quality of life and survival.

- Parks and public lands can play a vital role in fisheries management by providing buffers to development, improving water quality, providing recreational access, and on a landscape level, contributing to ecosystem health, especially with regard to strategic protection of flood-prone natural lands. With guidance, support, and technical resources, parks and public-lands agencies are willing and able to do more to promote sound fisheries management. NRPA can provide examples of Best Management Practices, educational materials, and outreach to key decision makers.

- Now that the Oyster Metrics document has been completed and vetted and the associated Adoption Statement signed today, there are 2 logical areas for the Fisheries GIT to work on; one tactical and one strategic. With respect to the tactical area, recommend finalizing common ground initiatives such as the quantification and quality classifications of Chesapeake Bay fossil shell resources and habitat resources, and identify ecological impacts of rotational harvest areas on sanctuaries as well as economic impacts of sanctuaries on rotational harvest areas. With respect to the strategic aspect, recommend integrating fisheries with other GIT groups to seek additional benefits of the Executive Order. One example would be the interaction of oyster restoration (Fisheries GIT) with effective storm water management (Water Quality GIT).

- Departments of transportation/landowners and fish passage restoration: working with and encouraging best practices with regard to the construction of roads and culverts. Agriculture/landowners and stream restoration/water quality improvement: working with and encouraging best practices (eg. vegetative buffers, cattle use etc.)

Numerical Results:

2. How familiar are you with the current status and health of the Chesapeake Bay fisheries?

	Completely Unfamiliar	Somewhat Unfamiliar	Neutral	Somewhat Familiar	Completely Familiar	Rating Average	Response Count
Level of familiarity	0.0% (0)	5.6% (1)	5.6% (1)	50.0% (9)	38.9% (7)	4.22	18

3. How relevant is the health of the Chesapeake Bay to your work?

	Very Irrelevant	Somewhat Irrelevant	Neutral	Somewhat Relevant	Very Relevant	Rating Average	Response Count
Relevance to your work	0.0% (0)	5.6% (1)	0.0% (0)	16.7% (3)	77.8% (14)	4.67	18

4. How important is the link between land use issues and the health of fish resources?

	1 - No link at all	2 - Maybe a small link	3 - Neutral	4 - A decent link	5 - A direct link	Rating Average	Response Count
Importance of linkage	0.0% (0)	0.0% (0)	0.0% (0)	5.6% (1)	94.4% (17)	4.94	18

5. How important is the unification of the different areas of Chesapeake Bay management (i.e. land use and fisheries)?

	Very Unimportant	Unimportant	Neutral	Important	Very Important	Rating Average	Response Count
Importance of unification of management	0.0% (0)	0.0% (0)	0.0% (0)	5.6% (1)	94.4% (17)	4.94	18

6. How relevant is your expertise and influence to link fisheries resource management in the Chesapeake Bay to other areas of management?

	Definitely Not	Most Likely Not	Neutral	Most Likely Yes	Definitely Yes	Rating Average	Response Count
Relevance of your expertise and influence	0.0% (0)	5.6% (1)	22.2% (4)	22.2% (4)	50.0% (9)	4.17	18