Fish Habitat Management Strategy Outline

Executive Summary

1. CBP Communications team will draft after the other sections are complete.

Outcome and Baselines

Fish Habitat Outcome: *Continually improve effectiveness of fish habitat conservation and restoration efforts by identifying and characterizing critical spawning, nursery and forage areas within the Bay and tributaries for important fish and shellfish, and use existing and new tools to integrate information and conduct assessments to inform restoration and conservation efforts.*

Baseline:

This strategy adopts the definition of "fish habitat" from the National Fish Habitat Partnership (NFHP) Action Plan 2nd edition: "Any area on which an aquatic organism depends, directly or indirectly, to carryout the life processes of the organism, including an area used by the organism for spawning, incubation, nursery, rearing, growth to maturity, food supply, or migration, including an area adjacent to the aquatic environment if the adjacent area: (1) Contributes an element, such as the input of detrital material or the promotion of a planktonic or insect population providing food, that makes fish life possible; (2) Affects the quality and quantity of water sources; (3) Provides public access for the use of fishery resources; or (4) Serves as a buffer protecting the aquatic environment."

Fish habitat in general is declining in the Chesapeake Bay due to numerous factors including land use changes (i.e. nearshore hardening, impervious surfaces) and poor water quality (i.e. high nutrient loads, low Dissolved Oxygen, increased sedimentation, toxics). Due to the various habitat types that comprise "fish habitat" (SAV, streams, water column, nearshore wetlands, etc) and gaps in our understanding of which areas are of highest value to supporting fish recruitment and production, there is no baseline for "fish habitat" at this time. That is not to say we do not have a starting point. The Habitat Requirements for Chesapeake Bay Living Resources (1991), state wildlife action plans, and various spatial tools include general maps of fish habitat for many species and include information on the water quality requirements of these species. However, the maps do not characterize the "quality" of these areas. A primary component of the management approach outlined later in this document is to build on existing efforts by developing criteria that describes "high quality" fish habitat. With this information we can use the criteria to identify areas that meet the criteria, quantify the areas, and target them for management action.

Participating jurisdictions and stakeholders

1. Describe the role of major players in the watershed
    a. Jurisdictions (regulatory agencies)

i. **need to add additional agencies that deal with water quality, permitting, etc.

b. Interested Bay-wide stakeholders including academic institutions, non-profits, and federal partners

Maryland DNR	Pennsylvania FBC	Delaware DNREC
Virginia MRC and DGIF	District of Columbia DDOE	New York DEC
Chesapeake Bay Commission	Virginia Institute of Marine Science	Mason Springs Conservancy
Smithsonian Environmental Research Center	Interstate Commission on the Potomac River Basin	Atlantic Coast Fish Habitat Partnership/ASMFC
USGS	USFWS	NOAA
USDA NRCS	Maryland Dept. of Environment	Pennsylvania Dept. of Environmental Protection
Virginia Dept. of Environmental Quality	Virginia Department of Health	

Factors influencing the ability to meet the goal (Key Challenges)

1. What will impact our ability to achieve the fish habitat outcome and the objectives?
2. What factors can we influence? Human decisions vs humans as part of the system (coupled social-natural systems)
3. Need to prioritize factors!
   Priority from 1/7/15 call

Factors
natural system factors
conditions/structure
- fish passage strategies, coordination with other GITs (e.g., habitat & WQ outcomes)
- community composition, changes in species assemblages (e.g., carp, catfish, phragmites, hydrilla, etc.)
Climate Change
- sea level rise
- meterology (rainfall intensity/freq., storm intensity/freq.)
- physical: temp, salinity, DO, turbidity (also human use)
Water Quality: WQ(N, P→WIPs steering investments), water flow/withdrawal/toxics (also human use); DO, turbidity, toxics

processes
human system factors
sufficient knowledge
Ability to characterize critical spawning areas
Ability to characterize critical nursery areas
Ability to characterize critical forage areas
Critical areas for critical life stages
- data availability (fish pop. & habitat use, distribution)
- data analysis
- continued monitoring
Effectiveness/innovation of restoration techniques
Competing interests for Bay bottom (dredging, etc.)
effective policy in place for achieving goals
- Jurisdictional coordination
Watershed land use; impervious surface % -shoreline and land use connection - Forest cover - Riparian buffers - SAV/marsh
adequate financial resources (administration and incentives)
adequate extension infrastructure (outreach and tech assistance)
Dollars and jobs (development)
Regulations and policies, permitting
Political will and local support
Short vs. long-term outcomes

Current Efforts and Gaps

Current Efforts

a. Jurisdiction Priorities
b. ACFHP
c. Spatial data
    i. Habitat mapping
    ii. NALCC
    iii. Climate change impacts

iv. TNC Prioritization tools

d. Other CBP workgroups
   i. Brook Trout
   ii. Stream Health
   iii. Healthy Watersheds
e. Monitoring
f. Economic valuation and Ecosystems services
g. Quantifying impacts of development on nearshore habitatsLand-water interface (watershed level)

Gaps

Science:

- Environmental factors currently limiting fish recruitment
- Identifying areas of "high quality" fish habitat suggesting which waters are most important to critical life stages for fish
- Integrating and synthesizing existing data and understanding into decision support tools and models
- Valuation of ecosystem services and value of habitats supporting valuable species

Management

- Multi-agency coordination
- Consistent communication and involvement of local communities

Management Approach

Our primary goal is to maintain and increase the quality and quantity of fish habitat. With this goal in mind we have modified principles from National Fish Habitat Partnership.

- Protect and maintain intact healthy tidal and freshwater habitats
- Prevent further degradation of tidal and freshwater habitats already impacted
- Reverse declines in the quality and quantity of tidal and freshwater habitats to improve the overall quality of fish and shellfish habitat
- Increase the quality of fish habitats that support a broad natural diversity and ecosystem resilience.

Several previous efforts including the "Habitat Requirements for the Chesapeake Bay" document provide maps and descriptions of areas in the bay that support key bay species. However, these maps and descriptions do not adequately describe habitat suitability or quality for these areas. A further refinement of the maps will allow managers to target places of highest importance to fish sustainability. In turn, specific management strategies and actions can be developed for these critical areas.

Fish habitat is considered the core of ecosystem based fisheries management as stated in the Fisheries Ecosystem Plan for the Chesapeake Bay: "An important goal of ecosystem-based

management is to maintain, and in many cases increase, the quality and quantity of habitat in the Chesapeake system as a whole."

In order to maintain and increase the quality and quantity of fish habitat we must first identify where these quality areas are and how they may be changing in response to climate change. As a first step we will develop a set of criteria that define "high quality fish habitat" for critical life stages of focal fish species or guilds and, based on the criteria, identify data sets that can be integrated or synthesized in models and spatial tools to locate places that meet the criteria. Critical life stages will be defined in terms of their relative contribution to recruitment. Natural recruitment is the influx of new individuals into a population due to reproduction or immigration. High recruitment often yields larger populations, but this is dependent upon the reproductive success of individual adults, and survival of new recruits, both of which may be influenced by habitat quality and availability.

The products of this work will support a range of management decisions aimed at achieving the fish habitat goal. Potential decisions supported include permits for in-water activities, riparian land use decisions, and prioritizing efforts aimed at curbing water pollution, restoring streams, or restoring in-water connectivity.

In general, our approach will include the four steps outlined below.

1. Compile and identify available data on habitats, habitat vulnerabilities, and fish utilization at different life stages.
    a. Define the features of "healthy habitat"
    b. Does this include habitat lost?
2. Identify threats to fish habitat (both manageable and unmanageable). Consider Baywide vs. local/regional threats.
    a. Specify differences in threats among different regions and geographies of the Bay.
3. Prioritize challenges and opportunities for protection/restoration, management, and decision-making. Different priorities depending on species, location, etc.
    a. Focus on conservation/protection of healthy areas.
    b. Use spatial data and habitat tools to inform management.
    c. Specify how priority habitats and species vary among different regions and geographies of the Bay.
4. Improve awareness of positive/negative impacts of actions and associated tradeoffs on fish habitat among local communities and policy-makers. Connect habitat with a sense of place in communities.
    a. Empower policymakers and local governments.
    b. Review relevant policies/regulations.

We also recognize significant work is underway in each of the jursidictions based on their priorities. As part of this management strategy we will track these efforts and identify actions where valuable coordinate and deliver these efforts to the CBP. Outlined below are strategies/actions underway in PA, DC, VA, DE and MD (we can add brief summaries and expected outcomes or even show on a map)

Monitoring Progress

Assessing Progress

Adaptively Manage

Biennial Workplan