Phase 6 Model Federal Agriculture Designations

BLUF: WQGIT needs to decide how agriculture on federal lands and facilities should be designated as part of the Phase 6 Model updates and load simulations. The FFWG did not receive input from Maryland, District of Columbia, Pennsylvania, New York, West Virginia or Delaware.

BACKGROUND: FFWG Sub-group of representatives from VA, NPS, EPA CBPO, DoD, USDA-ARS, FWS and USGS met to discuss current issue of how agriculture on federal lands and facilities should be represented in the Phase 6 Model.

The sub-group developed three original options and FFWG members were requested to provide input on their preferred option:
        Option 1: Shift the estimated federal crop and pasture acres from federal agency types to their
           corresponding counties (2 votes).
             Note: There were minimal and questionable responses to most federal ag acres through the
             Federal Facility Editor Tool query. Therefore, many of the federal agriculture acres would be
             assumed via default values.
        Option 2: Maintain estimated federal crop and pasture acres within the federal agency type footprint (2
           votes).
        Option 3: Shift estimated federal crop and pasture acres to turf grass within federal agency types (3
           votes).

The first option would shift estimated federal agricultural acres to the corresponding county. For this option, federal agencies *would not have explicit* agricultural loads directly assigned to them for every model scenario.   The calculated loads and associated reported changes in loads would be undistinguishable and captured among the county loads.

The second option would maintain estimated federal agricultural acres within the federal facility footprint. For this option, federal agencies *would have explicit* agricultural loads assigned to them for every model scenario. This option would require reporting the past 30 years of implementation, a default assumption of historic implementation, or no BMPs for the past 30 years.

The third option would maintain the federal facility footprint but would re-designate the estimated agricultural acres to turf. Implementation of any agricultural BMPs could be reported but would not be applied to an explicit federal agricultural load for every model scenario (i.e. ghost load).

During the 12/13/16 FFWG meeting, members agreed to drop Option 3 and create an extension of Option 1 that would essentially achieve accountability through the reported implementation of federal agricultural BMPs but would not explicitly produce federal agriculture loads for every model scenario.

The FFWG was not able to come to consensus, but Federal agencies agreed that accountability and crediting implementation was very important.   Positions on the proposed options diverge based on the following policy considerations:

- ***A more defensible accounting of what's happening on the ground; OR***
- ***Model accountability exactly as feds/non-feds without available data for feds***

Option 1: Shift the estimated federal crop and pasture acres from federal agency types to their corresponding counties.

Option 1a: Option 1 + Assign loading goals to federal ag (as was done with federal stormwater) and track progress using BayFAST / CAST which is designed for smaller scales.

FFWG Discussion Points:
- Addresses holding federal facilities accountable for their fair share of the load reductions
- Incentivizes continued implementation and reporting of agricultural best management practices on federal lands and facilities
- Provides route to understand agriculture on federal lands and facilities and plan for when future model updates are made
- While specific crediting may not be demonstrated at the federal agency level via Phase 6, crediting would still occur at the county level with annual progress reporting for both urban and agriculture.
  - Some jurisdictions may need to adjust/revise their reporting templates for federal agencies to report agricultural BMPs.
- Provides balance between uncertainty and accuracy of the model
- Does not steer from the methodologies of calculating agriculture at the county level.
- Provides opportunity to show federal progress

CBPO Pros:
- Respects the accuracy of data used to define agricultural conditions.
- Doesn't require agricultural BMP reporting for the 30-year period 1985-2015 from each agency with reported (or assigned) federal agricultural land by the end of December, 2016 (preferably mid-December).
- Doesn't require the assignment of 100+ crop types and 12 animal types to federal agricultural land – varying over the 30-year calibration period – according to the distribution in the relevant county. This is needed to determine application rates and timing for manure, chemical fertilizer, and bio-solids nutrients.
- Doesn't require the assumption that all of the defined federal ag land is leased by operators, e.g., none is privately owned.
- Doesn't increase the run-time for optimizing BMPs in planning scenarios from 1 day to about a week – for all stakeholders using CAST for developing Milestones and Watershed Implementation Plans.

CBPO Cons:
- Federal agencies would not have agricultural loads specifically assigned to them for each model scenario output. Federal BMPs on federal ag could be reported and tracked (e.g., acres), but the associated load changes are part of the county load changes in the model output. Load changes for federal agriculture would need to be calculated outside the tool.
- Federal agency acreages would be reduced by the corresponding extent of estimated federal agriculture and become part of the county ag acres. The remaining acres would be held constant over the watershed model calibration period, 1984–2015, since there's no information on how the federal bounties changed over the 30 years.

Virginia Cons:
- Improperly attributes responsibility for loads associated with federally owned agricultural land in the model to the jurisdictions. This may be seen by local partners as the Feds avoiding their responsibilities for reductions at the same time EPA is advocating for more local targets. Approach reduces public confidence in the models, and the Partnership when we knowingly misattribute loads in the model.
- Could not be properly characterized in a land use map.
- BMP verification concern – Federal ag BMPs would need to be intentionally misreported as being implemented on non-federal lands.
- Restricts the ability to develop local planning goals for agriculture in areas where this error occurs.

Option 2: Maintain federal crop and pasture acres within the federal agency type footprint.

CBPO Pros:
- Federal agencies have, in the model simulation, explicit numbers for all crops, LUs, animals, manure and chemical fertilizer applications – and the associated loads – for every scenario.

CBPO Cons:
- The assignment of nutrient inputs to farms and farm-composites doesn't respect the accuracy of the data – so is doesn't reflect what's on the ground. Federal ag will need to be assigned 100+ crop types and 12 animal types – varying over the 30-year calibration period – according to the distribution in the relevant county. This is necessary to determine application rates and timing for manure, chemical fertilizer, and bio-solids nutrients. The simulation of agricultural conditions and loads in the Chesapeake Bay models has never gone finer than the spatial scale of full counties.
- Federal agency types need to report agricultural BMP's directly for their acreages of crop and pasture for the 30-year period 1985-2015 by the end of December, 2016 (preferably mid-December). The default is that there will be no BMPs on federal ag in the model for the past 30-year period.
- An assumption will be that all of the assigned federal ag land is leased by operators, e.g., none is privately owned.
- The inclusion of federal ag explicitly will increase the run-time for optimizing BMPs in planning scenarios from 1 day to about a week – for all stakeholders using CAST for developing Milestones and Watershed Implementation Plans.

Virginia Pros:
- Respects previous WQGIT decision regarding Phase 6 Land Use.
- Represents the best estimate of federal responsibility for contributions to Bay water quality problems.
- Respects the accuracy of mapped land use data. This is the most accurate way to represent the data we have. Even if we need to make assumptions for the history based on the county.
- Bay Watershed Model could be the tool used to track federal agency progress in a way similar to that used for jurisdiction accountability.

 Note 1: These options mention "federal agency types" which refer to the agreed on grouping of federal facilities used for BMP and land use reporting purposes. For example, the Department of Defense (DOD) is one agency type. Acreages of each simulated land use are lumped for all DOD facilities within a modeling segment (intersect of counties with watersheds).   Entries to the Federal Facility Editor Tool are made by facility, e.g., Naval Air Station, and will be mapped to that facility footprint. For input to the watershed model, however, the data for each simulated land use for all DOD facilities in a modeling segment are be combined.

Note 2: While Option 1 and Option 1a does not explicitly assign agriculture on federally owned land in the Phase 6 model for each scenario – there are mechanisms adopted by the Partnership that can assist with determining federal facilities' fair share of the agricultural load, where applicable (i.e. federal facilities with ag) outside of the Phase 6 Model simulation (i.e. federal facilities targets). There continues to be an understanding that federal facility targets will be revised. These targets could incorporate a gross estimate of the fair share of federal ag load ~~and~~ as well as other loads which are responsible for excess nutrients and sediment. All BMPs can continue to be reported to the Jurisdictions. While federal facilities won't get credit in ~~the~~ each "model" simulation as load reductions, they would be able to receive numeric credit through other calculations outside the simulation. Federal facilities would receive "programmatic" credit for their efforts. Local buy-in will be necessary in the development of Phase III WIPs and Milestones; therefore, Bay Jurisdictions will be targeting efforts and resources to accelerate implementation progress. Local governments and federal facilities, including DoD installations, are considered integral to this process. With the development of local area planning goals by the States, the portion of the federal responsibility will be better known and may provide an opportunity for more local partnering efforts.