What are the conditions in the East Totten Sub-watershed?

Current conditions

Approximately five percent of the East Totten Sub-watershed is covered by urban land uses (see Figure 21 and 21a, Classification Percent Totals for East Totten Sub-watershed). East Totten has a drainage area of 4.8 square miles.

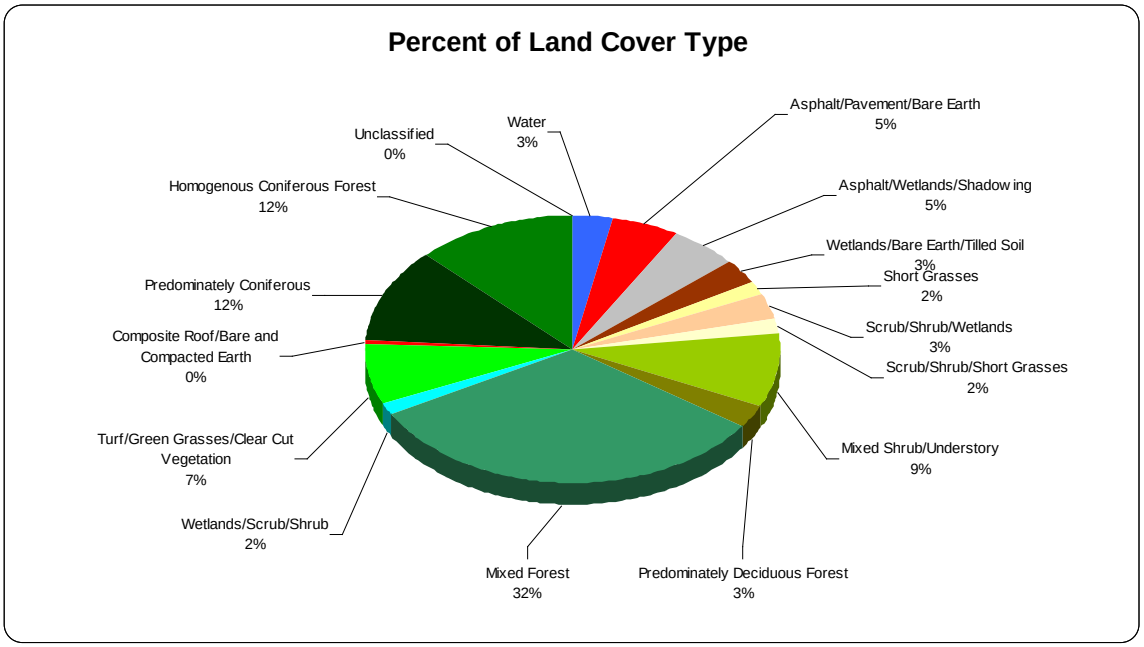

Figure 21a. Classification Percent Totals for East Totten Sub-watershed

Land cover data from 2005 SPOT imagery.

Human alteration to the movement of water

The effects of human land use on the natural delivery of water in the East Totten Sub-watershed were characterized using the following landscape attributes: percent TIA, percent forest land, and percent wetland cover at the DAU scale. Results indicate that the East Totten Sub-watershed is in an "at risk" condition for the delivery of water, with one "properly functioning" and two "not properly functioning."

Human alteration to the natural movement of sediment

The effects of human land use on the natural delivery of sediment to the East Totten Sub-watershed were characterized using the following landscape attributes: percent bare soils, road density, and percent unstable slopes at the DAU scale. However, because there are no forestry activities or unstable slopes in the sub-watershed, road density was the only applicable indicator.

The result was a “properly functioning” condition, with the exception of five in an “at risk” condition.

Human alteration to the natural movement of large wood

The effects of human land use on the natural delivery and routing of large wood in the East Totten and its tributaries were characterized using the following landscape attributes: percent forested riparian and average number of stream crossings per kilometer of stream at the DAU scale. Results indicate that the East Totten Sub-watershed is primarily in a “not properly functioning” condition for the delivery and routing of large wood. Exceptions include three “at risk.”

Human alteration to the natural movement of pollutants

The effects of human land use on the natural delivery and routing of pollutants in the East Totten and its tributaries were characterized using the following landscape attributes: Extent of 303(d) listed water bodies for nutrients, toxicants, and bacteria and condition and extent of wetlands at the DAU scale. Results indicate that the East Totten Sub-watershed is in an “at risk” condition for the delivery and routing of pollutants.

Human alteration to the natural movement of heat

The effects of human land use on the natural delivery and routing of heat in the East Totten tributaries were characterized using the following landscape attributes: Extent of 303(d) listed water bodies for nutrients, toxicants, and bacteria, percent 67 meter riparian zone with mature canopy, road density, and percent TIA at the DAU scale. Results indicate that the East Totten Sub-watershed is primarily in an “at risk” condition for the delivery and routing of heat. The exception is two DAUs that are conditioned to be in “not properly functioning.”

Aquatic integrity

The effects of human land use on aquatic integrity in the East Totten and its tributaries in the East Totten Sub-watershed were characterized using the following landscape attributes: percent riparian forest, percent TIA, and available B-IBI scores at the DAU scale. There is no data to rank aquatic integrity.

Habitat Connectivity

Forest covers fifty-nine percent of the East Totten Sub-watershed, concentrated in the south west sub-watershed. Most of the forest is in rural residential areas and the sub-watershed’s primary land cover is composed of commercial and long-term forestry. The East Totten Sub-watershed is considered “at risk” and “properly functioning”, with only one DAU considered “not properly functioning” for habitat connectivity.

Ecological Benefit

All DAUs within the study area having ecological and biological processes that are considered "at risk" under current land use conditions were identified for further consideration. DAUs in the "at risk" category for multiple key ecological and biological processes are assumed to provide the greatest potential to maximize environmental benefits when restored. The process scores are then ranked according to the weight criteria, and converted to a high, medium, or low process rank. East Totten has primarily high and moderate ecological benefit, with only five DAUs ranked as low (Figure 22. East Totten Sub-watershed Weighted Processes).

Environmental Benefit

Once all the DAUs were ranked for their ecological benefit, all natural resource sites were ranked for their environmental benefit. Only the high and medium scoring sites were used in further evaluation to develop natural resource, fish habitat, and stormwater preservation and restoration sites.

Table 9. East Totten Environmental Benefit Ranking of Natural Resource Sites

East Totten Potential Restoration Sites				
Rank	Wetland	Riparian	Floodplain	Total
High	0	0	NA	0
Medium	4	1	NA	5
Low	26	17	NA	43

The following wetlands, riparian and floodplain sections describe the environmental benefit ranking of the natural resource sites.

Wetlands

Prior to human alteration, wetlands in the East Totten Sub-watershed totaled approximately 141 acres. We estimate that approximately 28 acres are currently wetlands or degraded/destroyed wetlands with some restoration potential. (Figure 23. East Totten Sub-Watershed Resource Sites).

Riparian condition

Development has encroached on approximately seven acres of the 67-meter wide riparian corridors in the East Totten basin. Of the 184 acres, approximately seven acres have some restoration potential (Figure 23. East Totten Sub-Watershed Resource Sites).

Floodplain Condition

There is no regulated floodplain in the East Totten Sub-watershed.

Natural Resource Sites

All potential natural resource sites were evaluated for their environmental benefit and ranked high, medium, or low. Following evaluation, a total of five sites were of high or medium environmental benefit (Figure 24. East Totten Ecological Processes and Resource Site Scoring).

Fish Habitat

There were 18 riparian sites evaluated for habitat value to salmonid fish species. These sites were then used to evaluate potential natural resource sites that have the potential to be stormwater retrofits sites. While the goal is to use natural resource sites as stormwater retrofit sites, we don't want to compromise high quality fish habitat sites.

Stormwater Retrofit

All the natural resource sites were evaluated for stormwater retrofit sites (Figure 25. East Totten Potential Stormwater Restoration Sites).

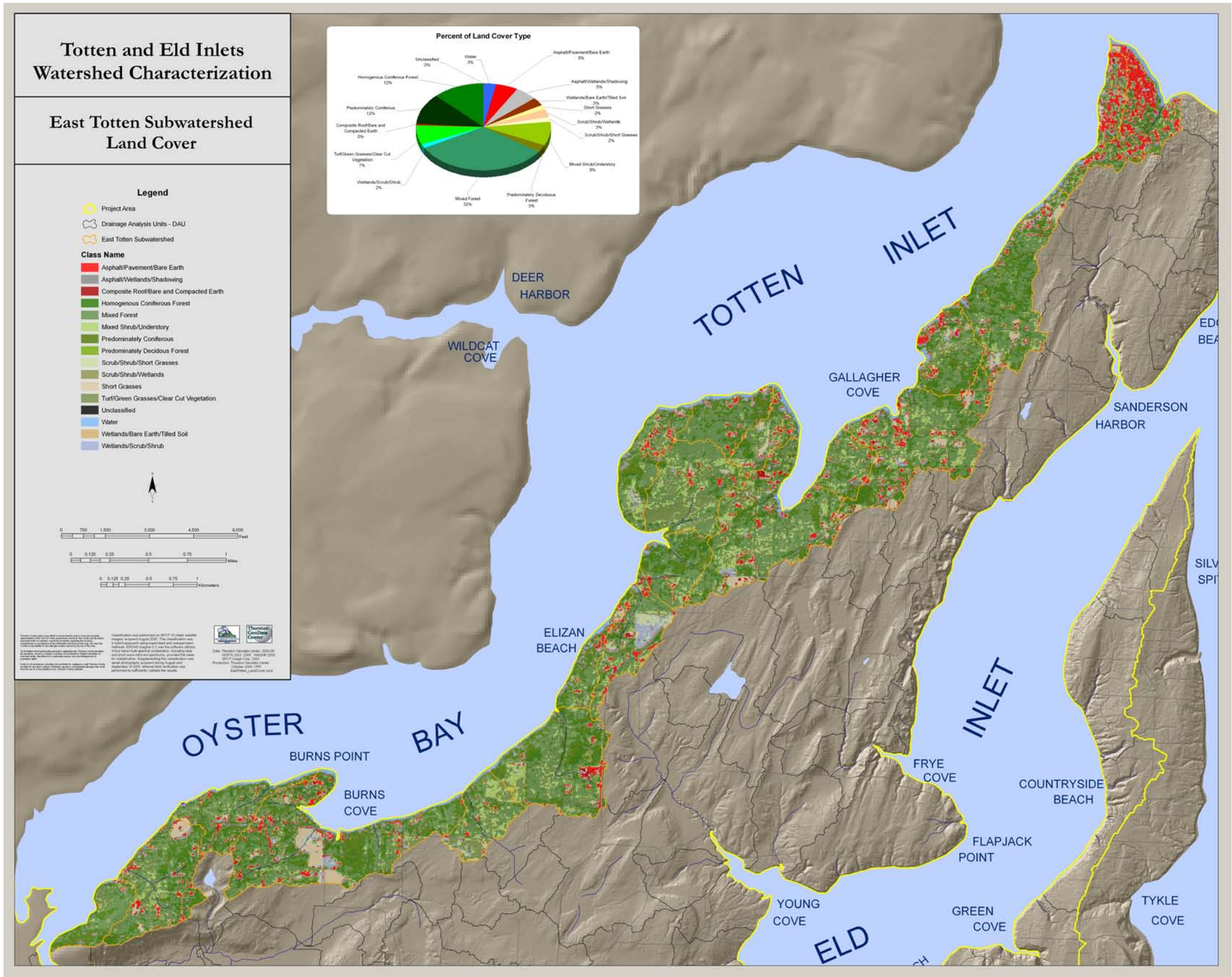

Figure 21 East Totten Sub-watershed Land Cover

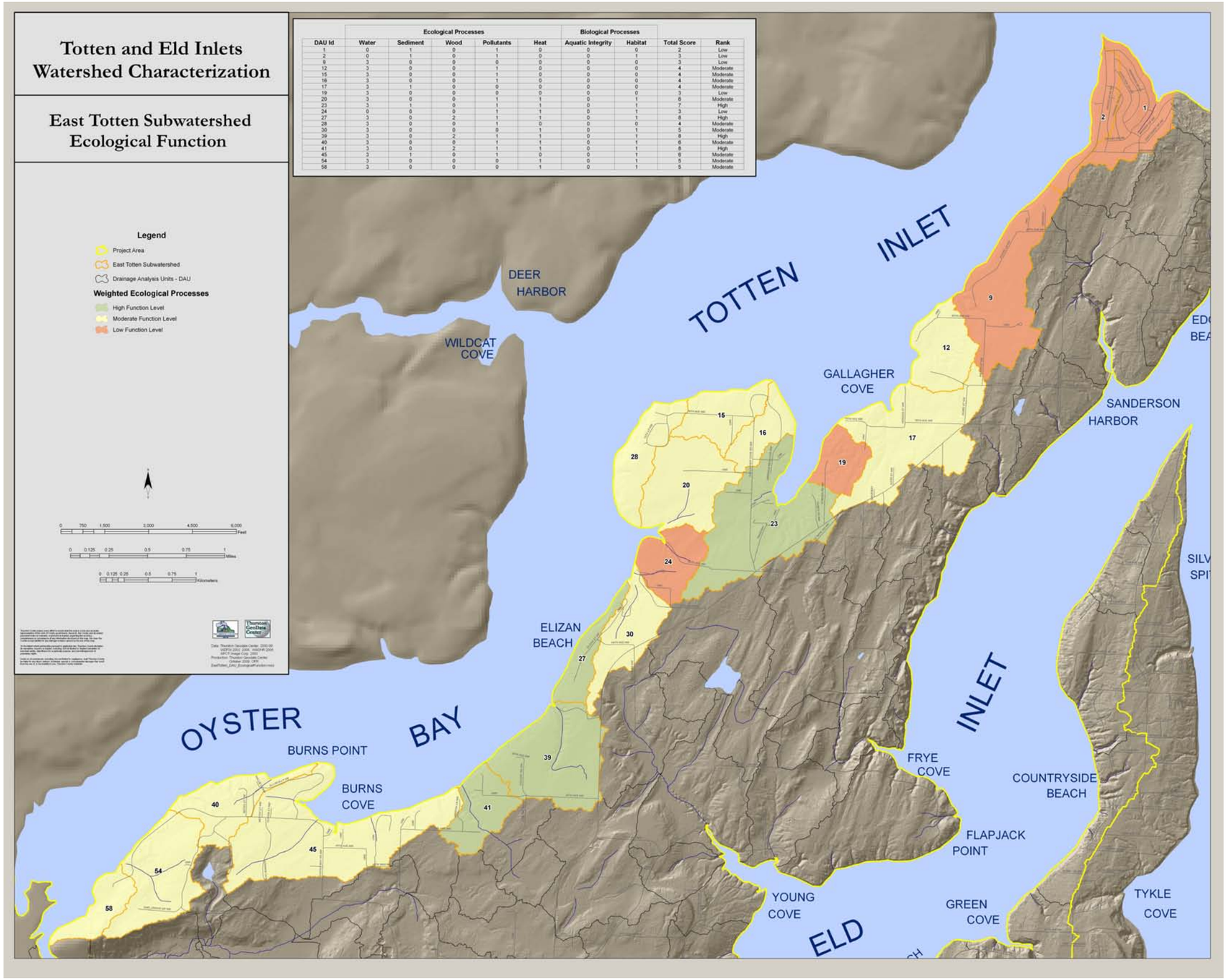

Figure 22 East Totten Sub-watershed Weighted Processes

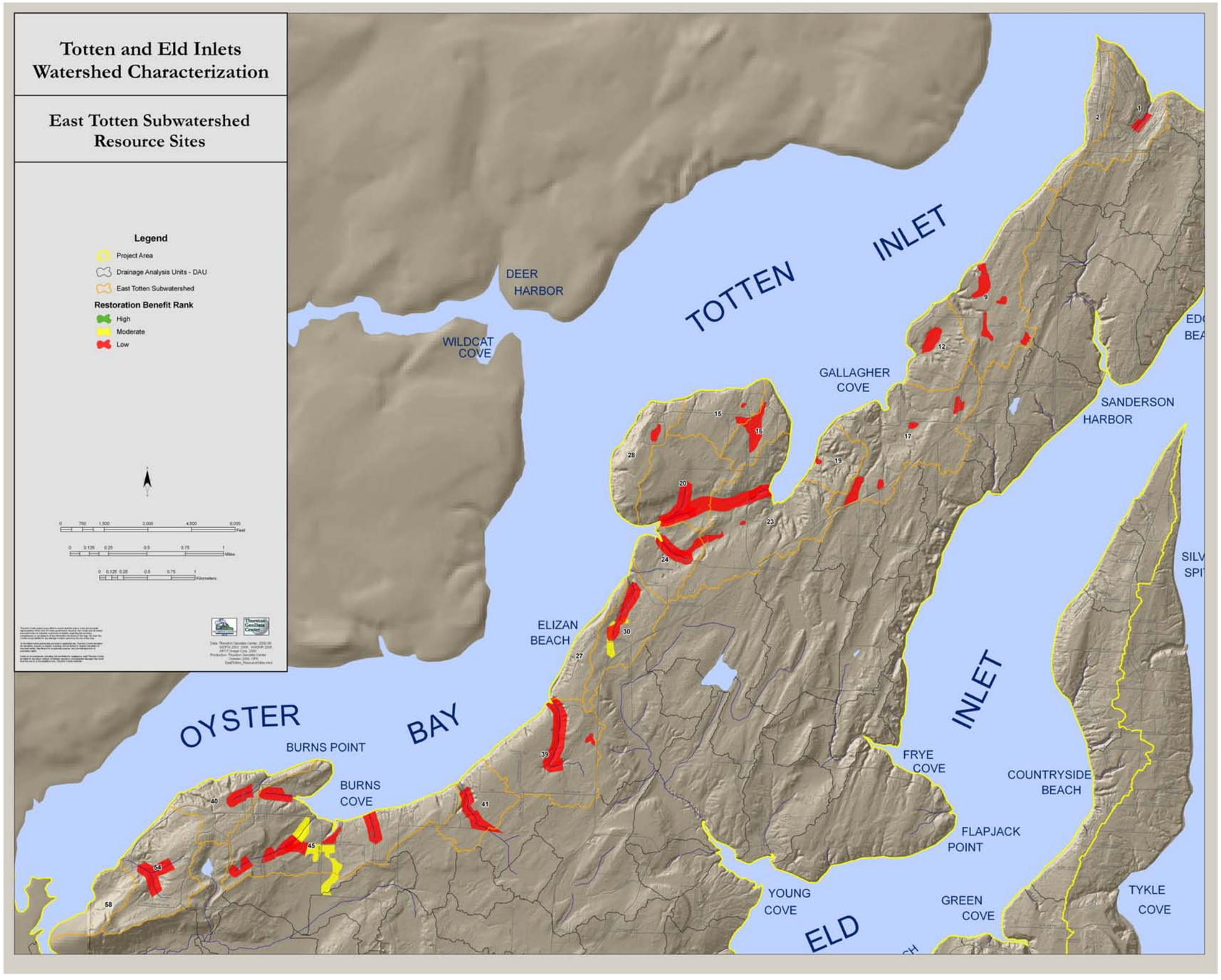

Figure 23 East Totten Sub-watershed Resource Sites

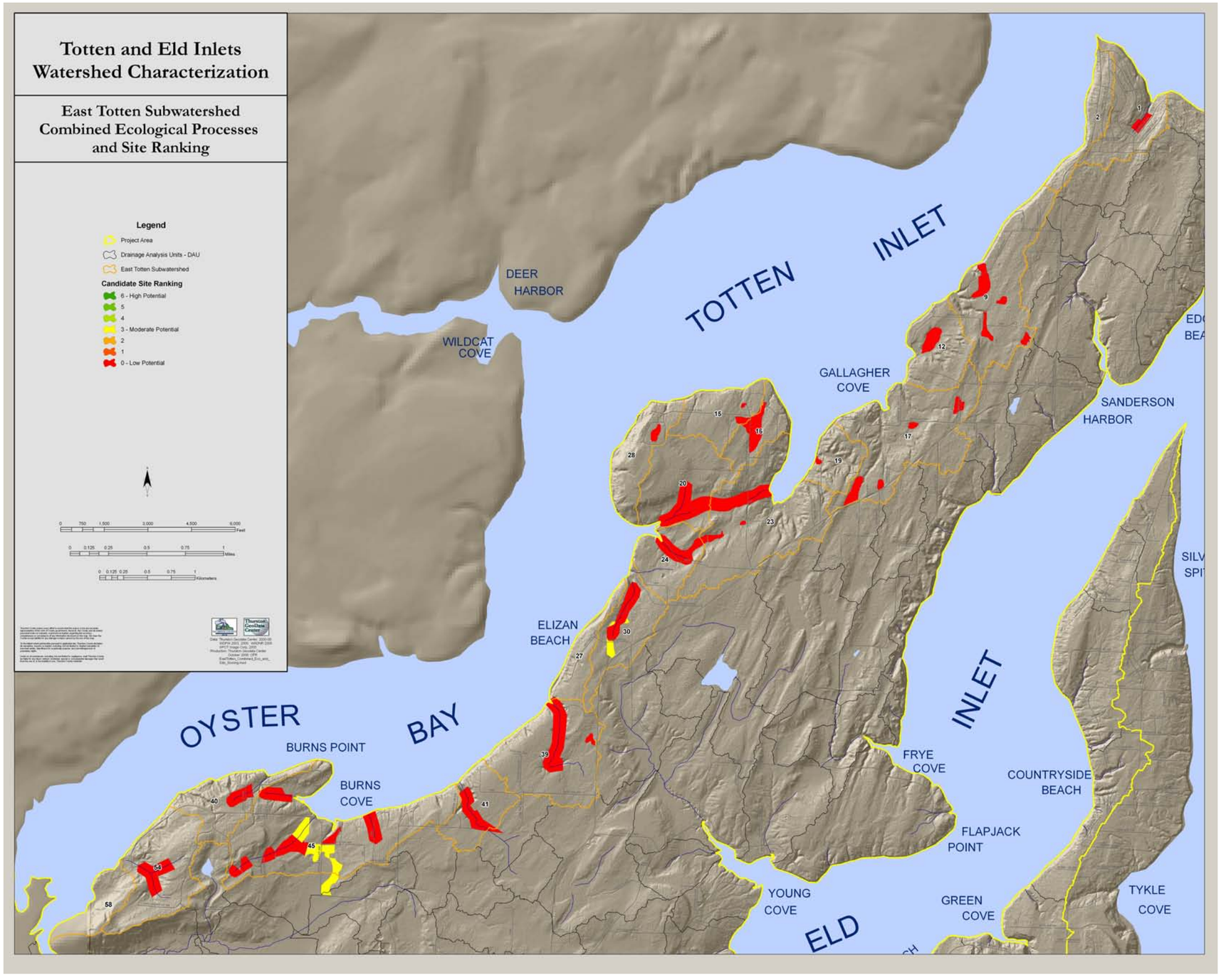

Figure 24 East Totten Sub-watershed Ecological Processes and Resource Site Scoring

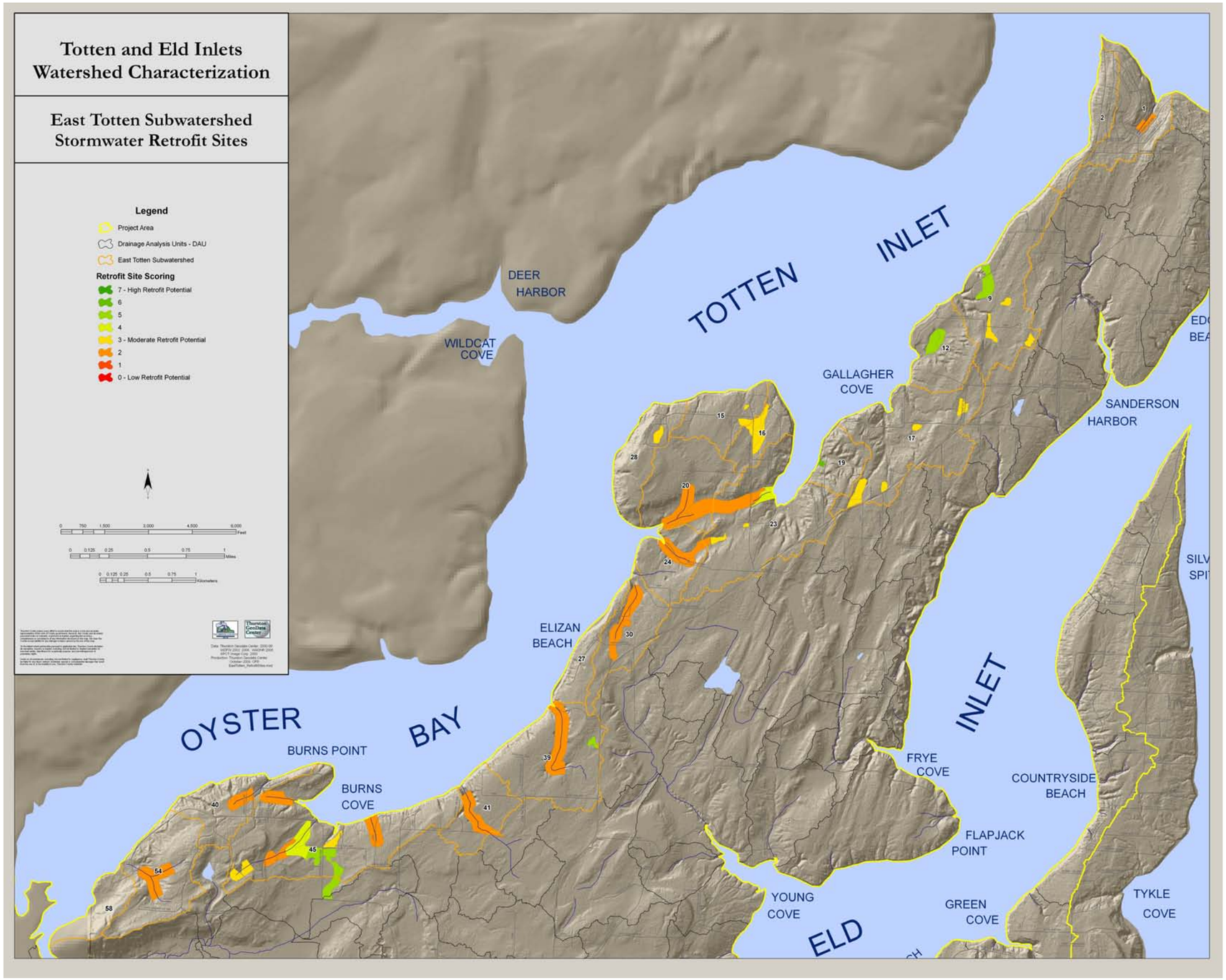

Figure 25 East Totten Sub-watershed Retrofit Sites