APPENDIX H
ENVIRONMENTAL BENEFITS AND ISLAND COMMUNITY UNIT (ICU) CALCULATION

GENERAL REEVALUATION REPORT (GRR) AND
SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT (SEIS)
FOR THE
POPLAR ISLAND ENVIRONMENTAL RESTORATION PROJECT

CHESAPEAKE BAY, TALBOT COUNTY, MARYLAND

The PIERP is a habitat restoration project unique within the Chesapeake Bay. To adequately evaluate the outputs of the proposed expansion project, it was necessary to re-evaluate and re-design the method used to quantify the environmental benefits (outputs) of both the existing project and the proposed expansion options. At the start of the project it was decided that individual species would not be used to quantify environmental benefits, but rather the fish and wildlife communities that would inhabit the island ecosystems. (For purposes of this analysis, 'community' and 'guild' are used interchangeably to describe a group of interacting animals that utilize the resources of a given habitat in a similar way.) The method, developed by USACE-Baltimore with input from a working group involving resource agency representatives, calculates Island Community Units (ICUs) to quantify environmental benefits (with a focus on animal communities) over the life of the restoration project. This restoration measurement was reviewed and approved by the BEWG, and was also employed in the Mid-Chesapeake Bay Island Ecosystem Restoration Feasibility Study and EIS (USACE, 2005b). Environmental benefits of fully developed (graded and planted) cells, in addition to interim environmental benefits realized during dredged material placement, were included in the analysis.

H.1 METHODS

Step 1: Habitat Types and Workgroup Development

The Mid-Chesapeake Island Plan Formulation group determined by consensus to focus on four habitat types that would be constructed as part of large island restoration: upland, high marsh, low marsh, and intertidal/mudflats. Table H-1 provides the areal distribution of habitat types for the six alternatives analyzed. Uplands are important to the island ecosystem because of the nesting habitat they provide for colonial waterbirds (unvegetated) and colonial wading birds (vegetated). During PIERP plan formulation, it was recognized that low marsh has greater primary productivity than high marsh, and that low marsh would provide additional habitat for fish and benthic invertebrates. Because of the value of the low marsh habitat and the large amounts of low marsh lost to erosion throughout the Chesapeake Bay region, an approximate distribution of 80 percent low marsh to 20 percent high marsh was agreed upon for the habitat development of PIERP. The 80 percent low marsh to 20 percent high marsh distribution was incorporated into the plan formulation process for the lateral expansion.

Expansive mudflats/intertidal areas no longer exist in the Chesapeake Bay system and are thought to have been historically rare because of the low tidal range of the Chesapeake Bay system. However, mudflats created intermittently during dredged material placement at PIERP have been extensively used as foraging habitat by a large variety of bird species. Because of their recognized value, mudflats are an important component of the created habitats of a large island restoration project. The plan formulation group agreed to include mudflats/intertidal acreage as approximately 10 percent of the low marsh acreage for formulation.

Table H-1. Potential Distribution (in acres) of Habitat Types for Expansion Study Alternatives

Alternative	Upland	Wetland	Number of bird islands (3 acres each)	High Marsh*	Low Marsh*	Mudflat/ Intertidal*
575 acre expansion with 50% wetlands	275	275	7	55	220	22
575 acre expansion with 50% wetlands and 5-ft vertical raising	275	275	7	55	220	22
575 acre expansion with 55% wetlands	247.5	302.5	7	60.5	242	2.4
575 acre expansion with 55% wetlands and 5-ft vertical raising	247.5	302.5	7	60.5	242	2.4
575 acre expansion with 60% wetlands	235	315	8	63	252	2.5
575 acre expansion with 60% wetlands and 5-ft vertical raising	235	315	8	63	252	2.5

**Assumed that 80 percent of wetland is low marsh, 20 percent is high marsh, and 10 percent of low marsh acreage is mudflat/intertidal (acres are presented to the nearest acre).*

Additional information on island ecosystem habitat and the fish and wildlife communities utilizing island habitats was needed to quantify the environmental benefits large island restoration projects in the Chesapeake Bay. A workgroup was developed to gather the ecological data needed to determine the environmental benefits for each alternative. Members of the workgroup included representatives from state and Federal agencies, plus private consulting firms, and were chosen based on their expertise of remote island habitat or a specific ecological community. The goals of the workgroup were:

1) identify species that use the mid-Chesapeake Bay island and assign these species to communities, and

2) identify the limiting habitat requirements for guild/communities based on the species that comprise those communities.

The panel of experts was polled using the Delphi Method (Crance, 1987),, the results of which were used to define an Island Community Index (Step 4) and calculate Island Community Units (Step 5).

Step 2: Guild/Community Identification

The next step was to identify the species that use remote island habitat in Chesapeake Bay, and then identify the key habitat requirements for those species. Mammals were not included as a specific community for the ICU analysis because birds and fish were identified as the primary users of remote island habitat. Based on the list of species identified, the guilds/communities that utilize remote islands was determined. A total of nine guilds/communities were identified as primary users of remote island habitat in the Chesapeake Bay:

- Colonial nesting wading birds (herons, egrets, and ibises)
- Waterfowl
- Colonial nesting waterbirds (gulls, herons, and skimmers)
- Raptors
- Shorebirds
- Herpetofauna
- Benthic Invertebrates
- Resident/Forage Fish
- Commercial/Predatory/Higher Trophic Level Fish

Step 3: Weighting of guilds/communities

Next, limiting conditions for guilds/communities were established using measurable key habitat features (i.e., feeding and reproductive strategies), and the habitat types that each guild would potentially use were identified. It was recognized that not all communities relied on or would use the restored island to the same degree. For example, some species may utilize all of the habitat types, while other species may preferentially use a single habitat type. Other species may utilize multiple habitat types by using different habitat types for feeding and reproduction. Therefore, a weighting factor was assigned to each guild/community depending on the extent to which a community would utilize remote island habitat (Table H-2). Weights were determined by consensus of the Mid-Chesapeake Bay Island Plan Formulation Group. Weights (W, as a proportion) are incorporated into the ICU calculation that is outlined in Step 5.

Table H-2. Weighting Factors (W) Assigned to Each Guild/Community/Assemblage to Calculate ICUs

Colonial Nesting Wading Birds (herons, egrets, ibises)	12 %
Waterfowl	10 %
Colonial Nesting Waterbirds (gulls, herons, and skimmers)	12 %
Raptors	2 %
Shorebirds	14 %
Birds (total)	**50 %**
Resident/Forage Fish	23 %
Commercial/Predatory/Higher Trophic Level Fish	5 %
Fish (total)	**28 %**
Reptile/Herpetofauna	**2 %**
Benthic Invertebrate	**20 %**

The heavy weight assigned to colonial wading birds and waterbirds, collectively, reflects the reliance these assemblages have on remote island habitat for nesting. The coastal plain, home to nearly 100 percent of the breeding population, is the most important physiographic region in Maryland for nesting colonial wading birds and waterbirds (DNR, 1996). DNR (1996) further identifies that most of the large islands of the Chesapeake Bay, specifically Barren, Bloodsworth, Coaches, Pooles, Poplar, and the Smith Island archipelago, support large numbers of colonial nesting birds. Although, not necessarily reflective of regional trends, a decline in Maryland colonies of Black Skimmer, Common Tern, Gull-Billed Tern, Laughing Gull, and Herring Gull was recorded between 1985 and 2003 (DNR, 2004).

Step 4: Island Community Index (ICI)

An Island Community Index (ICI) for each guild/community for each habitat type was defined. The index is a value between 0 and 1.0. The index is defined as follows:

- 1.0 = optimum/maximum use,
- 0.75 = use probable, but not optimum,
- 0.5 = use possible/some use,
- 0.25 = minimum use,
- 0 = no use/habitat value.

ICIs were then used to classify the probability that a guild/community would utilize a specific habitat type, based on the characteristics and limiting features (e.g., size, vegetation, substrate, maturity) of the habitat. The supporting information for defining ICIs was gathered from the expert workgroup and a literature search. For example, an intertidal/mudflat habitat with an area greater than 25 acres and a sandy beach/shoreline would be assigned a 1.0 (optimum/maximum use) for colonial nesting birds, while an intertidal/mudflat habitat with an area less than 12.5 acres and a sandy beach/shoreline would be assigned a 0.5 (use possible/some use) for colonial nesting birds. The complete list of ICIs used in the analysis is located in Figures H-3 through H-11.

Step 5: Island Community Unit (ICU) Calculation

The annual placement schedule and cell development plan (formulated by USACE Engineering) determined the size of each cell (in acres) and identified the years in which a cell would be filled, graded, and planted. Once planted, cells start to accrue habitat benefits. The maturity time (the time until a habitat develops full benefits) assumed for each habitat type is located in Table H-3. Since the exterior dikes provide a hard substrate used as benthic habitat, a minimum habitat benefit was assigned to the dike acreage and added to each year over the course of the project's life.

Incorporating the defined ICIs, guild weights, habitat areas determined by USACE- Baltimore Engineering, and maturity dates, ICUs were calculated using the following formula, derived by the Mid-Chesapeake Bay Island Plan Formulation Group:

$$\sum_{g} \left[\left[\sum_{H} (I_{gH} * A_{H}) \right] * w_{g} \right]_{g}$$

where g = guild/community
H = habitat type
I = Island Community Index (ICI) Value
A = acreage of habitat type
W = weighting factor for the guild/community (Table H-2).

Table H-3. Habitat Maturity Dates used for the Island Community Unit Incremental Calculation

Wooded upland for Colonial Nesting Wading Birds (nesting)-- (herons, egrets, and ibises)	25+ years
Upland nesting habitat for Colonial Nesting Waterbirds (gulls, terns, and skimmers) (This is essentially an expiration date. Use as nesting habitat is only viable until vegetation is established; after that no use for nesting.)	1 year
Upland for waterfowl use (including woody/shrubby cover surrounding pools for nesting)	10 years
High Marsh (no woody vegetation)	5 years*
High Marsh with woody/shrubby vegetation	10 years
Low Marsh	5 years*
Intertidal (mudflats) (maintained as unvegetated)	5 years*
Benthic invertebrate communities	10 years
**will have some additional benefits after 5 years as invertebrate community develops to maturity*	

A sample ICU calculation is provided in Figure H-1. ICI are assigned to the hundredth decimal point. ICU are calculated to the nearest hundredth because ICI were assigned to the hundredth

decimal place. However, ICU are rounded to the nearest tenth for analysis. Tables summarizing the cell development and ICU analysis for each of the six alternatives are presented in Figures H-12 through H-26.

Based on the ICI analysis, ICUs were calculated for year 1, year 5, year 10, and year 25 after planting. ICUs for years between those calculated were evaluated according to the following assumptions:

a) For upland cells, environmental benefits increase equal amounts per year between years 1 and 5 and 5 and 10. ICUs are constant between years 10 and 25. A step increase occurs in year 25 when maximum upland benefits are reached.

b) The majority of the function for a wetland cell will be reached by year 5 with a small amount of increased benefits through year 10 when the benthic invertebrate assemblage matures. Of the function existing by year 5, it was assumed that 75 percent was achieved by year 3. Benefits increase equal amounts per year between years 1 to 3, 3 to 5, and 5 through 10. Wetland benefits are constant after year 10 until interior dikes can be removed in year 15. Once the interior dikes are removed, the joined wetland cells would have increased benefits because of the increased expanse of habitat.

A 3-acre bird island was incorporated into the design as decided by the plan formulation group to provide waterbird (unvegetated) and wadingbird (vegetated) nesting habitat with managed predator protection. Additional assumptions made in quantifying environmental benefits are that the wetland subcells become continuous once the interior dikes are removed in year 15, and that only upland habitat was evaluated for year 25. Table H-4 provides a summary of the habitat features that provide value to the proposed habitat types. These features need to be included in final cell designs to achieve full environmental benefits.

Step 6: Interim Benefits

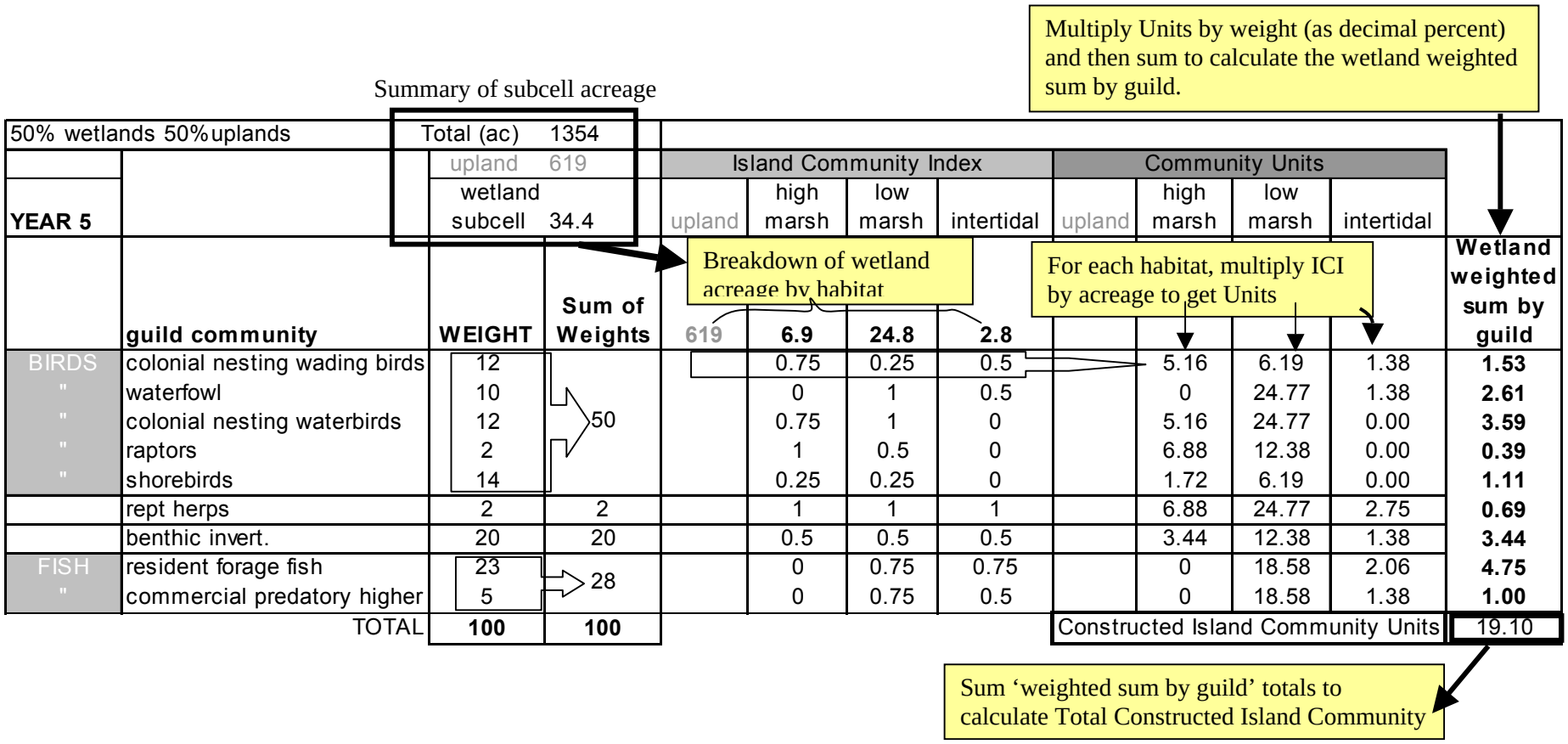
It was also assumed that cells will have interim environmental benefits while placement is occurring, but prior to planting. During placement years, cells are characterized as impounded water, mudflat, or a combination of both. The following general rules were used to calculate ICUs to quantify these interim environmental benefits.

(a) Evaluate benefits from the ***mudflat*** acreage by determining ICI of a mudflat habitat at year 1 and calculating ICU. This habitat will constantly be disturbed by annual placement. Therefore, the habitat is assumed to remain in a state of disturbance until the cell is full and an ICU at year 1 is assigned until the cell is graded and planted.

(b) ***Impounded water*** created as placed dredged material dewaters has a minimum habitat benefit. A weighted value of 0.01 was assigned to the impounded water acreage to account for this small benefit. The acreage of the impounded water within a cell was multiplied by 0.01 to determine the ICU.

(c) For years when ***both mudflats and impounded water*** are within an undeveloped cell, the ICU determined for the mudflat acreage and the ICU for the impounded water acreage were summed. That value was assigned as the total interim ICU for that year.

(d) ***Exterior perimeter dikes*** provide minimum habitat benefit, so a weighted index of 0.01 was assigned to the dike acreage. The ICU for the dikes was calculated by multiplying the dike acreage by 0.01. That value was then included in the annual ICU total over the course of the project's life.



50% wetlands 50% uplands		Total (ac) 1354										
		upland 619		Island Community Index				Community Units				
YEAR 5		wetland subcell 34.4		upland	high marsh	low marsh	intertidal	upland	high marsh	low marsh	intertidal	Wetland weighted sum by guild
	guild community	WEIGHT	Sum of Weights	619	6.9	24.8	2.8					
BIRDS	colonial nesting wading birds	12	50		0.75	0.25	0.5		5.16	6.19	1.38	**1.53**
"	waterfowl	10			0	1	0.5		0	24.77	1.38	**2.61**
"	colonial nesting waterbirds	12			0.75	1	0		5.16	24.77	0.00	**3.59**
"	raptors	2			1	0.5	0		6.88	12.38	0.00	**0.39**
"	shorebirds	14			0.25	0.25	0		1.72	6.19	0.00	**1.11**
	rept herps	2	2		1	1	1		6.88	24.77	2.75	**0.69**
	benthic invert.	20	20		0.5	0.5	0.5		3.44	12.38	1.38	**3.44**
FISH	resident forage fish	23	28		0	0.75	0.75		0	18.58	2.06	**4.75**
"	commercial predatory higher	5			0	0.75	0.5		0	18.58	1.38	**1.00**
	TOTAL	**100**	**100**					Constructed Island Community Units				19.10

Figure H-1. ICU Example Calculation: 50% wetlands, 50% uplands - wetland cell in Year 5

Table H-4. Habitat Features to be Included in Design to Reach Full Benefits

Upland:

1. Immature (newly constructed) uplands- the sparsely vegetated to open sand, soil, or shell is considered colonial nesting waterbird habitat. There will need to be intense predator control. Once vegetation is established uplands will no longer be used for colonial nesting waterbird habitat.
2. Freshwater ponds are included to provide benefits to colonial nesting wading birds and waterfowl.
3. Forested edge adjacent to high marsh to provide benefits to waterfowl.

High Marsh:

1. Include intertidal ponds for colonial nesting wading birds, waterbirds, shorebirds, waterfowl, and herpetofauna. At least some of these should be fishless (herpetofauna).
2. Include acreage adjacent to uplands for waterfowl.
3. Incorporate hummocks for waterfowl.
4. Include channels to enhance habitat for waterfowl and herpetofauna.

Low Marsh:

1. Some acreage should be upgrade from sand beach to provide benefits for colonial nesting wading birds and waterbirds, and waterfowl.
2. Some acreage should not be up grade from sand beach to benefit resident/forage fish and commercial/predatory/higher trophic.fish.
3. Low marsh needs to be cut with channels to benefit all communities with exception of raptors. Channels on eastern side will specifically benefit herpetofauna.
4. Include intertidal and tidal pools to benefit colonial nesting waterbirds, wading birds, waterfowl, and shorebirds.

Intertidal/Unvegetated Mudflat:

1. Include channels to provide benefits to herpetofauna, resident/forage fish and commercial/predatory/higher trophic fish
2. Include sandy beaches to benefit colonial nesting wading birds, waterbirds, shorebirds, and herpetofauna.
3. Sand beaches cut with channels provide benefit to resident/forage fish and commercial/predatory/higher trophic fish.
4. Intertidal mudflats adjacent to channel provide benefits to herpetofauna.

Bird Islands:

1. Vegetation and predator control is needed to maintain the bird islands for colonial waterbird nesting habitat. 1-2 ha (2.5 to 5 ac) is optimal size.

For the existing project (PIERP), the ratio of open water to mudflat prior to planting was known and used in the calculation. For the northern lateral expansion, the following rules were used to determine the portion of a cell to evaluate as mudflat and the portion to evaluate as impounded water prior to grading:

For the upland cells:

a) The first four years of placement in an upland cell were quantified as impounded water.
b) An upland cell was quantified as a mudflat (year 1 maturity) after the sub-cells have been built.
c) The years after the first four years of placement and before construction of sub-cells are valued as 20 percent impounded water and 80 percent mudflat.

For the wetland cells:

a) Wetland cells were quantified as impounded water for the first three years of placement.
b) Wetland cells were quantified as mudflat for each year after the first three years of placement.

Step 7: Total ICU/year

Once the ICUs and interim ICUs for each subcell were calculated, ICUs for all cells for an individual year were summed to obtain Total ICU/year. The Total ICU/year versus time was plotted to determine how the habitat benefits will develop and come on-line with construction of the island alternative.

H.2 INTERIM BENEFITS CONTRIBUTION

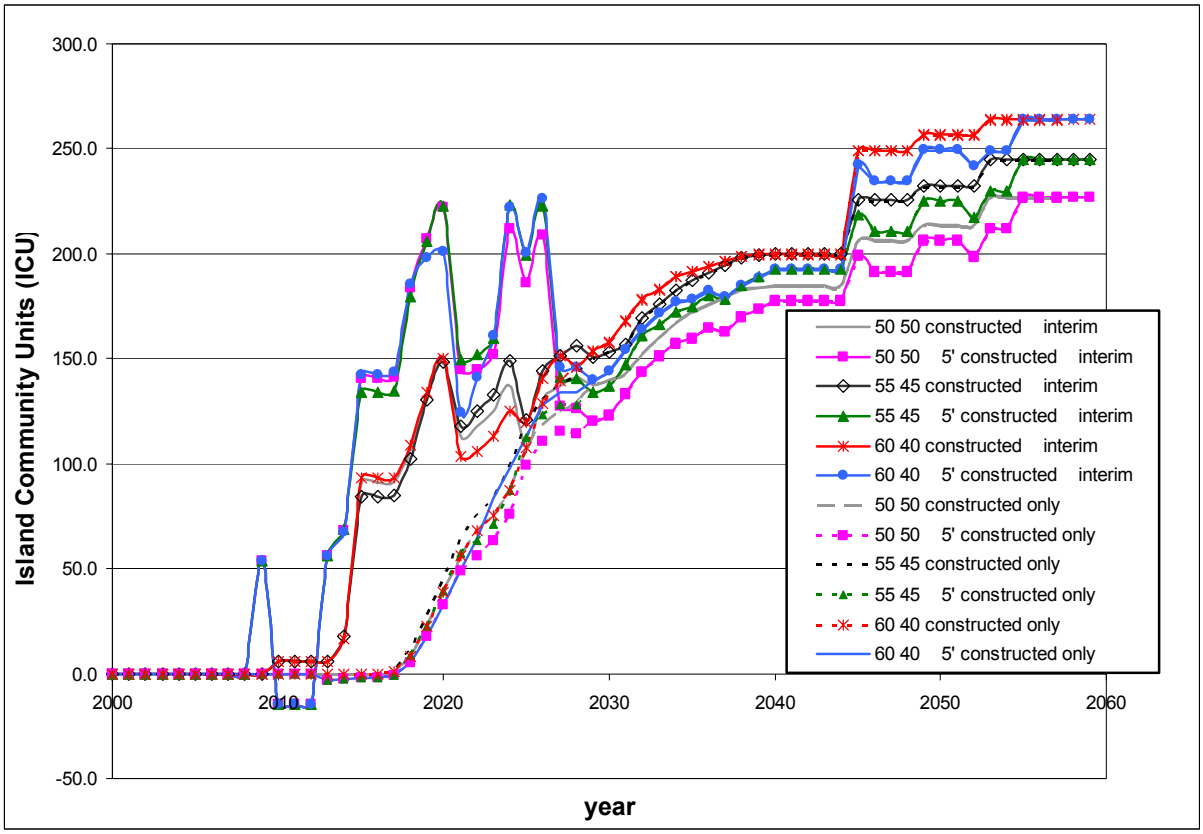
Interim benefits for each of the created habitats were calculated, and the development of environmental benefits over time is depicted in Figure H-2. This figure highlights the contribution interim benefits make to the total ICU of each individual scenario. Solid lines represent annual ICU totals that include benefits from both the constructed wetland/upland habitats and the interim habitats (mudflats/open water). Dashed lines represent annual benefits for each scenario when interim benefits are not included in the ICU calculation.

Initially, interim benefits account for 100 percent of the benefits of all alternatives. For each alternative, the first constructed ICU occurs in 2017 when the first wetland cell is planted. Interim benefits are significant between 2010 and 2028 for the three alternatives without the dike raising, and between 2009 and 2028 for the three 'raised' alternatives. After the late 2020's the inclusion of interim benefits in the evaluation is inconsequential. Interim benefits are greatest in 2019 and 2020 for all alternatives except 60 percent wetlands, 40 percent uplands with a 5 ft vertical expansion. The 60 percent wetlands, 40 percent uplands with a 5 ft vertical expansion alternative accrues maximum interim benefits one year earlier (in 2018 and 2019) because of the development sequence of upland cells. A sharp drop in interim benefits, such as in 2021, 2025, and 2027, reflects the grading of upland cells and the associated conversion of valuable mudflat habitat (high ICU) to graded cells and subsequent immature upland habitat (low ICU).

Of the total benefits that accrue over the lifetime of the project, interim benefits account for 9.9 to 11.5 percent of the cumulative ICU for each alternative without the dike raising and 17.6 to 20.6 percent of the ICU for the each of the three 'raised' alternatives. Alternatives with the dike raising provide greater interim benefits, particularly between 2015 and 2026, as a result of the delay in developing the upland cells. Upland cells remain as mudflats for six years longer with the dike raising than they do for the 'non-raised' alternatives. Beginning in 2017 for alternatives without the dike raising and 2018 for 'raised' alternatives, the contribution of interim benefits

steadily diminishes. By 2029 and through the remainder of the project life, interim benefits account for less than 0.5 percent of total annual ICUs.

The schedule for filling, grading, and planting individual cells has a great impact on the development of interim ICUs. Divergences during construction (actual placement) from the theoretical placement model used to determine ICUs would alter the development of environmental benefits. Intermediate years that cover transitions of subcells from placement to grading would be affected the greatest. The placement schedule does not affect the maximum benefits achieved by an alternative once all habitats are mature. Additionally, the value of the benefits after a cell is graded and planted is not affected, but the placement schedule would affect when the benefits start to accrue for individual cells.



Note: six scenarios were evaluated. Island Community Units are calculated for each of the six scenarios in two ways: 1) 'constructed + interim' ICU benefits (solid lines), 2) 'constructed' benefits only (dashed lines). For each alternative, both methods are depicted in the same color.

Figure H-2. PIERP Expansion Study Environmental Benefits Analysis

H.3 INTEGRATION OF THE OPEN-WATER EMBAYMENT

Following the completion of the plan formulation process, a proposal from National Marine Fisheries Service (NMFS) and subsequent discussions with the Environmental Protection Agency (USEPA), Fish and Wildlife Service (USFWS), Maryland Department of Natural

Resources (MDNR), and Maryland Department of the Environment (MDE) led to the development and evaluation of an open-water embayment that could potentially be incorporated into a northern lateral alignment.

NMFS initially proposed a variation for the northern lateral alignment that included an open-water embayment at a resource agency meeting on December 15, 2004 (Appendix F, agency coordination dated January 18, 2005). In the NMFS proposal, the footprint of the northern lateral alignment was the same as those proposed by USACE, but approximately 130 acres of wetland located on the western side of the lateral expansion was designated as an open-water embayment protected by segmented breakwaters and bordered by salt marsh and mudflats. The inclusion of an open-water embayment within the footprint of the lateral expansion would provide semi-protected fisheries habitat adjacent to wetland and upland cells, and would increase the trophic interaction between the wetland cells and the open-water embayment within the lateral expansion. The bottom habitat of the open-water embayment would remain essentially undisturbed, preserving the existing bathymetry and benthic habitat. In addition, the construction of small rock reefs within the open-water embayment would provide cover and enhance fish habitat. USACE-Baltimore District modified the initial open-water embayment proposed by NMFS to enhance the hydraulic characteristics of the proposal and minimize the impact on the dredged material placement capacity of the lateral expansion. The open-water embayment alignment consists of a 575-acre (nominal area contained within the project footprint) lateral expansion to the north and northeast of the existing project, and a 5-ft vertical raising of the existing upland cells (Cells 2 and 6). No dredged material will be placed within the open-water embayment.

Based on the agency consultation to-date, the open-water embayment could potentially range between 80 to 140 acres in size. Concerns pertaining to specific components of the open-water embayment will be discussed and evaluated further in the next design phase of the project based on additional consultation with each resource agency (USFWS, NMFS, USEPA, MDNR, and MDE) and MPA (the non-Federal sponsor); results of additional hydrodynamic modeling studies; and additional design considerations. However, for the evaluation conducted in this document, the size of the open-water embayment within the northern lateral expansion was estimated to be 130 acres in size.

Table H-5. Distribution (in acres) of Habitat Types for 60 Percent Wetland and Open-Water Embayment Alternatives

Alternative	Upland	Wetland	Tidal Gut	Open Water	High Marsh*	Low Marsh*	Mudflat/ Intertidal*
575-Acre Expansion with 60% Wetland & 40% Upland + 5' Raising	235	315	25	None	63	252	2.5
575-Acre Expansion with 29% Wetland, 47% Upland, & 24% Open Water + 5' Raising	270	165	10	130	33	132	1.3

**Assumed that 80 percent of wetland is low marsh, 20 percent is high marsh, and 10 percent of low marsh acreage is mudflat/intertidal (acres are presented to the nearest acre).*

USACE-Baltimore District conducted an evaluation of the inclusion of an open-water embayment within the footprint of the lateral expansion. The open-water embayment alignment consists of the expansion of the existing PIERP to the north and northeast, with a 575-acre lateral expansion component consisting nominally of 29 percent wetland habitat, 47 percent upland habitat, and 24 percent open water (Table H-5); plus a vertical expansion component consisting of a 5-ft raising of the upland cells of the existing project. Based on the agency consultation to-date, the open-water embayment could potentially range between 90 to 140 acres in size. However, for the evaluation conducted in this document, the size of the open-water embayment within the northern lateral expansion was estimated to be 130 acres in size. The final size of the open-water embayment will be evaluated further in the next design phase of the project based on additional consultation with resources agencies and the non-Federal sponsor, Maryland Port Administration (MPA); results of additional hydrodynamic modeling studies; and additional design considerations.

When the open-water embayment concept was initially proposed, screening assessments conducted during previous steps of the plan formulation process had already eliminated several expansion options. Therefore, the results of the open-water embayment evaluation were compared only to the viable alternatives remaining after the plan formulation: 1) the no action alternative; 2) 60 percent wetlands, 40 percent uplands plus a 5-ft raising of the existing upland cells; and 3) 50 percent wetlands, 50 percent uplands plus a 5-ft raising of the existing upland cells. Details of the calculation of the environmental benefits of the open-water embayment are provided in the following sections.

H.3.1 Revised Methods to Evaluate the Open-Water Embayment

Constructed and interim environmental benefits of including a 130-acre open-water embayment within the northern lateral alignment were calculated using the same seven-step process and equations presented above (Section H.1) to determine total ICUs (annual and cumulative). However, to better quantify the contribution of the open-water habitat provided by an embayment within the northern lateral alignment, the methods used to calculate the ICU were modified to reflect use by the fish guilds/communities. Changes to the methods used in the ICU calculation are described in the following sections.

H.3.1.a Guild/Community Identification The fish guilds/communities evaluated in the original ICU model (Table H-2) did not adequately capture open-water habitat use. Coordination with John Nichols (NMFS) and Dave Meyer (NOAA) indicated that to more fully evaluate open-water habitat use, the ICU model should be revised to include three fish guilds/communities, rather than the two used in the original ICU model (forage/resident fish and commercial/predatory/higher trophic level fish). These three guilds, as well as representative species are:

1. *Bottom feeders (open subtidal and/or reef)* - striped bass (adult and juvenile), white perch (adult and juvenile), spot, croaker, weakfish, summer flounder (adult and older juvenile), and blue crab (adult)

2. *Pelagic zone feeders* - 1) planktivorous species: menhaden, bay anchovy, alewife and blueback herring (juvenile); and 2) piscivorous species: bluefish

3. *Shallow water (<3 feet) and marsh feeders (tidal guts and tributaries)* - striped bass (juvenile), white perch (juvenile), summer flounder (young-of-the-year), blue crab (juvenile), silverside, and killifish. (This group has a preference for bottom habitats as opposed to pelagic environments)

H.3.1.b Weighting of Guilds/Communities The weighting factor assigned to the fish guilds/communities had to be adjusted to account for the restructured fish guilds/communities. Table H-6 provides the modified weighting factors (W) used to evaluate the open-water embayment. Note that the overall sum of the weight of the fish communities used to calculate the ICUs was not changed (28 percent) - the fish guilds account for identical proportions in the original model and the modified ICU model.

H.3.1.c Island Community Index (ICI) Development ICI were defined for each of the three fish guilds/communities, as outlined in Figures H-27 through H-29. Mr. Nichols and Mr. Meyer assisted in the development of the ICIs. [Mr. Nichols and Dave Meyer were members of the group originally polled by the Adelphi Method] Additional sources of information included Habitat Requirements for Chesapeake Bay Living Resources (1991) and Able and Kaiser (1994).

Table H-6. Evaluation of the Open Water Embayment: Weighting Factors (W) Assigned to Each Guild/Community/Assemblage to Calculate ICUs

Colonial Nesting Wading Birds (herons, egrets, ibises)	12%
Waterfowl	10%
Colonial Nesting Waterbirds (gulls, herons, and skimmers)	12%
Raptors	2%
Shorebirds	14%
Birds (total)	**50%**
Bottom Feeders	12%
Pelagic Zone Feeders	8%
Shallow Water (<3 feet) and Marsh Feeders (Tidal Guts and Tributaries)	8%
Fish (total)	**28%**
Reptile/Herpetofauna	**2%**
Benthic Invertebrate	**20%**

Several physical features of the open-water embayment would provide habitat benefits, including water depth; connection to the pelagic zone; subtidal substrate; marsh edge; reef structures; tidal guts; and mudflats. Placement of the open-water embayment on the western side of the proposed alignment would provide fish access to deep pockets (10-12 feet) of water, as well as adjacent deep water outside the alignment. In addition, situating the embayment on the western side of the northern lateral alignment would promote flushing, both from wind driven circulation and water currents. Maximizing marsh edge and the number of tidal channels would provide the greatest connection between the open water and marsh. These features are important for providing input of marsh production to enhance detrital concentrations (which provide a food source) and zooplankton productivity, in addition to providing access to the wetland habitat. As the organic input from the wetland increases, a corresponding increase in benthic diversity would also occur. The incorporation of at least one wide opening (greater than 200-ft) between breakwaters at the mouth of the cove would allow pelagic species, such as adult bluefish and menhaden, access to the cove. Both species may be limited if such access is not provided.

To quantify the benefits that the embayment would provide to groups other than fish, embayment habitat ICI were defined for each of the non-fish guilds/communities and are described in Figures H-30 through H-36. Scientists from USGS and MDNR were consulted to develop these criteria.

As with the four other habitat types (upland, high marsh, low marsh, and Intertidal/unvegetated mudflats), benefits of the embayment will increase with time as the project is developed. Rather than add a maturity date specifically for the embayment (Table H-3), the benefits of the embayment were assumed to increase as the wetland cells were developed (Table H-7). That is, as the wetland connection, tidal guts, and shoreline increased, the benefits of the embayment increased.

Total ICUs were calculated using the adjusted guilds, weighting factors and ICIs (Figures H-37 through H-43).

Table H-7. Evaluation of the Open Water Embayment: Habitat Features to be Included in Design to Reach Full Benefits

Upland:
1. Immature (newly constructed) uplands- the sparsely vegetated to open sand, soil, or shell is considered colonial nesting waterbird habitat. There will need to be intense predator control. Once vegetation is established uplands will no longer be used for colonial nesting waterbird habitat.
2. Freshwater ponds are included to provide benefits to colonial nesting wading birds and waterfowl.
3. Forested edge adjacent to high marsh to provide benefits to waterfowl.

High Marsh:
1. Include intertidal ponds for colonial nesting wading birds, waterbirds, shorebirds, waterfowl, and herpetofauna. At least some of these should be fishless (herpetofauna).
2. Include acreage adjacent to uplands for waterfowl.
3. Incorporate hummocks for waterfowl.
4. Include channels to enhance habitat for waterfowl and herpetofauna.

Low Marsh:
1. Some acreage should be upgrade from sand beach to provide benefits for colonial nesting wading birds, waterbirds, and waterfowl.
2. Some acreage should not be up grade from sand beach to benefit resident/forage fish and commercial/predatory/higher trophic.fish.
3. Low marsh needs to be cut with channels to benefit all communities with exception of raptors. Channels on eastern side will specifically benefit herpetofauna.
4. Include intertidal and tidal pools to benefit colonial nesting waterbirds, wading birds, waterfowl, and shorebirds.

Intertidal/Unvegetated Mudflat:
1. Include channels to provide benefits to herpetofauna, resident/forage fish and commercial/predatory/higher trophic fish
2. Include sandy beaches to benefit colonial nesting wading birds, waterbirds, shorebirds, and herpetofauna.

Intertidal/Unvegetated Mudflat (continued)
3. Sand beaches cut with channels provide benefit to resident/forage fish and commercial/predatory/higher trophic fish.
4. Intertidal mudflats adjacent to channel provide benefits to herpetofauna.

Bird Islands:
1. Vegetation and predator control is needed to maintain the bird islands for colonial waterbird nesting habitat. 1-2 ha (2.5 to 5 ac) is optimal size.

Embayment:
1. Locate on west side of island to permit access to deep waters to benefit bottom feeding fish and promote flushing.
2. Include reefs for bottom feeding fish.
3. Minimize disturbance to natural substrate bottom

Table H-7. (continued)

4. Remove >25% of exterior dikes to allow the greatest non-hardened shoreline and increase connection with wetland.
5. Include intertidal flats along the shoreline and interior tidal channels to promote access and provide connectivity between open water and wetland.
6. Maximize the number of tidal guts connecting open water with wetlands to provide the greatest connection with wetland, promote access, and increase organic export from wetland.
7. Include two 200-ft openings in breakwater to permit access to pelagic zone feeders (menhaden and bluefish).
8. Low marsh is dominated by smooth cordgrass to benefit shallow water and marsh feeding fish.

H.3.2 Results and Discussion

Two scenarios for the northern lateral alignment were evaluated using the modified ICU model:

1. A 130-acre open-water embayment alignment, with a 5-ft raising of the existing uplands (Figure H-42), and
2. 60 percent wetland, 40 percent upland with 5-ft raising of existing uplands (Figure H-43).

H.3.2.a Maximum Annual ICUs Each of the evaluated scenarios reached similar maximum annual ICU (Table H-8). The annual ICU calculated with the modified ICU model are comparable to the annual ICUs reached by the original ICU model.

The original model determined a maximum annual ICU of 264 for the 60 percent wetland, 40 percent upland options (with and without the 5-ft raising). In all but a few years at the beginning of the project, the annual ICUs calculated for the 60 percent wetland, 40 percent upland options using the original model are higher than those calculated using the modified ICU. There is an average difference of 3.6 percent between the two models for the non-raised annual ICUs and 5.5 percent for the raised annual ICUs. On an annual basis, the two models similarly capture the benefits provided by the project.

Table H-8. Evaluation of the Open Water Embayment: Annual ICU per Year for Additional Scenarios Using the Updated ICU Model

Expansion Alternative	Maximum Annual ICUs	Total Cumulative ICUs
575-Acre Expansion with 60% Wetland & 40% Upland + 5' Raising	246	8,372
575-Acre Expansion with 29% Wetland, 47% Upland, & 24% Open Water + 5' Raising	247	9,768

H.3.2.b Interim Benefits Interim benefits using the modified ICU model were calculated (Figure H-44). The increase in ICUs associated with the 5-ft raising of the existing upland cells at the PIERP is a result of postponing upland cell development. For options including a 5-ft

raising of the existing upland cells, subcells remain as mudflats for a longer period of time compared to the non-raised options. A decrease in annual ICUs is evident once the upland cells are divided and immature upland habitat is established. The effect of interim benefits is discussed in more detail in Section H.2.

H.3.2.c Cumulative ICUs There are considerable differences between the cumulative ICUs calculated using the original and modified ICU models. Cumulatively, the options that include the embayment provide greater benefits over the lifetime of the project (50 years) (Table H-9). The embayment provides large benefits much sooner than these benefits would be achieved by allowing the wetlands to mature. Although there is a time lag before the full benefits of the embayment are fulfilled, it is estimated that greater than 85 percent of the benefits would be achieved by year 5 when three wetland cells and their associated tidal channel are operational. Over the lifetime of the project, the inclusion of the embayment contributes considerably more benefits that results in the higher cumulative total.

Cumulative ICUs differ also when the results of the two models are compared. For the 60 percent wetland, 40 percent upland with 5-ft raising of existing uplands option, the original model determined a higher number of ICU (9,015) as compared to the modified version of the model (8,372). Multiple factors contribute to the difference between the cumulative totals of the two models. First, the fish guild/community ICIs of the modified version of the model are more specific than those used for the original two fish guilds. This results in a small decrease in benefits for the fish guilds when using the modified version of the model to evaluate the 60 percent wetland, 40 percent upland option, specifically for low marsh habitat. Second, with the redistribution of the weights between the fish guilds, the weighting for species that would heavily use wetland habitat decreased from 23 percent to 8 percent. This change results in a further reduction of the quantified benefits when evaluating options that are largely wetland acreage, such as the options with 60 percent wetland, 40 percent upland. Finally, the fish guilds were restructured to capture the benefits of open water habitats. As a result, evaluating alternatives that do not include open water habitat with the modified version of the ICU model do not adequately depict habitat use by fish.

H.4 SUMMARY OF ENVIRONMENTAL BENEFITS CALCULATION

To adequately evaluate the outputs of the proposed expansion project, the method used to quantify the environmental benefits of both the existing project and the proposed expansion options was redesigned to use the fish and wildlife communities that would inhabit the island ecosystem, rather than individual species benchmarks. Using a seven-step method, ICI and ICU were calculated for six lateral/vertical expansion scenarios (Table H-9).

Subsequent to the completion of that analysis, a seventh expansion scenario (575-acre lateral expansion component consisting nominally of 29 percent wetland habitat, 47 percent upland habitat, and 24 percent open water; plus a vertical expansion component consisting of a 5-ft raising of the upland cells of the existing project) was evaluated using a modified version of the ICU model. Because of the need to evaluate alignments that include open-water habitats, the fish guild component of the ICU model was modified to adequately capture the fish use of the open-water embayment, particularly the deep-water access the embayment would provide. The

appropriate fish guilds used to determine environmental benefits of each expansion alternative depend on the alignment being evaluated (open-water embayment included or no open-water embayment). The results of the ICU analysis indicated that the open-water embayment alignment would add the greatest number of cumulative ICUs (9,768) to the overall project (Table H-9)

Table H-9. Summary of Additional ICUs for Poplar Island Expansion Alternatives

Scenario	Expansion Alternative	Additional ICUs*
1	575 acre expansion with 50% wetlands	7,693
2	575 acre expansion with 50% wetlands and 5-ft vertical raising	8,118
3	575 acre expansion with 55% wetlands	8,274
4	575 acre expansion with 55% wetlands and 5-ft vertical raising	8,699
5	575 acre expansion with 60% wetlands	8,599
6	575 acre expansion with 60% wetlands and 5-ft vertical raising	9,045
7	575-acre expansion with 29% wetland, 47% upland, & 24% open water and 5-ft vertical raising	9,768

**results based on using fish guilds appropriate to alignment, i.e. resident/forage fish and predatory/higher trophic fish guilds for Scenarios 1 through 6 (alignments with no embayment- Section H.1), and bottom feeding, pelagic zone feeding, and shallow water/marsh feeding fish guilds for Scenario 7(open-water embayment alignment, Section H.3.1)*

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Figure H-3. Index Community Index (ICI) for Colonial Nesting Wadingbirds (herons, egrets & ibises)

Habitat Type	*Index*	*Description*
Upland (as nesting sites)	1	2-10 ha (5-25 ac) including woody vegetation, availability of >250m (820 ft) buffer for heronries, and freshwater ponds
	0.75	2-10 ha (5-25 ac) including woody vegetation, <250m (820 ft) buffer, and freshwater ponds
	0.50	<2 ha or 10-100 ha (25-250 ac) with woody vegetation, may or may not include ponds
	0.25	N/A
	0	>100 ha (250 ac), no vegetation or grass (non-woody vegetation)
High Marsh (as foraging habitat)	1	N/A
	0.75	includes intertidal pools
	0.50	N/A
	0.25	> 2 ha, marsh acreage not split 80/20, NO tidal gut or intertidal pools
	0	N/A
Low Marsh (as foraging habitat)	1	>80 ha (200 ac) 80/20 split, upgrade from sand beach, includes tidal gut, plus tidal and intertidal pools
	0.75	>40 ha (100 ac) 80/20 split, includes tidal gut, plus tidal and intertidal pools
	0.50	>20 ha (50 ac) 80/20 split, includes tidal gut, plus tidal and intertidal pools
	0.25	any size, marsh acreage not split 80/20, no tidal guts, no pools, and no sand beach
	0	N/A
Intertidal (as foraging habitat)	1	> 10 ha (25 ac) mudflats and sandy beach/shoreline
	0.75	> 5 ha (12.5 ac) mudflats or sandy beach
	0.50	< 5 ha (12.5 ac) mudflats and/or sandy beach
	0.25	N/A
	0	N/A

Figure H-4. Index Community Index (ICI) for Colonial Nesting Waterbirds (gulls, terns & skimmers)

Habitat Type	*Index*	*Description*
Upland	1	1-2 ha (2.5-5 ac) open sand, soil, or shell; sparsely vegetated (< 25%)
(as nesting sites)	0.75	2- 7 ha (5-17 ac) open sand, soil, or shell; sparsely vegetated (< 25%)
	0.50	7-20 ha (17-49.5 ac); sparsely vegetated (< 25%)
	0.25	< 1 ha, > 20 ha; sparsely vegetated (< 25%)
	0	< 1 ha, > 20 ha; thicker vegetation (> 25%)
High Marsh	1	N/A
(as foraging habitat)	0.75	includes intertidal pools
	0.50	N/A
	0.25	> 2 ha, marsh acreage not split 80/20, NO tidal gut or intertidal pools
	0	N/A
Low Marsh	1	any size, 80/20 split, upgrade from sand beach, includes tidal gut, plus tidal and intertidal pools
(as foraging habitat)	0.75	any size, 80/20 split, no tidal guts/pools or sand beach
	0.50	any size, marsh acreage not split 80/20, no tidal guts, no pools, and no sand beach
	0.25	N/A
	0	N/A
Intertidal	1	>40 ha (100 ac) mudflats and sandy beach/shoreline
(as foraging habitat)	0.75	>20 ha (50 ac) mudflats and sandy beach/shoreline
	0.50	>10 ha (25 ac) mudflats and sandy beach/shoreline
	0.25	>5 ha (12.5 ac) mudflats and sandy beach/shoreline
	0	N/A

Figure H-5. Index Community Index (ICI) for Shorebirds (sandpipers & plovers)

Habitat Type	*Index*	*Description*
Upland	1	N/A
	0.75	N/A
	0.50	N/A
	0.25	N/A
	0	no benefit to shorebirds
High Marsh	1	N/A
	0.75	N/A
	0.50	contains >20 ha (50 ac) intertidal pools
	0.25	contains <20 ha (50 ac) intertidal pools
	0	No intertidal pools
Low Marsh	1	>80 ha (200 ac) 80/20 split, upgrade from sand beach, includes tidal gut, plus tidal and intertidal pools
	0.75	>40 ha (100 ac) 80/20 split, includes tidal gut, plus tidal and intertidal pools
	0.50	>20 ha (50 ac) 80/20 split, includes tidal gut, plus tidal and intertidal pools
	0.25	any size, marsh acreage not split 80/20, no tidal guts, no pools, and no sand beach
	0	N/A
Intertidal	1	>80 ha (200 ac) mudflats and sandy beach/shoreline
	0.75	>40 ha (100 ac) mudflats and sandy beach/shoreline
	0.50	>20 ha (50 ac) mudflats and sandy beach/shoreline
	0.25	>10 ha (25 ac) mudflats and sandy beach/shoreline
	0	N/A

Figure H-6. Index Community Index (ICI) for Waterfowl

Habitat Type	*Index*	*Description*
Upland	1	1-2 ha (2.5-5 ac), forested edge adjacent to high marsh, ponds
	0.75	> 2 ha, forested edge adjacent to high marsh, ponds
	0.50	forested, but not adjacent to high marsh; and ponds
	0.25	forested, but not adjacent to high marsh; no ponds
	0	grassed expanses, no vegetative cover; may or may not include ponds
High Marsh	1	> 2 ha, adjacent to uplands; incorporates hummocks, woody vegetation; includes intertidal ponds, channels
	0.75	> 2 ha, most not adjacent to uplands; no hummocks; woody vegetation; includes intertidal ponds, channels
	0.50	any size, most not adjacent to uplands; woody vegetation; no ponds or channels
	0.25	N/A
	0	N/A
Low Marsh	1	any size, 80/20 split, upgrade from sand beach, includes tidal gut, plus tidal and intertidal pools
	0.75	any size, 80/20 split, no tidal guts/pools or sand beach
	0.50	any size, marsh acreage not split 80/20, no tidal guts, no pools, and no sand beach
	0.25	N/A
	0	N/A
Intertidal	1	> 3 ha (7.4 ac), 9-305 m (30-1000 ft) wide; gently sloping; on southeast side (maximize sunlight, minimize wind)
	0.75	> 3 ha (7.4 ac), 9-305 m (30-1000 ft) wide; gently sloping; NOT on southeast side (maximize sunlight, minimize wind)
	0.50	any size and width; located anywhere
	0.25	N/A
	0	N/A

Figure H-7. Index Community Index (ICI) for Raptors

Habitat Type	*Index*	*Description*
Upland	1	forested with 1.5 km strip of land adjacent to water
	0.75	forested without 1.5 km strip of land adjacent to water
	0.50	N/A
	0.25	not forested, but grass (provide some hunting area for hawks)
	0	N/A
High Marsh	1	any size or features (high marsh provides hunting for hawks, and nesting for some hawks)
	0.75	N/A
	0.50	N/A
	0.25	N/A
	0	N/A
Low Marsh	1	N/A
	0.75	N/A
	0.50	any size or features (will provide some use for foraging for fish in shallow water)
	0.25	N/A
	0	N/A
Intertidal	1	N/A (intertidal provides no use to raptors)
	0.75	N/A
	0.50	N/A
	0.25	N/A
	0	N/A

Figure H-8. Index Community Index (ICI) for Resident/Forage Fish

Habitat Type	*Index*	*Description*
Upland	1	N/A
	0.75	N/A
	0.50	N/A
	0.25	N/A
	0	no benefit to resident/forage fish
High Marsh	1	any size, cut with channels
	0.75	N/A
	0.50	N/A
	0.25	N/A
	0	any size, NO channels
Low Marsh	1	any size; upgrade from sandy beach; cut with channels; adjacent to possible SAV bed sites
	0.75	any size; cut with channels; NOT upgrade from sandy beach and/or possible SAV bed sites
	0.50	any size, NO channels
	0.25	N/A
	0	N/A
Intertidal	1	any size; sand beaches cut with channels; adjacent to possible SAV bed sites
	0.75	any size; sand beaches cut with channels; NOT upgrade from sandy beach and/or possible SAV bed sites
	0.50	any size, NO channels
	0.25	N/A
	0	N/A

Figure H-9. Index Community Index (ICI) for Commercial/Predatory/Higher Trophic Fish

Habitat Type	*Index*	*Description*
Upland	1	N/A
	0.75	N/A
	0.50	N/A
	0.25	N/A
	0	no benefit to resident/forage fish
High Marsh	1	N/A
	0.75	N/A
	0.50	N/A
	0.25	N/A
	0	any size, NO channels
Low Marsh	1	any size; upgrade from sandy beach; cut with channels; adjacent to possible SAV bed sites
	0.75	any size; cut with channels; NOT upgrade from sandy beach and/or possible SAV bed sites
	0.50	any size, NO channels
	0.25	N/A
	0	N/A
Intertidal	1	N/A
	0.75	any size; sand beaches cut with channels; adjacent to possible SAV bed sites
	0.50	any size; sand beaches cut with channels; NOT upgrade from sandy beach and/or possible SAV bed sites
	0.25	any size, NO channels
	0	N/A

Figure H-10. Index Community Index (ICI) for Invertebrates

Habitat Type	*Index*	*Description*
Upland	1	N/A
	0.75	N/A
	0.50	N/A
	0.25	N/A
	0	N/A
High Marsh	1	invertebrates will colonize any acreage despite particular size or features
	0.75	N/A
	0.50	Immature community
	0.25	newly established colony
	0	N/A
Low Marsh	1	invertebrates will colonize any acreage despite particular size or features
	0.75	N/A
	0.50	Immature community
	0.25	newly established colony
	0	N/A
Intertidal	1	invertebrates will colonize any acreage despite particular size or features
	0.75	N/A
	0.50	Immature community
	0.25	newly established colony
	0	N/A

Figure H-11. Index Community Index (ICI) for Herpetofauna

Habitat Type	*Index*	*Description*
Upland	1	N/A
	0.75	N/A
	0.50	any size, vegetative cover- will get use by some rept/herp use, but most in guild don't require upland
	0.25	(terrapin nesting) no vegetative cover
	0	any size; barren, no vegetative cover
High Marsh	1	any size; with channels and permanent pools (fishless)
	0.75	any size; with channels; no pools
	0.50	any size, no channels or pools
	0.25	N/A
	0	N/A
Low Marsh	1	any size; with channels on Eastern side; maximize edge habitat, <20% (sparse) vegetation
	0.75	N/A
	0.50	any size; no channels; < 20% vegetated
	0.25	N/A
	0	any size; dense vegetation (>20% vegetated)
Intertidal	1	sand beaches (above high water) and intertidal mudflats adjacent to channel
	0.75	sand beaches or intertidal mudflats adjacent to channel
	0.50	mudflats of any size, not adjacent to channel
	0.25	N/A
	0	N/A

FIGURE H-12. ISLAND COMMUNITY UNIT CALCULATOR - EVALUATION OF WETLAND BENEFITS
50% WETLAND/50% UPLAND

Index Evaluation Criteria	
optimum maximum use	1
use probable, but not optimum	0.75
use possible, some use	0.5
minimum use	0.25
no use habitat value	0

YEAR 1

Total 35.9
bird island 3
wetland 32.9

	guild community	WEIGHT	Sum of Weights	Index: bird island	Index: high marsh	Index: low marsh	Index: intertidal	Community Units: bird island	Community Units: high marsh	Community Units: low marsh	Community Units: intertidal	*sum by guild*	Wetland weighted sum by guild
				3	**6.6**	**23.7**	**2.6**						
BIRDS	colonial nesting wading birds	12		0	0	0	0.5	0	0	0	1.316	1.316	**0.16**
"	waterfowl	10		0	0	0	0.5	0	0	0	1.316	1.316	**0.13**
"	colonial nesting waterbirds	12	50	1	0	0	0	3	0	0	0	3	**0.36**
"	raptors	2		0	0	0	0	0	0	0	0	0	**0.00**
"	shorebirds	14		0	0	0	0	0	0	0	0	0	**0.00**
	herpetofauna	2	2	0.25	0	0	1	0.75	0	0	2.632	3.382	**0.07**
	benthic invert.	20	20	0	0	0	0.25	0	0	0	0.658	0.658	**0.13**
FISH	resident forage fish	23	28	0	0	0	0	0	0	0	0	0	**0.00**
"	commercial predatory higher trophic fish	5		0	0	0	0	0	0	0	0	0	**0.00**
	TOTAL	**100**	**100**									Total Community Units	0.85

YEAR 5

Total 35.9
bird island 3
wetland 32.9

	guild community	WEIGHT	Sum of Weights	Index: bird island	Index: high marsh	Index: low marsh	Index: intertidal	Community Units: bird island	Community Units: high marsh	Community Units: low marsh	Community Units: intertidal	*sum by guild*	Wetland weighted sum by guild
				3	**6.6**	**23.7**	**2.6**						
BIRDS	colonial nesting wading birds	12		0.5	0.75	0.25	0.5	1.5	4.935	5.922	1.316	13.673	**1.64**
"	waterfowl	10		0	0	1	0.5	0	0	23.688	1.316	25.004	**2.50**
"	colonial nesting waterbirds	12	50	0	0.75	1	0	0	4.935	23.688	0	28.623	**3.43**
"	raptors	2		0.25	1	0.5	0	0.75	6.58	11.844	0	19.174	**0.38**
"	shorebirds	14		0	0.25	0.25	0	0	1.645	5.922	0	7.567	**1.06**
	herpetofauna	2	2	0.5	1	1	1	1.5	6.58	23.688	2.632	34.4	**0.69**
	benthic invert.	20	20	0	0.5	0.5	0.5	0	3.29	11.844	1.316	16.45	**3.29**
FISH	resident forage fish	23	28	0	0	0.75	0.75	0	0	17.766	1.974	19.74	**4.54**
"	commercial predatory higher trophic fish	5		0	0	0.75	0.5	0	0	17.766	1.316	19.082	**0.95**
	TOTAL	**100**	**100**									Total Community Units	18.49

FIGURE H-12. (continued)

Index Evaluation Criteria	
optimum maximum use	1
use probable, but not optimum	0.75
use possible, some use	0.5
minimum use	0.25
no use habitat value	0

YEAR 10

Total 35.9
bird island 3
wetland 32.9

	guild community	WEIGHT	Sum of Weights	Index: bird island	Index: high marsh	Index: low marsh	Index: intertidal	Community Units: bird island	Community Units: high marsh	Community Units: low marsh	Community Units: intertidal	*sum by guild*	Wetland weighted sum by guild
				3	**6.6**	**23.7**	**2.6**						
BIRDS	colonial nesting wading birds	12		0.5	0.75	0.25	0.5	1.5	4.935	5.922	1.316	13.673	**1.64**
"	waterfowl	10		0.25	1	1	0.5	0.75	6.58	23.688	1.316	32.334	**3.23**
"	colonial nesting waterbirds	12	50	0	0.75	1	0	0	4.935	23.688	0	28.623	**3.43**
"	raptors	2		0.75	1	0.5	0	2.25	6.58	11.844	0	20.674	**0.41**
"	shorebirds	14		0	0.25	0.25	0	0	1.645	5.922	0	7.567	**1.06**
	herpetofauna	2	2	0.5	1	1	1	1.5	6.58	23.688	2.632	34.4	**0.69**
	benthic invert.	20	20	0	1	1	1	0	6.58	23.688	2.632	32.9	**6.58**
FISH	resident forage fish	23	28	0	0	0.75	0.75	0	0	17.766	1.974	19.74	**4.54**
"	commercial predatory higher trophic fish	5		0	0	0.75	0.5	0	0	17.766	1.316	19.082	**0.95**
	TOTAL	**100**	**100**									Total Community Units	22.54

with interior dikes knocked down

YEAR 15

dikes knocked down to join 7 cells together

bird island 21 (7 3)
wetland 230.3

	guild community	WEIGHT	Sum of Weights	Index: bird island	Index: high marsh	Index: low marsh	Index: intertidal	Community Units: bird island	Community Units: high marsh	Community Units: low marsh	Community Units: intertidal	*sum by guild*	Wetland weighted sum by guild
				3	**46.1**	**165.8**	**18.4**	7					
BIRDS	colonial nesting wading birds	12		0.5	0.75	0.75	0.5	10.5	34.55	124.36	9.21	178.619	**21.43**
"	waterfowl	10		0.25	1	1	0.5	5.25	46.06	165.82	9.21	226.338	**22.63**
"	colonial nesting waterbirds	12	50	0	0.75	1	0	0	34.55	165.82	0.00	200.361	**24.04**
"	raptors	2		0.75	1	0.5	0	15.75	46.06	82.91	0.00	144.718	**2.89**
"	shorebirds	14		0	0.25	0.75	0	0	11.52	124.36	0.00	135.877	**19.02**
	herpetofauna	2	2	0.5	1	1	1	10.5	46.06	165.82	18.42	240.8	**4.82**
	benthic invert.	20	20	0	1	1	1	0	46.06	165.82	18.42	230.3	**46.06**
FISH	resident forage fish	23	28	0	0	0.75	0.75	0	0.00	124.36	13.82	138.18	**31.78**
"	commercial predatory higher trophic fish	5		0	0	0.75	0.5	0	0.00	124.36	9.21	133.574	**6.68**
	TOTAL	**100**	**100**									Total Community Units	179.36

FIGURE H-13. ISLAND COMMUNITY UNIT CALCULATOR - EVALUATION OF WETLAND BENEFITS
55% WETLAND/45% UPLAND

Index Evaluation Criteria	
optimum maximum use	1
use probable, but not optimum	0.75
use possible, some use	0.5
minimum use	0.25
no use habitat value	0

YEAR 1

Total 39.5
bird island 3
wetland 36.5

				Index				Community Units					
				bird island	high marsh	low marsh	intertidal						
	guild community	**WEIGHT**	**Sum of Weights**	**3**	**7.3**	**26.3**	**2.9**	bird island	high marsh	low marsh	intertidal	***sum by guild***	**Wetland weighted sum by guild**
BIRDS	colonial nesting wading birds	12		0	0	0	0.5	0	0	0	1.46	1.46	**0.18**
"	waterfowl	10		0	0	0	0.5	0	0	0	1.46	1.46	**0.15**
"	colonial nesting waterbirds	12	50	1	0	0	0	3	0	0	0	3	**0.36**
"	raptors	2		0	0	0	0	0	0	0	0	0	**0.00**
"	shorebirds	14		0	0	0	0	0	0	0	0	0	**0.00**
	herpetofauna	2	2	0.25	0	0	1	0.75	0	0	2.92	3.67	**0.07**
	benthic invert.	20	20	0	0	0	0.25	0	0	0	0.73	0.73	**0.15**
FISH	resident forage fish	23	28	0	0	0	0	0	0	0	0	0	**0.00**
"	commercial predatory higher trophic fish	5		0	0	0	0	0	0	0	0	0	**0.00**
	TOTAL	**100**	**100**									Total Community Units	0.90

YEAR 5

Total 39.5
bird island 3
wetland 36.5

				Index				Community Units					
				bird island	high marsh	low marsh	intertidal						
	guild community	**WEIGHT**	**Sum of Weights**	**3**	**7.3**	**26.3**	**2.9**	bird island	high marsh	low marsh	intertidal	***sum by guild***	**Wetland weighted sum by guild**
BIRDS	colonial nesting wading birds	12		0.5	0.75	0.25	0.5	1.5	5.475	6.57	1.46	15.005	**1.80**
"	waterfowl	10		0	0	1	0.5	0	0	26.28	1.46	27.74	**2.77**
"	colonial nesting waterbirds	12	50	0	0.75	1	0	0	5.475	26.28	0	31.755	**3.81**
"	raptors	2		0.25	1	0.5	0	0.75	7.3	13.14	0	21.19	**0.42**
"	shorebirds	14		0	0.25	0.25	0	0	1.825	6.57	0	8.395	**1.18**
	herpetofauna	2	2	0.5	1	1	1	1.5	7.3	26.28	2.92	38	**0.76**
	benthic invert.	20	20	0	0.5	0.5	0.5	0	3.65	13.14	1.46	18.25	**3.65**
FISH	resident forage fish	23	28	0	0	0.75	0.75	0	0	19.71	2.19	21.9	**5.04**
"	commercial predatory higher trophic fish	5		0	0	0.75	0.5	0	0	19.71	1.46	21.17	**1.06**
	TOTAL	**100**	**100**									Total Community Units	20.49

FIGURE H-13. (continued)

Index Evaluation Criteria	
optimum maximum use	1
use probable, but not optimum	0.75
use possible, some use	0.5
minimum use	0.25
no use habitat value	0

YEAR 10

Total 39.5
bird island 3
wetland 36.5

	guild community	WEIGHT	Sum of Weights	Index: bird island 3	Index: high marsh 7.3	Index: low marsh 26.3	Index: intertidal 2.9	Community Units: bird island	Community Units: high marsh	Community Units: low marsh	Community Units: intertidal	*sum by guild*	Wetland weighted sum by guild
BIRDS	colonial nesting wading birds	12		0.5	0.75	0.25	0.5	1.5	5.475	6.57	1.46	15.005	**1.80**
"	waterfowl	10		0.25	1	1	0.5	0.75	7.3	26.28	1.46	35.79	**3.58**
"	colonial nesting waterbirds	12	50	0	0.75	1	0	0	5.475	26.28	0	31.755	**3.81**
"	raptors	2		0.75	1	0.5	0	2.25	7.3	13.14	0	22.69	**0.45**
"	shorebirds	14		0	0.25	0.25	0	0	1.825	6.57	0	8.395	**1.18**
	herpetofauna	2	2	0.5	1	1	1	1.5	7.3	26.28	2.92	38	**0.76**
	benthic invert.	20	20	0	1	1	1	0	7.3	26.28	2.92	36.5	**7.30**
FISH	resident forage fish	23	28	0	0	0.75	0.75	0	0	19.71	2.19	21.9	**5.04**
"	commercial predatory higher trophic fish	5		0	0	0.75	0.5	0	0	19.71	1.46	21.17	**1.06**
	TOTAL	**100**	**100**								Total Community Units		24.97

with interior dikes knocked down

YEAR 15 dikes knocked down to join 7 cells together

bird island 21 (7 3)
wetland 255.5

	guild community	WEIGHT	Sum of Weights	Index: bird island 3	Index: high marsh 51.1	Index: low marsh 184.0	Index: intertidal 20.4	Community Units: bird island 7	Community Units: high marsh	Community Units: low marsh	Community Units: intertidal	*sum by guild*	Wetland weighted sum by guild
BIRDS	colonial nesting wading birds	12		0.5	0.75	0.75	0.5	10.5	38.33	137.97	10.22	197.015	**23.64**
"	waterfowl	10		0.25	1	1	0.5	5.25	51.10	183.96	10.22	250.53	**25.05**
"	colonial nesting waterbirds	12	50	0	0.75	1	0	0	38.33	183.96	0.00	222.285	**26.67**
"	raptors	2		0.75	1	0.5	0	15.75	51.10	91.98	0.00	158.83	**3.18**
"	shorebirds	14		0	0.25	0.75	0	0	12.78	137.97	0.00	150.745	**21.10**
	herpetofauna	2	2	0.5	1	1	1	10.5	51.10	183.96	20.44	266	**5.32**
	benthic invert.	20	20	0	1	1	1	0	51.10	183.96	20.44	255.5	**51.10**
FISH	resident forage fish	23	28	0	0	0.75	0.75	0	0.00	137.97	15.33	153.3	**35.26**
"	commercial predatory higher trophic fish	5		0	0	0.75	0.5	0	0.00	137.97	10.22	148.19	**7.41**
			TOTAL	**100**	**100**						Total Community Units		198.74

FIGURE H-14. ISLAND COMMUNITY UNIT CALCULATOR - EVALUATION OF WETLAND BENEFITS
60% WETLAND/40% UPLAND

Index Evaluation Criteria	
optimum maximum use	1
use probable, but not optimum	0.75
use possible, some use	0.5
minimum use	0.25
no use habitat value	0

YEAR 1

Total 36.6
bird island 3
wetland 33.6

	guild community	WEIGHT	Sum of Weights	Index: bird island	Index: high marsh	Index: low marsh	Index: intertidal	Community Units: bird island	Community Units: high marsh	Community Units: low marsh	Community Units: intertidal	*sum by guild*	Wetland weighted sum by guild
				3	**6.7**	**24.2**	**2.7**						
BIRDS	colonial nesting wading birds	12		0	0	0	0.5	0	0	0	1.344	1.344	**0.16**
"	waterfowl	10		0	0	0	0.5	0	0	0	1.344	1.344	**0.13**
"	colonial nesting waterbirds	12	50	1	0	0	0	3	0	0	0	3	**0.36**
"	raptors	2		0	0	0	0	0	0	0	0	0	**0.00**
"	shorebirds	14		0	0	0	0	0	0	0	0	0	**0.00**
	herpetofauna	2	2	0.25	0	0	1	0.75	0	0	2.688	3.438	**0.07**
	benthic invert.	20	20	0	0	0	0.25	0	0	0	0.672	0.672	**0.13**
FISH	resident forage fish	23	28	0	0	0	0	0	0	0	0	0	**0.00**
"	commercial predatory higher trophic fish	5		0	0	0	0	0	0	0	0	0	**0.00**
	TOTAL	**100**	**100**									Total Community Units	0.86

YEAR 5

Total 36.6
bird island 3
wetland 33.6

	guild community	WEIGHT	Sum of Weights	Index: bird island	Index: high marsh	Index: low marsh	Index: intertidal	Community Units: bird island	Community Units: high marsh	Community Units: low marsh	Community Units: intertidal	*sum by guild*	Wetland weighted sum by guild
				3	**6.7**	**24.2**	**2.7**						
BIRDS	colonial nesting wading birds	12		0.5	0.75	0.25	0.5	1.5	5.04	6.048	1.344	13.932	**1.67**
"	waterfowl	10		0	0	1	0.5	0	0	24.192	1.344	25.536	**2.55**
"	colonial nesting waterbirds	12	50	0	0.75	1	0	0	5.04	24.192	0	29.232	**3.51**
"	raptors	2		0.25	1	0.5	0	0.75	6.72	12.096	0	19.566	**0.39**
"	shorebirds	14		0	0.25	0.25	0	0	1.68	6.048	0	7.728	**1.08**
	herpetofauna	2	2	0.5	1	1	1	1.5	6.72	24.192	2.688	35.1	**0.70**
	benthic invert.	20	20	0	0.5	0.5	0.5	0	3.36	12.096	1.344	16.8	**3.36**
FISH	resident forage fish	23	28	0	0	0.75	0.75	0	0	18.144	2.016	20.16	**4.64**
"	commercial predatory higher trophic fish	5		0	0	0.75	0.5	0	0	18.144	1.344	19.488	**0.97**
	TOTAL	**100**	**100**									Total Community Units	18.88

FIGURE H-14. (continued)

Index Evaluation Criteria	
optimum maximum use	1
use probable, but not optimum	0.75
use possible, some use	0.5
minimum use	0.25
no use habitat value	0

YEAR 10

Total 36.6
bird island 3
wetland 33.6

	guild community	WEIGHT	Sum of Weights	Index: bird island 3	high marsh 6.7	low marsh 24.2	intertidal 2.7	Community Units: bird island	high marsh	low marsh	intertidal	*sum by guild*	Wetland weighted sum by guild
BIRDS	colonial nesting wading birds	12		0.5	0.75	0.25	0.5	1.5	5.04	6.048	1.344	13.932	**1.67**
"	waterfowl	10		0.25	1	1	0.5	0.75	6.72	24.192	1.344	33.006	**3.30**
"	colonial nesting waterbirds	12	50	0	0.75	1	0	0	5.04	24.192	0	29.232	**3.51**
"	raptors	2		0.75	1	0.5	0	2.25	6.72	12.096	0	21.066	**0.42**
"	shorebirds	14		0	0.25	0.25	0	0	1.68	6.048	0	7.728	**1.08**
	herpetofauna	2	2	0.5	1	1	1	1.5	6.72	24.192	2.688	35.1	**0.70**
	benthic invert.	20	20	0	1	1	1	0	6.72	24.192	2.688	33.6	**6.72**
FISH	resident forage fish	23	28	0	0	0.75	0.75	0	0	18.144	2.016	20.16	**4.64**
"	commercial predatory higher trophic fish	5		0	0	0.75	0.5	0	0	18.144	1.344	19.488	**0.97**
	TOTAL	**100**	**100**									Total Community Units	23.02

with interior dikes knocked down

YEAR 15 dikes knocked down to join 7 cells together

bird island 21 (8 3)
wetland 263.9

	guild community	WEIGHT	Sum of Weights	Index: bird island 3	high marsh 52.8	low marsh 190.0	intertidal 21.1	Community Units: bird island 8	high marsh	low marsh	intertidal	*sum by guild*	Wetland weighted sum by guild
BIRDS	colonial nesting wading birds	12		0.5	0.75	0.75	0.5	12	39.59	142.51	10.56	204.647	**24.56**
"	waterfowl	10		0.25	1	1	0.5	6	52.78	190.01	10.56	259.344	**25.93**
"	colonial nesting waterbirds	12	50	0	0.75	1	0	0	39.59	190.01	0.00	229.593	**27.55**
"	raptors	2		0.75	1	0.5	0	18	52.78	95.00	0.00	165.784	**3.32**
"	shorebirds	14		0	0.5	0.75	0	0	26.39	142.51	0.00	168.896	**23.65**
	herpetofauna	2	2	0.5	1	1	1	12	52.78	190.01	21.11	275.9	**5.52**
	benthic invert.	20	20	0	1	1	1	0	52.78	190.01	21.11	263.9	**52.78**
FISH	resident forage fish	23	28	0	0	0.75	0.75	0	0.00	142.51	15.83	158.34	**36.42**
"	commercial predatory higher trophic fish	5		0	0	0.75	0.5	0	0.00	142.51	10.56	153.062	**7.65**
	TOTAL	**100**	**100**									Total Community Units	207.37

FIGURE H-15. ISLAND COMMUNITY UNIT CALCULATOR - EVALUATION OF UPLAND BENEFITS - CELL 2

Index Evaluation Criteria	
optimum maximum use	1
use probable, but not optimum	0.75
use possible, some use	0.5
minimum use	0.25
no use habitat value	0

YEAR 1

Total 326
upland 100
wetland 0

	guild community	WEIGHT	Sum of Weights	Index: upland 100	high marsh 0.0	low marsh 0.0	intertidal 0.0	Community Units: upland	high marsh	low marsh	intertidal	sum by guild	weighted sum by guild	Wetland weighted sum by guild	Upland weighted sum by guild
BIRDS	colonial nesting wading birds	12		0				0	0	0	0	0	0.00	0.00	0
"	waterfowl	10		0				0	0	0	0	0	0.00	0.00	0
"	colonial nesting waterbirds	12	50	0.25				25	0	0	0	25	3.00	0.00	3
"	raptors	2		0				0	0	0	0	0	0.00	0.00	0
"	shorebirds	14		0				0	0	0	0	0	0.00	0.00	0
	herpetofauna	2	2	0				0	0	0	0	0	0.00	0.00	0
	benthic invert.	20	20	0				0	0	0	0	0	0.00	0.00	0
FISH	resident forage fish	23	28	0				0	0	0	0	0	0.00	0.00	0
"	commercial predatory higher trophic fish	5		0				0	0	0	0	0	0.00	0.00	0
	TOTAL	**100**	**100**								Total Community Units		3.00	0.00	3.0

YEAR 5

Total 326
upland 100
wetland 0

	guild community	WEIGHT	Sum of Weights	Index: upland 100	high marsh 0.0	low marsh 0.0	intertidal 0.0	Community Units: upland	high marsh	low marsh	intertidal	sum by guild	weighted sum by guild	Wetland weighted sum by guild	Upland weighted sum by guild
BIRDS	colonial nesting wading birds	12		0				0	0	0	0	0	0.00	0.00	0
"	waterfowl	10		0				0	0	0	0	0	0.00	0.00	0
"	colonial nesting waterbirds	12	50	0				0	0	0	0	0	0.00	0.00	0.00
"	raptors	2		0.25				25	0	0	0	25	0.50	0.00	0.50
"	shorebirds	14		0				0	0	0	0	0	0.00	0.00	0
	herpetofauna	2	2	0.5				50	0	0	0	50	1.00	0.00	1
	benthic invert.	20	20	0				0	0	0	0	0	0.00	0.00	0
FISH	resident forage fish	23	28	0				0	0	0	0	0	0.00	0.00	0
"	commercial predatory higher trophic fish	5		0				0	0	0	0	0	0.00	0.00	0
	TOTAL	**100**	**100**								Total Community Units		1.50	0.00	1.50

FIGURE H-15. (continued)

Index Evaluation Criteria	
optimum maximum use	1
use probable, but not optimum	0.75
use possible, some use	0.5
minimum use	0.25
no use habitat value	0

YEAR 10

Total 326
upland 100
wetland 0

	guild community	WEIGHT	Sum of Weights	Index: upland 100	high marsh 0.0	low marsh 0.0	intertidal 0.0	Community Units: upland	high marsh	low marsh	intertidal	sum by guild	weighted sum by guild	Wetland weighted sum by guild	Upland weighted sum by guild
BIRDS	colonial nesting wading birds	12		0				0	0	0	0	0	0.00	0.00	0
"	waterfowl	10		0.75				75	0	0	0	75	7.50	0.00	7.5
"	colonial nesting waterbirds	12	50	0				0	0	0	0	0	0.00	0.00	0.00
"	raptors	2		0.25				25	0	0	0	25	0.50	0.00	0.50
"	shorebirds	14		0				0	0	0	0	0	0.00	0.00	0
	herpetofauna	2	2	0.5				50	0	0	0	50	1.00	0.00	1
	benthic invert.	20	20	0				0	0	0	0	0	0.00	0.00	0
FISH	resident forage fish	23	28	0				0	0	0	0	0	0.00	0.00	0
"	commercial predatory higher trophic fish	5		0				0	0	0	0	0	0.00	0.00	0
	TOTAL	100	100								Total Community Units		9.00	0.00	9.00

YEAR 25 Upland only

Total 326
upland 100
wetland 0

	guild community	WEIGHT	Sum of Weights	Index: upland 100	high marsh 0.0	low marsh 0.0	intertidal 0.0	Community Units: upland	high marsh	low marsh	intertidal	sum by guild	weighted sum by guild	Wetland weighted sum by guild	Upland weighted sum by guild
BIRDS	colonial nesting wading birds	12		0.5				50	0	0	0	50	6.00	0.00	6
"	waterfowl	10		0.75				75	0	0	0	75	7.50	0.00	7.5
"	colonial nesting waterbirds	12	50	0				0	0	0	0	0	0.00	0.00	0.00
"	raptors	2		0.75				75	0	0	0	75	1.50	0.00	1.50
"	shorebirds	14		0				0	0	0	0	0	0.00	0.00	0
	herpetofauna	2	2	0.5				50	0	0	0	50	1.00	0.00	1
	benthic invert.	20	20	0				0	0	0	0	0	0.00	0.00	0
FISH	resident forage fish	23	28	0				0	0	0	0	0	0.00	0.00	0
"	commercial predatory higher trophic fish	5		0				0	0	0	0	0	0.00	0.00	0
	TOTAL	100	100								Total Community Units		16.00	0.00	16.00

FIGURE H-16. ISLAND COMMUNITY UNIT CALCULATOR - EVALUATION OF UPLAND BENEFITS - CELL 6

Index Evaluation Criteria	
optimum maximum use	1
use probable, but not optimum	0.75
use possible, some use	0.5
minimum use	0.25
no use habitat value	0

YEAR 1

Total 243
upland 111
wetland 0

	guild community	WEIGHT	Sum of Weights	Index: upland	Index: high marsh	Index: low marsh	Index: intertidal	Community Units: upland	Community Units: high marsh	Community Units: low marsh	Community Units: intertidal	sum by guild	weighted sum by guild	Wetland weighted sum by guild	Upland weighted sum by guild
				111	0.0	0.0	0.0								
BIRDS	colonial nesting wading birds	12		0				0	0	0	0	0	0.00	0.00	0
"	waterfowl	10		0				0	0	0	0	0	0.00	0.00	0
"	colonial nesting waterbirds	12	50	0.25				27.75	0	0	0	27.75	3.33	0.00	3.33
"	raptors	2		0				0	0	0	0	0	0.00	0.00	0
"	shorebirds	14		0				0	0	0	0	0	0.00	0.00	0
	herpetofauna	2	2	0				0	0	0	0	0	0.00	0.00	0
	benthic invert.	20	20	0				0	0	0	0	0	0.00	0.00	0
FISH	resident forage fish	23	28	0				0	0	0	0	0	0.00	0.00	0
"	commercial predatory higher trophic fish	5		0				0	0	0	0	0	0.00	0.00	0
	TOTAL	100	100								Total Community Units		3.33	0.00	3.33

YEAR 5

Total 243
upland 111
wetland 0

	guild community	WEIGHT	Sum of Weights	Index: upland	Index: high marsh	Index: low marsh	Index: intertidal	Community Units: upland	Community Units: high marsh	Community Units: low marsh	Community Units: intertidal	sum by guild	weighted sum by guild	Wetland weighted sum by guild	Upland weighted sum by guild
				111	0.0	0.0	0.0								
BIRDS	colonial nesting wading birds	12		0				0	0	0	0	0	0.00	0.00	0
"	waterfowl	10		0				0	0	0	0	0	0.00	0.00	0
"	colonial nesting waterbirds	12	50	0				0	0	0	0	0	0.00	0.00	0.00
"	raptors	2		0.25				27.75	0	0	0	27.75	0.56	0.00	0.56
"	shorebirds	14		0				0	0	0	0	0	0.00	0.00	0
	herpetofauna	2	2	0.5				55.5	0	0	0	55.5	1.11	0.00	1.11
	benthic invert.	20	20	0				0	0	0	0	0	0.00	0.00	0
FISH	resident forage fish	23	28	0				0	0	0	0	0	0.00	0.00	0
"	commercial predatory higher trophic fish	5		0				0	0	0	0	0	0.00	0.00	0
	TOTAL	100	100								Total Community Units		1.67	0.00	1.67

FIGURE H-16. (continued)

Index Evaluation Criteria	
optimum maximum use	1
use probable, but not optimum	0.75
use possible, some use	0.5
minimum use	0.25
no use habitat value	0

YEAR 10

Total 243
upland 111
wetland 0

	guild community	WEIGHT	Sum of Weights	Index: 111	0.0	0.0	0.0	Community Units: upland	high marsh	low marsh	intertidal	*sum by guild*	weighted sum by guild	Wetland weighted sum by guild	Upland weighted sum by guild
				upland	high marsh	low marsh	intertidal								
BIRDS	colonial nesting wading birds	12		0				0	0	0	0	0	0.00	0.00	0
"	waterfowl	10		0.75				83.25	0	0	0	83.25	8.33	0.00	8.325
"	colonial nesting waterbirds	12	50	0				0	0	0	0	0	0.00	0.00	0.00
"	raptors	2		0.25				27.75	0	0	0	27.75	0.56	0.00	0.56
"	shorebirds	14		0				0	0	0	0	0	0.00	0.00	0
	herpetofauna	2	2	0.5				55.5	0	0	0	55.5	1.11	0.00	1.11
	benthic invert.	20	20	0				0	0	0	0	0	0.00	0.00	0
FISH	resident forage fish	23	28	0				0	0	0	0	0	0.00	0.00	0
"	commercial predatory higher trophic fish	5		0				0	0	0	0	0	0.00	0.00	0
	TOTAL	**100**	**100**									Total Community Units	9.99	0.00	9.99

YEAR 25 Upland only

Total 243
upland 111
wetland 0

	guild community	WEIGHT	Sum of Weights	Index: 111	0.0	0.0	0.0	Community Units: upland	high marsh	low marsh	intertidal	*sum by guild*	weighted sum by guild	Wetland weighted sum by guild	Upland weighted sum by guild
				upland	high marsh	low marsh	intertidal								
BIRDS	colonial nesting wading birds	12		0.5				55.5	0	0	0	55.5	6.66	0.00	6.66
"	waterfowl	10		0.75				83.25	0	0	0	83.25	8.33	0.00	8.325
"	colonial nesting waterbirds	12	50	0				0	0	0	0	0	0.00	0.00	0.00
"	raptors	2		0.75				83.25	0	0	0	83.25	1.67	0.00	1.67
"	shorebirds	14		0				0	0	0	0	0	0.00	0.00	0
	herpetofauna	2	2	0.5				55.5	0	0	0	55.5	1.11	0.00	1.11
	benthic invert.	20	20	0				0	0	0	0	0	0.00	0.00	0
FISH	resident forage fish	23	28	0				0	0	0	0	0	0.00	0.00	0
"	commercial predatory higher trophic fish	5		0				0	0	0	0	0	0.00	0.00	0
	TOTAL	**100**	**100**									Total Community Units	17.76	0.00	17.76

FIGURE H-17. ISLAND COMMUNITY UNIT CALCULATOR - EVALUATION OF UPLAND BENEFITS - CELL 8

Index Evaluation Criteria	
optimum maximum use	1
use probable, but not optimum	0.75
use possible, some use	0.5
minimum use	0.25
no use habitat value	0

YEAR 1

Total 40
upland 36.6
wetland 0

	guild community	WEIGHT	Sum of Weights	Index: upland	Index: high marsh	Index: low marsh	Index: intertidal	Community Units: upland	Community Units: high marsh	Community Units: low marsh	Community Units: intertidal	*sum by guild*	weighted sum by guild	Wetland weighted sum by guild	Upland weighted sum by guild
				36.6	**0.0**	**0.0**	**0.0**								
BIRDS	colonial nesting wading birds	12		0				0	0	0	0	0	**0.00**	**0.00**	**0**
"	waterfowl	10		0				0	0	0	0	0	**0.00**	**0.00**	**0**
"	colonial nesting waterbirds	12	50	0.5				18.3	0	0	0	18.3	**2.20**	**0.00**	**2.196**
"	raptors	2		0				0	0	0	0	0	**0.00**	**0.00**	**0**
"	shorebirds	14		0				0	0	0	0	0	**0.00**	**0.00**	**0**
	herpetofauna	2	2	0				0	0	0	0	0	**0.00**	**0.00**	**0**
	benthic invert.	20	20	0				0	0	0	0	0	**0.00**	**0.00**	**0**
FISH	resident forage fish	23	28	0				0	0	0	0	0	**0.00**	**0.00**	**0**
"	commercial predatory higher trophic	5		0				0	0	0	0	0	**0.00**	**0.00**	**0**
	TOTAL	**100**	**100**								Total Community Units		2.20	0.00	2.20

YEAR 5

Total 40
upland 36.6
wetland 0

	guild community	WEIGHT	Sum of Weights	Index: upland	Index: high marsh	Index: low marsh	Index: intertidal	Community Units: upland	Community Units: high marsh	Community Units: low marsh	Community Units: intertidal	*sum by guild*	weighted sum by guild	Wetland weighted sum by guild	Upland weighted sum by guild
				36.6	**0.0**	**0.0**	**0.0**								
BIRDS	colonial nesting wading birds	12		0				0	0	0	0	0	**0.00**	**0.00**	**0**
"	waterfowl	10		0				0	0	0	0	0	**0.00**	**0.00**	**0**
"	colonial nesting waterbirds	12	50	0				0	0	0	0	0	**0.00**	**0.00**	**0.00**
"	raptors	2		0.25				9.15	0	0	0	9.15	**0.18**	**0.00**	**0.18**
"	shorebirds	14		0				0	0	0	0	0	**0.00**	**0.00**	**0**
	herpetofauna	2	2	0.5				18.3	0	0	0	18.3	**0.37**	**0.00**	**0.366**
	benthic invert.	20	20	0				0	0	0	0	0	**0.00**	**0.00**	**0**
FISH	resident forage fish	23	28	0				0	0	0	0	0	**0.00**	**0.00**	**0**
"	commercial predatory higher trophic	5		0				0	0	0	0	0	**0.00**	**0.00**	**0**
	TOTAL	**100**	**100**								Total Community Units		0.55	0.00	0.55

FIGURE H-17. (continued)

Index Evaluation Criteria	
optimum maximum use	1
use probable, but not optimum	0.75
use possible, some use	0.5
minimum use	0.25
no use habitat value	0

YEAR 10

Total 40
upland 36.6
wetland 0

				Index				Community Units							
				upland	high marsh	low marsh	intertidal								
	guild community	**WEIGHT**	**Sum of Weights**	**36.6**	**0.0**	**0.0**	**0.0**	upland	high marsh	low marsh	intertidal	***sum by guild***	**weighted sum by guild**	**Wetland weighted sum by guild**	**Upland weighted sum by guild**
BIRDS	colonial nesting wading birds	12		0				0	0	0	0	0	**0.00**	**0.00**	**0**
"	waterfowl	10		0.75				27.45	0	0	0	27.45	**2.75**	**0.00**	**2.745**
"	colonial nesting waterbirds	12	50	0				0	0	0	0	0	**0.00**	**0.00**	**0.00**
"	raptors	2		0.25				9.15	0	0	0	9.15	**0.18**	**0.00**	**0.18**
"	shorebirds	14		0				0	0	0	0	0	**0.00**	**0.00**	**0**
	herpetofauna	2	2	0.5				18.3	0	0	0	18.3	**0.37**	**0.00**	**0.366**
	benthic invert.	20	20	0				0	0	0	0	0	**0.00**	**0.00**	**0**
FISH	resident forage fish	23	28	0				0	0	0	0	0	**0.00**	**0.00**	**0**
"	commercial predatory higher trophic	5		0				0	0	0	0	0	**0.00**	**0.00**	**0**
	TOTAL	**100**	**100**									Total Community Units	3.29	0.00	3.29

YEAR 25 Upland only

Total 40
upland 36.6
wetland 0

				Index				Community Units							
				upland	high marsh	low marsh	intertidal								
	guild community	**WEIGHT**	**Sum of Weights**	**36.6**	**0.0**	**0.0**	**0.0**	upland	high marsh	low marsh	intertidal	***sum by guild***	**weighted sum by guild**	**Wetland weighted sum by guild**	**Upland weighted sum by guild**
BIRDS	colonial nesting wading birds	12		0.5				18.3	0	0	0	18.3	**2.20**	**0.00**	**2.196**
"	waterfowl	10		0.75				27.45	0	0	0	27.45	**2.75**	**0.00**	**2.745**
"	colonial nesting waterbirds	12	50	0				0	0	0	0	0	**0.00**	**0.00**	**0.00**
"	raptors	2		0.75				27.45	0	0	0	27.45	**0.55**	**0.00**	**0.55**
"	shorebirds	14		0				0	0	0	0	0	**0.00**	**0.00**	**0**
	herpetofauna	2	2	0.5				18.3	0	0	0	18.3	**0.37**	**0.00**	**0.366**
	benthic invert.	20	20	0				0	0	0	0	0	**0.00**	**0.00**	**0**
FISH	resident forage fish	23	28	0				0	0	0	0	0	**0.00**	**0.00**	**0**
"	commercial predatory higher trophic	5		0				0	0	0	0	0	**0.00**	**0.00**	**0**
	TOTAL	**100**	**100**									Total Community Units	5.86	0.00	5.86

FIGURE H-18. ISLAND COMMUNITY UNIT CALCULATOR - EVALUATION OF UPLAND BENEFITS - CELL 9

Index Evaluation Criteria	
optimum maximum use	1
use probable, but not optimum	0.75
use possible, some use	0.5
minimum use	0.25
no use habitat value	0

YEAR 1

Total 189.9
upland 95
wetland 0

				Index				Community Units							
				upland	high marsh	low marsh	intertidal								
	guild community	**WEIGHT**	**Sum of Weights**	**95**	**0.0**	**0.0**	**0.0**	upland	high marsh	low marsh	intertidal	***sum by guild***	**weighted sum by guild**	**Wetland weighted sum by guild**	**Upland weighted sum by guild**
BIRDS	colonial nesting wading birds	12		0				0	0	0	0	0	**0.00**	**0.00**	**0**
"	waterfowl	10		0				0	0	0	0	0	**0.00**	**0.00**	**0**
"	colonial nesting waterbirds	12	50	0.25				23.75	0	0	0	23.75	**2.85**	**0.00**	**2.85**
"	raptors	2		0				0	0	0	0	0	**0.00**	**0.00**	**0**
"	shorebirds	14		0				0	0	0	0	0	**0.00**	**0.00**	**0**
	herpetofauna	2	2	0				0	0	0	0	0	**0.00**	**0.00**	**0**
	benthic invert.	20	20	0				0	0	0	0	0	**0.00**	**0.00**	**0**
FISH	resident forage fish	23	28	0				0	0	0	0	0	**0.00**	**0.00**	**0**
"	commercial predatory higher trophic	5		0				0	0	0	0	0	**0.00**	**0.00**	**0**
	TOTAL	**100**	**100**								Total Community Units		2.85	0.00	2.85

YEAR 5

Total 189.9
upland 95
wetland 0

				Index				Community Units							
				upland	high marsh	low marsh	intertidal								
	guild community	**WEIGHT**	**Sum of Weights**	**95**	**0.0**	**0.0**	**0.0**	upland	high marsh	low marsh	intertidal	***sum by guild***	**weighted sum by guild**	**Wetland weighted sum by guild**	**Upland weighted sum by guild**
BIRDS	colonial nesting wading birds	12		0				0	0	0	0	0	**0.00**	**0.00**	**0**
"	waterfowl	10		0				0	0	0	0	0	**0.00**	**0.00**	**0**
"	colonial nesting waterbirds	12	50	0				0	0	0	0	0	**0.00**	**0.00**	**0.00**
"	raptors	2		0.25				23.75	0	0	0	23.75	**0.48**	**0.00**	**0.48**
"	shorebirds	14		0				0	0	0	0	0	**0.00**	**0.00**	**0**
	herpetofauna	2	2	0.5				47.5	0	0	0	47.5	**0.95**	**0.00**	**0.95**
	benthic invert.	20	20	0				0	0	0	0	0	**0.00**	**0.00**	**0**
FISH	resident forage fish	23	28	0				0	0	0	0	0	**0.00**	**0.00**	**0**
"	commercial predatory higher trophic	5		0				0	0	0	0	0	**0.00**	**0.00**	**0**
	TOTAL	**100**	**100**								Total Community Units		1.43	0.00	1.43

FIGURE H-18. (continued)

Index Evaluation Criteria	
optimum maximum use	1
use probable, but not optimum	0.75
use possible, some use	0.5
minimum use	0.25
no use habitat value	0

YEAR 10

Total 189.9
upland 95
wetland 0

	guild community	WEIGHT	Sum of Weights	Index: upland	Index: high marsh	Index: low marsh	Index: intertidal	Community Units: upland	Community Units: high marsh	Community Units: low marsh	Community Units: intertidal	sum by guild	weighted sum by guild	Wetland weighted sum by guild	Upland weighted sum by guild
				95	0.0	0.0	0.0								
BIRDS	colonial nesting wading birds	12		0				0	0	0	0	0	0.00	0.00	0
"	waterfowl	10		0.75				71.25	0	0	0	71.25	7.13	0.00	7.125
"	colonial nesting waterbirds	12	50	0				0	0	0	0	0	0.00	0.00	0.00
"	raptors	2		0.25				23.75	0	0	0	23.75	0.48	0.00	0.48
"	shorebirds	14		0				0	0	0	0	0	0.00	0.00	0
	herpetofauna	2	2	0.5				47.5	0	0	0	47.5	0.95	0.00	0.95
	benthic invert.	20	20	0				0	0	0	0	0	0.00	0.00	0
FISH	resident forage fish	23	28	0				0	0	0	0	0	0.00	0.00	0
"	commercial predatory higher trophic	5		0				0	0	0	0	0	0.00	0.00	0
	TOTAL	100	100								Total Community Units		8.55	0.00	8.55

YEAR 25 Upland only

Total 189.9
upland 95
wetland 0

	guild community	WEIGHT	Sum of Weights	Index: upland	Index: high marsh	Index: low marsh	Index: intertidal	Community Units: upland	Community Units: high marsh	Community Units: low marsh	Community Units: intertidal	sum by guild	weighted sum by guild	Wetland weighted sum by guild	Upland weighted sum by guild
				95	0.0	0.0	0.0								
BIRDS	colonial nesting wading birds	12		0.5				47.5	0	0	0	47.5	5.70	0.00	5.7
"	waterfowl	10		0.75				71.25	0	0	0	71.25	7.13	0.00	7.125
"	colonial nesting waterbirds	12	50	0				0	0	0	0	0	0.00	0.00	0.00
"	raptors	2		0.75				71.25	0	0	0	71.25	1.43	0.00	1.43
"	shorebirds	14		0				0	0	0	0	0	0.00	0.00	0
	herpetofauna	2	2	0.5				47.5	0	0	0	47.5	0.95	0.00	0.95
	benthic invert.	20	20	0				0	0	0	0	0	0.00	0.00	0
FISH	resident forage fish	23	28	0				0	0	0	0	0	0.00	0.00	0
"	commercial predatory higher trophic	5		0				0	0	0	0	0	0.00	0.00	0
	TOTAL	100	100								Total Community Units		15.20	0.00	15.20

FIGURE H-19. KEY FOR INTERPRETING TABLES

Red type represents dredged material placement quantity	
Green type in green cell represents planting and ICU value.	
Orange type in orange cell represents final placement and grading.	
Blue type represents interim ICU prior to grading and planting.	
Blue shaded box denotes a year placement is occuring in expansion cell.	

Further notes on ICU assignment (see discussion write-up for full explanation):

1) The dredged material placement notes provided on quantification sheets from engineering were followed. The following rules were used to quantify interim benefits of expansion cells. They were not applied to existing Poplar upland cell 2 because the ratio of open water to mudflat prior to planting was known for cell 2 of the existing island.

- First 4 years of placement in upland cell is quantified as open water.
-An upland cell will be mudflat (year 1 maturity) after the sub-cells have been built.
-Years between first 4 years of placement and building of sub-cells are valued as 20% open water and 80% mudflat.
-Wetland cells are open water first 3 years of placement.
-Wetland cells are valued as mudflat all years after first 3 years of placement.

2) All expansion wetland cells include a 3 acre bird island.

3) No protected (SAV/shallow water) ICUs are included in calculation.

4) 25 acre tidal gut is not directly included or quantified. ICU calculation is restricted to 550 acre expansion and existing Poplar.

5) Expansion wetland cells are considered hydraulically connected once interior dikes are removed in year 15.

FIGURE H-20. EXISTING 1140 ACRE SITE AT 50% WETLAND AND 50% UPLAND
POPLAR ISLAND DREDGED MATERIAL PLACEMENT AND CELL DEVELOPMENT PLAN

Cell No.	Cell Acreage (Nominal)	Cell Acreage (Actual)	Cell Volume	Cell Capacity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EXISTING UPLAND CELLS																																			
U-2	326	298	10,913,555	**15,590,792**																															
		99			144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	Grade	Grade	Plant	Plant	3.0	2.6	2.2	1.9	1.5	3.0	4.5	5.9	7.4	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9
		99												90.5	90.5	90.5	90.5	90.5	90.5	Grade	Grade	Plant	Plant	3.0	2.6	2.2	1.9	1.5	3.0	4.5	5.9	7.4	8.9	8.9	8.9
		100																		39.0	39.0	39.0	39.0	39.0	39.0	Grade	Grade	Plant	Plant	3.0	2.6	2.3	1.9	1.5	3.0
U-6	243	222	11,926,728	**17,038,183**																															
		111			2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	Grade	Grade	Plant	Plant	3.3	2.9	2.5	2.1	1.7	3.3	5.0	6.7	8.3
		111																					47.3	47.3	47.3	47.3	47.3	47.3	Grade	Grade	Plant	Plant	3.3	2.9	2.5
EXISTING WETLAND CELLS																																			
W-1A	38	35	265,393	**379,133**	2.1	2.1	2.1	2.1	2.1	2.1	Grade	Plant	0.5	7.6	14.7	17.1	19.4	20.3	21.1	22.0	22.8	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6
W-1B	38	35	378,327	**540,467**	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	Grade	Plant	0.7	7.4	14.0	16.3	18.5	19.3	20.1	20.9	21.7	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
W-1C	44	40	367,840	**525,486**	5.5	5.5	5.5	5.5	5.5	5.5	5.5	Grade	Plant	0.7	8.6	16.5	19.1	21.7	22.7	23.6	24.6	25.5	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4
W-1D	49	45	486,420	**694,886**	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	Grade	Plant	0.8	9.7	18.6	21.5	24.5	25.6	26.6	27.7	28.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8
W-3A	35	32	366,549	**523,642**	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	Grade	Plant	0.5	7.0	13.4	15.6	17.8	18.5	19.3	20.1	20.8	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
W-3B	30	28	275,557	**393,653**	0.5	0.5	0.5	0.5	0.5	0.5	0.5	Grade	Plant	0.4	6.1	11.8	13.7	15.5	16.2	16.9	17.6	18.2	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9
W-3C	39	35	400,913	**572,733**	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	Grade	Plant	0.6	7.5	14.4	16.7	19.0	19.8	20.6	21.4	22.2	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1
W-3D	31	26	251,680	**359,543**	9.6	9.6	9.6	9.6	Grade	Plant	0.5	5.5	10.6	12.3	14.0	14.6	15.2	15.8	16.4	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0
W-4A_B	34	31	150,040	**214,343**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Grade	Plant	0.7	6.5	12.4	14.3	16.3	17.0	17.7	18.4	19.1	19.8	19.8	19.8	19.8	19.8
W-4C	38	34	7,000	**10,000**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Grade	Plant	0.5	7.4	14.3	16.6	18.9	19.7	20.5	21.3	22.1	23.0	23.0	23.0	23.0	23.0
W-4DX	25	23	0	**0**	3.4	3.4	3.4	Plant	0.5	4.8	9.2	10.6	12.0	12.6	13.1	13.6	14.2	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
W-5A	33	30	242,000	**345,714**	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	Grade	Plant	0.4	6.5	12.6	14.6	16.7	17.4	18.1	18.8	19.5	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5B	33	30	266,200	**380,286**	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	Grade	Plant	0.4	6.5	12.6	14.6	16.7	17.4	18.1	18.8	19.5	20.3	20.3	20.3	20.3	20.3	20.3
W-5C	33	30	290,400	**414,857**	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	Grade	Plant	0.4	6.5	12.6	14.6	16.7	17.4	18.1	18.8	19.5	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5D	57	53	1,710,133	**2,443,048**	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	Grade	Plant	0.8	11.5	22.3	25.8	29.4	30.7	32.0	33.2	34.5	35.8	35.8	35.8
EXISTING EXTERIOR DIKES					0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Annual Placement (mcy)				**40,426,766**	0	8.2	1.1	0.8	2.0	2.0	2.0	2.0	2.0	3.2	3.2	3.2	3.2	3.2	3.2	1.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total ICU					218	218	218	215	206	210	213	213	220	168	264	273	280	279	298	273	300	328	330	358	381	363	377	384	343	350	354	358	365	366	369
Wetland ICU					71.8	71.8	71.8	68.3	59.2	63.6	66.3	66.8	73.8	74.4	97.3	106.5	113.2	109.3	128.8	155.7	183.1	211.4	240.9	263.9	285.8	305.4	315.0	323.1	328.1	331.6	334.4	335.7	337.0	337.0	337.0

Red type represents dredged material placement quantity
Green type in green box represents planting and ICU value.
Orange type in orange box represents final placement and grading.
Blue type represents interim ICU prior to grading and planting.

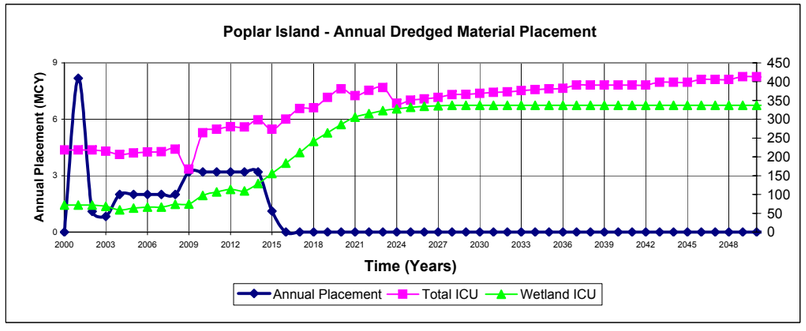

FIGURE H-20. (continued)

50% WETLAND AND 50% UPLAND

Cell No.	Cell Acreage (Nominal)	Cell Acreage (Actual)	Cell Volume	Cell Capacity	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052
EXISTING UPLAND CELLS																										
U-2	326	298	10,913,555	**15,590,792**																						
		99			8.9	8.9	8.9	8.9	8.9	8.9	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8
		99			8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8
		100			4.5	6.0	7.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	16.0	16.0	16.0	16.0
U-6	243	222	11,926,728	**17,038,183**																						
		111			10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	17.8	17.8	17.8	17.8	17.8	17.8	17.8
		111			2.1	1.7	3.3	5.0	6.7	8.3	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	17.8
EXISTING WETLAND CELLS																										
W-1A	38	35	265,393	**379,133**	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6
W-1B	38	35	378,327	**540,467**	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
W-1C	44	40	367,840	**525,486**	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4
W-1D	49	45	486,420	**694,886**	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8
W-3A	35	32	366,549	**523,642**	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
W-3B	30	28	275,557	**393,653**	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9
W-3C	39	35	400,913	**572,733**	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1
W-3D	31	26	251,680	**359,543**	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0
W-4A B	34	31	150,040	**214,343**	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8
W-4C	38	34	7,000	**10,000**	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
W-4DX	25	23	0	**0**	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
W-5A	33	30	242,000	**345,714**	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5B	33	30	266,200	**380,286**	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5C	33	30	290,400	**414,857**	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5D	57	53	1,710,133	**2,443,048**	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8
EXISTING EXTERIOR DIKES					0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Annual Placement (mcy)				**40,426,766**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total ICU					372	373	376	379	381	382	391	391	391	391	391	391	398	398	398	406	406	406	413	413	413	420
Wetland ICU					337.0	337.0	337.0	337.0	337.0	337.0	337.0	337.0	337.0	337.0	337.0	337.0	337.0	337.0	337.0	337.0	337.0	337.0	337.0	337.0	337.0	337.0

Red type represents dredged material placement quantity
Green type in green box represents planting and ICU value.
Orange type in orange box represents final placement and grading.
Blue type represents interim ICU prior to grading and planting.

POPLAR ISLAND DREDGED MATERIAL PLACEMENT AND CELL DEVELOPMENT PLAN

FIGURE H-21. EXISTING 1140-ACRE SITE PLUS 575-ACRE NORTHERN EXPANSION AT 50% WETLAND AND 50% UPLAND

(Expansion Cells Assumed to be Available in 2011)

Cell No.	Cell Acreage (Nominal)	Cell Acreage (Actual)	Cell Volume	Cell Capacity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EXPANSION UPLAND CELLS																																			
Upland	275	252	11,425,788	16,322,554										0	0	177,144	177,144	177,144	177,144	177,144	177,144	177,144	177,144	177,144	177,144	354,288	320546	0	0						
U-8	40	36.6	1,712,392	2,446,274											0.4	0.4	0.4	0.4	0.4	9.6	9.6	9.6	9.6	9.6	9.6	9.6	11.9	11.9	11.9	Grade	Grade	Plant	Plant	2.5	2.2
U-9	235	215	9,713,396	13,876,280											0	1,040,721	1,040,721	1,040,721	1,040,721	1,040,721	1,040,721	1,040,721	1,040,721	1,040,721	1,040,721	1,457,417	2,827,485	224889	0	0						
A		105													1.1	1.1	1.1	1.1	1.1	33.0	33.0	33.0	41.0	41.0	41.0	Grade	Grade	Plant	Plant	3.2	2.8	2.4	2.0	1.6	3.2
B		110													1.1	1.1	1.1	1.1	1.1	34.5	34.5	34.5	34.5	34.5	34.5	34.5	37.1	37.1	37.1	Grade	Grade	Plant	Plant	3.2	2.8
EXISTING UPLAND CELLS																																			
U-2	326	298	10,913,555	**15,590,792**		6,399,848	1,038,000	0	1,111,000	535,347	894,394	0	700,000	1,500,000	1,450,000	0	0	0	0	500,000	600,000	611268	250935	0	0											
		99												Grade	Grade	Plant	Plant	3.0	2.6	2.2	1.9	1.5	3.0	4.5	5.9	7.4	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9
		99			144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	90.5	90.5	90.5	90.5	90.5	90.5	Grade	Grade	Plant	Plant	3.0	2.6	2.2	1.9	1.5	3.0	4.5	5.9	7.4	8.9	8.9	8.9
		100																		39.0	39.0	39.0	39.0	39.0	39.0	Grade	Grade	Plant	Plant	3.0	2.6	2.3	1.9	1.5	3.0
U-6	243	222	11,926,728	**17,038,183**		0	0	0	0	0	400,000	1,700,000	1,120,114	1,075,000	1,280,028	1,832,135	1,776,563	1,162,285	170,925	-170,422	553,448	1,059,825	1,621,841	1,927,455	1,528,986	0	0	0								
		111																					Grade	Grade	Plant	Plant	3.3	2.9	2.5	2.1	1.7	3.3	5.0	6.7	8.3
		111			2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	47.3	47.3	47.3	47.3	47.3	47.3	Grade	Grade	Plant	Plant	3.3	2.9	2.5
EXISTING WETLAND CELLS																																			
W-1A	38	35	265,393	**379,133**	2.1	2.1	2.1	2.1	2.1	2.1	Grade	Plant	0.5	7.6	14.7	17.1	19.4	20.3	21.1	22.0	22.8	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6
W-1B	38	35	378,327	**540,467**	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	Grade	Plant	0.7	7.4	14.0	16.3	18.5	19.3	20.1	20.9	21.7	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
W-1C	44	40	367,840	**525,486**	5.5	5.5	5.5	5.5	5.5	5.5	5.5	Grade	Plant	0.7	8.6	16.5	19.1	21.7	22.7	23.6	24.6	25.5	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4
W-1D	49	45	486,420	**694,886**	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	Grade	Plant	0.8	9.7	18.6	21.5	24.5	25.6	26.6	27.7	28.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8
W-3A	35	32	366,549	**523,642**	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	Grade	Plant	0.5	7.0	13.4	15.6	17.8	18.5	19.3	20.1	20.8	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
W-3B	30	28	275,557	**393,653**	0.5	0.5	0.5	0.5	0.5	0.5	0.5	Grade	Plant	0.4	6.1	11.8	13.7	15.5	16.2	16.9	17.6	18.2	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9
W-3C	39	35	400,913	**572,733**	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	Grade	Plant	0.6	7.5	14.4	16.7	19.0	19.8	20.6	21.4	22.2	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1
W-3D	31	26	251,680	**359,543**	9.6	9.6	9.6	9.6	Grade	Plant	0.5	5.5	10.6	12.3	14.0	14.6	15.2	15.8	16.4	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0
W-4A B	34	31	150,040	**214,343**	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	10.1	10.1	Grade	Plant	0.7	6.5	12.4	14.3	16.3	17.0	17.7	18.4	19.1	19.8	19.8	19.8	19.8	19.8
W-4C	38	23	7,000	**10,000**	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	6.8	6.8	Grade	Plant	0.5	7.4	14.3	16.6	18.9	19.7	20.5	21.3	22.1	23.0	23.0	23.0	23.0	23.0
W-4DX	25	23	0	**0**	3.4	3.4	3.4	Plant	0.5	4.8	9.2	10.6	12.0	12.6	13.1	13.6	14.2	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
W-5A	33	30	242,000	**345,714**	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	Grade	Plant	0.4	6.5	12.6	14.6	16.7	17.4	18.1	18.8	19.5	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5B	33	30	266,200	**380,286**	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	Grade	Plant	0.4	6.5	12.6	14.6	16.7	17.4	18.1	18.8	19.5	20.3	20.3	20.3	20.3	20.3	20.3
W-5C	33	30	290,400	**414,857**	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	Grade	Plant	0.4	6.5	12.6	14.6	16.7	17.4	18.1	18.8	19.5	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5D	57	53	1,710,133	**2,443,048**	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	Grade	Plant	0.8	11.5	22.3	25.8	29.4	30.7	32.0	33.2	34.5	35.8	35.8	35.8
EXISTING EXTERIOR DIKES					0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
EXPANSION WETLAND CELLS																																			
W-1	39.3	35.9	579,936	828,480											0.4	0.4	0.4	0.4	11.7	Grade	Plant	0.8	7.5	14.1	16.3	18.5	19.3	20.1	20.9	21.7	22.5	22.5	22.5	22.5	22.5
W-2	39.3	35.9	608,933	869,904											0.4	0.4	0.4	0.4	0.4	11.7	Grade	Plant	0.8	7.5	14.1	16.3	18.5	19.3	20.1	20.9	21.7	22.5	22.5	22.5	22.5
W-3	39.3	35.9	666,926	952,752											0.4	0.4	0.4	0.4	0.4	0.4	11.7	Grade	Plant	0.8	7.5	14.1	16.3	18.5	19.3	20.1	20.9	21.7	22.5	22.5	22.5
W-4	39.3	35.9	724,920	1,035,599											0.4	0.4	0.4	0.4	0.4	0.4	0.4	11.7	Grade	Plant	0.8	7.5	14.1	16.3	18.5	19.3	20.1	20.9	21.7	22.5	22.5
W-5	39.3	35.9	637,929	911,328											0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	11.7	11.7	11.7	Grade	Plant	0.8	7.5	14.1	16.3	18.5	19.3	20.1	20.9
W-6	39.3	35.9	637,929	911,328											0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	11.7	11.7	11.7	11.7	Grade	Plant	0.8	7.5	14.1	16.3	18.5	19.3	20.1
W-7	39.3	35.9	1,565,826	2,236,895											0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	11.7	11.7	11.7	Grade	Plant
EXPANSION EXTERIOR DIKES															0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Annual Placement (mcy)				**80,818,158**		8,184,231	1,100,000	828,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	545,435	1,789,516	313,165	80,528	26,843	26,843	0	0	0

PIERP PIES ICU	219.0	219.0	219.0	215.5	206.4	210.8	213.5	214.0	221.0	168.1	270.2	279.4	286.1	301.5	331.9	364.2	390.9	419.4	436.7	489.6	528.9	475.6	494.7	508.9	479.7	458.0	484.5	495.0	506.6	503.5	508.7
PIES ICU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	5.5	5.5	5.5	16.8	91.0	90.7	91.2	106.2	131.6	147.9	112.9	117.9	124.8	136.9	107.6	130.6	137.0	141.3	137.3	139.8
PIERP ICU	219.0	219.0	219.0	215.5	206.4	210.8	213.5	214.0	221.0	168.1	264.7	273.9	280.6	296.0	315.1	273.2	300.2	328.2	330.4	357.9	381.0	362.6	376.8	384.1	342.8	350.4	353.9	357.9	365.3	366.2	368.9

Red type represents dredged material placement quantity

Green type in green box represents planting and ICU value.

Orange type in orange box represents final placement and grading.

Blue type represents interim ICU prior to grading and planting.

Blue box denotes a year placement is occuring in expansion cell.

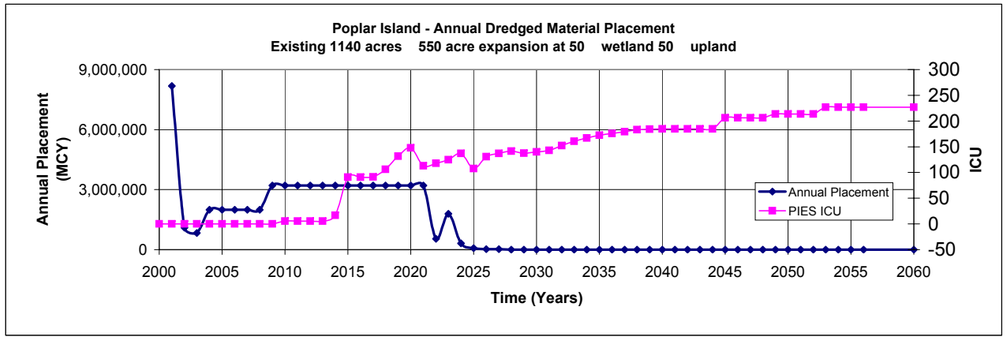

FIGURE H-21. (continued)

50% WETLAND AND 50% UPLAND

Cell No.	Cell Acreage (Nominal)	Cell Acreage (Actual)	Cell Volume	Cell Capacity	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2060
EXPANSION UPLAND CELLS																															
Upland	275	252	11,425,788	16,322,554																											
U-8	40	36.6	1,712,392	2,446,274	1.9	1.6	1.3	2.5	3.8	5.0	6.3	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	13.4	13.4	13.4	13.4	13.4
U-9	235	215	9,713,396	13,876,280																											
A		105			4.7	6.3	7.9	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8
B		110			2.4	2.0	1.6	3.2	4.7	6.3	7.9	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	16.8	16.8	16.8	16.8	16.8
EXISTING UPLAND CELLS																															
U-2	326	298	10,913,555	**15,590,792**																											
		99			8.9	8.9	8.9	8.9	8.9	8.9	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8
		99			8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8
		100			4.5	6.0	7.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
U-6	243	222	11,926,728	**17,038,183**																											
		111			10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8
		111			2.1	1.7	3.3	5.0	6.7	8.3	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	17.8	17.8	17.8	17.8	17.8
EXISTING WETLAND CELLS																															
W-1A	38	35	265,393	**379,133**	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6
W-1B	38	35	378,327	**540,467**	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
W-1C	44	40	367,840	**525,486**	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4
W-1D	49	45	486,420	**694,886**	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8
W-3A	35	32	366,549	**523,642**	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
W-3B	30	28	275,557	**393,653**	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9
W-3C	39	35	400,913	**572,733**	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1
W-3D	31	26	251,680	**359,543**	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0
W-4A B	34	31	150,040	**214,343**	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8
W-4C	38	23	7,000	**10,000**	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
W-4DX	25	23	0	**0**	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
W-5A	33	30	242,000	**345,714**	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5B	33	30	266,200	**380,286**	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5C	33	30	290,400	**414,857**	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5D	57	53	1,710,133	**2,443,048**	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8
EXISTING EXTERIOR DIKES					0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
EXPANSION WETLAND CELLS																															
W-1	39.3	35.9	579,936	828,480	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5													
W-2	39.3	35.9	608,933	869,904	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5													
W-3	39.3	35.9	666,926	952,752	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5													
W-4	39.3	35.9	724,920	1,035,599	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	179.4	179.4	179.4	179.4	179.4	179.4	179.4	179.4	179.4	179.4	179.4	179.4	179.4
W-5	39.3	35.9	637,929	911,328	21.7	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5													
W-6	39.3	35.9	637,929	911,328	20.9	21.7	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5													
W-7	39.3	35.9	1,565,826	2,236,895	0.8	7.5	14.1	16.3	18.5	19.3	20.1	20.9	21.7	22.5	22.5	22.5	22.5	22.5													
EXPANSION EXTERIOR DIKES					0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Annual Placement (mcy)				**80,818,158**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PIERP PIES ICU	514.8	525.0	536.5	546.2	552.9	558.3	570.5	574.1	575.0	575.8	575.8	575.8	582.7	582.7	604.3	612.0	612.0	612.0	626.4	626.4	626.4	634.1	647.4	647.4	647.4	647.4	647.4
PIES ICU	143.1	152.2	160.5	167.1	172.2	175.8	179.5	183.1	183.9	184.7	184.7	184.7	184.7	184.7	206.3	206.3	206.3	206.3	213.6	213.6	213.6	213.6	226.9	226.9	226.9	226.9	226.9
PIERP ICU	371.7	372.8	375.9	379.1	380.8	382.4	391.0	391.0	391.0	391.0	391.0	391.0	398.0	398.0	398.0	405.7	405.7	405.7	412.7	412.7	412.7	420.5	420.5	420.5	420.5	420.5	420.5

Red type represents dredged material placement quantity

Green type in green box represents planting and ICU value.

Orange type in orange box represents final placement and grading.

Blue type represents interim ICU prior to grading and planting.

Blue box denotes a year placement is occuring in expansion cell.

POPLAR ISLAND DREDGED MATERIAL PLACEMENT AND CELL DEVELOPMENT PLAN

FIGURE H-22. EXISTING 1140-ACRE SITE WITH 575-ACRE NORTHERN EXPANSION AT 50% WETLAND AND 50% UPLAND PLUS 5-FOOT RAISING OF EXISTING CELLS 2 & 6

(Expansion Cells Assumed to be Available in 2011)

Cell No.	Cell Acreage	Cell Acreage	Cell Volume	Cell Capacity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
	(Nominal)	(Actual)								2,005							2,006																			
RAISED EXISTING UPLAND CELLS																																			
U-2 Raised	326	298	2,406,206	3,437,437		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	750,000	750,000	0	750,000	750,000	437,437				
		99			144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	Grade	Grade	Plant	Plant	3.0	2.6	2.2	1.9	1.5	3.0	4.5	5.9	7.4	8.9	8.9	8.9
		99																		90.5	90.5	90.5	90.5	90.5	90.5	Grade	Grade	Plant	Plant	3.0	2.6	2.2	1.9	1.5	3.0
		100																								39.0	39.0	39.0	39.0	39.0	39.0	Grade	Grade	Plant	Plant
U-6 Raised	243	222	1,793,583	2,562,261		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	500,000	500,000	0	500,000	500,000	562,261				
		111			2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	Grade	Grade	Plant	Plant	3.3	2.9	2.5	2.1	1.7	3.3
		111																								47.3	47.3	47.3	47.3	47.3	47.3	Grade	Grade	Plant	Plant
EXPANSION UPLAND CELLS																																			
Upland	275	252	11,425,788	16,322,554											0	177,144	177,144	177,144	177,144	177,144	177,144	177,144	177,144	177,144	177,144	354,288	320546	0	0							
U-8	40	36.6	1,712,392	2,446,274											0.4	0.4	0.4	0.4	0.4	9.6	9.6	9.6	9.6	9.6	9.6	9.6	11.9	11.9	11.9	Grade	Grade	Plant	Plant	2.5	2.2
U-9	235	215	9,713,396	13,876,280											0	1,040,721	1,040,721	1,040,721	1,040,721	1,040,721	1,040,721	1,040,721	1,040,721	1,040,721	1,457,417	2,827,485	224889	0	0							
A		105													1.1	1.1	1.1	1.1	1.1	33.0	33.0	33.0	41.0	41.0	41.0	Grade	Grade	Plant	Plant	3.2	2.8	2.4	2.0	1.6	3.2
B		110													1.1	1.1	1.1	1.1	1.1	34.5	34.5	34.5	34.5	34.5	34.5	34.5	37.1	37.1	37.1	Grade	Grade	Plant	Plant	3.2	2.8
EXISTING UPLAND CELLS																																			
U-2	326	298	10,913,555	**15,590,792**		6,399,848	1,038,000	0	1,999,940	1,999,936	1,599,933	0	700,000	1,500,000	1,450,000	0	0	0	0	500,000	600,000	611268	250935	0	0	0	0	0	0	0	0	DEFER TO GRADING AND PLANTING SHOWN			
U-6	243	222	11,926,728	**17,038,183**		0	0	0	0	0	400,000	1,999,943	1,299,938	1,699,925	1,749,902	3,022,746	3,022,830	3,022,728	3,022,711	2,522,713	2,422,710	2,411,438	2,771,748	3,022,644	1,528,986	0	0	0	0	0	0	ABOVE FOR RAISED CELLS 2 6			
EXISTING WETLAND CELLS																																			
W-1A	38	35	265,393	**379,133**	2.1	2.1	2.1	2.1	2.1	2.1	Grade	Plant	0.5	7.6	14.7	17.1	19.4	20.3	21.1	22.0	22.8	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6
W-1B	38	35	378,327	**540,467**	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	Grade	Plant	0.7	7.4	14.0	16.3	18.5	19.3	20.1	20.9	21.7	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
W-1C	44	40	367,840	**525,486**	5.5	5.5	5.5	5.5	5.5	5.5	5.5	Grade	Plant	0.7	8.6	16.5	19.1	21.7	22.7	23.6	24.6	25.5	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4
W-1D	49	45	486,420	**694,886**	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	Grade	Plant	0.8	9.7	18.6	21.5	24.5	25.6	26.6	27.7	28.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8
W-3A	35	32	366,549	**523,642**	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	Grade	Plant	0.5	7.0	13.4	15.6	17.8	18.5	19.3	20.1	20.8	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
W-3B	30	28	275,557	**393,653**	0.5	0.5	0.5	0.5	0.5	0.5	0.5	Grade	Plant	0.4	6.1	11.8	13.7	15.5	16.2	16.9	17.6	18.2	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9
W-3C	39	35	400,913	**572,733**	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	Grade	Plant	0.6	7.5	14.4	16.7	19.0	19.8	20.6	21.4	22.2	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1
W-3D	31	26	251,680	**359,543**	9.6	9.6	9.6	9.6	Grade	Plant	0.5	5.5	10.6	12.3	14.0	14.6	15.2	15.8	16.4	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0
W-4A B	34	31	150,040	**214,343**	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	10.1	10.1	Grade	Plant	0.7	6.5	12.4	14.3	16.3	17.0	17.7	18.4	19.1	19.8	19.8	19.8	19.8	19.8
W-4C	38	34	7,000	**10,000**	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	6.8	6.8	Grade	Plant	0.5	7.4	14.3	16.6	18.9	19.7	20.5	21.3	22.1	23.0	23.0	23.0	23.0	23.0
W-4DX	25	23	0	**0**	3.4	3.4	3.4	Plant	0.5	4.8	9.2	10.6	12.0	12.6	13.1	13.6	14.2	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
W-5A	33	30	242,000	**345,714**	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	Grade	Plant	0.4	6.5	12.6	14.6	16.7	17.4	18.1	18.8	19.5	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5B	33	30	266,200	**380,286**	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	Grade	Plant	0.4	6.5	12.6	14.6	16.7	17.4	18.1	18.8	19.5	20.3	20.3	20.3	20.3	20.3	20.3
W-5C	33	30	290,400	**414,857**	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	Grade	Plant	0.4	6.5	12.6	14.6	16.7	17.4	18.1	18.8	19.5	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5D	57	53	1,710,133	**2,443,048**	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	Grade	Plant	0.8	11.5	22.3	25.8	29.4	30.7	32.0	33.2	34.5	35.8	35.8	35.8
EXISTING EXTERIOR DIKES					0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
EXPANSION WETLAND CELLS																																			
W-1	39.3	35.9	579,936	828,480											0.4	0.4	0.4	0.4	11.7	Grade	Plant	0.8	7.5	14.1	16.3	18.5	19.3	20.1	20.9	21.7	22.5	22.5	22.5	22.5	22.5
W-2	39.3	35.9	608,933	869,904											0.4	0.4	0.4	0.4	0.4	11.7	Grade	Plant	0.8	7.5	14.1	16.3	18.5	19.3	20.1	20.9	21.7	22.5	22.5	22.5	22.5	22.5
W-3	39.3	35.9	666,926	952,752											0.4	0.4	0.4	0.4	0.4	0.4	11.7	Grade	Plant	0.8	7.5	14.1	16.3	18.5	19.3	20.1	20.9	21.7	22.5	22.5	22.5
W-4	39.3	35.9	724,920	1,035,599											0.4	0.4	0.4	0.4	0.4	0.4	0.4	11.7	Grade	Plant	0.8	7.5	14.1	16.3	18.5	19.3	20.1	20.9	21.7	22.5	22.5
W-5	39.3	35.9	637,929	911,328											0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	11.7	11.7	11.7	Grade	Plant	0.8	7.5	14.1	16.3	18.5	19.3	20.1	20.9
W-6	39.3	35.9	637,929	911,328											0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	11.7	11.7	11.7	Grade	Plant	0.8	7.5	14.1	16.3	18.5	19.3	20.1
W-7	39.3	35.9	1,565,826	2,236,895											0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	11.7	11.7	11.7	Grade	Plant
EXPANSION EXTERIOR DIKES															0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	1,676	1,530		70,495,303		**8,184,231**	1,100,000	828,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,045,435	1,789,516	1,563,165	1,330,528	1,026,541	26,843	0	0	0	

PIERP PIES ICU	219.0	219.0	219.0	215.5	206.4	210.8	213.5	214.0	221.0	221.6	250.0	259.3	266.0	352.1	382.9	413.5	440.6	469.4	513.9	565.3	603.2	507.2	521.5	536.1	554.6	536.6	563.1	491.4	491.4	486.7	492.3
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	53.5	-20.2	-20.2	-20.2	50.6	50.9	49.3	49.7	50.1	77.2	75.7	74.3	31.6	26.8	27.2	74.9	78.6	78.6	-9.8	-15.2	-16.8	-16.4
PIES ICU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	53.5	-14.6	-14.6	-14.6	56.1	67.8	140.4	140.4	141.2	183.5	207.4	222.2	144.5	144.7	152.0	211.8	186.2	209.2	127.3	126.1	120.5	123.4

Red type represents dredged material placement quantity

Green type in green box represents planting and ICU value.

Orange type in orange box represents final placement and grading.

Blue type represents interim ICU prior to grading and planting.

Blue box denotes a year placement is occuring in expansion cell.

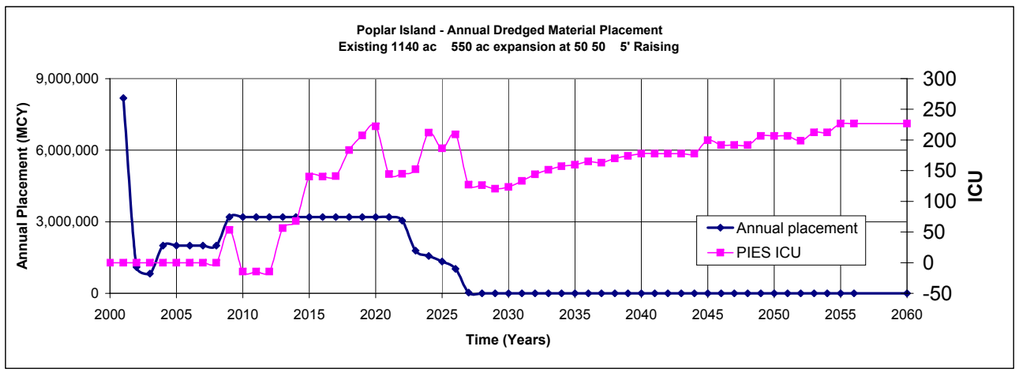

FIGURE H-22. (continued)

50% WETLAND AND 50% UPLAND PLUS 5-FOOT RAISING OF EXISTING CELLS 2 & 6

Cell No.	Cell Acreage	Cell Acreage	Cell Volume	Cell Capacity	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2060
	(Nominal)	(Actual)																													
RAISED EXISTING UPLAND CELLS																															
U-2 Raised	326	298	2,406,206	3,437,437																											
		99			8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8
		99			4.5	5.9	7.4	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8
		100			3.0	2.6	2.3	1.9	1.5	3.0	4.5	6.0	7.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	16.0	16.0	16.0
U-6 Raised	243	222	1,793,583	2,562,261																											
		111			5.0	6.7	8.3	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8
		111			3.3	2.9	2.5	2.1	1.7	3.3	5.0	6.7	8.3	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	17.8	17.8	17.8
EXPANSION UPLAND CELLS																															
Upland	275	252	11,425,788	16,322,554																											
U-8	40	36.6	1,712,392	2,446,274	1.9	1.6	1.3	2.5	3.8	5.0	6.3	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	13.4	13.4	13.4	13.4	13.4
U-9	235	215	9,713,396	13,876,280																											
A		105			4.7	6.3	7.9	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8
B		110			2.4	2.0	1.6	3.2	4.7	6.3	7.9	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	16.8	16.8	16.8	16.8	16.8
EXISTING UPLAND CELLS																															
U-2	326	298	10,913,555	**15,590,792**																											
U-6	243	222	11,926,728	**17,038,183**																											
EXISTING WETLAND CELLS																															
W-1A	38	35	265,393	**379,133**	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6
W-1B	38	35	378,327	**540,467**	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
W-1C	44	40	367,840	**525,486**	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4
W-1D	49	45	486,420	**694,886**	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8
W-3A	35	32	366,549	**523,642**	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
W-3B	30	28	275,557	**393,653**	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9
W-3C	39	35	400,913	**572,733**	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1
W-3D	31	26	251,680	**359,543**	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0
W-4A B	34	31	150,040	**214,343**	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8
W-4C	38	34	7,000	**10,000**	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
W-4DX	25	23	0	**0**	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
W-5A	33	30	242,000	**345,714**	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5B	33	30	266,200	**380,286**	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5C	33	30	290,400	**414,857**	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5D	57	53	1,710,133	**2,443,048**	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8
EXISTING EXTERIOR DIKES					0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
EXPANSION WETLAND CELLS																															
W-1	39.3	35.9	579,936	828,480	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5													
W-2	39.3	35.9	608,933	869,904	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5													
W-3	39.3	35.9	666,926	952,752	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5													
W-4	39.3	35.9	724,920	1,035,599	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	179.4	179.4	179.4	179.4	179.4	179.4	179.4	179.4	179.4	179.4	179.4	179.4	179.4
W-5	39.3	35.9	637,929	911,328	21.7	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5													
W-6	39.3	35.9	637,929	911,328	20.9	21.7	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5													
W-7	39.3	35.9	1,565,826	2,236,895	0.8	7.5	14.1	16.3	18.5	19.3	20.1	20.9	21.7	22.5	22.5	22.5	22.5	22.5													
EXPANSION EXTERIOR DIKES					0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	1,676	1,530		70,495,303	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PIERP PIES ICU	505.1	516.6	527.2	536.2	540.5	547.3	554.1	560.9	564.9	568.8	568.8	568.8	575.8	575.8	597.3	597.3	597.3	597.3	619.4	619.4	619.4	619.4	632.6	632.6	647.4	647.4	647.4
	-9.7	-8.4	-9.2	-10.0	-12.5	-11.0	-16.4	-13.3	-10.1	-6.9	-6.9	-6.9	-6.9	-6.9	-6.9	-14.7	-14.7	-14.7	-7.0	-7.0	-7.0	-14.8	-14.8	-14.8	0.0	0.0	0.0
PIES ICU	133.4	143.8	151.3	157.1	159.7	164.8	163.0	169.9	173.8	177.8	177.8	177.8	177.8	177.8	199.4	191.6	191.6	191.6	206.6	206.6	206.6	198.9	212.1	212.1	226.9	226.9	226.9

Red type represents dredged material placement quantity

Green type in green box represents planting and ICU value.

Orange type in orange box represents final placement and grading.

Blue type represents interim ICU prior to grading and planting.

Blue box denotes a year placement is occuring in expansion cell.

POPLAR ISLAND DREDGED MATERIAL PLACEMENT AND CELL DEVELOPMENT PLAN

FIGURE H-23. EXISTING 1140-ACRE SITE WITH 575-ACRE NORTHERN EXPANSION AT 55% WETLAND AND 45% UPLAND

(Expansion Cells Assumed to be Available in 2011)

Cell No.	Cell Acreage (Nominal)	Cell Acreage (Actual)	Cell Volume	Cell Capacity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EXPANSION UPLAND CELLS																																			
Up-8 Exp	40	36.6	1,712,392	2,446,274		0	0	0	0	0	0	0	0	0	0	177,144	177,144	177,144	177,144	177,144	177,144	177,144	177,144	177,144	177,144	354,288	320,546	0	0						
															0.4	0.4	0.4	0.4	0.4	9.6	9.6	9.6	9.6	9.6	9.6	9.6	11.9	11.9	11.9	Grade	Grade	Plant	Plant	2.5	2.2
Up-9 Exp	207.5	189.9	8,576,722	12,252,460																															
		95.0													1.0	1.0	1.0	1.0	1.0	29.8	29.8	29.8	37.1	37.1	37.1	Grade	Grade	Plant	Plant	2.9	2.5	2.1	1.8	1.4	2.9
		94.9													0.9	0.9	0.9	0.9	0.9	29.8	29.8	29.8	29.8	29.8	29.8	29.8	37.0	37.0	37.0	Grade	Grade	Plant	Plant	2.8	2.5
EXISTING UPLAND CELLS																																			
U-2	326	298	10,913,555	**15,590,792**		6,399,848	1,038,000	0	1,111,000	535,347	894,394	0	700,000	1,500,000	1,450,000	0	0	0	0	500,000	600,000	611268	250935	0	0											
		99												Grade	Grade	Plant	Plant	3.0	2.6	2.2	1.9	1.5	3.0	4.5	5.9	7.4	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9
		99			144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	90.5	90.5	90.5	90.5	90.5	90.5	Grade	Grade	Plant	Plant	3.0	2.6	2.2	1.9	1.5	3.0	4.5	5.9	7.4	8.9	8.9	8.9
		100																		39.0	39.0	39.0	39.0	39.0	39.0	Grade	Grade	Plant	Plant	3.0	2.6	2.3	1.9	1.5	3.0
U-6	243	222	11,926,728	**17,038,183**		0	0	0	0	0	400,000	1,700,000	1,120,114	1,075,000	1,280,028	1,832,135	1,776,563	1,162,285	170,925	-170,422	553,448	1,059,825	1,621,841	1,927,455	1,528,986	0	0	0							
		111																					Grade	Grade	Plant	Plant	3.3	2.9	2.5	2.1	1.7	3.3	5.0	6.7	8.3
		111			2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	47.3	47.3	47.3	47.3	47.3	47.3	Grade	Grade	Plant	Plant	3.3	2.9	2.5
EXISTING WETLAND CELLS																dike 6A																			
W-1A	38	35	265,393	**379,133**	2.1	2.1	2.1	2.1	2.1	2.1	Grade	Plant	0.5	7.6	14.7	17.1	19.4	20.3	21.1	22.0	22.8	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6
W-1B	38	35	378,327	**540,467**	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	Grade	Plant	0.7	7.4	14.0	16.3	18.5	19.3	20.1	20.9	21.7	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
W-1C	44	40	367,840	**525,486**	5.5	5.5	5.5	5.5	5.5	5.5	5.5	Grade	Plant	0.7	8.6	16.5	19.1	21.7	22.7	23.6	24.6	25.5	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4
W-1D	49	45	486,420	**694,886**	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	Grade	Plant	0.8	9.7	18.6	21.5	24.5	25.6	26.6	27.7	28.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8
W-3A	35	32	366,549	**523,642**	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	Grade	Plant	0.5	7.0	13.4	15.6	17.8	18.5	19.3	20.1	20.8	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
W-3B	30	28	275,557	**393,653**	0.5	0.5	0.5	0.5	0.5	0.5	0.5	Grade	Plant	0.4	6.1	11.8	13.7	15.5	16.2	16.9	17.6	18.2	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9
W-3C	39	35	400,913	**572,733**	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	Grade	Plant	0.6	7.5	14.4	16.7	19.0	19.8	20.6	21.4	22.2	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1
W-3D	31	26	251,680	**359,543**	9.6	9.6	9.6	9.6	Grade	Plant	0.5	5.5	10.6	12.3	14.0	14.6	15.2	15.8	16.4	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0
W-4A B	34	31	150,040	**214,343**	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	10.1	10.1	Grade	Plant	0.7	6.5	12.4	14.3	16.3	17.0	17.7	18.4	19.1	19.8	19.8	19.8	19.8	19.8
W-4C	38	23	7,000	**10,000**	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	6.8	6.8	Grade	Plant	0.5	7.4	14.3	16.6	18.9	19.7	20.5	21.3	22.1	23.0	23.0	23.0	23.0	23.0
W-4DX	25	23	0	**0**	3.4	3.4	3.4	Plant	0.5	4.8	9.2	10.6	12.0	12.6	13.1	13.6	14.2	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
W-5A	33	30	242,000	**345,714**	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	Grade	Plant	0.4	6.5	12.6	14.6	16.7	17.4	18.1	18.8	19.5	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5B	33	30	266,200	**380,286**	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	Grade	Plant	0.4	6.5	12.6	14.6	16.7	17.4	18.1	18.8	19.5	20.3	20.3	20.3	20.3	20.3	20.3
W-5C	33	30	290,400	**414,857**	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	Grade	Plant	0.4	6.5	12.6	14.6	16.7	17.4	18.1	18.8	19.5	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5D	57	53	1,710,133	**2,443,048**	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	Grade	Plant	0.8	11.5	22.3	25.8	29.4	30.7	32.0	33.2	34.5	35.8	35.8	35.8
EXISTING EXTERIOR DIKES					0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
EXPANSION WETLAND CELLS																																			
W-1	43.2	39.5	637,929	911,328											0.4	0.4	0.4	0.4	12.8	Grade	Plant	0.9	10.7	15.6	18.0	20.5	21.4	22.3	23.2	24.1	25.0	25.0	25.0	25.0	25.0
W-2	43.2	39.5	669,826	956,894											0.4	0.4	0.4	0.4	0.4	12.8	Grade	Plant	0.9	10.7	15.6	18.0	20.5	21.4	22.3	23.2	24.1	25.0	25.0	25.0	25.0
W-3	43.2	39.5	733,619	1,048,027											0.4	0.4	0.4	0.4	0.4	0.4	12.8	Grade	Plant	0.9	10.7	15.6	18.0	20.5	21.4	22.3	23.2	24.1	25.0	25.0	25.0
W-4	43.2	39.5	797,412	1,139,159											0.4	0.4	0.4	0.4	0.4	0.4	0.4	12.8	Grade	Plant	0.9	10.7	15.6	18.0	20.5	21.4	22.3	23.2	24.1	25.0	25.0
W-5	43.2	39.5	701,722	1,002,460											0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	12.8	12.8	12.8	Grade	Plant	0.9	10.7	15.6	18.0	20.5	21.4	22.3	23.2
W-6	43.2	39.5	701,722	1,002,460											0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	12.8	12.8	12.8	Grade	Plant	0.9	10.7	15.6	18.0	20.5	21.4	22.3	23.2
W-7	43.2	39.5	1,722,409	2,460,584											0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	12.8	12.8	12.8	Grade	Plant		
EXPANSION EXTERIOR DIKES															0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	1,676	1,530		63,646,413		8,184,231	1,100,000	828,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	3200000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	2,352,008	320,546	1,968,468	344,482	88,581	29,527	29,527	0	0	0

PIERP PIES ICU	219.0	219.0	219.0	215.5	206.4	210.8	213.5	214.0	221.0	168.1	270.2	279.4	286.1	301.5	333.0	357.7	384.3	412.8	432.6	488.1	529.2	480.6	502.0	516.9	491.5	471.3	497.8	509.1	521.3	517.0	522.3				
PIES ICU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	5.5	5.5	5.5	18.0	84.5	84.1	84.6	102.1	130.2	148.2	117.9	125.3	132.9	148.7	120.9	144.0	151.2	156.0	150.8	153.4				

Red type represents dredged material placement quantity

Green type in green box represents planting and ICU value.

Orange type in orange box represents final placement and grading.

Blue type represents interim ICU prior to grading and planting.

Blue box denotes a year placement is occuring in expansion cell.

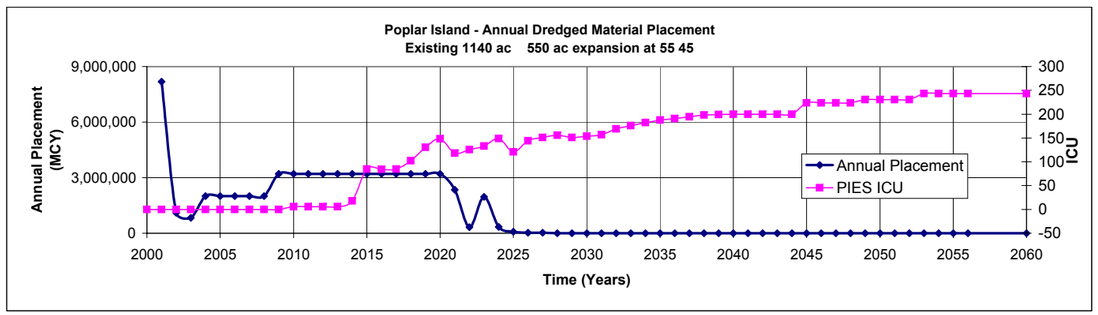

FIGURE H-23. (continued)

55% WETLAND AND 45% UPLAND

Cell No.	Cell Acreage (Nominal)	Cell Acreage (Actual)	Cell Volume	Cell Capacity	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2060
EXPANSION UPLAND CELLS																															
Up-8 Exp	40	36.6	1,712,392	2,446,274																											
					1.9	1.6	1.3	2.5	3.8	5.0	6.3	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	13.4	13.4	13.4	13.4	13.4
Up-9 Exp	207.5	189.9	8,576,722	12,252,460																											
		95.0			4.3	5.7	7.1	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2
		94.9			2.1	1.8	1.4	2.8	4.3	5.7	7.1	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	15.2	15.2	15.2	15.2	15.2
EXISTING UPLAND CELLS																															
U-2	326	298	10,913,555	**15,590,792**																											
		99			8.9	8.9	8.9	8.9	8.9	8.9	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8
		99			8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8
		100			4.5	6.0	7.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
U-6	243	222	11,926,728	**17,038,183**																											
		111			10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8
		111			2.1	1.7	3.3	5.0	6.7	8.3	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	17.8	17.8	17.8	17.8	17.8	17.8
EXISTING WETLAND CELLS																															
W-1A	38	35	265,393	**379,133**	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6
W-1B	38	35	378,327	**540,467**	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
W-1C	44	40	367,840	**525,486**	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4
W-1D	49	45	486,420	**694,886**	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8
W-3A	35	32	366,549	**523,642**	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
W-3B	30	28	275,557	**393,653**	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9
W-3C	39	35	400,913	**572,733**	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1
W-3D	31	26	251,680	**359,543**	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0
W-4A B	34	31	150,040	**214,343**	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8
W-4C	38	23	7,000	**10,000**	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
W-4DX	25	23	0	**0**	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
W-5A	33	30	242,000	**345,714**	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5B	33	30	266,200	**380,286**	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5C	33	30	290,400	**414,857**	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5D	57	53	1,710,133	**2,443,048**	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8
EXISTING EXTERIOR DIKES					0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
EXPANSION WETLAND CELLS																															
W-1	43.2	39.5	637,929	911,328	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0													
W-2	43.2	39.5	669,826	956,894	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0													
W-3	43.2	39.5	733,619	1,048,027	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0													
W-4	43.2	39.5	797,412	1,139,159	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	198.7	198.7	198.7	198.7	198.7	198.7	198.7	198.7	198.7	198.7	198.7	198.7	198.7
W-5	43.2	39.5	701,722	1,002,460	24.1	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0													
W-6	43.2	39.5	701,722	1,002,460	23.2	24.1	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0													
W-7	43.2	39.5	1,722,409	2,460,584	0.9	10.7	15.6	18.0	20.5	21.4	22.3	23.2	24.1	25.0	25.0	25.0	25.0	25.0													
EXPANSION EXTERIOR DIKES					0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	1,676	1,530		63,646,413	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PIERP PIES ICU	528.5	541.9	551.7	561.4	568.2	573.4	585.6	589.2	590.1	591.0	591.0	591.0	597.9	597.9	621.8	629.6	629.6	629.6	643.2	643.2	643.2	651.0	663.5	663.5	663.5	663.5	663.5				
PIES ICU	156.8	169.2	175.7	182.3	187.4	191.0	194.6	198.2	199.0	199.9	199.9	199.9	199.9	199.9	223.9	223.9	223.9	223.9	230.5	230.5	230.5	230.5	243.0	243.0	243.0	243.0	243.0				

Red type represents dredged material placement quantity

Green type in green box represents planting and ICU value.

Orange type in orange box represents final placement and grading.

Blue type represents interim ICU prior to grading and planting.

Blue box denotes a year placement is occuring in expansion cell.

POPLAR ISLAND DREDGED MATERIAL PLACEMENT AND CELL DEVELOPMENT PLAN

FIGURE H-24. EXISTING 1140-ACRE SITE WITH 575-ACRE NORTHERN EXPANSION AT 55% WETLAND AND 45% UPLAND PLUS 5-FOOT RAISING OF EXISTING CELLS 2 & 6

(Expansion Cells Assumed to be Available in 2011)

Cell No.	Cell Acreage	Cell Acreage	Cell Volume	Cell Capacity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
	(Nominal)	(Actual)								2,005																										
RAISED EXISTING UPLAND CELLS																																			
U-2 Raised	326	298	2,406,206	3,437,437		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	750,000	750,000	0	750,000	750,000	437,437				
		99			144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	Grade	Grade	Plant	Plant	3.0	2.6	2.2	1.9	1.5	3.0	4.5	5.9	7.4	8.9	8.9	8.9
		99																		90.5	90.5	90.5	90.5	90.5	90.5	Grade	Grade	Plant	Plant	3.0	2.6	2.2	1.9	1.5	3.0
		100																								39.0	39.0	39.0	39.0	39.0	39.0	Grade	Grade	Plant	Plant
U-6 Raised	243	222	1,793,583	2,562,261		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	500,000	500,000	0	500,000	500,000	562,261				
		111			2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	Grade	Grade	Plant	Plant	3.3	2.9	2.5	2.1	1.7	3.3
		111																								47.3	47.3	47.3	47.3	47.3	47.3	Grade	Grade	Plant	Plant
EXPANSION UPLAND CELLS																																			
Up-8 Exp	40	36.6	1,712,392	2,446,274		0	0	0	0	0	0	0	0	0	0	177,144	177,144	177,144	177,144	177,144	177,144	177,144	177,144	177,144	177,144	354,288	320,546	0	0						
															0.4	0.4	0.4	0.4	0.4	9.6	9.6	9.6	9.6	9.6	9.6	9.6	11.9	11.9	11.9	Grade	Grade	Plant	Plant	2.5	2.2
Up-9 Exp	207.5	189.9	8,576,722	12,252,460																															
		95.0													1.0	1.0	1.0	1.0	1.0	29.8	29.8	29.8	37.1	37.1	37.1	Grade	Grade	Plant	Plant	2.9	2.5	2.1	1.8	1.4	2.9
		94.9													0.9	0.9	0.9	0.9	0.9	29.8	29.8	29.8	29.8	29.8	29.8	29.8	37.0	37.0	37.0	Grade	Grade	Plant	Plant	2.8	2.5
EXISTING UPLAND CELLS																																			
U-2	326	298	10,913,555	**15,590,792**		6,399,848	1,038,000	0	1,999,940	1,999,936	1,599,933	0	700,000	1,500,000	1,450,000	0	0	0	0	500,000	600,000	611268	250935	0	0	0	0	0	0	0	0	DEFER TO GRADING AND PLANTING SHOWN			
U-6	243	222	11,926,728	**17,038,183**		0	0	0	0	0	400,000	1,999,943	1,299,938	1,699,925	1,749,902	3,022,746	3,022,830	3,022,727	3,022,710	2,522,712	2,422,709	2,411,437	2,771,744	3,022,636	978,379	0	0	0	0	0	0	ABOVE FOR RAISED CELLS 2 6			
EXISTING WETLAND CELLS																																			
W-1A	38	35	265,393	**379,133**	2.1	2.1	2.1	2.1	2.1	2.1	Grade	Plant	0.5	7.6	14.7	17.1	19.4	20.3	21.1	22.0	22.8	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6
W-1B	38	35	378,327	**540,467**	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	Grade	Plant	0.7	7.4	14.0	16.3	18.5	19.3	20.1	20.9	21.7	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
W-1C	44	40	367,840	**525,486**	5.5	5.5	5.5	5.5	5.5	5.5	5.5	Grade	Plant	0.7	8.6	16.5	19.1	21.7	22.7	23.6	24.6	25.5	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4
W-1D	49	45	486,420	**694,886**	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	Grade	Plant	0.8	9.7	18.6	21.5	24.5	25.6	26.6	27.7	28.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8
W-3A	35	32	366,549	**523,642**	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	Grade	Plant	0.5	7.0	13.4	15.6	17.8	18.5	19.3	20.1	20.8	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
W-3B	30	28	275,557	**393,653**	0.5	0.5	0.5	0.5	0.5	0.5	0.5	Grade	Plant	0.4	6.1	11.8	13.7	15.5	16.2	16.9	17.6	18.2	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9
W-3C	39	35	400,913	**572,733**	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	Grade	Plant	0.6	7.5	14.4	16.7	19.0	19.8	20.6	21.4	22.2	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1
W-3D	31	26	251,680	**359,543**	9.6	9.6	9.6	9.6	Grade	Plant	0.5	5.5	10.6	12.3	14.0	14.6	15.2	15.8	16.4	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0
W-4A B	34	31	150,040	**214,343**	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	10.1	10.1	Grade	Plant	0.7	6.5	12.4	14.3	16.3	17.0	17.7	18.4	19.1	19.8	19.8	19.8	19.8	19.8
W-4C	38	34	7,000	**10,000**	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	6.8	6.8	Grade	Plant	0.5	7.4	14.3	16.6	18.9	19.7	20.5	21.3	22.1	23.0	23.0	23.0	23.0	23.0
W-4DX	25	23	0	**0**	3.4	3.4	3.4	Plant	0.5	4.8	9.2	10.6	12.0	12.6	13.1	13.6	14.2	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
W-5A	33	30	242,000	**345,714**	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	Grade	Plant	0.4	6.5	12.6	14.6	16.7	17.4	18.1	18.8	19.5	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5B	33	30	266,200	**380,286**	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	Grade	Plant	0.4	6.5	12.6	14.6	16.7	17.4	18.1	18.8	19.5	20.3	20.3	20.3	20.3	20.3	20.3
W-5C	33	30	290,400	**414,857**	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	Grade	Plant	0.4	6.5	12.6	14.6	16.7	17.4	18.1	18.8	19.5	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5D	57	53	1,710,133	**2,443,048**	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	Grade	Plant	0.8	11.5	22.3	25.8	29.4	30.7	32.0	33.2	34.5	35.8	35.8	35.8
EXISTING EXTERIOR DIKES					0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
EXPANSION WETLAND CELLS																																			
W-1	43.2	39.5	637,929	911,328											0.4	0.4	0.4	0.4	12.8	Grade	Plant	0.9	10.7	15.6	18.0	20.5	21.4	22.3	23.2	24.1	25.0	25.0	25.0	25.0	25.0
W-2	43.2	39.5	669,826	956,894											0.4	0.4	0.4	0.4	0.4	12.8	Grade	Plant	0.9	10.7	15.6	18.0	20.5	21.4	22.3	23.2	24.1	25.0	25.0	25.0	25.0	25.0
W-3	43.2	39.5	733,619	1,048,027											0.4	0.4	0.4	0.4	0.4	0.4	12.8	Grade	Plant	0.9	10.7	15.6	18.0	20.5	21.4	22.3	23.2	24.1	25.0	25.0	25.0	25.0
W-4	43.2	39.5	797,412	1,139,159											0.4	0.4	0.4	0.4	0.4	0.4	0.4	12.8	Grade	Plant	0.9	10.7	15.6	18.0	20.5	21.4	22.3	23.2	24.1	25.0	25.0	25.0
W-5	43.2	39.5	701,722	1,002,460											0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	12.8	12.8	12.8	Grade	Plant	0.9	10.7	15.6	18.0	20.5	21.4	22.3	23.2	24.1	25.0	25.0
W-6	43.2	39.5	701,722	1,002,460											0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	12.8	12.8	12.8	Grade	Plant	0.9	10.7	15.6	18.0	20.5	21.4	22.3	23.2	24.1	25.0	25.0
W-7	43.2	39.5	1,722,409	2,460,584											0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	12.8	12.8	12.8	Grade	Plant		
EXPANSION EXTERIOR DIKES															0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Annual Placement (mcy)						8,184,231	1,100,000	828,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	3200000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,151	3,200,068	1,972,622	1,968,535	1,594,567	1,338,674	1,029,234	29,537	11	12	12

PIERP PIES ICU					219.0	219.0	219.0	215.5	206.4	210.8	213.5	214.0	221.0	221.6	250.0	259.3	266.0	352.1	384.0	407.0	434.0	462.9	509.8	563.9	603.4	512.1	528.8	544.1	566.4	549.9	576.4	499.4	506.1	500.2	505.9
					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	53.5	-20.2	-20.2	-20.2	50.6	50.9	49.3	49.7	50.1	77.2	75.7	74.3	31.6	26.8	27.2	74.9	78.6	78.6	-9.8	-15.2	-16.8	-16.4
PIES ICU					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	53.5	-14.6	-14.6	-14.6	56.1	68.9	133.8	133.8	134.7	179.4	205.9	222.5	149.5	152.0	160.0	223.6	199.5	222.5	141.4	140.8	134.0	136.9

Red type represents dredged material placement quantity

Green type in green box represents planting and ICU value.

Orange type in orange box represents final placement and grading.

Blue type represents interim ICU prior to grading and planting.

Blue box denotes a year placement is occuring in expansion cell.

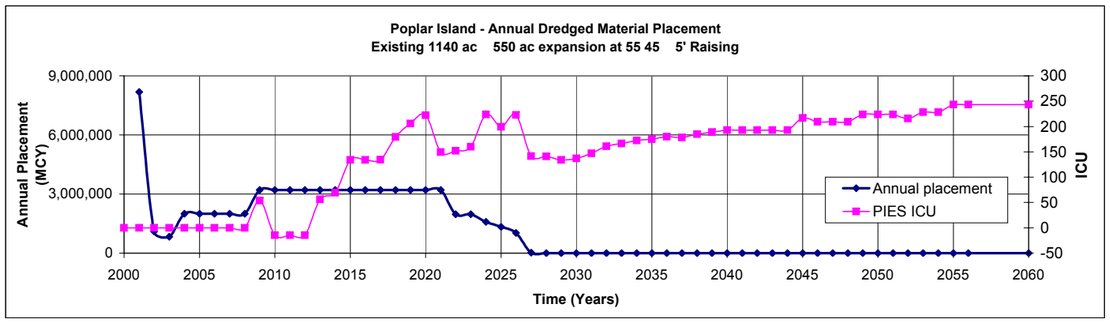

FIGURE H-24. (continued)

55% WETLAND AND 45% UPLAND PLUS 5-FOOT RAISING OF EXISTING CELLS 2 & 6

Cell No.	Cell Acreage (Nominal)	Cell Acreage (Actual)	Cell Volume	Cell Capacity	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2060
RAISED EXISTING UPLAND CELLS																															
U-2 Raised	326	298	2,406,206	3,437,437																											
		99			8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8
		99			4.5	5.9	7.4	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8
		100			3.0	2.6	2.3	1.9	1.5	3.0	4.5	6.0	7.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	16.0	16.0	16.0
U-6 Raised	243	222	1,793,583	2,562,261																											
		111			5.0	6.7	8.3	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8
		111			3.3	2.9	2.5	2.1	1.7	3.3	5.0	6.7	8.3	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	17.8	17.8	17.8
EXPANSION UPLAND CELLS																															
Up-8 Exp	40	36.6	1,712,392	2,446,274																											
					1.9	1.6	1.3	2.5	3.8	5.0	6.3	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	13.4	13.4	13.4	13.4	13.4
Up-9 Exp	207.5	189.9	8,576,722	12,252,460																											
		95.0			4.3	5.7	7.1	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2
		94.9			2.1	1.8	1.4	2.8	4.3	5.7	7.1	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	15.2	15.2	15.2	15.2	15.2
EXISTING UPLAND CELLS																															
U-2	326	298	10,913,555	**15,590,792**																											
U-6	243	222	11,926,728	**17,038,183**																											
EXISTING WETLAND CELLS																															
W-1A	38	35	265,393	**379,133**	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6
W-1B	38	35	378,327	**540,467**	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
W-1C	44	40	367,840	**525,486**	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4
W-1D	49	45	486,420	**694,886**	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8
W-3A	35	32	366,549	**523,642**	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
W-3B	30	28	275,557	**393,653**	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9
W-3C	39	35	400,913	**572,733**	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1
W-3D	31	26	251,680	**359,543**	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0
W-4A B	34	31	150,040	**214,343**	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8
W-4C	38	34	7,000	**10,000**	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
W-4DX	25	23	0	**0**	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
W-5A	33	30	242,000	**345,714**	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5B	33	30	266,200	**380,286**	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5C	33	30	290,400	**414,857**	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5D	57	53	1,710,133	**2,443,048**	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8
EXISTING EXTERIOR DIKES					0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
EXPANSION WETLAND CELLS																															
W-1	43.2	39.5	637,929	911,328	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0													
W-2	43.2	39.5	669,826	956,894	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0													
W-3	43.2	39.5	733,619	1,048,027	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0													
W-4	43.2	39.5	797,412	1,139,159	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	198.7	198.7	198.7	198.7	198.7	198.7	198.7	198.7	198.7	198.7	198.7	198.7	198.7
W-5	43.2	39.5	701,722	1,002,460	24.1	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0													
W-6	43.2	39.5	701,722	1,002,460	23.2	24.1	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0													
W-7	43.2	39.5	1,722,409	2,460,584	0.9	10.7	15.6	18.0	20.5	21.4	22.3	23.2	24.1	25.0	25.0	25.0	25.0	25.0													
EXPANSION EXTERIOR DIKES					0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Annual Placement (mcy)					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PIERP PIES ICU					518.8	533.5	542.4	551.3	555.7	562.4	569.2	575.9	580.0	584.0	584.0	584.0	591.0	591.0	614.9	614.9	614.9	614.9	636.2	636.2	636.2	636.2	648.8	648.8	663.5	663.5	663.5
					-9.7	-8.4	-9.2	-10.0	-12.5	-11.0	-16.4	-13.3	-10.1	-6.9	-6.9	-6.9	-6.9	-6.9	-6.9	-14.7	-14.7	-14.7	-7.0	-7.0	-7.0	-14.8	-14.8	-14.8	0.0	0.0	0.0
PIES ICU					147.1	160.7	166.5	172.2	174.9	180.0	178.1	184.9	189.0	193.0	193.0	193.0	193.0	193.0	216.9	209.2	209.2	209.2	223.5	223.5	223.5	215.7	228.3	228.3	243.0	243.0	243.0

Red type represents dredged material placement quantity

Green type in green box represents planting and ICU value.

Orange type in orange box represents final placement and grading.

Blue type represents interim ICU prior to grading and planting.

Blue box denotes a year placement is occuring in expansion cell.

POPLAR ISLAND DREDGED MATERIAL PLACEMENT AND CELL DEVELOPMENT PLAN

FIGURE H-25. EXISTING 1140-ACRE SITE WITH 575-ACRE NORTHERN EXPANSION AT 60% WETLAND AND 40% UPLAND

(Expansion Cells Assumed to be Available in 2011)

Cell No.	Cell Acreage (Nominal)	Cell Acreage (Actual)	Cell Volume	Cell Capacity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EXPANSION WETLAND UPLAND CELLS																																			
Wet-8	40	36.6	974,292	1,391,846											0.4	0.4	0.4	0.4	0.4	11.9	11.9	11.9	11.9	11.9	11.9	Grade	Grade	Plant	Plant	0.9	9.9	14.4	16.6	18.9	19.6
U-9	235	215	9,713,396	13,876,280											0	1,040,721	1,040,721	1,040,721	1,040,721	1,040,721	1,040,721	1,040,721	1,040,721	1,040,721	1,457,417	2,827,485	224889	0	0							
A		105													1.1	1.1	1.1	1.1	1.1	33.0	33.0	33.0	41.0	41.0	41.0	Grade	Grade	Plant	Plant	3.2	2.8	2.4	2.0	1.6	3.2
B		110													1.1	1.1	1.1	1.1	1.1	34.5	34.5	34.5	34.5	34.5	34.5	34.5	37.1	37.1	37.1	Grade	Grade	Plant	Plant	3.2	2.8
EXISTING UPLAND CELLS																																			
U-2	326	298	10,913,555	**15,590,792**		6,399,848	1,038,000	0	1,111,000	535,347	894,394	0	700,000	1,500,000	1,450,000	0	0	0	0	500,000	600,000	611268	250935	0	0											
		99												Grade	Grade	Plant	Plant	3.0	2.6	2.2	1.9	1.5	3.0	4.5	5.9	7.4	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9
		99			144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	90.5	90.5	90.5	90.5	90.5	90.5	Grade	Grade	Plant	Plant	3.0	2.6	2.2	1.9	1.5	3.0	4.5	5.9	7.4	8.9	8.9	8.9
		100																		39.0	39.0	39.0	39.0	39.0	39.0	Grade	Grade	Plant	Plant	3.0	2.6	2.3	1.9	1.5	3.0
U-6	243	222	11,926,728	**17,038,183**		0	0	0	0	0	400,000	1,700,000	1,120,114	1,075,000	1,280,028	1,832,135	1,776,563	1,162,285	170,925	-170,422	553,448	1,059,825	1,621,841	1,927,455	1,528,986	0	0	0							
		111																					Grade	Grade	Plant	Plant	3.3	2.9	2.5	2.1	1.7	3.3	5.0	6.7	8.3
		111			2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	47.3	47.3	47.3	47.3	47.3	47.3	Grade	Grade	Plant	Plant	3.3	2.9	2.5
																				dike 6A															
EXISTING WETLAND CELLS																																			
W-1A	38	35	265,393	**379,133**	2.1	2.1	2.1	2.1	2.1	2.1	Grade	Plant	0.5	7.6	14.7	17.1	19.4	20.3	21.1	22.0	22.8	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6
W-1B	38	35	378,327	**540,467**	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	Grade	Plant	0.7	7.4	14.0	16.3	18.5	19.3	20.1	20.9	21.7	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
W-1C	44	40	367,840	**525,486**	5.5	5.5	5.5	5.5	5.5	5.5	5.5	Grade	Plant	0.7	8.6	16.5	19.1	21.7	22.7	23.6	24.6	25.5	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4
W-1D	49	45	486,420	**694,886**	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	Grade	Plant	0.8	9.7	18.6	21.5	24.5	25.6	26.6	27.7	28.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8
W-3A	35	32	366,549	**523,642**	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	Grade	Plant	0.5	7.0	13.4	15.6	17.8	18.5	19.3	20.1	20.8	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
W-3B	30	28	275,557	**393,653**	0.5	0.5	0.5	0.5	0.5	0.5	0.5	Grade	Plant	0.4	6.1	11.8	13.7	15.5	16.2	16.9	17.6	18.2	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9
W-3C	39	35	400,913	**572,733**	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	Grade	Plant	0.6	7.5	14.4	16.7	19.0	19.8	20.6	21.4	22.2	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1
W-3D	31	26	251,680	**359,543**	9.6	9.6	9.6	9.6	Grade	Plant	0.5	5.5	10.6	12.3	14.0	14.6	15.2	15.8	16.4	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0
W-4A B	34	31	150,040	**214,343**	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	10.1	10.1	Grade	Plant	0.7	6.5	12.4	14.3	16.3	17.0	17.7	18.4	19.1	19.8	19.8	19.8	19.8	19.8
W-4C	38	34	7,000	**10,000**	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	6.8	6.8	Grade	Plant	0.5	7.4	14.3	16.6	18.9	19.7	20.5	21.3	22.1	23.0	23.0	23.0	23.0	23.0
W-4DX	25	23	0	**0**	3.4	3.4	3.4	Plant	0.5	4.8	9.2	10.6	12.0	12.6	13.1	13.6	14.2	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
W-5A	33	30	242,000	**345,714**	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	Grade	Plant	0.4	6.5	12.6	14.6	16.7	17.4	18.1	18.8	19.5	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5B	33	30	266,200	**380,286**	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	Grade	Plant	0.4	6.5	12.6	14.6	16.7	17.4	18.1	18.8	19.5	20.3	20.3	20.3	20.3	20.3	20.3
W-5C	33	30	290,400	**414,857**	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	Grade	Plant	0.4	6.5	12.6	14.6	16.7	17.4	18.1	18.8	19.5	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5D	57	53	1,710,133	**2,443,048**	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	Grade	Plant	0.8	11.5	22.3	25.8	29.4	30.7	32.0	33.2	34.5	35.8	35.8	35.8
EXISTING EXTERIOR DIKES					0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
EXPANSION WETLAND CELLS																																			
W-1	39.3	35.9	579,936	828,480											0.4	0.4	0.4	0.4	**11.7**	Grade	Plant	0.8	7.5	14.1	16.3	18.5	19.3	20.1	20.9	21.7	22.5	22.5	22.5	22.5	22.5
W-2	39.3	35.9	608,933	869,904											0.4	0.4	0.4	0.4	**0.4**	11.7	Grade	Plant	0.8	7.5	14.1	16.3	18.5	19.3	20.1	20.9	21.7	22.5	22.5	22.5	22.5
W-3	39.3	35.9	666,926	952,752											0.4	0.4	0.4	0.4	0.4	**0.4**	11.7	Grade	Plant	0.8	7.5	14.1	16.3	18.5	19.3	20.1	20.9	21.7	22.5	22.5	22.5
W-4	39.3	35.9	724,920	1,035,599											0.4	0.4	0.4	0.4	0.4	**0.4**	**0.4**	**11.7**	Grade	Plant	0.8	7.5	14.1	16.3	18.5	19.3	20.1	20.9	21.7	22.5	22.5
W-5	39.3	35.9	637,929	911,328											0.4	0.4	0.4	0.4	**0.4**	**0.4**	**0.4**	**0.4**	**11.7**	11.7	11.7	Grade	Plant	0.8	7.5	14.1	16.3	18.5	19.3	20.1	20.9
W-6	39.3	35.9	637,929	911,328											0.4	0.4	0.4	0.4	**0.4**	**0.4**	**0.4**	**0.4**	11.7	11.7	11.7	Grade	Plant	0.8	7.5	14.1	16.3	18.5	19.3	20.1
W-7	39.3	35.9	1,565,826	2,236,895											0.4	0.4	0.4	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	0.4	**0.4**	**0.4**	**11.7**	**11.7**	**11.7**	Grade	Plant	0.8
EXPANSION EXTERIOR DIKES															0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	1,676	1,530		63,441,176		8,184,231	1,100,000	828,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	3200000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	2,691,007	1,789,516	313,165	80,528	26,843	26,843	0	0	0	0

PIERP PIES ICU	219.0	219.0	219.0	215.5	206.4	210.8	213.5	214.0	221.0	168.1	270.2	279.4	286.1	301.5	331.9	366.5	393.2	421.7	439.0	491.9	531.2	466.0	482.8	497.0	467.8	470.2	494.3	509.3	511.5	519.9	527.0				
PIES ICU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	5.5	5.5	5.5	16.8	93.3	93.0	93.5	108.6	133.9	150.2	103.4	106.0	112.9	125.0	119.8	140.4	151.4	146.2	153.7	158.0				

Red type represents dredged material placement quantity
Green type in green box represents planting and ICU value.
Orange type in orange box represents final placement and grading.
Blue type represents interim ICU prior to grading and planting.
Blue box denotes a year placement is occuring in expansion cell.

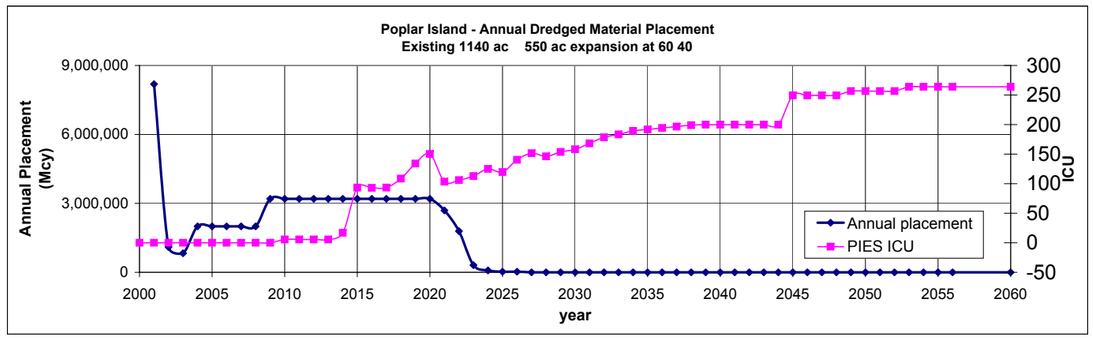

FIGURE H-25. (continued)

60% WETLAND AND 40% UPLAND

Cell No.	Cell Acreage (Nominal)	Cell Acreage (Actual)	Cell Volume	Cell Capacity	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2060
EXPANSION WETLAND UPLAND CELLS																															
Wet-8	40	36.6	974,292	1,391,846	20.3	21.1	21.8	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
U-9	235	215	9,713,396	13,876,280																											
A		105			4.7	6.3	7.9	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8
B		110			2.4	2.0	1.6	3.2	4.7	6.3	7.9	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	16.8	16.8	16.8	16.8
EXISTING UPLAND CELLS																															
U-2	326	298	10,913,555	**15,590,792**																											
		99			8.9	8.9	8.9	8.9	8.9	8.9	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8
		99			8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8
		100			4.5	6.0	7.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
U-6	243	222	11,926,728	**17,038,183**																											
		111			10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8
		111			2.1	1.7	3.3	5.0	6.7	8.3	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	17.8	17.8	17.8	17.8	17.8
EXISTING WETLAND CELLS																															
W-1A	38	35	265,393	**379,133**	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6
W-1B	38	35	378,327	**540,467**	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
W-1C	44	40	367,840	**525,486**	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4
W-1D	49	45	486,420	**694,886**	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8
W-3A	35	32	366,549	**523,642**	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
W-3B	30	28	275,557	**393,653**	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9
W-3C	39	35	400,913	**572,733**	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1
W-3D	31	26	251,680	**359,543**	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0
W-4A B	34	31	150,040	**214,343**	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8
W-4C	38	34	7,000	**10,000**	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
W-4DX	25	23	0	**0**	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
W-5A	33	30	242,000	**345,714**	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5B	33	30	266,200	**380,286**	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5C	33	30	290,400	**414,857**	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5D	57	53	1,710,133	**2,443,048**	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8
EXISTING EXTERIOR DIKES					0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
EXPANSION WETLAND CELLS																															
W-1	39.3	35.9	579,936	828,480	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5													
W-2	39.3	35.9	608,933	869,904	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5													
W-3	39.3	35.9	666,926	952,752	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5													
W-4	39.3	35.9	724,920	1,035,599	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	207.4	207.4	207.4	207.4	207.4	207.4	207.4	207.4	207.4	207.4	207.4	207.4	207.4
W-5	39.3	35.9	637,929	911,328	21.7	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5													
W-6	39.3	35.9	637,929	911,328	20.9	21.7	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5													
W-7	39.3	35.9	1,565,826	2,236,895	7.5	14.1	16.3	18.5	19.3	20.1	20.9	21.7	22.5	22.5	22.5	22.5	22.5	22.5													
EXPANSION EXTERIOR DIKES					0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	1,676	1,530		63,441,176	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PIERP PIES ICU	539.9	551.1	559.2	568.5	572.5	576.6	587.6	589.9	590.7	590.7	590.7	590.7	597.7	597.7	647.2	655.0	655.0	655.0	669.4	669.4	669.4	677.1	684.5	684.5	684.5	684.5	684.5				
PIES ICU	168.2	178.4	183.3	189.4	191.8	194.1	196.5	198.9	199.7	199.7	199.7	199.7	199.7	199.7	249.3	249.3	249.3	249.3	256.6	256.6	256.6	256.6	264.0	264.0	264.0	264.0	264.0				

Red type represents dredged material placement quantity.

Green type in green box represents planting and ICU value.

Orange type in orange box represents final placement and grading.

Blue type represents interim ICU prior to grading and planting.

Blue box denotes a year placement is occuring in expansion cell.

POPLAR ISLAND DEREDGED MATERIAL PLACEMENT AND CELL DEVELOPMENT PLAN

FIGURE H-26. EXISTING 1140-ACRE SITE PLUS 575-ACRE NORTHERN EXPANSION AT 60% WETLAND AND 40% UPLAND WITH 5-FOOT RAISING OF EXISTING UPLAND CELLS 2 & 6

(Expansion Cells Assumed to be Available in 2011)

Cell No.	Cell Acreage (Nominal)	Cell Acreage (Actual)	Cell Volume	Cell Capacity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
RAISED EXISTING UPLAND CELLS																																			
U-2 Raised	326	298	2,406,206	3,437,437		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	750,000	750,000	0	750,000	750,000	437,437				
		99			144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	Grade	Grade	Plant	Plant	3.0	2.6	2.2	1.9	1.5	3.0	4.5	5.9	7.4	8.9	8.9	8.9
		99																		90.5	90.5	90.5	90.5	90.5	90.5	Grade	Grade	Plant	Plant	3.0	2.6	2.2	1.9	1.5	3.0
		100																								39.0	39.0	39.0	39.0	39.0	39.0	Grade	Grade	Plant	Plant
U-6 Raised	243	222	1,793,583	2,562,261		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	500,000	500,000	0	500,000	500,000	562,261				
		111			2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	Grade	Grade	Plant	Plant	3.3	2.9	2.5	2.1	1.7	3.3
		111																								47.3	47.3	47.3	47.3	47.3	47.3	Grade	Grade	Plant	Plant
EXPANSION WETLAND UPLAND CELLS																																			
Wet-8	40	36.6	974,292	1,391,846											0.4	0.4	0.4	0.4	0.4	11.9	11.9	11.9	11.9	11.9	11.9	Grade	Grade	Plant	Plant	0.9	9.9	14.4	16.6	18.9	19.6
U-9	235	215	9,713,396	13,876,280											0	1,040,721	1,040,721	1,040,721	1,040,721	1,040,721	1,040,721	1,040,721	1,040,721	1,040,721	1,457,417	2,827,485	224889	0	0						
A		105													1.1	1.1	1.1	1.1	1.1	33.0	33.0	33.0	41.0	41.0	41.0	Grade	Grade	Plant	Plant	3.2	2.8	2.4	2.0	1.6	3.2
B		110													1.1	1.1	1.1	1.1	1.1	34.5	34.5	34.5	34.5	34.5	34.5	34.5	37.1	37.1	37.1	Grade	Grade	Plant	Plant	3.2	2.8
EXISTING UPLAND CELLS																																			
U-2	326	298	10,913,555	**15,590,792**		6,399,848	1,038,000	0	1,999,940	1,999,936	1,599,933	0	700,000	1,500,000	1,450,000	0	0	0	0	400,000	400,000	611268	550935	0	0	0	0	0	0	0	0	DEFER TO GRADING AND PLANTING SHOWN			
U-6	243	222	11,926,728	**17,038,183**		0	0	0	0	0	400,000	1,999,943	1,299,938	1,699,925	1,749,902	2,159,171	2,159,164	2,159,152	2,159,134	1,759,126	1,759,103	1,547,810	1,608,109	2,159,017	1,742,307	796,726	0	0	0	0	0	ABOVE FOR RAISED CELLS 2 6			
EXISTING WETLAND CELLS																																			
W-1A	38	35	265,393	**379,133**	2.1	2.1	2.1	2.1	2.1	2.1	Grade	Plant	0.5	7.6	14.7	17.1	19.4	20.3	21.1	22.0	22.8	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6
W-1B	38	35	378,327	**540,467**	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	Grade	Plant	0.7	7.4	14.0	16.3	18.5	19.3	20.1	20.9	21.7	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
W-1C	44	40	367,840	**525,486**	5.5	5.5	5.5	5.5	5.5	5.5	5.5	Grade	Plant	0.7	8.6	16.5	19.1	21.7	22.7	23.6	24.6	25.5	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4
W-1D	49	45	486,420	**694,886**	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	Grade	Plant	0.8	9.7	18.6	21.5	24.5	25.6	26.6	27.7	28.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8
W-3A	35	32	366,549	**523,642**	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	Grade	Plant	0.5	7.0	13.4	15.6	17.8	18.5	19.3	20.1	20.8	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
W-3B	30	28	275,557	**393,653**	0.5	0.5	0.5	0.5	0.5	0.5	0.5	Grade	Plant	0.4	6.1	11.8	13.7	15.5	16.2	16.9	17.6	18.2	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9
W-3C	39	35	400,913	**572,733**	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	Grade	Plant	0.6	7.5	14.4	16.7	19.0	19.8	20.6	21.4	22.2	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1
W-3D	31	26	251,680	**359,543**	9.6	9.6	9.6	9.6	Grade	Plant	0.5	5.5	10.6	12.3	14.0	14.6	15.2	15.8	16.4	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0
W-4A B	34	31	150,040	**214,343**	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	10.1	10.1	Grade	Plant	0.7	6.5	12.4	14.3	16.3	17.0	17.7	18.4	19.1	19.8	19.8	19.8	19.8	19.8
W-4C	38	34	7,000	**10,000**	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	6.8	6.8	Grade	Plant	0.5	7.4	14.3	16.6	18.9	19.7	20.5	21.3	22.1	23.0	23.0	23.0	23.0	23.0
W-4DX	25	23	0	**0**	3.4	3.4	3.4	Plant	0.5	4.8	9.2	10.6	12.0	12.6	13.1	13.6	14.2	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
W-5A	33	30	242,000	**345,714**	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	Grade	Plant	0.4	6.5	12.6	14.6	16.7	17.4	18.1	18.8	19.5	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5B	33	30	266,200	**380,286**	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	Grade	Plant	0.4	6.5	12.6	14.6	16.7	17.4	18.1	18.8	19.5	20.3	20.3	20.3	20.3	20.3	20.3
W-5C	33	30	290,400	**414,857**	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	Grade	Plant	0.4	6.5	12.6	14.6	16.7	17.4	18.1	18.8	19.5	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5D	57	53	1,710,133	**2,443,048**	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	Grade	Plant	0.8	11.5	22.3	25.8	29.4	30.7	32.0	33.2	34.5	35.8	35.8	35.8
EXISTING EXTERIOR DIKES					0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
EXPANSION WETLAND CELLS																																			
W-1	39.3	35.9	579,936	828,480											0.4	0.4	0.4	0.4	**11.7**	Grade	Plant	0.8	7.5	14.1	16.3	18.5	19.3	20.1	20.9	21.7	22.5	22.5	22.5	22.5	22.5
W-2	39.3	35.9	608,933	869,904											0.4	0.4	0.4	0.4	0.4	**11.7**	Grade	Plant	0.8	7.5	14.1	16.3	18.5	19.3	20.1	20.9	21.7	22.5	22.5	22.5	22.5
W-3	39.3	35.9	666,926	952,752											0.4	0.4	0.4	0.4	0.4	0.4	**11.7**	Grade	Plant	0.8	7.5	14.1	16.3	18.5	19.3	20.1	20.9	21.7	22.5	22.5	22.5
W-4	39.3	35.9	724,920	1,035,599											0.4	0.4	0.4	0.4	0.4	0.4	0.4	**11.7**	Grade	Plant	0.8	7.5	14.1	16.3	18.5	19.3	20.1	20.9	21.7	22.5	22.5
W-5	39.3	35.9	637,929	911,328											0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	**11.7**	Grade	Plant	0.8	7.5	14.1	16.3	18.5	19.3	20.1	20.9	21.7	22.5
W-6	39.3	35.9	637,929	911,328											0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	**11.7**	Grade	Plant	0.8	7.5	14.1	16.3	18.5	19.3	20.1	20.9	21.7
W-7	39.3	35.9	1,565,826	2,236,895											0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	**11.7**	**11.7**	**11.7**	Grade	Plant
EXPANSION EXTERIOR DIKES															0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,441				70,495,303		8,184,231	1,100,000	828,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	3200000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	1,785,554	542,789	26,843	26,843	0	0	0

PIERP PIES ICU	219.0	219.0	219.0	215.5	206.4	210.8	213.5	214.0	221.0	221.6	250.0	259.2	265.9	352.0	382.8	415.9	442.9	471.7	516.2	556.0	582.1	486.8	517.9	544.9	564.8	550.7	580.3	504.2	511.3	506.3	512.9
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	53.5	-20.2	-20.2	-20.2	50.6	50.9	49.3	49.7	50.1	77.2	75.7	74.3	31.6	26.8	27.2	74.9	78.6	78.6	-9.8	-15.2	-16.8	-16.4
PIES ICU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	53.5	-14.7	-14.7	-14.7	56.1	67.8	142.7	142.7	143.5	185.8	198.0	201.1	124.1	141.1	160.8	221.9	200.3	226.5	146.3	146.0	140.1	144.0

Red type represents dredged material placement quantity

Green type in green box represents planting and ICU value.

Orange type in orange box represents final placement and grading.

Blue type represents interim ICU prior to grading and planting.

Blue box denotes a year placement is occuring in expansion cell.

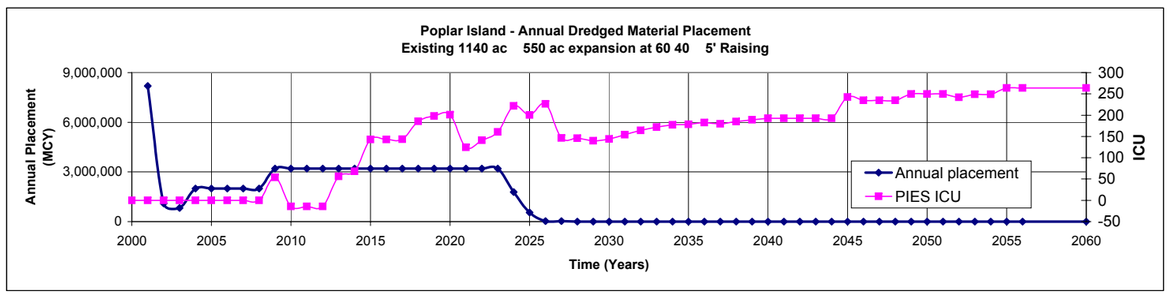

FIGURE H-26. (continued)

60% WETLAND AND 40% UPLAND WITH 5-FOOT RAISING OF EXISTING UPLAND CELLS 2 & 6

Cell No.	Cell Acreage (Nominal)	Cell Acreage (Actual)	Cell Volume	Cell Capacity	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2060
RAISED EXISTING UPLAND CELLS																															
U-2 Raised	326	298	2,406,206	3,437,437																											
		99			8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8
		99			4.5	5.9	7.4	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8
		100			3.0	2.6	2.3	1.9	1.5	3.0	4.5	6.0	7.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	16.0	16.0	16.0
U-6 Raised	243	222	1,793,583	2,562,261																											
		111			5.0	6.7	8.3	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8
		111			3.3	2.9	2.5	2.1	1.7	3.3	5.0	6.7	8.3	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	17.8	17.8	17.8
EXPANSION WETLAND UPLAND CELLS																															
Wet-8	40	36.6	974,292	1,391,846	20.3	21.1	21.8	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
U-9	235	215	9,713,396	13,876,280																											
A		105			4.7	6.3	7.9	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8
B		110			2.4	2.0	1.6	3.2	4.7	6.3	7.9	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	16.8	16.8	16.8	16.8	16.8
EXISTING UPLAND CELLS																															
U-2	326	298	10,913,555	**15,590,792**																											
U-6	243	222	11,926,728	**17,038,183**																											
EXISTING WETLAND CELLS																															
W-1A	38	35	265,393	**379,133**	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6
W-1B	38	35	378,327	**540,467**	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
W-1C	44	40	367,840	**525,486**	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4
W-1D	49	45	486,420	**694,886**	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8
W-3A	35	32	366,549	**523,642**	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
W-3B	30	28	275,557	**393,653**	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9
W-3C	39	35	400,913	**572,733**	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1
W-3D	31	26	251,680	**359,543**	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0
W-4A B	34	31	150,040	**214,343**	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8
W-4C	38	34	7,000	**10,000**	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
W-4DX	25	23	0	**0**	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
W-5A	33	30	242,000	**345,714**	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5B	33	30	266,200	**380,286**	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5C	33	30	290,400	**414,857**	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5D	57	53	1,710,133	**2,443,048**	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8
EXISTING EXTERIOR DIKES					0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
EXPANSION WETLAND CELLS																															
W-1	39.3	35.9	579,936	828,480	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5													
W-2	39.3	35.9	608,933	869,904	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5													
W-3	39.3	35.9	666,926	952,752	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5													
W-4	39.3	35.9	724,920	1,035,599	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	207.4	207.4	207.4	207.4	207.4	207.4	207.4	207.4	207.4	207.4	207.4	207.4	207.4
W-5	39.3	35.9	637,929	911,328	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5													
W-6	39.3	35.9	637,929	911,328	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5													
W-7	39.3	35.9	1,565,826	2,236,895	0.8	7.5	14.1	16.3	18.5	19.3	20.1	20.9	21.7	22.5	22.5	22.5	22.5	22.5													
EXPANSION EXTERIOR DIKES					0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,441				70,495,303	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PIERP PIES ICU					526.0	536.9	547.8	556.2	559.2	564.8	570.3	575.9	579.8	583.8	583.8	583.8	590.7	590.7	640.3	640.3	640.3	640.3	662.4	662.4	662.4	662.4	669.7	669.7	684.5	684.5	684.5
					-9.7	-8.4	-9.2	-10.0	-12.5	-11.0	-16.4	-13.3	-10.1	-6.9	-6.9	-6.9	-6.9	-6.9	-6.9	-14.7	-14.7	-14.7	-7.0	-7.0	-7.0	-14.8	-14.8	-14.8	0.0	0.0	0.0
PIES ICU					154.3	164.1	171.8	177.1	178.4	182.3	179.3	184.8	188.8	192.8	192.8	192.8	192.8	192.8	242.4	234.6	234.6	234.6	249.6	249.6	249.6	241.9	249.2	249.2	264.0	264.0	264.0

Red type represents dredged material placement quantity

Green type in green box represents planting and ICU value.

Orange type in orange box represents final placement and grading.

Blue type represents interim ICU prior to grading and planting.

Blue box denotes a year placement is occuring in expansion cell.

Figure H-27. Evaluation of the Open Water Embayment: Index Community Index (ICI) for Bottom Feeding Fish (foraging)

Habitat Type	*Index*	*Description*
Upland	1	N/A
	0.75	N/A
	0.50	N/A
	0.25	N/A
	0	no benefit
High Marsh	1	N/A
	0.75	N/A
	0.50	N/A
	0.25	N/A
	0	no benefit
Low Marsh	1	>200 ac, cut with numerous tidal channels/guts; maximum removal (>25%) of exterior dikes; intertidal flats along shoreline and marsh edge
	0.75	>200 ac, minimally cut with tidal channels/guts; limited removal (<25%) of exterior dikes; intertidal flats limited to shoreline
	0.50	< 200 ac; cut with numerous tidal channels/guts; intertidal flats; limited removal of exterior dikes
	0.25	< 200 ac; no channel/guts; single tidal port in exterior dikes feeding marsh cells; no intertidal flats
	0	N/A
Intertidal	1	> 5 ha (12.5 ac); adjacent to low marsh shoreline and interior tidal channels
	0.75	> 5 ha; limited to only interior tidal channels
	0.50	<5 ha of any type of intertidal/mudflat
	0.25	N/A
	0	N/A
Embayment	1	> 125 ac; located on west side; 5000-6000 linear feet of marsh shoreline; variable bathymetry (6-12 ft); reefs; undisturbed bottom; maximum removal (>25%) of dikes on marsh cells
	0.75	Embayment is rated 0.25 or greater for at least one of the three fish guilds.
	0.50	<125 ac; located anywhere; 2000-3999 linear feet of marsh shoreline; depths homogenous 6 ft; no reefs; disturbed bottom; single tidal port on marsh cells
	0.25	<125 ac; located anywhere; <2000 linear feet of marsh shoreline; depths homogenous 6 ft; no reefs; disturbed bottom; no interaction with marsh cells
	0	N/A

Figure H-28. Evaluation of the Open Water Embayment: Index Community Index (ICI) for Pelagic Zone Feeding Fish (foraging)

Habitat Type	*Index*	*Description*
Upland	1	N/A
	0.75	N/A
	0.50	N/A
	0.25	N/A
	0	no benefit
High Marsh	1	N/A
	0.75	N/A
	0.50	N/A
	0.25	N/A
	0	no benefit
Low Marsh	1	>200 ac, cut with numerous tidal channels/guts; maximum removal (>25%) of exterior dikes; intertidal flats along shoreline and marsh edge; adjacent to SAV beds
	0.75	>200 ac, cut with numerous tidal channels/guts; maximum removal (>25%) of exterior dikes; intertidal flats along shoreline and marsh edge; not adjacent to SAV beds
	0.50	>200 ac, minimally cut with tidal channels/guts; limited removal (<25%) of exterior dikes; intertidal flats limited to shoreline
	0.25	< 200 ac; no channel/guts; single tidal port in exterior dikes feeding marsh cells; no intertidal flats
	0	N/A
Intertidal	1	> 5 ha (12.5 ac); adjacent to low marsh shoreline and interior tidal channels
	0.75	> 5 ha; limited to only interior tidal channels
	0.50	<5 ha of any type of intertidal/mudflat
	0.25	N/A
	0	N/A
Embayment	1	> 125 ac; located on west side; 5000-6000 linear feet of marsh shoreline; variable bathymetry (6-12 ft); two 200-ft wide openings in breakwater
	0.75	Embayment is rated 0.25 or greater for at least one of the three fish guilds.
	0.50	<125 ac; located anywhere; 2000-3999 linear feet of marsh shoreline; depths homogenous 6 ft; no 200-ft wide openings in breakwater
	0.25	<125 ac; located anywhere; <2000 linear feet of marsh shoreline; depths homogenous 6 ft; no 200-ft wide openings in breakwater
	0	N/A

Figure H-29. Evaluation of the Open Water Embayment: Index Community Index (ICI) for Shallow Water and Marsh Feeding Fish (foraging)

Habitat Type	*Index*	*Description*
Upland	1	N/A
	0.75	N/A
	0.50	N/A
	0.25	N/A
	0	no benefit
High Marsh	1	N/A
	0.75	N/A
	0.50	N/A
	0.25	N/A
	0	no benefit
Low Marsh	1	>200 ac, cut with numerous tidal channels/guts; smooth cordgrass dominated; maximum removal (>25%) of exterior dikes; intertidal flats along shoreline and marsh edge; channels
	0.75	>200 ac, minimally cut with tidal channels/guts; smooth cordgrass a co-dominant; limited removal (<25%) of exterior dikes; intertidal flats limited to shoreline; channels <20 ft wide
	0.50	< 200 ac; cut with numerous tidal channels/guts; smooth cordgrass at least a co-dominant; intertidal flats; limited removal of exterior dikes
	0.25	<200 ac; no channels/guts; smooth cordgrass not a dominant; no removal of interior dikes; no intertidal flats
	0	N/A
Intertidal	1	>10 ha (abundant); in tidal channels and along marsh shoreline; comprised of mud-sand mixture
	0.75	5-10 ha (limited area); connection with marsh; comprised only of sand
	0.50	< 5 ha; limited connection with marsh
	0.25	any size, located only along shoreline
	0	N/A
Embayment	1	5000-6000 linear feet of marsh shoreline; marsh shoreline with diverse morphometry (numerous channels, guts, coves); maximum removal (>25%) of interior and exterior dikes abundant shoreline/shallows
	0.75	Embayment is rated 0.25 or greater for at least one of the three fish guilds.
	0.50	2000-3999 linear feet of marsh shoreline; marsh shoreline less diverse (several channels); limited removal (<25%) of interior and exterior dikes on marsh cells; shoreline depths 5-6 ft
	0.25	<2000 linear feet of marsh shoreline; shoreline morphometrically plain; dikes remain intact (except for a single tidal port into marsh cells); shoreline depths > 6 ft
	0	N/A

Figure H-30. Evaluation of the Open Water Embayment: Index Community Index (ICI) for Colonial Nesting Wadingbirds (herons, egrets & ibises)

Habitat Type	*Index*	*Description*
Upland (as nesting sites)	1	2-10 ha (5-25 ac) including woody vegetation, availability of >250m (820 ft) buffer for heronries, and freshwater ponds
	0.75	2-10 ha (5-25 ac) including woody vegetation, <250m (820 ft) buffer, and freshwater ponds
	0.50	<2 ha or 10-100 ha (25-250 ac) with woody vegetation, may or may not include ponds
	0.25	N/A
	0	>100 ha (250 ac), no vegetation or grass (non-woody vegetation)
High Marsh (as foraging habitat)	1	N/A
	0.75	includes intertidal pools
	0.50	N/A
	0.25	> 2 ha, marsh acreage not split 80/20, NO tidal gut or intertidal pools
	0	N/A
Low Marsh (as foraging habitat)	1	>80 ha (200 ac), 80% low marsh/20% high marsh split, upgrade from sand beach, includes tidal gut, plus tidal and intertidal pools
	0.75	>40 ha (100 ac), 80% low marsh/20% high marsh split, includes tidal gut, plus tidal and intertidal pools
	0.50	>20 ha (50 ac), 80% low marsh/20% high marsh split, includes tidal gut, plus tidal and intertidal pools
	0.25	any size, marsh acreage not split 80/20, no tidal guts, no pools, and no sand beach
	0	N/A
Intertidal (as foraging habitat)	1	> 10 ha (25 ac) mudflats and sandy beach/shoreline
	0.75	> 5 ha (12.5 ac) mudflats or sandy beach
	0.50	< 5 ha (12.5 ac) mudflats and/or sandy beach
	0.25	N/A
	0	N/A
Embayment (as foraging habitat)	1	Embayment is rated 0.25 or greater for at least one of the three fish guilds.
	0.75	Embayment is rated as 1.0 or 0.75 for shallow water/marsh feeders OR pelagic zone feeders
	0.50	Maximum rating of embayment is 0.5 for shallow water/marsh feeders AND pelagic zone feeders.
	0.25	Maximum rating of embayment is 0.25 for shallow water/marsh feeders AND pelagic zone feeders.
	0	Embayment is rated as 0 for both shallow water/marsh feeders AND pelagic zone feeders

Figure H-31. Evaluation of the Open Water Embayment: Index Community Index (ICI) for Colonial Nesting Waterbirds (gulls, terns & skimmers)

Habitat Type	*Index*	*Description*
Upland	1	1-2 ha (2.5-5 ac) open sand, soil, or shell; sparsely vegetated (< 25%)
(as nesting sites)	0.75	2- 7 ha (5-17 ac) open sand, soil, or shell; sparsely vegetated (< 25%)
	0.50	7-20 ha (17-49.5 ac); sparsely vegetated (< 25%)
	0.25	< 1 ha, > 20 ha; sparsely vegetated (< 25%)
	0	< 1 ha, > 20 ha; thicker vegetation (> 25%)
High Marsh	1	N/A
(as foraging habitat)	0.75	includes intertidal pools
	0.50	N/A
	0.25	> 2 ha, marsh acreage not split 80/20, NO tidal gut or intertidal pools
	0	N/A
Low Marsh	1	any size, 80% low marsh/20% high marsh split, upgrade from sand beach, includes tidal gut, plus tidal and intertidal pools
(as foraging habitat)	0.75	any size, 80% low marsh/20% high marsh split, no tidal guts/pools or sand beach
	0.50	any size, marsh acreage not split 80/20, no tidal guts, no pools, and no sand beach
	0.25	N/A
	0	N/A
Intertidal	1	>40 ha (100 ac) mudflats and sandy beach/shoreline
(as foraging habitat)	0.75	>20 ha (50 ac) mudflats and sandy beach/shoreline
	0.50	>10 ha (25 ac) mudflats and sandy beach/shoreline
	0.25	>5 ha (12.5 ac) mudflats and sandy beach/shoreline
	0	N/A
Embayment	1	Embayment is rated 0.25 or greater for at least one of the three fish guilds.
(as foraging habitat)	0.75	Embayment is rated as 1.0 or 0.75 for at least one of the three fish guilds.
	0.50	Maximum rating of embayment is 0.5 for all three fish guilds.
	0.25	Maximum rating of embayment is 0.25 for all three fish guilds.
	0	Embayment is rated as 0 for all three fish guilds.

Figure H-32. Evaluation of the Open Water Embayment: Index Community Index (ICI) for Shorebirds (foraging) (sandpipers & plovers)

Habitat Type	*Index*	*Description*
Upland	1	N/A
	0.75	N/A
	0.50	N/A
	0.25	N/A
	0	no benefit to shorebirds
High Marsh	1	N/A
	0.75	N/A
	0.50	contains >20 ha (50 ac) intertidal pools
	0.25	contains <20 ha (50 ac) intertidal pools
	0	No intertidal pools
Low Marsh	1	>80 ha (200 ac), 80% low marsh/20% high marsh split, upgrade from sand beach, includes tidal gut, plus tidal and intertidal pools
	0.75	>40 ha (100 ac), 80% low marsh/20% high marsh split, includes tidal gut, plus tidal and intertidal pools
	0.50	>20 ha (50 ac), 80% low marsh/20% high marsh split, includes tidal gut, plus tidal and intertidal pools
	0.25	any size, marsh acreage not split 80/20, no tidal guts, no pools, and no sand beach
	0	N/A
Intertidal	1	>80 ha (200 ac) mudflats and sandy beach/shoreline
	0.75	>40 ha (100 ac) mudflats and sandy beach/shoreline
	0.50	>20 ha (50 ac) mudflats and sandy beach/shoreline
	0.25	>10 ha (25 ac) mudflats and sandy beach/shoreline
	0	N/A
Embayment	1	Embayment is rated 0.25 or greater for at least one of the three fish guilds.
	0.75	N/A
	0.50	N/A
	0.25	N/A
	0	no benefit to shorebirds

Figure H-33. Evaluation of the Open Water Embayment: Index Community Index (ICI) for Waterfowl (foraging and nesting)

Habitat Type	*Index*	*Description*
Upland	1	1-2 ha (2.5-5 ac), forested edge adjacent to high marsh, ponds
	0.75	> 2 ha, forested edge adjacent to high marsh, ponds
	0.50	forested, but not adjacent to high marsh; and ponds
	0.25	forested, but not adjacent to high marsh; no ponds
	0	grassed expanses, no vegetative cover; may or may not include ponds
High Marsh	1	> 2 ha, adjacent to uplands; incorporates hummocks, woody vegetation; includes intertidal ponds, channels
	0.75	> 2 ha, most not adjacent to uplands; no hummocks; woody vegetation; includes intertidal ponds, channels
	0.50	any size, most not adjacent to uplands; woody vegetation; no ponds or channels
	0.25	N/A
	0	N/A
Low Marsh	1	any size, 80% low marsh/20% high marsh split, upgrade from sand beach, includes tidal gut, plus tidal and intertidal pools
	0.75	any size, 80% low marsh/20% high marsh split, no tidal guts/pools or sand beach
	0.50	any size, marsh acreage not split 80/20, no tidal guts, no pools, and no sand beach
	0.25	N/A
	0	N/A
Intertidal (foraging)	1	> 3 ha (7.4 ac), 9-305 m (30-1000 ft) wide; gently sloping; on southeast side (maximize sunlight, minimize wind)
	0.75	> 3 ha (7.4 ac), 9-305 m (30-1000 ft) wide; gently sloping; NOT on southeast side (maximize sunlight, minimize wind)
	0.50	any size and width; located anywhere
	0.25	N/A
	0	N/A
Embayment (primarily as resting plus some use as foraging habitat)	1	Foraging - Embayment is rated as 1.0 or 0.75 for shallow water/marsh feeders. Resting- any embayment design will provide resting habitat.
	0.75	Embayment is rated 0.25 or greater for at least one of the three fish guilds.
	0.50	N/A
	0.25	N/A
	0	N/A

Figure H-34. Evaluation of the Open Water Embayment: Index Community Index (ICI) for Raptors (nesting and foraging)

Habitat Type	*Index*	*Description*
Upland	1	forested with 1.5 km strip of land adjacent to water;
	0.75	forested without 1.5 km strip of land adjacent to water
	0.50	N/A
	0.25	not forested, but grass (provide some hunting area for hawks)
	0	N/A
High Marsh	1	any size or features (high marsh provides hunting for hawks, and nesting for some hawks)
	0.75	N/A
	0.50	N/A
	0.25	N/A
	0	N/A
Low Marsh	1	N/A
	0.75	N/A
	0.50	any size or features (will provide some use for foraging for fish in shallow water)
	0.25	N/A
	0	N/A
Intertidal	1	N/A (intertidal provides no use to raptors)
	0.75	N/A
	0.50	N/A
	0.25	N/A
	0	N/A
Embayment	1	Embayment is rated as 1.0 or 0.75 for bottom feeders, shallow water/marsh feeders AND pelagic zone feeders
(as foraging habitat)	0.75	Embayment is rated 0.25 or greater for at least one of the three fish guilds.
	0.50	N/A
	0.25	N/A
	0	Embayment is rated as 0 for all three fish guilds.

Figure H-35. Evaluation of the Open Water Embayment: Index Community Index (ICI) for Benthic Invertebrates

Habitat Type	*Index*	*Description*
Upland	1	N/A
	0.75	N/A
	0.50	N/A
	0.25	N/A
	0	N/A
High Marsh	1	invertebrates will colonize any acreage despite particular size or features
	0.75	N/A
	0.50	immature community
	0.25	newly established colony
	0	N/A
Low Marsh	1	invertebrates will colonize any acreage despite particular size or features
	0.75	N/A
	0.50	immature community
	0.25	newly established colony
	0	N/A
Intertidal	1	invertebrates will colonize any acreage despite particular size or features
	0.75	N/A
	0.50	immature community
	0.25	newly established colony
	0	N/A
Embayment	1	invertebrates will remain in and colonize any acreage despite particular size or features
	0.75	Embayment is rated 0.25 or greater for at least one of the three fish guilds.
	0.50	N/A
	0.25	N/A
	0	N/A

Figure H-36. Evaluation of the Open Water Embayment: Index Community Index (ICI) for Herpetofauna (nesting and foraging)

Habitat Type	*Index*	*Description*
Upland	1	N/A
	0.75	N/A
	0.50	any size, vegetative cover- will get use by some rept/herp use, but most in guild don't require upland
	0.25	(terrapin nesting) no vegetative cover
	0	any size; barren, no vegetative cover
High Marsh	1	any size; with channels and permanent pools (fishless)
	0.75	any size; with channels; no pools
	0.50	any size, no channels or pools
	0.25	N/A
	0	N/A
Low Marsh	1	any size; with channels on Eastern side; maximize edge habitat, <20% (sparse) vegetation
	0.75	N/A
	0.50	any size; no channels; < 20% vegetated
	0.25	N/A
	0	any size; dense vegetation (>20% vegetated)
Intertidal	1	sand beaches (above high water) and intertidal mudflats adjacent to channel
	0.75	sand beaches or intertidal mudflats adjacent to channel
	0.50	mudflats of any size, not adjacent to channel
	0.25	N/A
	0	N/a
Embayment	1	N/A
	0.75	embayment is rated 0.25 or greater for at least one of the three fish guilds
	0.50	N/A
	0.25	N/A
	0	no benefit

FIGURE H-37. ISLAND COMMUNITY UNIT CALCULATOR (using updated weighting factors) - EVALUATION OF WETLAND BENEFITS FOR 60% WETLANDS AND 40% UPLANDS

Index Evaluation Criteria	
optimum maximum use	1
use probable, but not optimum	0.75
use possible, some use	0.5
minimum use	0.25
no use habitat value	0

Total 35.9 **YEAR 1**
bird island 3
embayment 0
wetland 32.9

				Index					Community Units					
				bird island	high marsh	low marsh	intertidal	embayment						
	guild community	**WEIGHT**	**Sum of Weights**	**3**	**6.6**	**23.7**	**2.6**	**0**	bird island	high marsh	low marsh	intertidal	embayment	**Wetland weighted sum by guild**
BIRDS	colonial nesting wading birds	12		0	0	0	0.5	0	0	0	0	1.316	0	**0.16**
"	waterfowl	10		0	0	0	0.5	0	0	0	0	1.316	0	**0.13**
"	colonial nesting waterbirds	12	50	1	0	0	0	0	3	0	0	0	0	**0.36**
"	raptors	2		0	0	0	0	0	0	0	0	0	0	**0.00**
"	shorebirds	14		0	0	0	0	0	0	0	0	0	0	**0.00**
	herpetofauna	2	2	0.25	0	0	1	0	0.75	0	0	2.632	0	**0.07**
	benthic invert.	20	20	0	0	0	0.25	0	0	0	0	0.658	0	**0.13**
FISH	bottom feeders	12		0	0	0	0	0	0	0	0	0	0	**0.00**
	pelagic feeders	8	28	0	0	0	0	0	0	0	0	0	0	**0.00**
"	shallow water and marsh feeders	8		0	0	0	0	0	0	0	0	0	0	**0.00**
	TOTAL	**100**	**100**											0.85

Total 35.9 **YEAR 5**
bird island 3
embayment 0
wetland 32.9

				Index					Community Units					
				bird island	high marsh	low marsh	intertidal	embayment						
	guild community	**WEIGHT**	**Sum of Weights**	**3**	**6.6**	**23.7**	**2.6**	**0**	bird island	high marsh	low marsh	intertidal	embayment	**Wetland weighted sum by guild**
BIRDS	colonial nesting wading birds	12		0.5	0.75	0.25	0.5	0	1.5	4.935	5.922	1.316	0	**1.64**
"	waterfowl	10		0	0	1	0.5	0	0	0	23.688	1.316	0	**2.50**
"	colonial nesting waterbirds	12	50	0	0.75	1	0	0	0	4.935	23.688	0	0	**3.43**
"	raptors	2		0.25	1	0.5	0	0	0.75	6.58	11.844	0	0	**0.38**
"	shorebirds	14		0	0.25	0.25	0	0	0	1.645	5.922	0	0	**1.06**
	herpetofauna	2	2	0.5	1	0.5	1	0	1.5	6.58	11.844	2.632	0	**0.45**
	benthic invert.	20	20	0	0.5	0.5	0.5	0	0	3.29	11.844	1.316	0	**3.29**
FISH	bottom feeders	12		0	0	0.5	0.5	0	0	0	11.844	1.316	0	**1.58**
	pelagic feeders	8	28	0	0	0.5	0.5	0	0	0	11.844	1.316	0	**1.05**
"	shallow water and marsh feeders	8		0	0	0.5	0.5	0	0	0	11.844	1.316	0	**1.05**
	TOTAL	**100**	**100**											16.44

FIGURE H-37. (continued)

Index Evaluation Criteria	
optimum maximum use	1
use probable, but not optimum	0.75
use possible, some use	0.5
minimum use	0.25
no use habitat value	0

Total 35.9 **YEAR 10**
bird island 3
embayment 0
wetland 32.9

				Index					Community Units					
				bird island	high marsh	low marsh	intertidal	embayment						
	guild community	**WEIGHT**	**Sum of Weights**	**3**	**6.6**	**23.7**	**2.6**	**0**	bird island	high marsh	low marsh	intertidal	embayment	**Wetland weighted sum by guild**
BIRDS	colonial nesting wading birds	12		0.5	0.75	0.25	0.5	0	1.5	4.935	5.922	1.316	0	**1.64**
"	waterfowl	10		0.25	1	1	0.5	0	0.75	6.58	23.688	1.316	0	**3.23**
"	colonial nesting waterbirds	12	50	0	0.75	1	0	0	0	4.935	23.688	0	0	**3.43**
"	raptors	2		0.75	1	0.5	0	0	2.25	6.58	11.844	0	0	**0.41**
"	shorebirds	14		0	0.25	0.25	0	0	0	1.645	5.922	0	0	**1.06**
	herpetofauna	2	2	0.5	1	0	1	0	1.5	6.58	0	2.632	0	**0.21**
	benthic invert.	20	20	0	1	1	1	0	0	6.58	23.688	2.632	0	**6.58**
FISH	bottom feeders	12		0	0	0.5	0.5	0	0	0	11.844	1.316	0	**1.58**
	pelagic feeders	8	28	0	0	0.5	0.5	0	0	0	11.844	1.316	0	**1.05**
"	shallow water and marsh feeders	8		0	0	0.5	0.5	0	0	0	11.844	1.316	0	**1.05**
	TOTAL	**100**	**100**											20.26

with interior dikes knocked down **YEAR 15** dikes knocked down to join all 7 wetland cells together

bird island 21 (8 3)
embayment 0
wetland 263.9

				Index					Community Units					
				bird island	high marsh	low marsh	intertidal	embayment						
	guild community	**WEIGHT**	**Sum of Weights**	**3**	**52.8**	**190.0**	**21.1**	**0.0**	bird island 8	high marsh	low marsh	intertidal	embayment	**Wetland weighted sum by guild**
BIRDS	colonial nesting wading birds	12		0.5	0.75	0.75	0.5	0	12	39.585	142.506	10.556	0	**24.56**
"	waterfowl	10		0.25	1	1	0.5	0	6	52.78	190.008	10.556	0	**25.93**
"	colonial nesting waterbirds	12	50	0	0.75	1	0	0	0	39.585	190.008	0	0	**27.55**
"	raptors	2		0.75	1	0.5	0	0	1.5	52.78	95.004	0	0	**2.99**
"	shorebirds	14		0	0.5	0.75	0	0	0	26.39	142.506	0	0	**23.65**
	herpetofauna	2	2	0.5	1	0	1	0	3	52.78	0	21.112	0	**1.54**
	benthic invert.	20	20	0	1	1	1	0	0	52.78	190.008	21.112	0	**52.78**
FISH	bottom feeders	12		0	0	0.5	0.75	0	0	0	95.004	15.834	0	**13.30**
	pelagic feeders	8	28	0	0	0.5	0.75	0	0	0	95.004	15.834	0	**8.87**
"	shallow water and marsh feeders	8		0	0	0.5	0.75	0	0	0	95.004	15.834	0	**8.87**
	TOTAL	**100**	**100**											190.03

FIGURE H-38. ISLAND COMMUNITY UNIT CALCULATOR (using updated weighting factors) - EVALUATION OF UPLAND BENEFITS FOR 60% WETLANDS AND 40% UPLANDS

Index Evaluation Criteria	
optimum maximum use	1
use probable, but not optimum	0.75
use possible, some use	0.5
minimum use	0.25
no use habitat value	0

Total 215
upland 105
embayment 0
wetland 0

YEAR 1

				Index					Community Units					
				upland	high marsh	low marsh	intertidal	embayment						
	guild community	**WEIGHT**	**Sum of Weights**	**105**	**0.0**	**0.0**	**0.0**	**0**	upland	high marsh	low marsh	intertidal	embayment	**Weighted sum by guild**
BIRDS	colonial nesting wading birds	12		0	0	0	0	0	0	0	0	0	0	**0.00**
"	waterfowl	10		0	0	0	0	0	0	0	0	0	0	**0.00**
"	colonial nesting waterbirds	12	50	0.25	0	0	0	0	26.25	0	0	0	0	**3.15**
"	raptors	2		0	0	0	0	0	0	0	0	0	0	**0.00**
"	shorebirds	14		0	0	0	0	0	0	0	0	0	0	**0.00**
	herpetofauna	2	2	0	0	0	0	0	0	0	0	0	0	**0.00**
	benthic invert.	20	20	0	0	0	0	0	0	0	0	0	0	**0.00**
FISH	bottom feeders	12		0	0	0	0	0	0	0	0	0	0	**0.00**
	pelagic feeders	8	28	0	0	0	0	0	0	0	0	0	0	**0.00**
"	shallow water and marsh feeders	8		0	0	0	0	0	0	0	0	0	0	**0.00**
	TOTAL	**100**	**100**											3.15

Total 215
upland 105
embayment 0
wetland 0

YEAR 5

				Index					Community Units					
				upland	high marsh	low marsh	intertidal	embayment						
	guild community	**WEIGHT**	**Sum of Weights**	**105**	**0.0**	**0.0**	**0.0**	**0**	upland	high marsh	low marsh	intertidal	embayment	**Weighted sum by guild**
BIRDS	colonial nesting wading birds	12		0	0	0	0	0	0	0	0	0	0	**0.00**
"	waterfowl	10		0	0	0	0	0	0	0	0	0	0	**0.00**
"	colonial nesting waterbirds	12	50	0	0	0	0	0	0	0	0	0	0	**0.00**
"	raptors	2		0.25	0	0	0	0	26.25	0	0	0	0	**0.53**
"	shorebirds	14		0	0	0	0	0	0	0	0	0	0	**0.00**
	herpetofauna	2	2	0.5	0	0	0	0	52.5	0	0	0	0	**1.05**
	benthic invert.	20	20	0	0	0	0	0	0	0	0	0	0	**0.00**
FISH	bottom feeders	12		0	0	0	0	0	0	0	0	0	0	**0.00**
	pelagic feeders	8	28	0	0	0	0	0	0	0	0	0	0	**0.00**
"	shallow water and marsh feeders	8		0	0	0	0	0	0	0	0	0	0	**0.00**
	TOTAL	**100**	**100**											1.58

FIGURE H-38. (continued)

Total 215 | upland 105 | embayment 0 | wetland 0 | **YEAR 10**

				Index					Community Units					
				upland	high marsh	low marsh	intertidal	embayment						
	guild community	**WEIGHT**	**Sum of Weights**	**105**	**0.0**	**0.0**	**0.0**	**0**	upland	high marsh	low marsh	intertidal	embayment	**Weighted sum by guild**
BIRDS	colonial nesting wading birds	12		0	0	0	0	0	0	0	0	0	0	**0.00**
"	waterfowl	10		0.75	0	0	0	0	78.75	0	0	0	0	**7.88**
"	colonial nesting waterbirds	12	50	0	0	0	0	0	0	0	0	0	0	**0.00**
"	raptors	2		0.25	0	0	0	0	26.25	0	0	0	0	**0.53**
"	shorebirds	14		0	0	0	0	0	0	0	0	0	0	**0.00**
	herpetofauna	2	2	0.5	0	0	0	0	52.5	0	0	0	0	**1.05**
	benthic invert.	20	20	0	0	0	0	0	0	0	0	0	0	**0.00**
FISH	bottom feeders	12		0	0	0	0	0	0	0	0	0	0	**0.00**
	pelagic feeders	8	28	0	0	0	0	0	0	0	0	0	0	**0.00**
"	shallow water and marsh feeders	8		0	0	0	0	0	0	0	0	0	0	**0.00**
	TOTAL	**100**	**100**											9.45

Total 215 | upland 105 | embayment 0 | wetland 0 | **YEAR 25**

				Index					Community Units					
				upland	high marsh	low marsh	intertidal	embayment						
	guild community	**WEIGHT**	**Sum of Weights**	**105**	**0.0**	**0.0**	**0.0**	**0**	upland	high marsh	low marsh	intertidal	embayment	**Weighted sum by guild**
BIRDS	colonial nesting wading birds	12		0.5	0	0	0	0	52.5	0	0	0	0	**6.30**
"	waterfowl	10		0.75	0	0	0	0	78.75	0	0	0	0	**7.88**
"	colonial nesting waterbirds	12	50	0	0	0	0	0	0	0	0	0	0	**0.00**
"	raptors	2		0.75	0	0	0	0	78.75	0	0	0	0	**1.58**
"	shorebirds	14		0	0	0	0	0	0	0	0	0	0	**0.00**
	herpetofauna	2	2	0.5	0	0	0	0	52.5	0	0	0	0	**1.05**
	benthic invert.	20	20	0	0	0	0	0	0	0	0	0	0	**0.00**
FISH	bottom feeders	12		0	0	0	0	0	0	0	0	0	0	**0.00**
	pelagic feeders	8	28	0	0	0	0	0	0	0	0	0	0	**0.00**
"	shallow water and marsh feeders	8		0	0	0	0	0	0	0	0	0	0	**0.00**
	TOTAL	**100**	**100**											16.80

FIGURE H-38. (continued)

Total 215 **YEAR 1**
upland 110
embayment 0
wetland 0

				Index					Community Units					
				upland	high marsh	low marsh	intertidal	embayment						
	guild community	**WEIGHT**	**Sum of Weights**	**110**	**0.0**	**0.0**	**0.0**	**0**	upland	high marsh	low marsh	intertidal	embayment	**Weighted sum by guild**
BIRDS	colonial nesting wading birds	12		0	0	0	0	0	0	0	0	0	0	**0.00**
"	waterfowl	10		0	0	0	0	0	0	0	0	0	0	**0.00**
"	colonial nesting waterbirds	12	50	0.25	0	0	0	0	27.5	0	0	0	0	**3.30**
"	raptors	2		0	0	0	0	0	0	0	0	0	0	**0.00**
"	shorebirds	14		0	0	0	0	0	0	0	0	0	0	**0.00**
	herpetofauna	2	2	0	0	0	0	0	0	0	0	0	0	**0.00**
	benthic invert.	20	20	0	0	0	0	0	0	0	0	0	0	**0.00**
FISH	bottom feeders	12		0	0	0	0	0	0	0	0	0	0	**0.00**
	pelagic feeders	8	28	0	0	0	0	0	0	0	0	0	0	**0.00**
"	shallow water and marsh feeders	8		0	0	0	0	0	0	0	0	0	0	**0.00**
	TOTAL	**100**	**100**											3.30

Total 215 **YEAR 5**
upland 110
embayment 0
wetland 0

				Index					Community Units					
				upland	high marsh	low marsh	intertidal	embayment						
	guild community	**WEIGHT**	**Sum of Weights**	**110**	**0.0**	**0.0**	**0.0**	**0**	upland	high marsh	low marsh	intertidal	embayment	**Weighted sum by guild**
BIRDS	colonial nesting wading birds	12		0	0	0	0	0	0	0	0	0	0	**0.00**
"	waterfowl	10		0	0	0	0	0	0	0	0	0	0	**0.00**
"	colonial nesting waterbirds	12	50	0	0	0	0	0	0	0	0	0	0	**0.00**
"	raptors	2		0.25	0	0	0	0	27.5	0	0	0	0	**0.55**
"	shorebirds	14		0	0	0	0	0	0	0	0	0	0	**0.00**
	herpetofauna	2	2	0.5	0	0	0	0	55	0	0	0	0	**1.10**
	benthic invert.	20	20	0	0	0	0	0	0	0	0	0	0	**0.00**
FISH	bottom feeders	12		0	0	0	0	0	0	0	0	0	0	**0.00**
	pelagic feeders	8	28	0	0	0	0	0	0	0	0	0	0	**0.00**
"	shallow water and marsh feeders	8		0	0	0	0	0	0	0	0	0	0	**0.00**
	TOTAL	**100**	**100**											1.65

FIGURE H-38. (continued)

Total 215 **YEAR 10**
upland 110
embayment 0
wetland 0

				Index					Community Units					
				upland	high marsh	low marsh	intertidal	embayment						
	guild community	**WEIGHT**	**Sum of Weights**	**110**	**0.0**	**0.0**	**0.0**	**0**	upland	high marsh	low marsh	intertidal	embayment	**Weighted sum by guild**
BIRDS	colonial nesting wading birds	12		0	0	0	0	0	0	0	0	0	0	**0.00**
"	waterfowl	10		0.75	0	0	0	0	82.5	0	0	0	0	**8.25**
"	colonial nesting waterbirds	12	50	0	0	0	0	0	0	0	0	0	0	**0.00**
"	raptors	2		0.25	0	0	0	0	27.5	0	0	0	0	**0.55**
"	shorebirds	14		0	0	0	0	0	0	0	0	0	0	**0.00**
	herpetofauna	2	2	0.5	0	0	0	0	55	0	0	0	0	**1.10**
	benthic invert.	20	20	0	0	0	0	0	0	0	0	0	0	**0.00**
FISH	bottom feeders	12		0	0	0	0	0	0	0	0	0	0	**0.00**
	pelagic feeders	8	28	0	0	0	0	0	0	0	0	0	0	**0.00**
"	shallow water and marsh feeders	8		0	0	0	0	0	0	0	0	0	0	**0.00**
	TOTAL	**100**	**100**											9.90

Total 215 **YEAR 25**
upland 110
embayment 0
wetland 0

				Index					Community Units					
				upland	high marsh	low marsh	intertidal	embayment						
	guild community	**WEIGHT**	**Sum of Weights**	**110**	**0.0**	**0.0**	**0.0**	**0**	upland	high marsh	low marsh	intertidal	embayment	**Weighted sum by guild**
BIRDS	colonial nesting wading birds	12		0.5	0	0	0	0	55	0	0	0	0	**6.60**
"	waterfowl	10		0.75	0	0	0	0	82.5	0	0	0	0	**8.25**
"	colonial nesting waterbirds	12	50	0	0	0	0	0	0	0	0	0	0	**0.00**
"	raptors	2		0.75	0	0	0	0	82.5	0	0	0	0	**1.65**
"	shorebirds	14		0	0	0	0	0	0	0	0	0	0	**0.00**
	herpetofauna	2	2	0.5	0	0	0	0	55	0	0	0	0	**1.10**
	benthic invert.	20	20	0	0	0	0	0	0	0	0	0	0	**0.00**
FISH	bottom feeders	12		0	0	0	0	0	0	0	0	0	0	**0.00**
	pelagic feeders	8	28	0	0	0	0	0	0	0	0	0	0	**0.00**
"	shallow water and marsh feeders	8		0	0	0	0	0	0	0	0	0	0	**0.00**
	TOTAL	**100**	**100**											17.60

FIGURE H-39. ISLAND COMMUNITY UNIT CALCULATOR (using updated weighting factors) - EVALUATION OF WETLAND BENEFITS for 130-ACRE EMBAYMENT WITHOUT RAISING

Index Evaluation Criteria	
optimum maximum use	1
use probable, but not optimum	0.75
use possible, some use	0.5
minimum use	0.25
no use habitat value	0

W-1

YEAR 1

Total 22.9
bird island 3
embayment 0
wetland 19.9

	guild community	WEIGHT	Sum of Weights	Index: bird island 3	high marsh 4.0	low marsh 14.3	intertidal 1.6	embayment 0	Community Units: bird island	high marsh	low marsh	intertidal	embayment	Wetland weighted sum by guild
BIRDS	colonial nesting wading birds	12		0	0	0	0.5	0	0	0	0	0.796	0	**0.10**
"	waterfowl	10		0	0	0	0.5	0	0	0	0	0.796	0	**0.08**
"	colonial nesting waterbirds	12	50	1	0	0	0	0	3	0	0	0	0	**0.36**
"	raptors	2		0	0	0	0	0	0	0	0	0	0	**0.00**
"	shorebirds	14		0	0	0	0	0	0	0	0	0	0	**0.00**
	herpetofauna	2	2	0.25	0	0	1	0	0.75	0	0	1.592	0	**0.05**
	benthic invert.	20	20	0	0	0	0.25	0	0	0	0	0.398	0	**0.08**
FISH	bottom feeders	12		0	0	0	0	0	0	0	0	0	0	**0.00**
	pelagic feeders	8	28	0	0	0	0	0	0	0	0	0	0	**0.00**
"	shallow water and marsh feeders	8		0	0	0	0	0	0	0	0	0	0	**0.00**
	TOTAL	**100**	**100**											0.66

YEAR 5

Total 22.9
bird island 3
embayment 0
wetland 19.9

	guild community	WEIGHT	Sum of Weights	Index: bird island 3	high marsh 4.0	low marsh 14.3	intertidal 1.6	embayment 0	Community Units: bird island	high marsh	low marsh	intertidal	embayment	Wetland weighted sum by guild
BIRDS	colonial nesting wading birds	12		0.5	0.75	0.25	0.5	0	1.5	2.985	3.582	0.796	0	**1.06**
"	waterfowl	10		0	0	1	0.5	0	0	0	14.328	0.796	0	**1.51**
"	colonial nesting waterbirds	12	50	0	0.75	1	0	0	0	2.985	14.328	0	0	**2.08**
"	raptors	2		0.25	1	0.5	0	0	0.75	3.98	7.164	0	0	**0.24**
"	shorebirds	14		0	0.25	0.25	0	0	0	0.995	3.582	0	0	**0.64**
	herpetofauna	2	2	0.5	1	0.5	1	0	1.5	3.98	7.164	1.592	0	**0.28**
	benthic invert.	20	20	0	0.5	0.5	0.5	0	0	1.99	7.164	0.796	0	**1.99**
FISH	bottom feeders	12		0	0	0.5	0.5	0	0	0	7.164	0.796	0	**0.96**
	pelagic feeders	8	28	0	0	0.5	0.5	0	0	0	7.164	0.796	0	**0.64**
"	shallow water and marsh feeders	8		0	0	0.5	0.5	0	0	0	7.164	0.796	0	**0.64**
	TOTAL	**100**	**100**											10.04

FIGURE H-39. (continued)

YEAR 10

Total 22.9
bird island 3
embayment 0
wetland 19.9

				Index					Community Units					
				bird island	high marsh	low marsh	intertidal	embayment						
	guild community	**WEIGHT**	**Sum of Weights**	**3**	**4.0**	**14.3**	**1.6**	**0**	bird island	high marsh	low marsh	intertidal	embayment	**Wetland weighted sum by guild**
BIRDS	colonial nesting wading birds	12		0.5	0.75	0.25	0.5	0	1.5	2.985	3.582	0.796	0	**1.06**
"	waterfowl	10		0.25	1	1	0.5	0	0.75	3.98	14.328	0.796	0	**1.99**
"	colonial nesting waterbirds	12	50	0	0.75	1	0	0	0	2.985	14.328	0	0	**2.08**
"	raptors	2		0.75	1	0.5	0	0	2.25	3.98	7.164	0	0	**0.27**
"	shorebirds	14		0	0.25	0.25	0	0	0	0.995	3.582	0	0	**0.64**
	herpetofauna	2	2	0.5	1	0	1	0	1.5	3.98	0	1.592	0	**0.14**
	benthic invert.	20	20	0	1	1	1	0	0	3.98	14.328	1.592	0	**3.98**
FISH	bottom feeders	12		0	0	0.5	0.5	0	0	0	7.164	0.796	0	**0.96**
	pelagic feeders	8	28	0	0	0.5	0.5	0	0	0	7.164	0.796	0	**0.64**
"	shallow water and marsh feeders	8		0	0	0.5	0.5	0	0	0	7.164	0.796	0	**0.64**
	TOTAL	**100**	**100**											12.39

YEAR 15

dikes knocked down to join all 4 wetland cells together

Total 151
bird island 3 4 12
embayment 0
wetland 139

				Index					Community Units					
				bird island	high marsh	low marsh	intertidal	embayment						
	guild community	**WEIGHT**	**Sum of Weights**	**3**	**27.8**	**100.1**	**11.1**	**0**	bird island 4	high marsh	low marsh	intertidal	embayment	**Wetland weighted sum by guild**
BIRDS	colonial nesting wading birds	12		0.5	0.75	0.75	0.25	0	6	20.85	75.06	2.78	0	**12.56**
"	waterfowl	10		0.25	0.75	1	0.5	0	3	20.85	100.08	5.56	0	**12.95**
"	colonial nesting waterbirds	12	50	0	0.75	1	0	0	0	20.85	100.08	0	0	**14.51**
"	raptors	2		0.75	1	0.5	0	0	9	27.8	50.04	0	0	**1.74**
"	shorebirds	14		0	0.25	0.75	0	0	0	6.95	75.06	0	0	**11.48**
	herpetofauna	2	2	0.5	1	0	1	0	6	27.8	0	11.12	0	**0.90**
	benthic invert.	20	20	0	1	1	1	0	0	27.8	100.08	11.12	0	**27.80**
FISH	bottom feeders	12		0	0	0.5	0.5	0	0	0	50.04	5.56	0	**6.67**
	pelagic feeders	8	28	0	0	0.5	0.5	0	0	0	50.04	5.56	0	**4.45**
"	shallow water and marsh feeders	8		0	0	0.5	0.5	0	0	0	50.04	5.56	0	**4.45**
	TOTAL	**100**	**100**											97.51

FIGURE H-39. (continued)

W-5

YEAR 1

Total 43
bird island 3
embayment 0
wetland 40

	guild community	WEIGHT	Sum of Weights	Index: bird island	high marsh	low marsh	intertidal	embayment	Community Units: bird island	high marsh	low marsh	intertidal	embayment	Wetland weighted sum by guild
				3	**8.0**	**28.8**	**3.2**	**0**						
BIRDS	colonial nesting wading birds	12		0	0	0	0.5	0	0	0	0	1.6	0	**0.19**
"	waterfowl	10		0	0	0	0.5	0	0	0	0	1.6	0	**0.16**
"	colonial nesting waterbirds	12	50	1	0	0	0	0	3	0	0	0	0	**0.36**
"	raptors	2		0	0	0	0	0	0	0	0	0	0	**0.00**
"	shorebirds	14		0	0	0	0	0	0	0	0	0	0	**0.00**
	herpetofauna	2	2	0.25	0	0	1	0	0.75	0	0	3.2	0	**0.08**
	benthic invert.	20	20	0	0	0	0.25	0	0	0	0	0.8	0	**0.16**
FISH	bottom feeders	12		0	0	0	0	0	0	0	0	0	0	**0.00**
	pelagic feeders	8	28	0	0	0	0	0	0	0	0	0	0	**0.00**
"	shallow water and marsh feeders	8		0	0	0	0	0	0	0	0	0	0	**0.00**
	TOTAL	**100**	**100**											0.95

YEAR 5

Total 43
bird island 3
embayment 0
wetland 40

	guild community	WEIGHT	Sum of Weights	Index: bird island	high marsh	low marsh	intertidal	embayment	Community Units: bird island	high marsh	low marsh	intertidal	embayment	Wetland weighted sum by guild
				3	**8.0**	**28.8**	**3.2**	**0**						
BIRDS	colonial nesting wading birds	12		0.5	0.75	0.25	0.5	0	1.5	6	7.2	1.6	0	**1.96**
"	waterfowl	10		0	0	1	0.5	0	0	0	28.8	1.6	0	**3.04**
"	colonial nesting waterbirds	12	50	0	0.75	1	0	0	0	6	28.8	0	0	**4.18**
"	raptors	2		0.25	1	0.5	0	0	0.75	8	14.4	0	0	**0.46**
"	shorebirds	14		0	0.25	0.25	0	0	0	2	7.2	0	0	**1.29**
	herpetofauna	2	2	0.5	1	0.5	1	0	1.5	8	14.4	3.2	0	**0.54**
	benthic invert.	20	20	0	0.5	0.5	0.5	0	0	4	14.4	1.6	0	**4.00**
FISH	bottom feeders	12		0	0	0.5	0.5	0	0	0	14.4	1.6	0	**1.92**
	pelagic feeders	8	28	0	0	0.5	0.5	0	0	0	14.4	1.6	0	**1.28**
"	shallow water and marsh feeders	8		0	0	0.5	0.5	0	0	0	14.4	1.6	0	**1.28**
	TOTAL	**100**	**100**											19.95

FIGURE H-39. (continued)

YEAR 10

Total 43
bird island 3
embayment 0
wetland 40

				Index					Community Units					
				bird island	high marsh	low marsh	intertidal	embayment						
	guild community	WEIGHT	Sum of Weights	3	8.0	28.8	3.2	0	bird island	high marsh	low marsh	intertidal	embayment	Wetland weighted sum by guild
BIRDS	colonial nesting wading birds	12		0.5	0.75	0.25	0.5	0	1.5	6	7.2	1.6	0	1.96
"	waterfowl	10		0.25	1	1	0.5	0	0.75	8	28.8	1.6	0	3.92
"	colonial nesting waterbirds	12	50	0	0.75	1	0	0	0	6	28.8	0	0	4.18
"	raptors	2		0.75	1	0.5	0	0	2.25	8	14.4	0	0	0.49
"	shorebirds	14		0	0.25	0.25	0	0	0	2	7.2	0	0	1.29
	herpetofauna	2	2	0.5	1	0	1	0	1.5	8	0	3.2	0	0.25
	benthic invert.	20	20	0	1	1	1	0	0	8	28.8	3.2	0	8.00
FISH	bottom feeders	12		0	0	0.5	0.5	0	0	0	14.4	1.6	0	1.92
	pelagic feeders	8	28	0	0	0.5	0.5	0	0	0	14.4	1.6	0	1.28
"	shallow water and marsh feeders	8		0	0	0.5	0.5	0	0	0	14.4	1.6	0	1.28
	TOTAL	**100**	**100**											24.56

YEAR 15

dikes knocked down to join all 4 wetland cells together

Total 151
bird island 3 4 12
embayment 0
wetland 139

				Index					Community Units					
				bird island	high marsh	low marsh	intertidal	embayment						
	guild community	WEIGHT	Sum of Weights	3	27.8	100.1	11.1	0	bird island 4	high marsh	low marsh	intertidal	embayment	Wetland weighted sum by guild
BIRDS	colonial nesting wading birds	12		0.5	0.75	0.75	0.25	0	6	20.85	75.06	2.78	0	12.56
"	waterfowl	10		0.25	0.75	1	0.5	0	3	20.85	100.08	5.56	0	12.95
"	colonial nesting waterbirds	12	50	0	0.75	1	0	0	0	20.85	100.08	0	0	14.51
"	raptors	2		0.75	1	0.5	0	0	9	27.8	50.04	0	0	1.74
"	shorebirds	14		0	0.25	0.75	0	0	0	6.95	75.06	0	0	11.48
	herpetofauna	2	2	0.5	1	0	1	0	6	27.8	0	11.12	0	0.90
	benthic invert.	20	20	0	1	1	1	0	0	27.8	100.08	11.12	0	27.80
FISH	bottom feeders	12		0	0	0.5	0.5	0	0	0	50.04	5.56	0	6.67
	pelagic feeders	8	28	0	0	0.5	0.5	0	0	0	50.04	5.56	0	4.45
"	shallow water and marsh feeders	8		0	0	0.5	0.5	0	0	0	50.04	5.56	0	4.45
	TOTAL	**100**	**100**											97.51

FIGURE H-39. (continued)

W-6

YEAR 1

Total 37.5
bird island 3
embayment 0
wetland 34.5

	guild community	WEIGHT	Sum of Weights	Index: bird island	Index: high marsh	Index: low marsh	Index: intertidal	Index: embayment	Community Units: bird island	Community Units: high marsh	Community Units: low marsh	Community Units: intertidal	Community Units: embayment	Wetland weighted sum by guild
				3	**6.9**	**24.8**	**2.8**	**0**						
BIRDS	colonial nesting wading birds	12		0	0	0	0.5	0	0	0	0	1.38	0	**0.17**
"	waterfowl	10		0	0	0	0.5	0	0	0	0	1.38	0	**0.14**
"	colonial nesting waterbirds	12	50	1	0	0	0	0	3	0	0	0	0	**0.36**
"	raptors	2		0	0	0	0	0	0	0	0	0	0	**0.00**
"	shorebirds	14		0	0	0	0	0	0	0	0	0	0	**0.00**
	herpetofauna	2	2	0.25	0	0	1	0	0.75	0	0	2.76	0	**0.07**
	benthic invert.	20	20	0	0	0	0.25	0	0	0	0	0.69	0	**0.14**
FISH	bottom feeders	12		0	0	0	0	0	0	0	0	0	0	**0.00**
	pelagic feeders	8	28	0	0	0	0	0	0	0	0	0	0	**0.00**
"	shallow water and marsh feeders	8		0	0	0	0	0	0	0	0	0	0	**0.00**
	TOTAL	**100**	**100**											0.87

YEAR 5

Total 37.5
bird island 3
embayment 0
wetland 34.5

	guild community	WEIGHT	Sum of Weights	Index: bird island	Index: high marsh	Index: low marsh	Index: intertidal	Index: embayment	Community Units: bird island	Community Units: high marsh	Community Units: low marsh	Community Units: intertidal	Community Units: embayment	Wetland weighted sum by guild
				3	**6.9**	**24.8**	**2.8**	**0**						
BIRDS	colonial nesting wading birds	12		0.5	0.75	0.25	0.5	0	1.5	5.175	6.21	1.38	0	**1.71**
"	waterfowl	10		0	0	1	0.5	0	0	0	24.84	1.38	0	**2.62**
"	colonial nesting waterbirds	12	50	0	0.75	1	0	0	0	5.175	24.84	0	0	**3.60**
"	raptors	2		0.25	1	0.5	0	0	0.75	6.9	12.42	0	0	**0.40**
"	shorebirds	14		0	0.25	0.25	0	0	0	1.725	6.21	0	0	**1.11**
	herpetofauna	2	2	0.5	1	0.5	1	0	1.5	6.9	12.42	2.76	0	**0.47**
	benthic invert.	20	20	0	0.5	0.5	0.5	0	0	3.45	12.42	1.38	0	**3.45**
FISH	bottom feeders	12		0	0	0.5	0.5	0	0	0	12.42	1.38	0	**1.66**
	pelagic feeders	8	28	0	0	0.5	0.5	0	0	0	12.42	1.38	0	**1.10**
"	shallow water and marsh feeders	8		0	0	0.5	0.5	0	0	0	12.42	1.38	0	**1.10**
	TOTAL	**100**	**100**											17.23

FIGURE H-39. (continued)

YEAR 10

Total 37.5
bird island 3
embayment 0
wetland 34.5

				Index					Community Units					
				bird island	high marsh	low marsh	intertidal	embayment						
	guild community	**WEIGHT**	**Sum of Weights**	**3**	**6.9**	**24.8**	**2.8**	**0**	bird island	high marsh	low marsh	intertidal	embayment	**Wetland weighted sum by guild**
BIRDS	colonial nesting wading birds	12		0.5	0.75	0.25	0.5	0	1.5	5.175	6.21	1.38	0	**1.71**
"	waterfowl	10		0.25	1	1	0.5	0	0.75	6.9	24.84	1.38	0	**3.39**
"	colonial nesting waterbirds	12	50	0	0.75	1	0	0	0	5.175	24.84	0	0	**3.60**
"	raptors	2		0.75	1	0.5	0	0	2.25	6.9	12.42	0	0	**0.43**
"	shorebirds	14		0	0.25	0.25	0	0	0	1.725	6.21	0	0	**1.11**
	herpetofauna	2	2	0.5	1	0	1	0	1.5	6.9	0	2.76	0	**0.22**
	benthic invert.	20	20	0	1	1	1	0	0	6.9	24.84	2.76	0	**6.90**
FISH	bottom feeders	12		0	0	0.5	0.5	0	0	0	12.42	1.38	0	**1.66**
	pelagic feeders	8	28	0	0	0.5	0.5	0	0	0	12.42	1.38	0	**1.10**
"	shallow water and marsh feeders	8		0	0	0.5	0.5	0	0	0	12.42	1.38	0	**1.10**
	TOTAL	**100**	**100**											21.23

YEAR 15

dikes knocked down to join all 4 wetland cells together

Total 151
bird island 3 4 12
embayment 0
wetland 139

				Index					Community Units					
				bird island	high marsh	low marsh	intertidal	embayment						
	guild community	**WEIGHT**	**Sum of Weights**	**3**	**27.8**	**100.1**	**11.1**	**0**	bird island 4	high marsh	low marsh	intertidal	embayment	**Wetland weighted sum by guild**
BIRDS	colonial nesting wading birds	12		0.5	0.75	0.75	0.25	0	6	20.85	75.06	2.78	0	**12.56**
"	waterfowl	10		0.25	0.75	1	0.5	0	3	20.85	100.08	5.56	0	**12.95**
"	colonial nesting waterbirds	12	50	0	0.75	1	0	0	0	20.85	100.08	0	0	**14.51**
"	raptors	2		0.75	1	0.5	0	0	9	27.8	50.04	0	0	**1.74**
"	shorebirds	14		0	0.25	0.75	0	0	0	6.95	75.06	0	0	**11.48**
	herpetofauna	2	2	0.5	1	0	1	0	6	27.8	0	11.12	0	**0.90**
	benthic invert.	20	20	0	1	1	1	0	0	27.8	100.08	11.12	0	**27.80**
FISH	bottom feeders	12		0	0	0.5	0.5	0	0	0	50.04	5.56	0	**6.67**
	pelagic feeders	8	28	0	0	0.5	0.5	0	0	0	50.04	5.56	0	**4.45**
"	shallow water and marsh feeders	8		0	0	0.5	0.5	0	0	0	50.04	5.56	0	**4.45**
	TOTAL	**100**	**100**											97.51

FIGURE H-39. (continued)

W-7

YEAR 1

Total 47.6
bird island 3
embayment 0
wetland 44.6

				Index					Community Units					
				bird island	high marsh	low marsh	intertidal	embayment						
	guild community	**WEIGHT**	**Sum of Weights**	**3**	**8.9**	**32.1**	**3.6**	**0**	bird island	high marsh	low marsh	intertidal	embayment	**Wetland weighted sum by guild**
BIRDS	colonial nesting wading birds	12		0	0	0	0.5	0	0	0	0	1.784	0	**0.21**
"	waterfowl	10		0	0	0	0.5	0	0	0	0	1.784	0	**0.18**
"	colonial nesting waterbirds	12	50	1	0	0	0	0	3	0	0	0	0	**0.36**
"	raptors	2		0	0	0	0	0	0	0	0	0	0	**0.00**
"	shorebirds	14		0	0	0	0	0	0	0	0	0	0	**0.00**
	herpetofauna	2	2	0.25	0	0	1	0	0.75	0	0	3.568	0	**0.09**
	benthic invert.	20	20	0	0	0	0.25	0	0	0	0	0.892	0	**0.18**
FISH	bottom feeders	12		0	0	0	0	0	0	0	0	0	0	**0.00**
	pelagic feeders	8	28	0	0	0	0	0	0	0	0	0	0	**0.00**
"	shallow water and marsh feeders	8		0	0	0	0	0	0	0	0	0	0	**0.00**
	TOTAL	**100**	**100**											1.02

YEAR 5

Total 47.6
bird island 3
embayment 0
wetland 44.6

				Index					Community Units					
				bird island	high marsh	low marsh	intertidal	embayment						
	guild community	**WEIGHT**	**Sum of Weights**	**3**	**8.9**	**32.1**	**3.6**	**0**	bird island	high marsh	low marsh	intertidal	embayment	**Wetland weighted sum by guild**
BIRDS	colonial nesting wading birds	12		0.5	0.75	0.25	0.5	0	1.5	6.69	8.028	1.784	0	**2.16**
"	waterfowl	10		0	0	1	0.5	0	0	0	32.112	1.784	0	**3.39**
"	colonial nesting waterbirds	12	50	0	0.75	1	0	0	0	6.69	32.112	0	0	**4.66**
"	raptors	2		0.25	1	0.5	0	0	0.75	8.92	16.056	0	0	**0.51**
"	shorebirds	14		0	0.25	0.25	0	0	0	2.23	8.028	0	0	**1.44**
	herpetofauna	2	2	0.5	1	0.5	1	0	1.5	8.92	16.056	3.568	0	**0.60**
	benthic invert.	20	20	0	0.5	0.5	0.5	0	0	4.46	16.056	1.784	0	**4.46**
FISH	bottom feeders	12		0	0	0.5	0.5	0	0	0	16.056	1.784	0	**2.14**
	pelagic feeders	8	28	0	0	0.5	0.5	0	0	0	16.056	1.784	0	**1.43**
"	shallow water and marsh feeders	8		0	0	0.5	0.5	0	0	0	16.056	1.784	0	**1.43**
	TOTAL	**100**	**100**											22.21

FIGURE H-39. (continued)

YEAR 10

Total 47.6
bird island 3
embayment 0
wetland 44.6

				Index					Community Units					
				bird island	high marsh	low marsh	intertidal	embayment						
	guild community	WEIGHT	Sum of Weights	3	8.9	32.1	3.6	0	bird island	high marsh	low marsh	intertidal	embayment	Wetland weighted sum by guild
BIRDS	colonial nesting wading birds	12		0.5	0.75	0.25	0.5	0	1.5	6.69	8.028	1.784	0	**2.16**
"	waterfowl	10		0.25	1	1	0.5	0	0.75	8.92	32.112	1.784	0	**4.36**
"	colonial nesting waterbirds	12	50	0	0.75	1	0	0	0	6.69	32.112	0	0	**4.66**
"	raptors	2		0.75	1	0.5	0	0	2.25	8.92	16.056	0	0	**0.54**
"	shorebirds	14		0	0.25	0.25	0	0	0	2.23	8.028	0	0	**1.44**
	herpetofauna	2	2	0.5	1	0	1	0	1.5	8.92	0	3.568	0	**0.28**
	benthic invert.	20	20	0	1	1	1	0	0	8.92	32.112	3.568	0	**8.92**
FISH	bottom feeders	12		0	0	0.5	0.5	0	0	0	16.056	1.784	0	**2.14**
	pelagic feeders	8	28	0	0	0.5	0.5	0	0	0	16.056	1.784	0	**1.43**
"	shallow water and marsh feeders	8		0	0	0.5	0.5	0	0	0	16.056	1.784	0	**1.43**
	TOTAL	**100**	**100**											27.35

YEAR 15

dikes knocked down to join all 4 wetland cells together

Total 151
bird island 3 4 12
embayment 0
wetland 139

				Index					Community Units					
				bird island	high marsh	low marsh	intertidal	embayment						
	guild community	WEIGHT	Sum of Weights	3	27.8	100.1	11.1	0	bird island 4	high marsh	low marsh	intertidal	embayment	Wetland weighted sum by guild
BIRDS	colonial nesting wading birds	12		0.5	0.75	0.75	0.25	0	6	20.85	75.06	2.78	0	**12.56**
"	waterfowl	10		0.25	0.75	1	0.5	0	3	20.85	100.08	5.56	0	**12.95**
"	colonial nesting waterbirds	12	50	0	0.75	1	0	0	0	20.85	100.08	0	0	**14.51**
"	raptors	2		0.75	1	0.5	0	0	9	27.8	50.04	0	0	**1.74**
"	shorebirds	14		0	0.25	0.75	0	0	0	6.95	75.06	0	0	**11.48**
	herpetofauna	2	2	0.5	1	0	1	0	6	27.8	0	11.12	0	**0.90**
	benthic invert.	20	20	0	1	1	1	0	0	27.8	100.08	11.12	0	**27.80**
FISH	bottom feeders	12		0	0	0.5	0.5	0	0	0	50.04	5.56	0	**6.67**
	pelagic feeders	8	28	0	0	0.5	0.5	0	0	0	50.04	5.56	0	**4.45**
"	shallow water and marsh feeders	8		0	0	0.5	0.5	0	0	0	50.04	5.56	0	**4.45**
	TOTAL	**100**	**100**											97.51

FIGURE H-40. ISLAND COMMUNITY UNIT CALCULATOR (using updated weighting factors) - EVALUATION OF EMBAYMENT BENEFITS for 130-ACRE EMBAYMENT WITHOUT RAISING

Index Evaluation Criteria	
optimum maximum use	1
use probable, but not optimum	0.75
use possible, some use	0.5
minimum use	0.25
no use habitat value	0

YEAR 1

Total 130
bird island 0
embayment 130
wetland 0

				Index					Community Units					
				bird island	high marsh	low marsh	intertidal	embayment						
	guild community	**WEIGHT**	**Sum of Weights**	**0**	**0.0**	**0.0**	**0.0**	**130**	bird island	high marsh	low marsh	intertidal	embayment	**Wetland weighted sum by guild**
BIRDS	colonial nesting wading birds	12						0.25	0	0	0	0	32.5	**3.90**
"	waterfowl	10						0.75	0	0	0	0	97.5	**9.75**
"	colonial nesting waterbirds	12	50					0.25	0	0	0	0	32.5	**3.90**
"	raptors	2						0.75	0	0	0	0	97.5	**1.95**
"	shorebirds	14						0	0	0	0	0	0	**0.00**
	herpetofauna	2	2					0	0	0	0	0	0	**0.00**
	benthic invert.	20	20					1	0	0	0	0	130	**26.00**
FISH	bottom feeders	12						0.25	0	0	0	0	32.5	**3.90**
	pelagic feeders	8	28					0.25	0	0	0	0	32.5	**2.60**
"	shallow water and marsh feeders	8						0.25	0	0	0	0	32.5	**2.60**
	TOTAL	**100**	**100**											54.60

YEAR 5

Total 130
bird island 0
embayment 130
wetland 0

				Index					Community Units					
				bird island	high marsh	low marsh	intertidal	embayment						
	guild community	**WEIGHT**	**Sum of Weights**	**0**	**0.0**	**0.0**	**0.0**	**130**	bird island	high marsh	low marsh	intertidal	embayment	**Wetland weighted sum by guild**
BIRDS	colonial nesting wading birds	12						0.75	0	0	0	0	97.5	**11.70**
"	waterfowl	10						1	0	0	0	0	130	**13.00**
"	colonial nesting waterbirds	12	50					1	0	0	0	0	130	**15.60**
"	raptors	2						1	0	0	0	0	130	**2.60**
"	shorebirds	14						0	0	0	0	0	0	**0.00**
	herpetofauna	2	2					0	0	0	0	0	0	**0.00**
	benthic invert.	20	20					1	0	0	0	0	130	**26.00**
FISH	bottom feeders	12						0.75	0	0	0	0	97.5	**11.70**
	pelagic feeders	8	28					0.75	0	0	0	0	97.5	**7.80**
"	shallow water and marsh feeders	8						0.75	0	0	0	0	97.5	**7.80**
	TOTAL	**100**	**100**											96.20

FIGURE H-40. (continued)

			YEAR 15											
	Total	130												
	bird island	0												
	embayment	130					Index				Community Units			
	wetland	0					bird island	high marsh	low marsh	intertidal	embayment					
	guild community	**WEIGHT**	**Sum of Weights**	**0**	**0.0**	**0.0**	**0.0**	**130**	bird island	high marsh	low marsh	intertidal	embayment	**Wetland weighted sum by guild**
BIRDS	colonial nesting wading birds	12						1	0	0	0	0	130	**15.60**
"	waterfowl	10						1	0	0	0	0	130	**13.00**
"	colonial nesting waterbirds	12	50					1	0	0	0	0	130	**15.60**
"	raptors	2						1	0	0	0	0	130	**2.60**
"	shorebirds	14						0	0	0	0	0	0	**0.00**
	herpetofauna	2	2					0	0	0	0	0	0	**0.00**
	benthic invert.	20	20					1	0	0	0	0	130	**26.00**
FISH	bottom feeders	12						1	0	0	0	0	130	**15.60**
	pelagic feeders	8	28					1	0	0	0	0	130	**10.40**
"	shallow water and marsh feeders	8						1	0	0	0	0	130	**10.40**
	TOTAL	**100**	**100**											109.20

FIGURE H-41. ISLAND COMMUNITY UNIT CALCULATOR (using updated weighting factors) - EVALUATION OF UPLAND BENEFITS for 130-ACRE EMBAYMENT WITHOUT RAISING

Index Evaluation Criteria	
optimum maximum use	1
use probable, but not optimum	0.75
use possible, some use	0.5
minimum use	0.25
no use habitat value	0

Total 247.1 **YEAR 1**
upland 123.5
embayment 0
wetland 0

				Index					Community Units					
				upland	high marsh	low marsh	intertidal	embayment						
	guild community	**WEIGHT**	**Sum of Weights**	**123.5**	**0.0**	**0.0**	**0.0**	**0**	upland	high marsh	low marsh	intertidal	embayment	**Weighted sum by guild**
BIRDS	colonial nesting wading birds	12		0	0	0	0	0	0	0	0	0	0	**0.00**
"	waterfowl	10		0	0	0	0	0	0	0	0	0	0	**0.00**
"	colonial nesting waterbirds	12	50	0.25	0	0	0	0	30.875	0	0	0	0	**3.71**
"	raptors	2		0	0	0	0	0	0	0	0	0	0	**0.00**
"	shorebirds	14		0	0	0	0	0	0	0	0	0	0	**0.00**
	herpetofauna	2	2	0	0	0	0	0	0	0	0	0	0	**0.00**
	benthic invert.	20	20	0	0	0	0	0	0	0	0	0	0	**0.00**
FISH	bottom feeders	12		0	0	0	0	0	0	0	0	0	0	**0.00**
	pelagic feeders	8	28	0	0	0	0	0	0	0	0	0	0	**0.00**
"	shallow water and marsh feeders	8		0	0	0	0	0	0	0	0	0	0	**0.00**
	TOTAL	**100**	**100**											3.71

Total 247.1 **YEAR 5**
upland 123.5
embayment 0
wetland 0

				Index					Community Units					
				upland	high marsh	low marsh	intertidal	embayment						
	guild community	**WEIGHT**	**Sum of Weights**	**123.5**	**0.0**	**0.0**	**0.0**	**0**	upland	high marsh	low marsh	intertidal	embayment	**Weighted sum by guild**
BIRDS	colonial nesting wading birds	12		0	0	0	0	0	0	0	0	0	0	**0.00**
"	waterfowl	10		0	0	0	0	0	0	0	0	0	0	**0.00**
"	colonial nesting waterbirds	12	50	0	0	0	0	0	0	0	0	0	0	**0.00**
"	raptors	2		0.25	0	0	0	0	30.875	0	0	0	0	**0.62**
"	shorebirds	14		0	0	0	0	0	0	0	0	0	0	**0.00**
	herpetofauna	2	2	0.5	0	0	0	0	61.75	0	0	0	0	**1.24**
	benthic invert.	20	20	0	0	0	0	0	0	0	0	0	0	**0.00**
FISH	bottom feeders	12		0	0	0	0	0	0	0	0	0	0	**0.00**
	pelagic feeders	8	28	0	0	0	0	0	0	0	0	0	0	**0.00**
"	shallow water and marsh feeders	8		0	0	0	0	0	0	0	0	0	0	**0.00**
	TOTAL	**100**	**100**											1.85

FIGURE H-41. (continued)

Total 247.1 **YEAR 10**
upland 123.5
embayment 0
wetland 0

				Index					Community Units					
				upland	high marsh	low marsh	intertidal	embayment						
	guild community	**WEIGHT**	**Sum of Weights**	**123.5**	**0.0**	**0.0**	**0.0**	**0**	upland	high marsh	low marsh	intertidal	embayment	**Weighted sum by guild**
BIRDS	colonial nesting wading birds	12		0	0	0	0	0	0	0	0	0	0	**0.00**
"	waterfowl	10		0.75	0	0	0	0	92.625	0	0	0	0	**9.26**
"	colonial nesting waterbirds	12	50	0	0	0	0	0	0	0	0	0	0	**0.00**
"	raptors	2		0.25	0	0	0	0	30.875	0	0	0	0	**0.62**
"	shorebirds	14		0	0	0	0	0	0	0	0	0	0	**0.00**
	herpetofauna	2	2	0.5	0	0	0	0	61.75	0	0	0	0	**1.24**
	benthic invert.	20	20	0	0	0	0	0	0	0	0	0	0	**0.00**
FISH	bottom feeders	12		0	0	0	0	0	0	0	0	0	0	**0.00**
	pelagic feeders	8	28	0	0	0	0	0	0	0	0	0	0	**0.00**
"	shallow water and marsh feeders	8		0	0	0	0	0	0	0	0	0	0	**0.00**
	TOTAL	**100**	**100**											11.12

Total 247.1 **YEAR 25**
upland 123.5
embayment 0
wetland 0

				Index					Community Units					
				upland	high marsh	low marsh	intertidal	embayment						
	guild community	**WEIGHT**	**Sum of Weights**	**123.5**	**0.0**	**0.0**	**0.0**	**0**	upland	high marsh	low marsh	intertidal	embayment	**Weighted sum by guild**
BIRDS	colonial nesting wading birds	12		0.5	0	0	0	0	61.75	0	0	0	0	**7.41**
"	waterfowl	10		0.75	0	0	0	0	92.625	0	0	0	0	**9.26**
"	colonial nesting waterbirds	12	50	0	0	0	0	0	0	0	0	0	0	**0.00**
"	raptors	2		0.75	0	0	0	0	92.625	0	0	0	0	**1.85**
"	shorebirds	14		0	0	0	0	0	0	0	0	0	0	**0.00**
	herpetofauna	2	2	0.5	0	0	0	0	61.75	0	0	0	0	**1.24**
	benthic invert.	20	20	0	0	0	0	0	0	0	0	0	0	**0.00**
FISH	bottom feeders	12		0	0	0	0	0	0	0	0	0	0	**0.00**
	pelagic feeders	8	28	0	0	0	0	0	0	0	0	0	0	**0.00**
"	shallow water and marsh feeders	8		0	0	0	0	0	0	0	0	0	0	**0.00**
	TOTAL	**100**	**100**											19.76

POPLAR ISLAND DREDGED MATERIAL PLACEMENT AND CELL DEVELOPMENT PLAN (using updated weighting factors)

FIGURE H-42. EXISTING 1140-ACRE SITE PLUS 575-ACRE NORTHERN EXPANSION WITH AN 130-ACRE OPEN WATER EMBAYMENT PLUS 5-FOOT RAISING OF EXISTING UPLAND CELLS

(Expansion Cells Assumed to be Available in 2011)

Cell No.	Cell Acreage (Nominal)	Cell Acreage (Actual)	Cell Volume	Cell Capacity	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EXPANSION UPLAND CELLS																																		
U-2	326	298	2,406,206	3,437,437		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	750,000	750,000	0	750,000	750,000	437,437			
		99																		Grade	Grade	Plant	Plant	3.0	2.6	2.2	1.9	1.5	3.0	4.5	5.9	7.4	8.9	8.9
		99			144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	90.5	90.5	90.5	90.5	90.5	90.5	Grade	Grade	Plant	Plant	3.0	2.6	2.2	1.9	1.5
		100																								39.0	39.0	39.0	39.0	39.0	39.0	Grade	Grade	Plant
U-6	243	222	1,793,583	2,562,261		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	500,000	500,000	0	500,000	500,000	562,261			
		111			2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	Grade	Grade	Plant	Plant	3.3	2.9	2.5	2.1	1.7
		111																								47.3	47.3	47.3	47.3	47.3	47.3	Grade	Grade	Plant
Up-10	270	247.1	11,359,359	16,227,656	0	0	0	0	0	0	0	0	0	0	1,434,866	1,434,866	1,434,866	1,434,866	1,434,866	1,434,866	1,434,866	1,434,866	1,434,866	1,272,406	709,735	0	0							
A		123.5												2.5	2.5	2.5	2.5	2.5	90.4	90.4	90.4	90.4	90.4	90.4	90.4	90.4	90.4	Grade	Grade	Plant	Plant	3.7	3.2	2.8
B		123.5																										56.2	56.2	56.2	56.2	56.2	Grade	Grade
EXISTING UPLAND CELLS																																		
U-2	326	298	10,913,555	**15,590,792**	**6,399,848**	1,038,000	0	1,999,940	1,999,936	1,599,933	0	700,000	1,500,000	1,450,000	0	0	0	0	500,000	600,000	611268	250935	0	0	0	0	0	0	0	0	0	DEFER TO GRADING AND PLANTING SHOWN		
U-6	243	222	11,926,728	**17,038,183**	0	0	0	0	0	400,000	**1,999,943**	1,299,938	1,699,925	1,749,902	1,219,723	1,460,710	982,614	895,534	949,649	1,045,435	1,094,016	1,473,371	1,746,112	595,877	796,726	0	0	0	0	0	ABOVE FOR RAISED CELLS 2		6
EXISTING WETLAND CELLS																																		
W-1A	38	35	265,393	**379,133**	2.1	2.1	2.1	2.1	2.1	2.1	Grade	Plant	0.5	7.6	14.7	17.1	19.4	20.3	21.1	22.0	22.8	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6
W-1B	38	35	378,327	**540,467**	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	Grade	Plant	0.7	7.4	14.0	16.3	18.5	19.3	20.1	20.9	21.7	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
W-1C	44	40	367,840	**525,486**	5.5	5.5	5.5	5.5	5.5	5.5	5.5	Grade	Plant	0.7	8.6	16.5	19.1	21.7	22.7	23.6	24.6	25.5	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4
W-1D	49	45	486,420	**694,886**	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	Grade	Plant	0.8	9.7	18.6	21.5	24.5	25.6	26.6	27.7	28.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8
W-3A	35	32	366,549	**523,642**	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	Grade	Plant	0.5	7.0	13.4	15.6	17.8	18.5	19.3	20.1	20.8	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
W-3B	30	28	275,557	**393,653**	0.5	0.5	0.5	0.5	0.5	0.5	0.5	Grade	Plant	0.4	6.1	11.8	13.7	15.5	16.2	16.9	17.6	18.2	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9
W-3C	39	35	400,913	**572,733**	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	Grade	Plant	0.6	7.5	14.4	16.7	19.0	19.8	20.6	21.4	22.2	23.1	23.1	23.1	23.1	23.1	23.1	23.1
W-3D	31	26	251,680	**359,543**	9.6	9.6	9.6	9.6	Grade	Plant	0.5	5.5	10.6	12.3	14.0	14.6	15.2	15.8	16.4	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0
W-4A B	34	31	150,040	**214,343**	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	10.1	10.1	Grade	Plant	0.7	6.5	12.4	14.3	16.3	17.0	17.7	18.4	19.1	19.8	19.8	19.8	19.8
W-4C	38	34	7,000	**10,000**	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	6.8	6.8	Grade	Plant	0.5	7.4	14.3	16.6	18.9	19.7	20.5	21.3	22.1	23.0	23.0	23.0	23.0
W-4DX	25	23	0	**0**	3.4	3.4	3.4	Plant	0.5	4.8	9.2	10.6	12.0	12.6	13.1	13.6	14.2	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
W-5A	33	30	242,000	**345,714**	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	Grade	Plant	0.4	6.5	12.6	14.6	16.7	17.4	18.1	18.8	19.5	20.3	20.3	20.3	20.3	20.3	20.3
W-5B	33	30	266,200	**380,286**	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	Grade	Plant	0.4	6.5	12.6	14.6	16.7	17.4	18.1	18.8	19.5	20.3	20.3	20.3	20.3	20.3
W-5C	33	30	290,400	**414,857**	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	Grade	Plant	0.4	6.5	12.6	14.6	16.7	17.4	18.1	18.8	19.5	20.3	20.3	20.3	20.3	20.3	20.3
W-5D	57	53	1,710,133	**2,443,048**	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	Grade	Plant	0.8	11.5	22.3	25.8	29.4	30.7	32.0	33.2	34.5	35.8	35.8
EXISTING EXTERIOR DIKES					0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
EXPANSION WETLAND CELLS																																		
W-1	25.0	22.9	369,050	527,214	0	0	0	0	0	0	0	0	0	0.2	0.2	0.2	0.2	5.3	Grade	Plant	0.7	4.2	7.7	8.9	10	10.5	11.0	11.4	11.9	12.39	12.39	12.39	12.39	12.39
W-5	47.0	43.0	763,195	1,090,279	0	0	0	0	0	0	0	0	0	0.4	0.4	0.4	0.4	0.4	0.4	14.0	14.0	14.0	Grade	Plant	1.0	8.1	15.2	17.6	19.95	20.9	21.8	22.7	23.6	24.56
W-6	41.0	37.5	665,766	951,095	0	0	0	0	0	0	0	0	0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	12.2	12.2	12.2	Grade	Plant	0.9	7.0	13.1	15.2	17.23	18.0	18.8	19.6	20.4
W-7	52.0	47.6	2,072,585	2,960,835	0	0	0	0	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	15.5	15.5	15.5	15.5	Grade	Plant
W-8	0.0	0.0	0	0																														
W-2	43.3	39.6	0	0																														
W-3	43.3	39.6	0	0																														
W-4	43.3	39.6	0	0																														
embayment		130.0												1.3	1.3	1.3	1.3	1.3	1.3	1.3	54.6	54.6	54.6	54.6	96.2	96.2	96.2	96.2	96.2	96.2	96.2	96.2	96.2	96.2
EXPANSION EXTERIOR DIKES														0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	1,509	**1,624**		68183543.43	8,184,231	1,100,000	828,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	3200000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	1,264,517	756,590	735,530	513,631	0	0	0	0

PIERP PIES ICU					219.0	219.0	219.0	215.5	206.4	210.8	213.5	214.0	221.0	227.4	250.3	259.5	266.2	357.3	459.5	429.5	522.7	554.6	573.5	588.5	653.8	601.3	624.3	606.7	633.1	647.8	653.0	574.1	505.7	506.2
					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	53.5	-20.2	-20.2	-20.2	50.6	50.9	49.3	49.7	50.1	77.2	75.7	74.3	31.6	26.8	27.2	74.9	78.6	78.6	-9.8	-15.2	-16.8
PIES ICU					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	59.3	-14.4	-14.4	-14.4	61.4	144.4	156.4	222.5	226.4	243.1	230.6	272.8	238.6	247.5	222.7	290.2	297.4	299.1	216.2	140.4	140.0

Red type represents dredged material placement quantity

Green type in green box represents planting and ICU value.

Orange type in orange box represents final placement and grading.

Blue type represents interim ICU prior to grading and planting.

Blue box denotes a year placement is occuring in expansion cell.

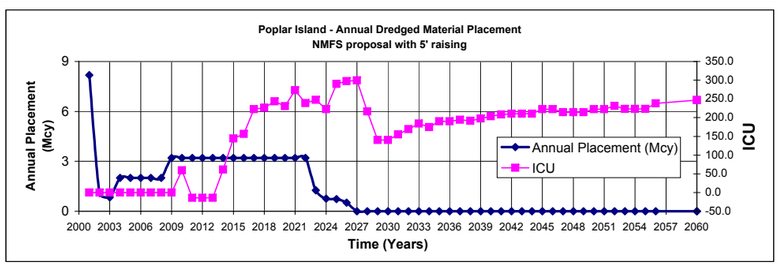

FIGURE H-42. (continued)

130-ACRE OPEN WATER EMBAYMENT PLUS 5-FOOT RAISING OF EXISTING UPLAND CELLS (using updated weighting factors)

Cell No.	Cell Acreage (Nominal)	Cell Acreage (Actual)	Cell Volume	Cell Capacity	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2060	2060
EXPANSION UPLAND CELLS																																
U-2	326	298	2,406,206	3,437,437																												
		99			8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8
		99			3.0	4.5	5.9	7.4	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8
		100			Plant	3.0	2.6	2.3	1.9	1.5	3.0	4.5	6.0	7.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	16.0	16.0	16.0
U-6	243	222	1,793,583	2,562,261																												
		111			3.3	5.0	6.7	8.3	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8
		111			Plant	3.3	2.9	2.5	2.1	1.7	3.3	5.0	6.7	8.3	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	17.8	17.8	17.8
Up-10	270	247.1	11,359,359	16,227,656																												
A		123.5			2.3	1.9	3.7	5.6	7.4	9.3	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	19.8	19.8	19.8	19.8	19.8	19.8	19.8
B		123.5			Plant	Plant	3.7	3.2	2.8	2.3	1.9	3.7	5.6	7.4	9.3	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	19.8	19.8
EXISTING UPLAND CELLS																																
U-2	326	298	10,913,555	**15,590,792**																												
U-6	243	222	11,926,728	**17,038,183**																												
EXISTING WETLAND CELLS																																
W-1A	38	35	265,393	**379,133**	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6
W-1B	38	35	378,327	**540,467**	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
W-1C	44	40	367,840	**525,486**	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4
W-1D	49	45	486,420	**694,886**	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8
W-3A	35	32	366,549	**523,642**	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
W-3B	30	28	275,557	**393,653**	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9
W-3C	39	35	400,913	**572,733**	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1
W-3D	31	26	251,680	**359,543**	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0
W-4A B	34	31	150,040	**214,343**	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8
W-4C	38	34	7,000	**10,000**	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
W-4DX	25	23	0	**0**	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
W-5A	33	30	242,000	**345,714**	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5B	33	30	266,200	**380,286**	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5C	33	30	290,400	**414,857**	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5D	57	53	1,710,133	**2,443,048**	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8
EXISTING EXTERIOR DIKES					0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
EXPANSION WETLAND CELLS																																
W-1	25.0	22.9	369,050	527,214	12.39	12.39	12.39	12.39	12.39	12.39	12.39	12.39	12.39	12.39	12.39	12.39	12.39	12.39														
W-5	47.0	43.0	763,195	1,090,279	24.6	24.6	24.6	24.6	24.6	24.6	24.6	24.6	24.6	24.6	24.6	24.6	24.6	24.6	97.5	97.5	97.5	97.5	97.5	97.5	97.5	97.5	97.5	97.5	97.5	97.5	97.5	97.5
W-6	41.0	37.5	665,766	951,095	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2														
W-7	52.0	47.6	2,072,585	2,960,835	1.0	9.0	16.9	19.6	22.2	23.2	24.3	25.3	26.3	27.3	27.3	27.3	27.3	27.3														
W-8	0.0	0.0	0	0																												
W-2	43.3	39.6	0	0																												
W-3	43.3	39.6	0	0																												
W-4	43.3	39.6	0	0																												
embayment		130.0			109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2
EXPANSION EXTERIOR DIKES					0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	1,509	**1,624**		68183543.43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PIERP PIES ICU	523.7	540.7	556.5	562.9	569.3	570.9	576.5	582.6	588.6	594.7	599.7	601.5	601.5	608.5	620.4	620.4	620.4	620.4	620.4	635.1	635.1	643.8	643.8	643.8	643.8	658.6	667.2	667.2
	-16.4	-9.7	-8.4	-21.4	-10.0	-12.5	-11.0	-16.4	-13.3	-10.1	-6.9	-6.9	-6.9	-6.9	-6.9	-6.9	-14.7	-14.7	-14.7	-7.0	-7.0	-7.0	-14.8	-14.8	-14.8	0.0	0.0	0.0
PIES ICU	154.7	169.0	183.7	174.8	190.2	190.2	194.1	191.5	197.6	203.6	208.6	210.5	210.5	210.5	222.5	222.5	214.7	214.7	214.7	222.4	222.4	231.1	223.3	223.3	223.3	238.1	246.7	246.7

Red type represents dredged material placement quantity

Green type in green box represents planting and ICU value.

Orange type in orange box represents final placement and grading.

Blue type represents interim ICU prior to grading and planting.

Blue box denotes a year placement is occuring in expansion cell.

POPLAR ISLAND DREDGED MATERIAL PLACEMENT AND CELL DEVELOPMENT PLAN (using updated weighting factors)

FIGURE H-43. EXISTING 1140-ACRE SITE PLUS 575-ACRE NORTHERN EXPANSION WITH 60% WETLAND AND 40% UPLAND PLUS 5-FT RAISING OF EXISTING UPLAND CELLS

(Expansion Cells Assumed to be Available in 2011; Expansion Cell 8 Modeled as Wetland Habitat)

Cell No.	Cell Acreage (Nominal)	Cell Acreage (Actual)	Cell Volume	Cell Capacity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
RAISED EXISTING UPLAND CELLS																																			
U-2 Raised	326	298	2,406,206	3,437,437		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	750,000	750,000	0	750,000	750,000	437,437				
		99																		Grade	Grade	Plant	Plant	3.0	2.6	2.2	1.9	1.5	3.0	4.5	5.9	7.4	8.9	8.9	8.9
		99			144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	90.5	90.5	90.5	90.5	90.5	90.5	Grade	Grade	Plant	Plant	3.0	2.6	2.2	1.9	1.5	3.0
		100																								39.0	39.0	39.0	39.0	39.0	39.0	Grade	Grade	Plant	Plant
U-6 Raised	243	222	1,793,583	2,562,261		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	500,000	500,000	0	500,000	500,000	562,261				
		111			2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	Grade	Grade	Plant	Plant	3.3	2.9	2.5	2.1	1.7	3.3
		111																								47.3	47.3	47.3	47.3	47.3	47.3	Grade	Grade	Plant	Plant
EXPANSION UPLAND CELLS																																			
Wet-8	40	36.6	974,292	1,391,846											0.4	0.4	0.4	0.4	0.4	11.9	11.9	11.9	11.9	11.9	11.9	Grade	Grade	Plant	Plant	0.9	6.8	12.8	14.8	16.8	17.6
U-9	235	215	9,713,396	13,876,280											0	1,040,721	1,040,721	1,040,721	1,040,721	1,040,721	1,040,721	1,040,721	1,040,721	1,040,721	1,457,417	2,827,485	224889	0	0							
A		105													1.1	1.1	1.1	1.1	1.1	38.9	38.9	38.9	47.8	47.8	47.8	Grade	Grade	Plant	Plant	3.2	2.8	2.4	2.0	1.6	3.2
B		110													1.1	1.1	1.1	1.1	1.1	40.7	40.7	40.7	40.7	40.7	40.7	40.7	REF!	REF!	REF!	Grade	Grade	Plant	Plant	3.3	2.9
EXISTING UPLAND CELLS																																			
U-2	326	298	10,913,555	**15,590,792**		6,399,848	1,038,000	0	1,999,940	1,999,936	1,599,933	0	700,000	1,500,000	1,450,000	0	0	0	0	400,000	400,000	611268	550935	0	0	0	0	0	0	0	0	DEFER TO GRADING AND PLANTING SHOWN			
U-6	243	222	11,926,728	**17,038,183**		0	0	0	0	0	400,000	1,999,943	1,299,938	1,699,925	1,749,902	2,159,171	2,159,164	2,159,152	2,159,134	1,759,126	1,759,103	1,547,810	1,608,110	2,159,019	1,742,310	796,726	0	0	0	0	0	ABOVE FOR RAISED CELLS 2 6			
EXISTING WETLAND CELLS																																			
W-1A	38	35	265,393	**379,133**	2.1	2.1	2.1	2.1	2.1	2.1	Grade	Plant	0.5	7.6	14.7	17.1	19.4	20.3	21.1	22.0	22.8	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6
W-1B	38	35	378,327	**540,467**	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	Grade	Plant	0.7	7.4	14.0	16.3	18.5	19.3	20.1	20.9	21.7	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
W-1C	44	40	367,840	**525,486**	5.5	5.5	5.5	5.5	5.5	5.5	5.5	Grade	Plant	0.7	8.6	16.5	19.1	21.7	22.7	23.6	24.6	25.5	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4
W-1D	49	45	486,420	**694,886**	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	Grade	Plant	0.8	9.7	18.6	21.5	24.5	25.6	26.6	27.7	28.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8
W-3A	35	32	366,549	**523,642**	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	Grade	Plant	0.5	7.0	13.4	15.6	17.8	18.5	19.3	20.1	20.8	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
W-3B	30	28	275,557	**393,653**	0.5	0.5	0.5	0.5	0.5	0.5	0.5	Grade	Plant	0.4	6.1	11.8	13.7	15.5	16.2	16.9	17.6	18.2	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9
W-3C	39	35	400,913	**572,733**	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	Grade	Plant	0.6	7.5	14.4	16.7	19.0	19.8	20.6	21.4	22.2	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1
W-3D	31	26	251,680	**359,543**	9.6	9.6	9.6	9.6	Grade	Plant	0.5	5.5	10.6	12.3	14.0	14.6	15.2	15.8	16.4	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0
W-4A B	34	31	150,040	**214,343**	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	10.1	10.1	Grade	Plant	0.7	6.5	12.4	14.3	16.3	17.0	17.7	18.4	19.1	19.8	19.8	19.8	19.8	19.8
W-4C	38	34	7,000	**10,000**	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	6.8	6.8	Grade	Plant	0.5	7.4	14.3	16.6	18.9	19.7	20.5	21.3	22.1	23.0	23.0	23.0	23.0	23.0
W-4DX	25	23	0	**0**	3.4	3.4	3.4	Plant	0.5	4.8	9.2	10.6	12.0	12.6	13.1	13.6	14.2	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
W-5A	33	30	242,000	**345,714**	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	Grade	Plant	0.4	6.5	12.6	14.6	16.7	17.4	18.1	18.8	19.5	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5B	33	30	266,200	**380,286**	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	Grade	Plant	0.4	6.5	12.6	14.6	16.7	17.4	18.1	18.8	19.5	20.3	20.3	20.3	20.3	20.3	20.3
W-5C	33	30	290,400	**414,857**	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	Grade	Plant	0.4	6.5	12.6	14.6	16.7	17.4	18.1	18.8	19.5	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5D	57	53	1,710,133	**2,443,048**	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	Grade	Plant	0.8	11.5	22.3	25.8	29.4	30.7	32.0	33.2	34.5	35.8	35.8	35.8
EXISTING EXTERIOR DIKES					0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
EXPANSION WETLAND CELLS																																			
W-1	39.3	35.9	579,936	828,480											0.4	0.4	0.4	0.4	11.7	Grade	Plant	0.8	6.7	12.5	14.5	16.4	17.2	18.0	18.7	19.5	20.3	20.3	20.3	20.3	20.3
W-2	39.3	35.9	608,933	869,904											0.4	0.4	0.4	0.4	0.4	11.7	Grade	Plant	0.8	6.7	12.5	14.5	16.4	17.2	18.0	18.7	19.5	20.3	20.3	20.3	20.3
W-3	39.3	35.9	666,926	952,752											0.4	0.4	0.4	0.4	0.4	0.4	11.7	Grade	Plant	0.8	6.7	12.5	14.5	16.4	17.2	18.0	18.7	19.5	20.3	20.3	20.3
W-4	39.3	35.9	724,920	1,035,599											0.4	0.4	0.4	0.4	0.4	0.4	0.4	11.7	Grade	Plant	0.8	6.7	12.5	14.5	16.4	17.2	18.0	18.7	19.5	20.3	20.3
W-5	39.3	35.9	637,929	911,328											0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	11.7	11.7	11.7	Grade	Plant	0.8	6.7	12.5	14.5	16.4	17.2	18.0	18.7
W-6	39.3	35.9	637,929	911,328											0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	11.7	11.7	11.7	Grade	Plant	0.8	6.7	12.5	14.5	16.4	17.2	18.0
W-7	39.3	35.9	1,565,826	2,236,895											0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	11.7	11.7	11.7	Grade	Plant	0.8
EXPANSION EXTERIOR DIKES															0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,441				70,495,303		8,184,231	1,100,000	828,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	2,917,960	1,013,165	542,789	26,843	26,843	0	0	0

PIERP PIES ICU	219.0	219.0	219.0	215.5	206.4	210.8	213.5	214.0	221.0	221.6	250.0	259.2	265.9	352.0	382.8	427.9	454.9	483.8	528.4	578.3	614.4	497.6	REF!	REF!	REF!	537.8	557.7	485.2	481.3	487.7	495.2
	REF!	REF!	REF!	REF!	REF!	REF!	REF!	REF!	REF!	REF!	REF!	-20.2	-20.2	50.6	50.9	49.3	49.7	50.1	77.2	75.7	74.3	31.6	26.8	27.2	74.9	78.6	78.6	-9.8	-15.2	-16.8	-16.4
PIES ICU	REF!	REF!	REF!	REF!	REF!	REF!	REF!	REF!	REF!	REF!	REF!	-14.7	-14.7	56.1	67.8	154.7	154.7	155.6	198.0	220.4	233.4	135.0	REF!	REF!	REF!	187.4	203.8	127.2	116.0	121.5	126.2

Red type represents dredged material placement quantity

Green type in green cell represents planting and ICU value.

Orange type in orange cell represents final placement and grading.

Blue type represents interim ICU prior to grading and planting.

Blue box denotes a year placement in occuring in expansion cell.

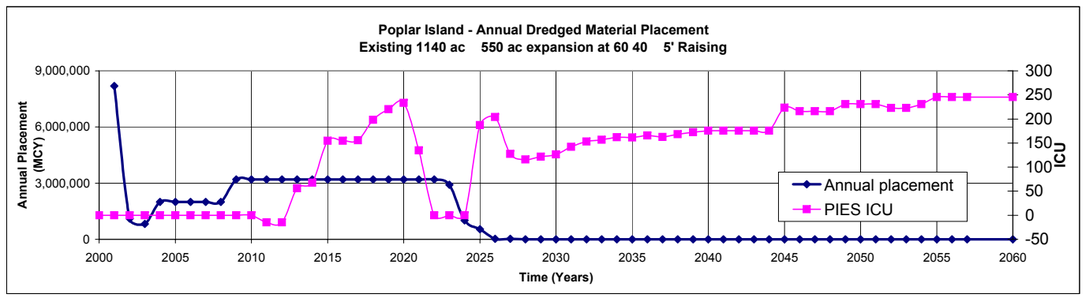

FIGURE H-43. (continued)

60% WETLAND AND 40% UPLAND PLUS 5-FT RAISING OF EXISTING UPLAND CELLS (using updated weighting factors)

Cell No.	Cell Acreage (Nominal)	Cell Acreage (Actual)	Cell Volume	Cell Capacity	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2060
RAISED EXISTING UPLAND CELLS																																
U-2 Raised	326	298	2,406,206	3,437,437																												
		99			8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8
		99			4.5	5.9	7.4	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8
		100			3.0	2.6	2.3	1.9	1.5	3.0	4.5	6.0	7.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	16.0	16.0	16.0	16.0
U-6 Raised	243	222	1,793,583	2,562,261																												
		111			5.0	6.7	8.3	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8
		111			3.3	2.9	2.5	2.1	1.7	3.3	5.0	6.7	8.3	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	17.8	17.8	17.8	17.8
EXPANSION UPLAND CELLS																																
Wet-8	40	36.6	974,292	1,391,846	18.3	19.1	19.9	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7
U-9	235	215	9,713,396	13,876,280																												
A		105			4.7	6.3	7.9	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8
B		110			2.5	2.1	1.7	3.2	4.8	6.4	7.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	17.6	17.6	17.6	17.6	17.6
EXISTING UPLAND CELLS																																
U-2	326	298	10,913,555	**15,590,792**																												
U-6	243	222	11,926,728	**17,038,183**																												
EXISTING WETLAND CELLS																																
W-1A	38	35	265,393	**379,133**	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6
W-1B	38	35	378,327	**540,467**	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
W-1C	44	40	367,840	**525,486**	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4
W-1D	49	45	486,420	**694,886**	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8
W-3A	35	32	366,549	**523,642**	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
W-3B	30	28	275,557	**393,653**	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9
W-3C	39	35	400,913	**572,733**	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1
W-3D	31	26	251,680	**359,543**	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0
W-4A B	34	31	150,040	**214,343**	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8
W-4C	38	34	7,000	**10,000**	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
W-4DX	25	23	0	**0**	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
W-5A	33	30	242,000	**345,714**	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5B	33	30	266,200	**380,286**	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5C	33	30	290,400	**414,857**	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
W-5D	57	53	1,710,133	**2,443,048**	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8
EXISTING EXTERIOR DIKES					0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
EXPANSION WETLAND CELLS																																
W-1	39.3	35.9	579,936	828,480	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3														
W-2	39.3	35.9	608,933	869,904	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3														
W-3	39.3	35.9	666,926	952,752	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3														
W-4	39.3	35.9	724,920	1,035,599	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	190.0	190.0	190.0	190.0	190.0	190.0	190.0	190.0	190.0	190.0	190.0	190.0	190.0	190.0
W-5	39.3	35.9	637,929	911,328	19.5	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3														
W-6	39.3	35.9	637,929	911,328	18.7	19.5	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3														
W-7	39.3	35.9	1,565,826	2,236,895	6.7	12.5	14.5	16.4	17.2	18.0	18.7	19.5	20.3	20.3	20.3	20.3	20.3	20.3														
EXPANSION EXTERIOR DIKES					0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,441				70,495,303	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PIERP PIES ICU					514.0	525.7	532.7	540.9	542.4	547.9	553.4	559.3	563.3	566.4	566.4	566.4	573.4	573.4	621.6	621.6	621.6	621.6	643.6	643.6	643.6	643.6	643.6	651.3	666.1	666.1	666.1	666.1
					-9.7	-8.4	-9.2	-10.0	-12.5	-11.0	-16.4	-13.3	-10.1	-6.9	-6.9	-6.9	-6.9	-6.9	-6.9	-14.7	-14.7	-14.7	-7.0	-7.0	-7.0	-14.8	-14.8	-14.8	0.0	0.0	0.0	0.0
PIES ICU					142.3	152.9	156.7	161.8	161.7	165.5	162.4	168.3	172.2	175.4	175.4	175.4	175.4	175.4	223.6	215.8	215.8	215.8	230.9	230.9	230.9	223.1	223.1	230.8	245.6	245.6	245.6	245.6

Red type represents dredged material placement quantity

Green type in green cell represents planting and ICU value.

Orange type in orange cell represents final placement and grading.

Blue type represents interim ICU prior to grading and planting.

Blue box denotes a year placement in occuring in expansion cell.