

Coastal Wetlands Planning, Protection And Restoration Act

BARATARIA BASIN LANDBRIDGE SHORELINE PROTECTION (XBA-63)

PHASE 1

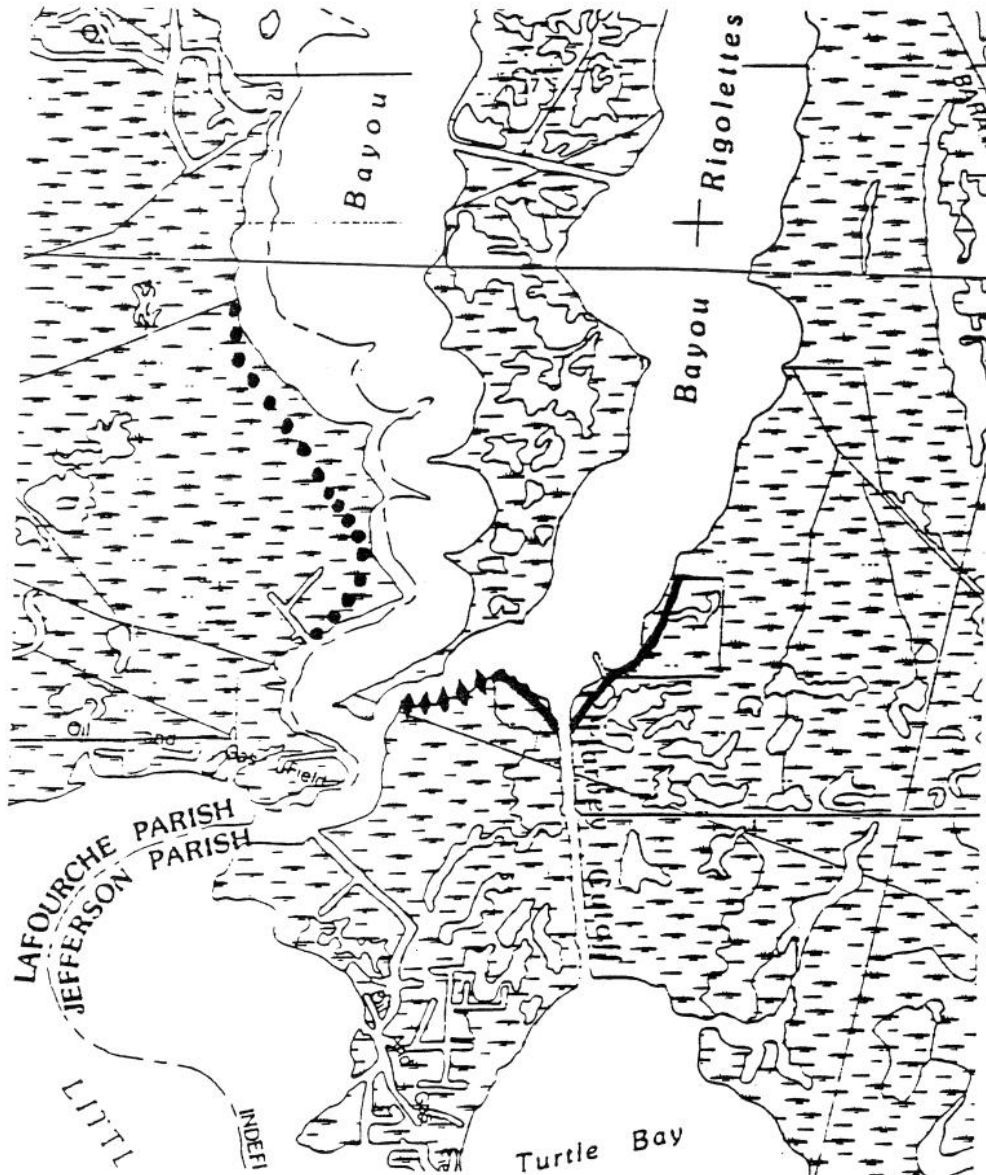
Candidate Project for the Seventh Priority List

PROJECT INFORMATION PACKAGE

and

WETLAND VALUE ASSESSMENT

(Prepared 12/19/97)



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Barataria Basin Landbridge Shoreline Protection (XBA-63) - Phase 1

Location

The Barataria Basin Landbridge Shoreline Protection (XBA-63) **Phase 1** project is located in Jefferson and Lafourche Parishes on the east bank of Bayou Rigolettes. The project would protect about one-fifth of the eastern shoreline of Bayou Rigolettes and about one-fifth of the western shoreline of Bayou Perot. Phase 1 represents about 38% of the total length of the initially proposed shoreline protection.

Objectives

The objective of this project is to reduce or eliminate shoreline erosion for that area referenced above. Secondary benefits would include maintenance, and increased extent, of submerged aquatic vegetation on the protected side of project features where such features form protected coves, and in certain parts of the project area, a reduction in future interior land loss rates.

Project Features

Recognizing the poor soil conditions in the project area, the variance in shoreline configuration, the conceptual project design attempts to utilize engineeringly sound but cost effective shoreline protection measures. The conceptual design of the project presently incorporates three or four techniques to address three common situations in the project area.

1. Rock riprap or some sort of reinforced matting to stabilize and maintain existing shoreline.
2. PVC sheetpile or other similar approach to hold vegetation in place where there is continuous, relatively uninterrupted, but marshy shoreline
3. Rock breakwater with a shell core capable of bridging across open water areas in places where there is broken or discontinuous marsh (islands, points, coves, etc.).

The total combined length of protection for **Phase 1** is estimated to be about **26,900 feet**.

Subject to final review of the Economic Workgroup, the fully-funded cost is presently \$10,222,300 and the Average Annual Cost is presently \$1,003,300.

Barataria Basin Landbridge Shoreline Protection (XBA-63)

PHASE 1

WVA TY0 Values¹

	AREA A Perot West	AREA B Peninsula South	AREA C Rigolettes East	AREA D L. Lk. Oil Fld N
Em. Marsh Acres ²	<u>7214,850</u>	457	<u>2871,068</u>	<u>231672</u>
Water Acres ²	<u>80496</u>	290	<u>350954</u>	<u>136387</u>
Total Acres ²	<u>8012,346</u>	747	<u>6372,022</u>	<u>3671,059</u>
Model	Fresh / Int.	Fresh / Int.	Brackish	Brackish
V1 (% Em. marsh) ²	<u>9079</u>	61	<u>4553</u>	63
V2 (% SAV)	35	10	15	25
V3 (Interspersion ²)	1 - <u>8030%</u> 2 - <u>2035%</u> 3 - <u>035%</u> 4 -	1 - 2 - 30% 3 - 70% 4 -	1 - <u>025%</u> 2 - <u>4025%</u> 3 - <u>6050%</u> 4 -	1 - 2 - <u>5020%</u> 3 - <u>5080%</u> 4 -
V4 (% Water <1.5')	70	20	60	80
V5 (Salinity ³)	3	3	4	4
V6 (Fish Access)	1.0	1.0	1.0	1.0

¹ Values are presented in underline / ~~overstrike~~ so that changes from the full project are easy to detect.

Area B is removed from project area by consensus of WVA Workgroup.

² Phase I project area was determine by WVA Workgroup on December 17, 1997. Total acreage was determined by FWS. TY0 Emergent Marsh : Open Water Ratio and Interspersion were determined by ocular estimate of FWS / NRCS based on 1996 aerial photography.

³ Areas A and B based on Little Lake gauge, Areas C and D based on Lafitte gauge, as reported in BTNEP Status and Trends.

Barataria Basin Landbridge Shoreline Protection (XBA-63)
PHASE 1

FUTURE WITHOUT PROJECT

WVA TY1 Values¹

	AREA A Perot West	AREA B Peninsula South	AREA C Rigolettes East	AREA D L. Lk. Oil Fld N
Em. Marsh Acres ¹	<u>692</u> 1,807	434	<u>277</u> 1,027	<u>220</u> 645
Water Acres	<u>109</u> 539	313	<u>360</u> 995	<u>147</u> 414
Total Acres	<u>801</u> 2,346	747	<u>637</u> 2,022	<u>367</u> 1,059
Model	Fresh / Int.	Fresh / Int.	Brackish	Brackish
V1 (% Em. marsh) ¹	<u>86</u> 77	58	<u>43</u> 51	<u>60</u> 1
V2 (% SAV) ²	32	9	14	24
V3 (Interspersion) ³	1 - <u>80</u> 30 % 2 - <u>20</u> 35 % 3 - <u>03</u> 5 % 4 -	1 - 2 - <u>30</u> % 3 - <u>70</u> % 4 -	1 - <u>02</u> 5 % 2 - <u>40</u> 25 % 3 - <u>60</u> 50 % 4 -	1 - 2 - <u>50</u> 20 % 3 - <u>50</u> 80 % 4 -
V4 (% Water <1.5') ⁴	68	20	60	80
V6 (Salinity) ⁵	3	3	4	4
V6 (Fish Access) ⁵	1.0	1.0	1.0	1.0

WVA TY20 Values¹

	AREA A Perot West	AREA B Peninsula South	AREA C Rigolettes East	AREA D L. Lk. Oil Fld N
Em. Marsh Acres ²	<u>088</u> 8	94	<u>109</u> 356	<u>22</u> 148
Water Acres	<u>801</u> 1,458	653	<u>528</u> 1,666	<u>345</u> 911
Total Acres	<u>801</u> 2,346	747	<u>637</u> 2,022	<u>367</u> 1,059
Model	Fresh / Int.	Fresh / Int.	Brackish	Brackish
V1 (% Em. marsh) ²	<u>03</u> 8	13	<u>17</u> 18	<u>6</u> 14
V2 (% SAV) ³	<u>01</u> 0	0	5	5
V3 (Interspersion) ⁴	1 - <u>15</u> % 2 - <u>20</u> % 3 - <u>20</u> % 4 - <u>45</u> % 5 - <u>100</u> %	1 - 2 - 3 - 4 - <u>100</u> %	1 - 2 - 3 - <u>03</u> 0 % 4 - <u>100</u> 70 %	1 - 2 - 3 - <u>03</u> 0 % 4 - <u>100</u> 70 %
V4 (% Water <1.5') ⁵	<u>02</u> 0	5	25	<u>10</u> 30
V6 (Salinity) ⁶	3	3	4	4
V6 (Fish Access) ⁶	1.0	1.0	1.0	1.0

¹ Values are presented in underline / ~~overstrike~~ so that changes from the full project are easy to detect

² See pages 6-8 for explanation of values.

³ See page 9 for explanation of values.

⁴ See page 10 for explanation of values.

⁵ See page 11 for explanation of values.

⁶ See page 12 for explanation of values.

Barataria Basin Landbridge Shoreline Protection (XBA-63)

PHASE 1

FUTURE WITH PROJECT

WVA TY1 Values¹

	AREA A Perot West	AREA B Peninsula South	AREA C Rigolettes East	AREA D L. Lk. Oil Fld N
Em. Marsh Acres ²	<u>7211,846</u>	434	<u>2821,051</u>	<u>229665</u>
Water Acres	<u>80500</u>	313	<u>355971</u>	<u>138394</u>
Total Acres	8012,346	747	<u>6372,022</u>	<u>3671,059</u>
Model	Fresh / Int.	Fresh / Int.	Brackish	Brackish
V1 (% Em. marsh) ²	<u>9079</u>	58	<u>4452</u>	<u>623</u>
V2 (% SAV) ³	<u>3538</u>	9	25	25
V3 (Interspersion) ⁴	1 - <u>8030%</u> 2 - <u>2035%</u> 3 - <u>035%</u> 4 -	1 - 2 - 30% 3 - 70% 4 -	1 - <u>025%</u> 2 - <u>4025%</u> 3 - <u>6050%</u> 4 -	1 - 2 - <u>5020%</u> 3 - <u>5080%</u> 4 -
V4 (% Water <1.5') ⁵	70	20	60	80
V6 (Salinity) ⁶	3	3	4	4
V6 (Fish Access) ⁶	1.0	1.0	1.0	1.0

WVA TY20 Values¹

	AREA A Perot West	AREA B Peninsula South	AREA C Rigolettes East	AREA D L. Lk. Oil Fld N
Em. Marsh Acres ²	<u>7211,776</u>	104	<u>196728</u>	<u>181527</u>
Water Acres	<u>80570</u>	643	<u>4411,294</u>	<u>186532</u>
Total Acres	8012,346	747	<u>6372,022</u>	<u>3671,059</u>
Model	Fresh / Int.	Fresh / Int.	Brackish	Brackish
V1 (% Em. marsh) ²	<u>9076</u>	14	<u>3136</u>	<u>4950</u>
V2 (% SAV) ³	<u>3540</u>	0	50	25
V3 (Interspersion) ⁴	1 - <u>8030%</u> 2 - <u>2035%</u> 3 - <u>035%</u> 4 -	1 - 2 - 3 - 4 - 100%	1 - <u>015%</u> 2 - 30% 3 - <u>7045%</u> 4 - 10%	1 - 2 - <u>5010%</u> 3 - <u>5090%</u> 4
V4 (% Water <1.5') ⁵	70	5	60	70
V6 (Salinity) ⁶	3	3	4	4
V6 (Fish Access) ⁶	1.0	1.0	1.0	1.0

¹ See pages 6-8 for explanation of values.

² See page 9 for explanation of values.

³ See page 10 for explanation of values.

⁴ See page 11 for explanation of values.

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Barataria Basin Landbridge Shoreline Protection (XBA-63)

EXPLANATION OF WVA PROJECTIONS

V1 (% Emergent Marsh)

AREA A Without Project

Shoreline Erosion

1. S. Portion of Perot w/o shell: 30 ft/yr X 3,500 ft of shore X 90% of area in emergent marsh = 2.2 ac/yr or 43 ac. over 20 yrs
2. Cen. Portion of Perot: For TY0 to TY1, 114 ft X 11,500 ft X 90% of area in emergent marsh = 27 ac.
For TY0 to TY20, 114 ft/yr increasing to 171 ft/yr for total width of 2,878 ft X 11,500 ft X 90% of area in emergent marsh = 684 ac over 20 years

Interior Land Loss

WVA Workgroup consensus on December 17, 1997, was to assume no interior land loss based on the Britsch map.

Shoreline Erosion and Interior Land Loss Combined

TY1: = 692 acres of marsh remaining or 86%

TY20 = 0 acres of marsh remaining or 0%

AREA A With Project

Shoreline Erosion will be eliminated.

Interior Land Loss

WVA Workgroup consensus on December 17, 1997, was to assume no interior land loss based on the Britsch map.

AREA B Without Project / AREA B With Project

Area B was removed from project area by consensus of WVA Workgroup.

AREA C Without Project

Shoreline Erosion

For TY0 to TY1, 36 ft/yr X 6,200 ft of shore X 45 percent 90% of area in emergent marsh = 2.3 ac

For TY0 to TY20, 36 ft/yr increasing to 49 ft/yr for total width of 857 ft X 6,200 ft X 45 percent 90% of area in emergent marsh = 54.8 ac over 20 years

Interior Land Loss

Without shoreline protection, the existing connections of the interior marsh to the large fetch and strong currents of Bayou Rigolettes and Harvey Cut Off will be more numerous and larger; thereby significantly increasing the interior loss rate in the future. Assume a 25% increase in interior land loss for the without project scenario: (COE rate for 83-90 X 1.25 or .02121 X 1.25 = **.02651**. This same assumption was utilized for full project WVA.

TY0 to TY1: (287 ac - 2 ac loss to shoreline / bank erosion) X .02651 = 7.6 ac

TY0 to TY20: (287 ac - 55 ac loss to shoreline erosion) X .02651 X 20 yrs = 123 ac

Shoreline Erosion and Interior Land Loss Combined

TY1: = 277 acres of marsh remaining or 43%

TY20 = 109 acres of marsh remaining or 13%

AREA C With Project

Shoreline Erosion will be eliminated.

Interior Land Loss

Presently, almost all of this area's interior is directly connected to the large open water area of Bayou Rigolettes which allows substantial propagation of waves well into the marsh and the export of highly organic soil material. The shoreline protection feature will substantially reduce the propagation of waves and reduce the transport of marsh soil, thereby substantially reducing interior land loss in the future. Assume a 25% reduction in interior land loss: (COE rate for 83-90) X .75 or .02121 X .75 = **.01591**. This same assumption was utilized for full project WVA.

287 ac X .01591 = 4.6 ac or 91 ac over 20 yrs

TY1: = 282 acres of marsh remaining or 44%

TY20 = 196 acres of marsh remaining or 68%

AREA D Without Project

Shoreline Erosion

For TY0 to TY1, 70 ft X 6,700 ft X 63% of area in emergent marsh = 6.8 ac

For TY0 to TY20, 70 ft/yr increasing to 131 ft/yr for total width of 2,040 ft X 6,700 ft X 63% of area in emergent marsh = 198 ac over 20 years

Interior Land Loss

Without shoreline protection, there would be multiple and enlarging connections of the interior marsh to the large fetch and strong currents of Bayou Rigolettes, Harvey Cut Off, Bayou Perot and the pass; thereby greatly increasing the interior loss rate in the future. Assume a 50% increase in interior land loss for the without project scenario: (COE rate for 83-90 X 1.5 or .01076 X 1.5 = **.01614**. This same assumption was utilized for full project WVA.

TY0 to TY1: (231 ac - 7 ac loss to shoreline erosion) X .01614 = 3.6 ac

TY0 to TY20: (231 ac - 198 ac loss to shoreline erosion) X .01614 X 20 yrs = 10.7

Shoreline Erosion and Interior Land Loss Combined

TY1: = 220 acres of marsh remaining or 60%

TY20 = 22 acres of marsh remaining or 6%

AREA D With Project

Shoreline Erosion will be eliminated.

Interior Land Loss

COE rate for 83-90 is 1.076%/yr.

231 ac X .01076 = 2.5 ac / yr or 50 acres over 20 yrs

TY1: = 229 acres of marsh remaining or 62%

TY20 = 181 acres of marsh remaining or 49%

V2 (% Submerged Aquatic Vegetation)

AREA A Without Project (Values differ from full project WVA)

TY1 - Open water acreage would increase due to shoreline erosion (29 ac). This additional water is not expected to support SAVs. Therefore SAV % is reduced slightly.

TY20 - All of Area A would be open water -- part of Bayou Perot. This area is not expected to support SAVs. SAV % = 0.

AREA A With Project (Values differ from full project WVA)

TY1 and TY20 - No change in SAV % is expected.

AREA B Without Project / AREA B With Project

Area B was removed from project area by consensus of WVA Workgroup.

AREA C Without Project (Values from full project WVA were used)

TY1 - Open water acreage would increase due to shoreline erosion (2 ac) and interior loss (8 ac). This additional water is not expected to support SAVs. Therefore SAV % is reduced slightly.

TY20 - Open water acreage would increase significantly due to shoreline erosion (55 ac) and interior loss (123 ac). This additional water is not expected to support SAVs. Additionally, as shoreline breaches occur, ponds presently with SAVs will be exposed to wave action and turbidity. SAV % is significantly reduced

AREA C With Project (Values from full project WVA were used)

TY1 and TY20 - There will be substantial acreage of open water which will become protected from wave action by project features. A considerable portion of this acreage is expected to support SAVs. Therefore SAV % is increased by from 15% to 25% by TY1 and to 50% by TY20.

AREA D Without Project (Values from full project WVA were used)

TY1 - Open water acreage would increase due to shoreline erosion (7 ac) and interior loss (4 ac). This additional water is not expected to support SAVs. Therefore SAV % is reduced slightly.

TY20 - Open water acreage would increase significantly due to shoreline erosion (198 ac) and interior loss (10 ac). This additional water is not expected to support SAVs. Additionally, as shoreline breaches occur, ponds presently with SAVs will be exposed to wave action and turbidity. SAV % is significantly reduced.

AREA D With Project (Values from full project WVA were used)

TY1 and TY20 - With project features, interior ponds are expected to remain protected and would support present level of aquatic vegetation. Therefore SAV % is equal to TY0.

V3 (Interspersion)

For all areas, Interspersion percentages are not expected to change significantly in the first year, therefore TY1 percentages are equal to TY0 percentages for future without and future with project.

All of the interspersion values differ from the full project WVA due to revision of the project subareas.

AREA A Without Project

TY20 - All of Area A would be open water -- Interspersion = 100% Class 5

AREA A With Project

TY20 - No land loss, so Interspersion remains equal to TY0

AREA B Without Project / AREA B With Project

Area B was removed from project area by consensus of WVA Workgroup.

AREA C Without Project

TY20 - By year 20, only 17% of the project area would be emergent marsh, and the ponds are already quite large; only Class 4 is expected to be represented.

AREA C With Project

TY20 - A slight shift toward more broken marsh is expected, but no very large open water areas are expected to form.

AREA D Without Project

TY20 - Only 5% of the area would remain in marsh, therefore 100% Class 4.

AREA D With Project

TY20 - Only 11 acres of interior loss is expected, so a shift in Interspersion classes is not anticipated.

V4- Water Depth

AREA A Without Project

TY1 - Open created by shoreline erosion (27 ac) would be deeper than 1.5 feet. Therefore, the percent of water less than 1.5 feet is expected to decrease slightly.

TY20 - All of Area A would be open water -- part of Bayou Perot. This entire area is expected to be deeper than 1.5 feet.

AREA A With Project

TY 1 - With shoreline protection, water depths are not expected to change.

TY20 - With shoreline protection, water depths are not expected to change.

AREA B Without Project / AREA B With Project

Area B was removed from project area by consensus of WVA Workgroup.

AREA C Without Project

TY 1 - Percent of water less than 1.5 feet is not expected to change significantly in the first year.

TY20 - Open water created by shoreline erosion (55 ac) would be deeper than 1.5 feet and ponds exposed to wave action via shoreline breaches would deepen over time. Therefore, the percent of water less than 1.5 feet is expected to decrease significantly.

AREA C With Project

TY 1 - Percent of water less than 1.5 feet is not expected to change significantly in the first year.

TY20 - With shoreline protection, water depths are not expected to change.

AREA D Without Project

TY 1 - Percent of water less than 1.5 feet is not expected to change significantly in the first year.

TY20 - Open water created by shoreline erosion (198 ac) would be deeper than 1.5 feet and with only 6 percent of the area in emergent marsh almost all of the ponds will be exposed to wave action and excessive water movement. Therefore, the percent of water less than 1.5 feet is expected to decrease significantly.

AREA D With Project

TY 1 - Percent of water less than 1.5 feet is not expected to change significantly in the first year.

TY20 - Ongoing interior land loss processes will cause a modest increase in pond water depths, decreasing the percent of open water with depths of less than 1.5 feet.

V5 Salinity

The project is not anticipated to have any significant effect on salinity

V6 Aquatic Organism Access

The shoreline protection features will include "fish dips" and other mechanisms to allow continued aquatic organism access.

WETLAND VALUE ASSESSMENT COMMUNITY MODEL

Fresh/Intermediate Marsh

Project: XBA-63 Barataria Basin Landbridge Shoreline Protection

Project Area:

Phase 1 - Area A

Fresh.....

Condition: Future Without Project

Intermediate.. 801

Variable		TY 0		TY 1		TY 20	
		Value	SI	Value	SI	Value	SI
V1	% Emergent	90	0.91	86	0.87	0	0.10
V2	% Aquatic	35	0.42	32	0.39	0	0.10
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	% 80 20	0.92	% 80 20	0.92	% 100	0.10
V4	%OW <= 1.5ft	70	0.89	68	0.87	0	0.10
V5	Salinity (ppt) fresh intermediate	 3	1.00	 3	1.00	 3	1.00
V6	Access Value fresh intermediat	 1.00	1.00	 1.00	1.00	 1.00	1.00
Emergent Marsh HSI =		0.93		EM HSI =		0.24	
Open Water HSI =		0.61		OW HSI =		0.23	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL

Fresh/Intermediate Marsh

Project: XBA-63 Barataria Basin Landbridge Shoreline Protection

Project Area:

Phase 1 - Area A

Fresh.....

Condition: Future With Project

Intermediate....

Variable		TY 0		TY 1		TY 20	
		Value	SI	Value	SI	Value	SI
V1	% Emergent	90	0.91	90	0.91	90	0.91
V2	% Aquatic	35	0.42	35	0.42	35	0.42
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	% 80 20	0.92	% 80 20	0.92	% 80 20	0.92
V4	%OW <= 1.5ft	70	0.89	70	0.89	70	0.89
V5	Salinity (ppt) fresh intermediate	 3	1.00	 3	1.00	 3	1.00
V6	Access Value fresh intermediat	 1.00	1.00	 1.00	1.00	 1.00	1.00
Emergent Marsh HSI =		0.93		EM HSI =		0.93	
Open Water HSI =		0.61		OW HSI =		0.61	

AAHU CALCULATION - EMERGENT MARSH

Project: XBA-63 Barataria Basin Landbridge Shoreline Prot
Phase 1 - Area A

Future Without Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	721	0.93	672.21	
1	692	0.91	628.71	650.34
20	0	0.24	0.00	4499.83
			AAHUs =	257.51

Future With Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	721	0.93	672.21	
1	721	0.93	672.21	672.21
20	721	0.93	672.21	12771.91
			AAHUs	672.21

NET CHANGE IN AAHUs DUE TO PROJECT			
A. Future With Project Emergent Marsh AAHUs	=		672.21
B. Future Without Project Emergent Marsh AAHUs	=		257.51
Net Change (FWP - FWOP)	=		414.70

AAHU CALCULATION - OPEN WATER

Project: XBA-63 Barataria Basin Landbridge Shoreline Prot
Phase 1 - Area A

Future Without Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	80	0.61	48.81	
1	109	0.59	64.16	56.59
20	801	0.23	181.99	3130.52
			AAHUs =	159.36

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	80	0.61	48.81	
1	80	0.61	48.81	48.81
20	80	0.61	48.81	927.38
			AAHUs	48.81

NET CHANGE IN AAHUs DUE TO PROJECT		
A. Future With Project Open Water AAHUs	=	48.81
B. Future Without Project Open Water AAHUs	=	159.36
Net Change (FWP - FWOP)	=	-110.55

TOTAL BENEFITS IN AAHUs DUE TO PROJECT		
A. Emergent Marsh Habitat Net AAHUs	=	414.70
B. Open Water Habitat Net AAHUs	=	-110.55
Net Benefits=(2.1xEMAHHUs+OWAAHUs)/3.1		245.26

WETLAND VALUE ASSESSMENT COMMUNITY MODEL

Brackish Marsh

Project: XBA-63 Barataria Basin Landbridge Shoreline Protection Project Area: 637
Phase 1 - Area C
Condition: Future Without Project

Variable		TY 0		TY 1		TY 20	
		Value	SI	Value	SI	Value	SI
V1	% Emergent	45	0.51	43	0.49	17	0.25
V2	% Aquatic	15	0.24	14	0.23	5	0.15
V3	Interspersion	%	0.48	%	0.48	%	0.20
	Class 1						
	Class 2	40		40			
	Class 3	60		60			
	Class 4					100	
	Class 5						
V4	%OW <= 1.5ft	60	0.87	60	0.87	25	0.42
V5	Salinity (ppt)	4	1.00	4	1.00	4	1.00
V6	Access Value	1.00	1.00	1.00	1.00	1.00	1.00
Emergent Marsh HSI		=	0.62	EM HSI =	0.61	EM HSI =	0.40
Open Water HSI		=	0.50	OW HSI =	0.49	OW HSI =	0.36

WETLAND VALUE ASSESSMENT COMMUNITY MODEL

Brackish Marsh

Project: XBA-63 Barataria Basin Landbridge Shoreline Protection Project Area: 637
Phase 1 - Area C
Condition: Future With Project

Variable		TY 0		TY 1		TY 20	
		Value	SI	Value	SI	Value	SI
V1	% Emergent	45	0.51	44	0.50	31	0.38
V2	% Aquatic	15	0.24	25	0.33	50	0.55
V3	Interspersion	%	0.48	%	0.48	%	0.46
	Class 1						
	Class 2	40		40		30	
	Class 3	60		60		70	
	Class 4						
	Class 5						
V4	%OW <= 1.5ft	60	0.87	60	0.87	60	0.87
V5	Salinity (ppt)	4	1.00	4	1.00	4	1.00
V6	Access Value	1.00	1.00	1.00	1.00	1.00	1.00
Emergent Marsh HSI		=	0.62	EM HSI =	0.62	EM HSI =	0.53
Open Water HSI		=	0.50	OW HSI =	0.57	OW HSI =	0.72

AAHU CALCULATION - EMERGENT MARSH

Project: XBA-63 Barataria Basin Landbridge Shoreline Protection
Phase 1 - Area C

Future Without Project			Total HUs	Cummulative HUs
TY	Marsh Acres	x HSI		
0	287	0.62	179.17	
1	277	0.61	169.42	174.28
20	109	0.40	43.99	1916.70
			AAHUs =	104.55

Future With Project			Total HUs	Cummulative HUs
TY	Marsh Acres	x HSI		
0	287	0.62	179.17	
1	282	0.62	174.27	176.72
20	196	0.53	104.07	2620.54
			AAHUs	139.86

NET CHANGE IN AAHUs DUE TO PROJECT			
A. Future With Project Emergent Marsh AAHUs	=		139.86
B. Future Without Project Emergent Marsh AAHUs	=		104.55
Net Change (FWP - FWOP)	=		35.31

AAHU CALCULATION - OPEN WATER

Project: XBA-63 Barataria Basin Landbridge Shoreline Protection
Phase 1 - Area D

Future Without Project			Total HUs	Cummulative HUs
TY	Water Acres	x HSI		
0	136	0.58	79.08	
1	147	0.57	84.50	81.80
20	345	0.35	120.74	2090.80
			AAHUs =	108.63

Future With Project			Total HUs	Cummulative HUs
TY	Water Acres	x HSI		
0	136	0.58	79.08	
1	138	0.58	80.24	79.66
20	186	0.58	108.15	1789.70
			AAHUs	93.47

NET CHANGE IN AAHUs DUE TO PROJECT				
A. Future With Project Open Water AAHUs	=		93.47	
B. Future Without Project Open Water AAHUs	=		108.63	
Net Change (FWP - FWOP)	=		-15.16	

TOTAL BENEFITS IN AAHUs DUE TO PROJECT				
A. Emergent Marsh Habitat Net AAHUs	=		69.25	
B. Open Water Habitat Net AAHUs	=		-15.16	
Net Benefits= (2.6xEMAAHUs+OWAAHUs)/3.6			45.80	

Coastal Wetlands Planning, Protection And Restoration Act

BARATARIA BASIN LANDBRIDGE SHORELINE PROTECTION (XBA-63)

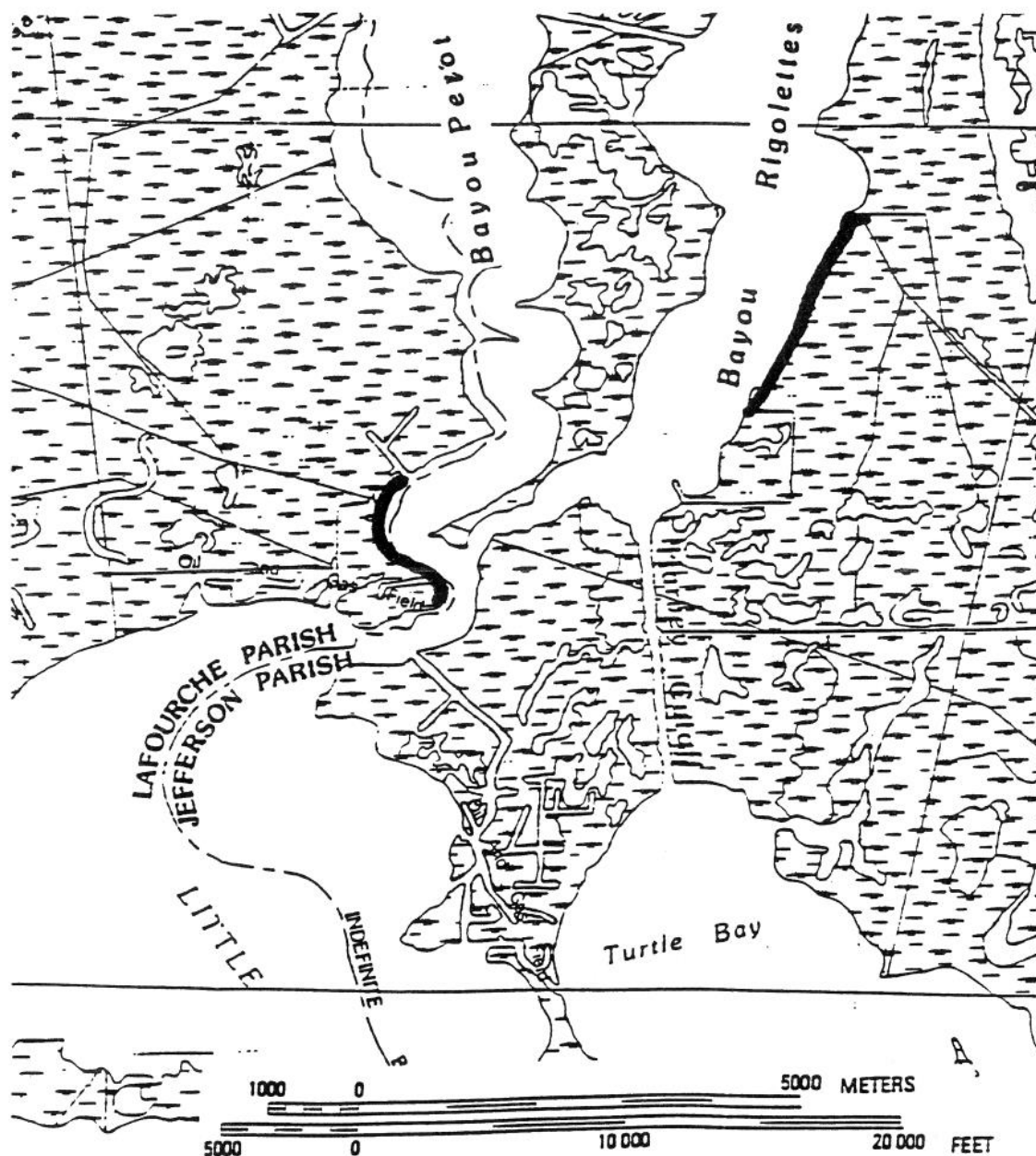
PHASE II

Candidate Project for the Eighth Priority List

PROJECT INFORMATION PACKAGE

August 31, 1998

(Revised Pursuant to August 27, 1998 WVA Meeting)



NRCS Contacts:

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Barataria Basin Landbridge Shoreline Protection (XBA-63) - Phase II

Location

The Barataria Basin Landbridge Shoreline Protection (XBA-63) **Phase II** project is located in Jefferson and Lafourche Parishes on the east bank of Bayou Rigolettes and the west bank of Bayou Perot. The project would protect about 8,000 feet of the eastern shoreline of Bayou Rigolettes and about 8,000 feet of the western shoreline of Bayou Perot. Phase II represents about 22% of the total length of the initially proposed shoreline protection.

Objectives

The objective of this project is to eliminate shoreline erosion for that area referenced above. Secondary benefits would include maintenance, and increased extent, of submerged aquatic vegetation on the protected side of project features where such features form protected coves, and in certain parts of the project area, a reduction in future interior land loss rates.

Project Features

Recognizing the poor soil conditions in the project area, the variance in shoreline configuration, the conceptual project design attempts to utilize engineeringly sound but cost effective shoreline protection measures. The conceptual design of the project presently incorporates three or four techniques to address three common situations in the project area.

1. Rock riprap or some sort of reinforced matting to stabilize and maintain existing shoreline.
2. PVC sheetpile or other similar approach to hold vegetation in place where there is continuous, relatively uninterrupted, but marshy shoreline
3. Rock breakwater with a shell core capable of bridging across open water areas in places where there is broken or discontinuous marsh (islands, points, coves, etc.).

The total length of shoreline face to be protected with **Phase II** is estimated to be about **16,000 feet**.

**Barataria Basin Landbridge Shoreline Protection (XBA-63)
Phase II**

1993 Land / Water (DNR-USGS)

	AREA 1 Perot West	AREA 2 Rigolettes East
Land	310 ac	630 ac
Water	66 ac	187 ac
Total	376 ac	817 ac

Interior Land Loss Rates (COE)

Period	AREA 1 Perot West	AREA 2 Rigolettes East
83-90	.10 %/yr	2.88 %/yr

1988/90 DNR-USGS Habitat Data -- Summarized

Habitat	AREA 1 Perot West	AREA 2 Rigolettes East
Water	68	221
Int. Marsh	171	
Br. Marsh	111	592
Up. S/S	24	4
Other	3	
Total	377	817

Barataria Basin Landbridge Shoreline Protection (XBA-63)
PHASE II

WVA TY0 Values

	AREA 1 Perot West Intermediate	AREA 1 Perot West Brackish	AREA 2 Rigolettes East Brackish
Em. Marsh Acres ¹	171	111	592
Water Acres ¹	14	54	221
Total Acres ¹	185	165	813
V1 (% Em. marsh)	92	67	73
V2 (% SAV)	50	30	30
V3 (Interspersion)	1 -100% 2 - 3 - 4 -	1 - 2 - 100% 3 - 4 -	1 - 30% 2 - 35% 3 - 35% 4 -
V4 (% Water <1.5')	80	30	60
V5 (Salinity)	3	4	4
V6 (Fish Access)	1.0	1.0	1.0

¹ Phase II project area was determined by Environmental Workgroup on June 2, 1998. "Scrub-shrub" and "Other" habitats are excluded. Area 1 was partitioned into Intermediate and Brackish for benefits calculation; ocular estimate that 80% of open water occurred in brackish zone was used to determine water acreage, total acreage, and V1 for intermediate and brackish marsh.

Barataria Basin Landbridge Shoreline Protection (XBA-63)
PHASE II

FUTURE WITHOUT PROJECT

WVA TY1 Values

	AREA 1 Perot West Intermediate	AREA 1 Perot West Brackish	AREA 2 Rigolettes East Brackish
Em. Marsh Acres	170	108	572
Water Acres	15	57	241
Total Acres	185	165	813
V1 (% Em. marsh)	92	65	70
V2 (% SAV)	47	28	27
V3 (Interspersion)	1 -100% 2 - 3 - 4 -	1 - 2 - 100% 3 - 4 -	1 - 30% 2 - 35% 3 - 35% 4 -
V4 (% Water <1.5')	73	28	60
V5 (Salinity)	3	4	4
V6 (Fish Access)	1.0	1.0	1.0

FUTURE WITHOUT PROJECT

WVA TY20 Values

	AREA 1 Perot West Intermediate	AREA 1 Perot West Brackish	AREA 2 Rigolettes East Brackish
Em. Marsh Acres	146	56	190
Water Acres	39	109	623
Total Acres	185	165	813
V1 (% Em. marsh)	79	34	23
V2 (% SAV)	18	15	5
V3 (Interspersion)	1 -85% 2 - 3 - 4 -15%	1 - 2 - 50% 3 - 4 - 50%	1 - 2 - 3 - 20% 4 - 80%
V4 (% Water <1.5')	28	15	20
V5 (Salinity)	3	4	4
V6 (Fish Access)	1.0	1.0	1.0

Barataria Basin Landbridge Shoreline Protection (XBA-63)
PHASE II

FUTURE WITH PROJECT

WVA TY1 Values

	AREA 1 Perot West Intermediate	AREA 1 Perot West Brackish	AREA 2 Rigolettes East Brackish
Em. Marsh Acres	171	111	589
Water Acres	14	54	224
Total Acres	185	165	813
V1 (% Em. marsh)	92	67	72
V2 (% SAV)	50	30	60
V3 (Interspersion)	1 -100% 2 - 3 - 4 -	1 - 2 - 100% 3 - 4 -	1 - 30% 2 - 35% 3 - 35% 4 -
V4 (% Water <1.5')	80	40	60
V5 (Salinity)	3	4	4
V6 (Fish Access)	1.0	1.0	1.0

FUTURE WITH PROJECT

WVA TY20 Values

	AREA 1 Perot West Intermediate	AREA 1 Perot West Brackish	AREA 2 Rigolettes East Brackish
Em. Marsh Acres	171	111	527
Water Acres	14	54	286
Total Acres	185	165	813
V1 (% Em. marsh)	92	67	65
V2 (% SAV)	50	30	50
V3 (Interspersion)	1 -100% 2 - 3 - 4 -	1 - 2 - 100% 3 - 4 -	1 - 30% 2 - 30% 3 - 40% 4 -
V4 (% Water <1.5')	80	40	60
V5 (Salinity)	3	4	4
V6 (Fish Access)	1.0	1.0	1.0

Barataria Basin Landbridge Shoreline Protection (XBA-63)

EXPLANATION OF WVA PROJECTIONS

V1 (% Emergent Marsh)

AREA 1 (Intermediate Zone) Without Project

As with the Phase I WVA, assume no interior land loss based on the Britsch map.

Shoreline Erosion

30 ft/yr X 2,000 ft of shore X 92% of area in emergent marsh = 1.3 ac/yr or 25 ac. over 20 yrs

TY1: = 170 acres of marsh remaining (92%)

TY20 = 146 acres of marsh remaining (79%)

AREA 1 (Intermediate Zone) With Project

Shoreline Erosion will be eliminated.

TY1: = 171 acres of marsh remaining (92%)

TY20 = 171 acres of marsh remaining (92%)

AREA 1 (Brackish Zone) Without Project

As with the Phase I WVA, assume no interior land loss based on the Britsch map.

Shoreline Erosion

30 ft/yr X 6,000 ft of shore X 67% of area in emergent marsh = 2.8 ac/yr or 55 ac. over 20 yrs

TY1: = 108 acres of marsh remaining (65%)

TY20 = 56 acres of marsh remaining (34%)

AREA 1 (Brackish Zone) With Project

Shoreline Erosion will be eliminated.

TY1: = 111 acres of marsh remaining (67%)

TY20 = 111 acres of marsh remaining (67%)

V1 (% Emergent Marsh)

AREA 2 Without Project

Shoreline Erosion and Interior Land Loss Combined.

Because of the very broken nature of the shoreline and the difficulty in distinguishing shoreline erosion from the coalescence of interior ponds, measurements (from aerial photography) of shoreline erosion have great variability and have ranged from 36 ft/yr to 238 ft/yr. Furthermore, a rough estimate of shoreline movement (which would have included shoreline and interior loss) based on the 1978-1990 land loss map yielded a rate of 110 ft/yr. Given these variable estimates and the likelihood that shoreline erosion would increase over time, the Environmental Work Group agreed to use 150 ft/yr to account for both shoreline erosion and interior loss.

$150 \text{ ft/yr} \times 8,000 \text{ ft of shore} \times 73\% \text{ of area in emergent marsh} = 20.1 \text{ ac/yr or } 402 \text{ ac. over } 20 \text{ yrs}$

TY1: = 572 acres of marsh remaining (70%)

TY20 = 190 acres of marsh remaining (23%)

AREA 2 With Project

Shoreline Erosion. Shoreline Erosion will be eliminated.

Interior Land Loss.

The COE land loss rate for the 83-90 time period is 2.88%. The Environmental Workgroup concluded that about 80% of that loss was actually shoreline loss, with 20% of the loss being interior loss. The revised rate for interior loss is therefore $2.88\%/yr \times .2 = 0.576\%/yr$. The project is not expected to reduce this interior loss. See next sheet.

V2 (% Submerged Aquatic Vegetation)

AREA 1 (Intermediate Zone) Without Project

TY1 - Shoreline erosion would convert 1 ac. of marsh to exposed open water. This additional exposed open water is not expected to support SAVs. Therefore SAV % is reduced slightly from 50% to 47%.

TY20 - Shoreline erosion would convert 25 ac of marsh to exposed open water. This additional exposed open water is not expected to support SAVs. Therefore SAV % is reduced from 50% in TY0 to 18% in TY20.

AREA 1 (Intermediate Zone) With Project

TY1 and TY20 - No change in SAV % is expected.

AREA 1 (Brackish Zone) Without Project

TY1 - Shoreline erosion would convert 3 ac. of marsh to exposed open water. This additional exposed open water is not expected to support SAVs. Therefore SAV % is reduced slightly from 30% to 28%.

TY20 - Shoreline erosion would convert 55 ac of marsh to exposed open water. This additional exposed open water is not expected to support SAVs. Therefore SAV % is reduced from 30% in TY0 to 15% in TY20.

AREA 1 (Brackish Zone) With Project

TY1 and TY20 - No change in SAV % is expected.

AREA 2 Without Project

TY1 - About 20 ac of marsh would convert to open water. This additional open water is not expected to support SAVs. Therefore SAV % is reduced slightly from 30% to 27%.

TY20 - About 402 ac of marsh would convert to open water. This additional open water is not expected to support SAVs. Additionally, as more shoreline breaches occur, ponds will be exposed to wave action and turbidity, perhaps reducing acreage of SAV by 50%. SAV % is reduced from 30% in TY0 to 5% in TY20.

AREA 2 With Project (Values from full project WVA were used)

TY1 and TY20 - There will be substantial acreage of open water which will become protected from wave action by project features. Once protected, a considerable portion of this acreage could be expected to support SAVs. Therefore SAV % is increased by from 30% to 60% by TY1 and then decreases over time to 50% by TY20.

V4- Water Depth

AREA 1 (Intermediate Zone) Without Project

TY1 - Open water created by shoreline erosion (1 ac) would be deeper than 1.5 feet. Therefore, the percent of water less than 1.5 feet is expected to decrease slightly from 80% to 73%.

TY20 - Open water created by shoreline erosion (25 ac) would be deeper than 1.5 feet. Therefore, the percent of water less than 1.5 feet is expected to decrease significantly from 80% to 28%.

AREA 1 (Intermediate Zone) With Project

TY 1 - With shoreline protection, water depths are not expected to change.

TY20 - With shoreline protection, water depths are not expected to change.

AREA 1 (Brackish Zone) Without Project

TY1 - Open water created by shoreline erosion (3 ac) would be deeper than 1.5 feet. Therefore, the percent of water less than 1.5 feet is expected to decrease slightly from 30% to 28%.

TY20 - Open water created by shoreline erosion (55 ac) would be deeper than 1.5 feet. Therefore, the percent of water less than 1.5 feet is expected to decrease significantly from 30% to 15%.

AREA 1 (Brackish Zone) With Project

TY 1 - With shoreline protection, water depths are not expected to change.

TY20 - With shoreline protection, water depths are not expected to change.

AREA 2 Without Project

TY 1 - Percent of water less than 1.5 feet is not expected to change significantly in the first year.

TY20 - Areas converted to open water are expected to become greater than 1.5 feet in depth because of their connection to the open water of Bayou Rigolettes. Therefore, the percent of water less than 1.5 feet is expected to decrease from 60% to 20%.

AREA 2 With Project

TY 1 - With shoreline protection, water depths are not expected to change.

TY20 - With shoreline protection, water depths are not expected to change.

128.95 AAHUS
177 AAA
337 Net Acres

Coastal Wetland Planning, Protection and Restoration Act Wetland Value Assessment Worksheet

Project: Barataria Basin Landbridge - Phase II - Area 2

Date: 8/27/98

Marsh Acreage: 592

Wetland Type: Brackish

Water Acreage: 221

Land Loss Rate:

Total Acreage: 813

FWOP

Target Year	V1 % Marsh	V2 % SAV	V3 Marsh Edge	V4 Water <= 1.5'	V5 Salinity	V6 Fish Access
TY0	73% 592ac	30%	30-1 35-2 35-3	60%	4ppt	1.0
1	70% 572ac	27%	↓	60%	↓	↓
20	23% 190ac	5%	20-3 80-4	20%	↓	↓
1	72% 589ac	60%	30-1 35-2 35-3	60%	4ppt	1.0
20	65% 527ac	50%	30-1 30-2 40-3	60%	↓	↓

FWP

Remarks: V1 - FWOP - Assume 150'/yr to incorporate shoreline + interior loss.
FWP - what % of loss rate is strictly interior loss - 20% of 2.88%/yr = 0.576%/yr applied to 592ac.

WETLAND VALUE ASSESSMENT COMMUNITY MODEL

Brackish Marsh

Project: XBA-63 Barataria Basin Landbridge Protection - Phase 2 Project Area: 813
 Increment 1
 Condition: Future Without Project

Variable		TY 0		TY 1		TY 20	
		Value	SI	Value	SI	Value	SI
V1	% Emergent	73	0.76	70	0.73	23	0.31
V2	% Aquatic	30	0.37	27	0.34	5	0.15
V3	Interspersion	%		%		%	
	Class 1	30	0.65	30	0.65		0.24
	Class 2	35		35			
	Class 3	35		35			
	Class 4					20	
	Class 5					80	
V4	%OW <= 1.5ft	60	0.87	60	0.87	20	0.36
V5	Salinity (ppt)	4	1.00	4	1.00	4	1.00
V6	Access Value	1.00	1.00	1.00	1.00	1.00	1.00
Emergent Marsh HSI =			0.81	EM HSI =	0.79	EM HSI =	0.45
Open Water HSI =			0.62	OW HSI =	0.60	OW HSI =	0.36

Project: XBA-63 Barataria Basin Landbridge Protection - Phase 2 Project Area: 813
 Increment 1
 Condition: Future With Project

Variable		TY 0		TY 1		TY 20	
		Value	SI	Value	SI	Value	SI
V1	% Emergent	73	0.76	72	0.75	65	0.69
V2	% Aquatic	30	0.37	60	0.64	50	0.55
V3	Interspersion	%		%		%	
	Class 1	30	0.65	30	0.65	30	0.64
	Class 2	35		35		30	
	Class 3	35		35		40	
	Class 4						
	Class 5						
V4	%OW <= 1.5ft	60	0.87	60	0.87	60	0.87
V5	Salinity (ppt)	4	1.00	4	1.00	4	1.00
V6	Access Value	1.00	1.00	1.00	1.00	1.00	1.00
Emergent Marsh HSI =			0.81	EM HSI =	0.81	EM HSI =	0.76
Open Water HSI =			0.62	OW HSI =	0.78	OW HSI =	0.73

AAHU CALCULATION - EMERGENT MARSH

Project: XBA-63 Barataria Basin Landbridge Protection - Phase 2
Increment 1

Future Without Project			Total HUs	Cummulative HUs
TY	Marsh Acres	x HSI		
0	592	0.81	480.22	
1	572	0.79	454.10	467.10
20	190	0.45	85.76	4714.31
			AAHUs =	259.07

Future With Project			Total HUs	Cummulative HUs
TY	Marsh Acres	x HSI		
0	592	0.81	480.22	
1	589	0.81	474.40	477.30
20	527	0.76	402.42	8321.56
			AAHUs	439.94

NET CHANGE IN AAHUs DUE TO PROJECT			
A. Future With Project Emergent Marsh AAHUs	=		439.94
B. Future Without Project Emergent Marsh AAHUs	=		259.07
Net Change (FWP - FWOP)	=		180.87

AAHU CALCULATION - OPEN WATER

Project: XBA-63 Barataria Basin Landbridge Protection - Phase 2
Increment 1

Future Without Project			Total HUs	Cummulative HUs
TY	Water Acres	x HSI		
0	221	0.62	135.94	
1	241	0.60	143.65	139.86
20	623	0.36	225.82	3792.59
			AAHUs =	196.62

Future With Project			Total HUs	Cummulative HUs
TY	Water Acres	x HSI		
0	221	0.62	135.94	
1	224	0.78	175.13	155.45
20	286	0.73	208.60	3655.82
			AAHUs	190.56

NET CHANGE IN AAHUs DUE TO PROJECT		
A. Future With Project Open Water AAHUs	=	190.56
B. Future Without Project Open Water AAHUs	=	196.62
Net Change (FWP - FWOP)	=	-6.06

TOTAL BENEFITS IN AAHUs DUE TO PROJECT		
A. Emergent Marsh Habitat Net AAHUs	=	180.87
B. Open Water Habitat Net AAHUs	=	-6.06
Net Benefits= (2.6xEMAAHUs+OWAAHUs)/3.6		128.95