

WHITE PAPER

**Evaluation of Louisiana's Mitigation Program for Impacts
to Coastal Habitats**



**Louisiana Department of Natural Resources
Office of Coastal Management**

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Executive Summary

Louisiana's coastal ecosystem and wetland habitats are in peril due to the continued loss of coastal wetlands. Currently, Louisiana has 30% of the total coastal marsh and accounts for 90% of the coastal marsh loss in the lower 48 states. Between 1990 and 2000, Louisiana lost approximately 24 square miles of wetlands per year. That is equivalent losing approximately one football field of wetlands every 38 minutes. In 2004, the United States Geological Survey (USGS) projected that, between 1956 and 2050, Louisiana will have lost more than 2,000 square miles of coastal wetlands. Naturally occurring deltaic processes, exacerbated by human activities, have been identified as key contributors to this coastal land loss crisis. Therefore, as the State moves forward to implement its aggressive coastal restoration and protection effort, in accordance with the State of Louisiana's Comprehensive Master Plan for a Sustainable Coast, it is critical to also evaluate regulatory programs that have the potential to impact land loss rates, and to ensure that these programs are compatible with the objectives of the Master Plan. Louisiana's wetland mitigation policy is one such program requiring renewed attention.

While the current mitigation program achieves "no net loss" of wetlands due to permitted activities related to development within the coastal zone, the State of Louisiana recognizes that this activity and associated wetland mitigation are crucial considerations in the state's overall coastal restoration and protection efforts. We know that it is more desirable to protect wetlands than to create wetlands. However, we also understand that integrated coastal management requires a balance between multiple uses of coastal resources on a sustainable basis, such as commercial, residential, industrial, recreational and ecological uses. It is also in the best interest of taxpayers and landowners that public and private resources be utilized in the most cost-effective manner and toward the greatest common good. This includes resources that are expended on compensatory mitigation for impacts to our coastal wetlands.

The broad intent of Louisiana's State and Local Coastal Resources Management Act of 1978, the law upon which our current mitigation regulatory program is based, is to encourage multiple uses of resources and ensure adequate economic growth, while minimizing adverse effects from one resource use upon another without imposing undue restrictions on any user. Louisiana's mitigation program must accomplish the balancing that is required by law, while ensuring that wetland loss is compensated and the use of resources is maximized for all users.

In an effort to achieve this intent while also complement the critical mission and objectives of the Master Plan for a Sustainable Coast, the State of Louisiana is recommending modifications to its compensatory mitigation program and become a more effective programmatic tool. At this significant time in the State's coastal history, as many of our coastal communities contemplate the reality of "restore or retreat," it is more important than ever that mitigation not only meet the letter of the law, but more importantly, the spirit of the law. The mitigation program must

do more. It must now contribute to the comprehensive sustainability of our coastal wetlands and coastal communities, rather than simply compensate for wetlands impacted.

As a start, it is imperative that clearly defined goals for the compensatory mitigation program be established that align with and better complement the Master Plan objectives, ensure no net loss of wetlands due to permitted activities, provide mitigation for important coastal resources, such as coastal forest, sand dunes and shell resources, allow for multiple uses of coastal resources, and provide for the most effective use of public and private resources. To ensure accountability, it is important to monitor the implementation of mitigation to ensure that the program is achieving the desired results. Revisions to laws, rules and procedures for the programs must be implemented accordingly. These policy improvements must be implemented in the best interest of the coastal environment and free of the special-interest influence that has often driven mitigation policy over the past 20 years. Our eyes must remain focused on the mission—comprehensive restoration and protection of Louisiana’s coast.

Recognizing that Louisiana’s Energy Coast generates more than 50 percent of the state’s income, it is important that the revised mitigation program offer flexible mitigation options that respect economic development within our coastal zone while also promoting the sustainability of our coastal resources. It is clear that maintaining a sound economy in a coastal zone requires an appropriate level of sensitivity to both ecological and socioeconomic needs of the coastal area.

Therefore, the ideal compensatory mitigation policy will provide flexible mitigation alternatives, prioritize options that help to protect and restore the coast as identified by the Master Plan, are timely and economically justifiable to business, are integrated among state, federal and local governmental bodies to avoid bureaucratic inconsistencies and conflicting priorities and provide accountability and transparency to ensure the goals are realized. With such a policy, environmentally responsible and economically significant development projects in the coastal area of Louisiana could be realized.

Louisiana has made great strides over the past five years to coordinate its coastal restoration needs with its coastal protection needs to produce a Master Plan and subsequent Annual Plans that incorporate both. Louisiana’s compensatory mitigation program should consider both issues as well.

The mitigation program must provide additional options for mitigation of public works projects, including hurricane protection projects, to ensure that the mitigation efforts that are taken work in concert with these projects to provide multiple lines of defense and establish additional wetland habitat. For example, if mitigation alternatives, like the creation of marsh adjacent to levees, have the potential to increase the surge protection and environmental benefits of a hurricane levee system, we must give serious priority to these alternatives. Similarly, creating

coastal forest can reduce hurricane wind velocity and provide a certain measure of protection to coastal communities and facilities. Projects like these should be encouraged in Louisiana's mitigation policy. Implementation of Louisiana's Comprehensive Master Plan for a Sustainable Coast will be enhanced by allowing public entities such as levee districts, ports, municipalities and public infrastructure facilities to protect the citizens of our great state and more effectively mitigate the impacts associated with these protection projects, in concert with the State Master Plan.

In conclusion, as Louisiana pushes forward with an aggressive plan to restore and protect our coastal wetlands and promote the sustainability of our coastal resources, it is critical that the state's compensatory mitigation program is closely coordinated with these restoration and protection initiatives. Therefore, legislative, policy and regulatory modifications to the mitigation program are being proposed that continue our commitment to no net loss of wetlands due to permitted activities and mitigation for other important coastal resources; recognize the need for multiple uses of coastal resources; encourage the most effective use of public and private resources; provide flexible mitigation alternatives that consider ongoing restoration/protection projects; and prioritize mitigation options according to their meeting the objectives of the State Master Plan. The revised program shall provide criteria for certain site specific mitigation projects, but with an emphasis on pooling resources through a state operated fee *in lieu* system for use in major ecosystem restoration efforts supporting Master Plan objectives and retaining certain mitigation bank options for continued flexibility. With implementation of these changes, fair and ecologically sound, flexible mechanism for mitigating the loss of coastal wetlands will be achieved.

Introduction:

Current thought is that an evaluation of DNR's Office of Coastal Management's (OCM's) Mitigation Program should improve the State's ability to ensure a reduction in loss of coastal resources, in addition to the State's ability to make improvements to the overall goal of attaining no net loss of coastal wetlands due to permitted activities while improving the sustainability of the estuary. OCM desires to implement a program that meets our objective to have more sustainable mitigation and have the mitigation be strategically located, to work in concert with the State's Comprehensive Master Plan for a Sustainable Coast, to provide the most positive impact on the coastal ecosystem. This paper will evaluate the performance of the State's current mitigation process by identifying its strengths and weaknesses in order to recommend improvements for enhancing efficiency and accountability. This evaluation will also answer the questions of whether or not programmatic changes are required to accomplish the goals and objectives that are listed below. The components of the mitigation review process will include: impact and mitigation assessment, review of the Program's three current mitigation options, and review of the mitigation monitoring program. Any programmatic evolution or change that is proposed as an outcome of this review will be done in consideration of the goals and objectives as defined in the Coastal Zone Management Act of 1972 (CZMA), as amended (16 U.S.C. 1451 et seq.) and the Louisiana State and Local Coastal Resources Management Act of 1978 (SLCRMA) and these changes will be made through rulemaking or legislation.

Goals and Objectives:

The overall goals and objectives of OCM's Mitigation Program:

1. Avoid where practicable and otherwise minimize adverse impacts identified in the permit review process.
2. Restore impacted sites as appropriate.
3. Accurately quantify anticipated unavoidable ecological value losses.
4. Make available reasonable and practicable mitigation options and establish mitigation projects.

The goals and objectives of OCM related specifically to compensatory mitigation options:

1. Obtain appropriate, sufficient and quality compensatory mitigation to the impacted coastal ecosystem where feasible and practicable. Achieve no net loss of wetlands due to permitted activities.
2. Properly track and monitor mitigation projects, mitigation banks and in-lieu fee projects. Monitoring and tracking should not be a burden on public resources.
3. Mitigation in coastal Louisiana must be sustainable and provide adequate and meaningful coastal ecosystem restoration.
4. Integrate and coordinate mitigation to support State's overall goal of coastal ecosystem restoration. Mitigation should be consistent with the State's Comprehensive Master Plan for a Sustainable Coast. The State must promote a sustainable coastal ecosystem by harnessing the processes of the natural system.

Overview of the OCM Mitigation Program:

In accordance with the Louisiana State and Local Coastal Resources Management Act of 1978, OCM seeks to protect, develop, and where feasible, restore and enhance the resources of the State's coastal areas. The broad intent of Louisiana's Coastal Management Act of 1978 is to encourage multiple uses of resources and ensure adequate economic growth, while minimizing adverse effects from one resource use upon another without imposing undue restrictions on any user. The Coastal Use Permit (CUP) Program established by the Act, set forth goals and objectives for management and reasonable use of Louisiana's coastal wetlands, coastal forests, sand dunes and shell resources.

In order to accomplish these goals, OCM's Permit Section works with the applicant(s) to ensure that impacts to coastal habitats are avoided and/or minimized. Most often, this will require an evaluation of needs, alternatives, and justification for the proposed project. In cases where the applicant has exhausted all efforts to avoid and/or minimize adverse impacts to wetlands and where the applicant has provided sufficient justification, OCM's goal of no net loss of wetlands due to permitted activities will be accomplished through compensatory mitigation for habitat loss. **Compensatory mitigation is the "replacement, substitution, enhancement or protection of ecological values to offset anticipated losses of ecological values caused by a permitted activity"** as defined under Title 43, Chapter 7, §700 of the Louisiana Administrative Code.

A total of 20,464 permits were issued under the CUP Program from January 1, 1996 to October 30, 2009 (this does not include the 1,636 determinations for Area Wide Permits, Solicitation of Views, Request for Determinations and those applications outside of the Coastal Zone.) Of these 20,464 permits issued during this time frame, 647 of these permits required compensatory mitigation. This relatively low number of permits requiring mitigation as compared to the total number of permits issued during this time period depicts the effectiveness of the Louisiana Coastal Resources Program of OCM's efforts to avoid and reduce impacts.

OCM's Mitigation Section is responsible for analyzing project impacts and approving adequate and appropriate compensation to ensure no net loss of wetlands due to permitted activities and mitigation for other important coastal resources. An alternatives analysis is required which includes a statement from the permittee regarding all efforts made toward avoidance, minimization or justification for unavoidable adverse impacts, where practical. Once it has been established that permanent adverse impacts have been avoided, minimized and/or justified, any permanent impacts to coastal ecosystems are assessed and quantified using the Wetland Value Assessment (WVA) for ecological value losses. The WVA is OCM's habitat evaluation tool which quantifies impacts and benefits to wetlands. For temporary impacts, the permittee is usually given the opportunity to restore the site to pre-project conditions or is given a period of time in which to monitor recovery on the site before impacts are assessed. A detailed analysis of the process that is used by OCM to assess, quantify, implement, monitor and track all mitigation activities is provided in **APPENDIX A - Process Appendix to the Evaluation of Louisiana's Mitigation Program.**

After habitat impacts have been quantified, the applicant and any impacted landowner(s) decide upon which method of compensatory mitigation is appropriate for the corresponding impact. The following options are currently available once it is determined that compensatory mitigation is warranted: 1) An individual mitigation plan/project; 2) The ability to purchase mitigation bank credits; 3) The ability to make a contribution to the Mitigation Trust Fund with an In-Lieu Fee Option. The OCM is limited to these three options as a result of having to operate under existing regulations that do not coincide with federal regulations or are not practicable because monetary amounts in the existing regulations are outdated and insufficient to meet the applicable federal requirements. It should also be noted that OCM's rules need to work in concert with the USACE's rules to ensure adequate and cost effective mitigation opportunities for permittees and balance coastal economic growth and habitat protection and sustainability.

It is thought that the OCM mitigation program, along with other national mitigation programs, could be improved to ensure that the overall goals of mitigation programs are achieved and maximized. It is suggested that our efforts need improvement in regard to our ability to demonstrate adequate and appropriate mitigation due to the "cumulative" negative effects of permitting in these areas, suggesting that the many, small individual mitigation measures that have been implemented may not be offsetting the ecological losses from corresponding, cumulative impacts.

This paper evaluates aspects of the current mitigation program including, but not limited to: mitigation plans/individual mitigation measures, mitigation banking options and in-lieu fee options. Finally, the paper makes recommendations for the improvement of the mitigation program.

Individual Mitigation Measures (Projects) Option:

An individual mitigation measure or project is any activity that provides a net ecological benefit to wetland habitat - an ecological enhancement. Examples of a mitigation measures include but are not limited to: vegetation plantings, marsh creation, hydrology improvement, converting a non-wetland site to a wetland, etc. These measures seek to restore and/or enhance coastal wetland habitat. Individual mitigation measures are desirable when they are implemented adjacent to or near the corresponding impact, conducted prior to the corresponding impact and produce habitat values that are greater than or equal to the corresponding impact.

Individual mitigation projects are desirable to applicants and impacted landowners because most often they are the most economical option in regard to mitigating for associated impacts. The landowner may have land available nearby or at the location of impact where, for instance, he may plant trees or other wetland vegetation at a relatively inexpensive cost and achieve a habitat increase that will meet the requirement of no net loss of wetlands due to permitted activities. However, these projects are not always desirable from OCM's perspective of requiring mitigation that is consistent with the State's Comprehensive Master Plan for a Sustainable Coast. Since many of these mitigation measures are minute, and positioned in isolated locations spread across the coastal area, they are a drain on public resources and are costly to track and monitor. Many of these small projects also do not meet the overall programmatic goal of achieving

mitigation that is sustainable and are not consistent with the overarching goal of acquiring the ecosystem restoration to be consistent with the State's Master Plan. Individual mitigation projects would be desirable to OCM if they did meet all of the goals and objectives of OCM's mitigation program and were of adequate size and scope and located in a manner in which they would provide meaningful coastal ecosystem restoration. There are very limited mitigation project options available for impacts associated with other important coastal resources such as sand dunes or shell resources.

Prior to 2004 mitigation projects were only required to be monitored for initial project compliance. As of October 2009, only 20 of the 694 mitigation projects have been monitored for survival following their Year 1 compliance check - Year 3 monitoring. According to the OCM monitoring database, 72 mitigation projects have no record of ever having even one field monitoring. Therefore, the OCM is unable to make a determination of individual mitigation project sustainability based solely on data located in the monitoring database. Although it is difficult to determine the exact degree of sustainability that these individual project achieve, anecdotal evidence suggest that not all of these individual projects achieve all of the required habitat benefits required for mitigating authorized activities, not all of these projects are of the size and magnitude to provide and add meaningful benefit to Louisiana's coastal ecosystem even if they do meet the requirement of no net loss of wetlands due to permitted activities.

OCM performs on the ground monitoring, aerial monitoring, photo analysis/interpretation and other forms of remote sensing to monitor individual mitigation projects. All monitoring reports address the conditions of the permit as they relate to mitigation activities and all associated records are generated by the field services staff. After these projects are implemented, they are monitored by OCM field services staff. Monitoring of these projects requires significant staff time and resources. As streamlining efforts have preceded it is important for OCM to utilized staff more efficiently. Consolidating mitigation efforts and reducing the number of projects would require less staff to monitor and track all mitigation projects. With the current trend of small individual mitigation projects, OCM will require additional staff to adequately monitor and track all of the individual mitigation projects.

OCM staff has queried the database for mitigation data associated with impacting projects from P19970010 through P20090421. The data for 647 impacting projects covered by 694 mitigation requirements yielded results from which a few conclusions were drawn. For 50.1% of impacted acres, the mitigation was satisfied through purchase of credits from a mitigation bank or by contribution to the mitigation trust fund or contribution to the affected landowner. Based on the individual project data queried from 1997 through 2009, 68% of all individual mitigation projects included vegetative plantings of marsh, bottomland hardwood or fresh swamp with the intent of restoring a site that has been previously impacted or converted from a wetland to a non-wetland site. The query on impacting projects also showed that there have been at least 4 other types of compensatory mitigation implemented to offset impacted coastal habitats (by impacted acreage): 6% shoreline stabilization, 21% tree or herbaceous plantings, 13% wetlands creation, and 7% of coastal habitat impacts were offset with conservation easements and 2% other projects.

Comparison of Individual Mitigation Projects to the Goals and Objectives of the Program:

No net loss of wetlands- When individual mitigation projects are successful, they meet the goal of no net loss of wetlands due to permitted activities. Habitat units that are realized by the construction of these projects offset the corresponding impact habitat units.

Tracking and Monitoring- The monitoring and accounting efforts associated with individual mitigation projects are a drain on public resources and are not paid for by the applicant. The State currently struggles to track and monitor all of these individual measures. With these current trends, OCM will need additional staff to track and monitor individual mitigation projects.

Sustainability- Some individual mitigation projects have proven to be sustainable. Conversely, there have been projects, that when monitored, were found to be out of compliance and therefore were not sustainable. Not all individual mitigation measures are sustainable; therefore individual measures are not as desirable as other forms of mitigation.

Master Plan Consistency- According to the State's Master Plan, the four objectives of the plan are: reduce risk to economic assets, restore sustainability to the coastal ecosystem, maintain a diverse array of habitats for fish and wildlife, and sustain Louisiana's unique heritage and culture. Currently, individual mitigation measures are not being located to meet the objectives of the State's Master Plan. Furthermore, these individual projects are generally small in scale and do not provide the more meaningful mitigation that larger projects provide.

Mitigation Banking Option:

A wetland mitigation bank is a large tract of created or restored wetlands that has been restored and managed with approval of the USACE and the OCM. Each acre of wetland becomes a "credit" in the mitigation bank. These credits are available for purchase to any public or private organization that is required by federal law to obtain a state or federal permit and to mitigate for impacts to wetlands caused by its development. A bank sponsor must submit a prospectus to the Interagency Review Team (IRT) for review and approval. The IRT is composed of the USCACE, OCM, EPA, USFWS, NMFS and LDWF.

There are nine (9) mitigation banks currently online in coastal Louisiana. Of the banks, only four (4) are actually in the coastal zone, while the other five (5) are located wholly or partially in the Conservation Plan Boundary, which was actually changed to accommodate creation of some banks. For the most part, the banks that currently exist are fresh swamp and bottomland hardwood banks. There is also one (1) fresh/intermediate marsh bank and one (1) brackish/salt marsh bank. In December 2009, the NOD notified the salt marsh bank Sponsor that he was out of compliance and required that all money received by the bank be placed in an escrow account. State and commenting members of the IRT are working with the sponsors of this bank at this time to ensure that the bank remains compliant. The lack of marsh mitigation bank opportunities has created out-of-basin and out-of-kind credit issues for the regulatory community. There is no mitigation banking option available for impacts associated with other important coastal resources such as sand dunes and shell resources. The siting of banks in the coastal area is currently not desirable. Banks are generally positioned in protected locations in the coastal area to limit bank

exposure and avoid the possibility of failure to the greatest extent possible. The current location of the banks is not consistent with State's Comprehensive Master Plan for a Sustainable Coast.

The OCM believes that the existing forested wetland mitigation banks in coastal Louisiana are sustainable. However, OCM and members of the IRT have serious concerns about the economic viability and sustainability of marsh mitigation banks in the coastal area of Louisiana because of the high up front costs involved in creating these banks. It appears that the engineering and construction costs associated with starting a marsh mitigation bank, deter mitigation bank investors. Additionally, the sale of credits for salt marsh banks has greatly reduced due to the slowing of marsh impacts as they relate to damage from oil and gas activities, directional drilling, etc. It could take a number of years for a marsh mitigation bank to sell the majority of its credits, and when coupled with the high up-front cost of marsh construction, salt marsh bank ventures become unappealing to bank investors.

Because there is still a need to mitigate for damage to salt marsh in coastal Louisiana, the State solicited ideas for solutions. One suggestion was for the State to become the bank sponsor for salt marsh banks and another was for the creation and utilization of in-lieu Marsh Fee options. Recommendations are for the State to collect and bank the monies generated through an approved in-lieu fee fund instrument and for State's Dedicated Dredge Program, or a similar program, to fund small marsh creation projects in critical, shallow, open-water brackish/saline areas of the marsh within coastal Louisiana. OCM's potential in-lieu program would work hand in hand with the Office of Coastal Protection and Restoration (OCPR)'s marsh restoration and conservation efforts. Due to the lack of availability of marsh mitigation bank credits, the State will need to assume the responsibility of being the "marsh mitigation banker" through the development and implementation of its proposed in-lieu fee program to ensure that coastal Louisiana's marsh habitat are replaced and protected.

Based on the individual project data queried from 1997 through 2009, 30% of all permittees opted to use an approved mitigation bank or area to satisfy his mitigation obligations. OCM has permit conditions that address the purchase of credits from approved mitigation banks currently specify the mitigation bank to be used, the number of credits to be purchased, and the habitat type of the required credits. Currently, work authorized by the permit cannot begin until OCM receives proof that the necessary credits have been purchased. In general, OCM has been receiving timely proof of credit purchases from permittees and bank sponsors.

The sponsor of the mitigation bank is responsible for submitting biological monitoring reports and keeping up-to-date accounting records of the mitigation bank. It is the responsibility of the state and federal resource agencies to verify the accuracy of all monitoring and credit accounting reports. It should be noted that the banks have been doing a good job in fulfilling all requests from the resource agencies in regard to reporting.

Comparison of Mitigation Banks to the Goals and Objectives of the Program:

No net loss of wetlands- When mitigation banks are successful, they meet the goal of no net loss of wetlands due to permitted activities. Habitat units that are realized by the construction of these projects offset the corresponding impact habitat units. Currently, there are inadequate marsh mitigation bank options. There is only one salt/brackish marsh bank and one

fresh/intermediate marsh bank and both are located in the Deltaic Plain, thus creating out of basin and out of kind issues and the potential for an applicant to be penalized because of these issues.

Tracking and Monitoring- The monitoring and accounting efforts associated with mitigation banks are not a drain on public resources and are paid for by the bank. The monitoring of mitigation banks can be conducted relatively easily by the bank and there are many qualified consultants that offer this service at a reasonable price.

Sustainability- Mitigation banks have proven to be sustainable once they have been planted and have the hydrology correctly restored.

Master Plan Consistency- according to the State's Master Plan for a Sustainable Coast, the four objectives of the plan are: reduce risk to economic assets, restore sustainability to the coastal ecosystem, maintain a diverse array of habitats for fish and wildlife, and sustain Louisiana's unique heritage and culture. Currently, mitigation banks are not being located to meet the objectives of the State's Master Plan. The location of mitigation banks is currently market driven and is therefore logically based upon cost and demand. There are no mitigation banks in the coastal zone located west of the Atchafalaya River, there is only one fresh/intermediate marsh mitigation bank in the Deltaic Plain and only one brackish/saline marsh mitigation bank in the Deltaic Plain. It should also be noted that the brackish/saline marsh mitigation bank has had compliance problems and has not commenced construction despite being in operation for more than three (3) years. There are simply not enough mitigation banks to account for impacts to marsh habitat types. Additionally, there is no mitigation banking option available for impacts associated with other important coastal resources such as sand dunes and shell resources.

In-Lieu Fee Option:

Under an in-lieu-fee agreement, the State collects funds from an individual or a number of individuals who are required to conduct compensatory mitigation required under federal or state wetland regulatory programs. The sponsor may use the funds pooled from multiple permittees to create one or a number of sites under the authority of the agreement to satisfy the permittees' required mitigation. In-lieu-fee mitigation is generally categorized as mitigation conducted after permitted impacts have occurred. A provision (R.S.49:214.41) of the State and Local Coastal Resources Management Act (SLCRMA) requires that the ecological value of wetlands lost due to permitted activities must be replaced or substituted. The regulations written pursuant to SCLRMA set forth the acceptable measures which may be used to provide such replacement of substitution. One such method of substitution is an in-lieu fee contribution to the "Mitigation Account" as provided by Title 43, §724.

OCM's in-lieu fee program provides funding for the restoration of all habitat types in the state's coastal area. The program provides funding for the construction of projects that impart environmental and ecological benefits by directly creating functional wetlands (marsh creation), enhancing existing wetlands, and improving wildlife and fisheries habitats, reducing open water areas, and protecting wetland and development infrastructures. In-lieu fee funds are used to construct projects in addition to and in association with other restoration projects to achieve the most benefit to the coastal estuary. Implementing mitigation immediately adjacent to and in addition to ongoing State restoration measures will help to ensure the sustainability of the

mitigation and the restoration effort, and will ultimately add to the sustainability of the coastal estuary. Construction of these projects allows the state the ability to locate projects where they are most likely to be sustainable. For instance, marsh creation projects and other habitat restoration projects can be located downstream from or within the same basin of a freshwater diversion project to further insure the sustainability of the restoration work being funded by OCM's in-lieu fee program.

The in-lieu fee program helps to facilitate important economic development projects in the coastal area of Louisiana by offering a flexible alternative for mitigation when responsible development takes place in the coastal area. Louisiana's working coast generates more than 50% of the state's income, therefore it is important to offer this flexible mitigation option that will ultimately allow for economic development and protect and maintain the sustainability of the coastal estuary. Increasing the scope of this in-lieu fee program will allow greater flexibility in regard to the State's and other public entity's (levee boards, etc.) implementation of Louisiana's Comprehensive Master Plan for a Sustainable Coast by allowing these public entities to protect the citizens of our great state and more feasibly mitigate the impacts associated with protection efforts.

The OCM conducts the monitoring of its in-lieu fee funded projects. Historically, OCM has funded two (2) restoration projects with monies collected through its in-lieu fee mitigation program. Both of OCM's in-lieu fee projects are in compliance and reports are placed in the project permit files. These in-lieu projects have proven to provide effective and sustainable mitigation. Monitoring evidence suggests that these projects have been successfully constructed, continue to persist, and appear to be sustainable. OCM's in-lieu fee projects that have been previously constructed are located to be consistent with the State's Comprehensive Master Plan for a Sustainable Coast and the OCM intends to continue to construct in-lieu fee projects that are consistent with the Master Plan. The OCM will continue to work to use the in-lieu fee generated funding to pay for, and add to, ongoing coastal restoration activities, to include but not limited to: marsh creation, hydrologic restoration and shoreline protection activities.

OCM's fee-in lieu program will provide funding for the restoration of all habitat types in the state's coastal area. The program will provide for the funding of construction projects that will impart environmental and ecological benefits by producing marsh immediately (ex. marsh creation), enhancing existing wetlands, and improving wildlife and fisheries habitats, reducing open water areas, and protecting wetland and development infrastructures. OCM's in-lieu fee program will work in concert with the State's ongoing restoration and habitat conservation efforts. The moneys collected through this program will be used to add supplemental funding to the State's restoration efforts across the Louisiana coast (adding additional acreage to marsh creation projects and enlarging other habitat conservation efforts.) The aggregation of these funds gathered by this program, will allow the state to implement larger (bigger in scope and scale) restoration and habitat conservation measures. The aggregation of funds collected by the in-lieu fee program also helps the state achieve economies of scale by adding to ongoing habitat restoration work. The in-lieu fee mitigation option appears to be the most appropriate mitigation option for other important coastal resources such as sand dunes and shell resources.

Comparison of the In-Lieu Fee Program to the Goals and Objectives of the Program:

No net loss of wetlands- When in-lieu fee projects are constructed, they meet the goal of no net loss of wetlands due to permitted activities. Habitat units that are realized by the construction of these projects offset the corresponding impact habitat units.

Tracking and Monitoring- The monitoring and accounting efforts associated with in-lieu fee funded projects are not a drain on public resources and are paid for by the in-lieu fee program. The monitoring of in-lieu fee funded projects can be conducted relatively easily because the number of in-lieu fee projects is a manageable number since one project accounts for many impacts.

Sustainability- In-lieu fee funded projects have proven to be sustainable and can also be strategically located to support the State's overall goal of coastal ecosystem restoration. In-lieu fee funded projects can be sited adjacent to or downstream from a river diversion and/or adjacent to existing restoration efforts to enhance sustainability.

Master Plan Consistency- According to the State's Master Plan for a Sustainable Coast, the four objectives of the plan are: reduce risk to economic assets, restore sustainability to the coastal ecosystem, maintain a diverse array of habitats for fish and wildlife, and sustain Louisiana's unique heritage and culture. The in-lieu fee program can be utilized to implement projects that will meet these objectives.

Summary of the Evaluation of all Mitigation Options:

This mitigation evaluation has determined that all three mitigation options available at this time to include: individual mitigation projects, mitigation bank options and the in-lieu fee option provide for no net loss of wetlands due to permitted activities. However, there are inadequate marsh mitigation bank options at this time. There is only one salt/brackish marsh bank and one fresh/intermediate marsh bank and both are located in the Deltaic Plain, thus creating out of basin and out of kind issues and the potential for an applicant to be penalized because of these issues. There is no mitigation banking option available and very limited mitigation project options available for impacts associated with other important coastal resources such as sand dunes and shell resources. Secondly, of the three options, mitigation banks and in-lieu fee projects are the easiest to monitor and are not a drain on public resources. Individual mitigation projects are a drain on resources. Thirdly, mitigation banks and in-lieu fee projects have proven to be sustainable. Most, but not all, of individual mitigation projects are sustainable. Finally, of the three options, only in-lieu fee projects meet the overall goal of coastal ecosystem restoration by locating projects in coastal areas that are consistent with the State's Master Plan. Therefore, only the in-lieu fee option meets all of the goals and objectives of the State's mitigation program.

A robust in-lieu fee mitigation program provides the best opportunity to achieve all of the State's goals and objectives for its mitigation program. The new 2008 Rules for Mitigation are an impediment to the state meeting its goals and objectives because the Regulations set an artificial priority with banks over all other forms of mitigation. This artificial priority is not appropriate for mitigating in coastal Louisiana. The OCM believes that priority should be placed on mitigation that is located in sustainable locations that provide adequate and meaningful coastal ecosystem restoration. The focus should be with the priority of what the mitigation that is

implemented accomplishes, not with whom is implementing the mitigation. The OCM desires to implement mitigation that accomplishes the goals of the program, rather than satisfy these artificial priorities.

Implementing mitigation immediately adjacent to and in addition to ongoing State restoration measures will help to ensure the sustainability of the mitigation and the restoration effort, and ultimately adds to the sustainability of the coastal estuary. A robust in-lieu fee program will help to facilitate important economic development projects in the coastal area of Louisiana by offering a flexible alternative for mitigation when responsible development takes place in the coastal area. Louisiana's working coast generates more than 50% of the state's income, therefore it is important to offer this flexible mitigation option that will ultimately allow for economic development and protect and maintain the sustainability of the coastal estuary. This program will allow greater flexibility in regard to the State's and other public entity's (levee boards, etc.) implementation of Louisiana's Comprehensive Master Plan for a Sustainable Coast by allowing these public entities to protect the citizens of our great state and more feasibly mitigate the impacts associated with protection efforts.

A fundamental change in the OCM mitigation program must occur that allows greater use of the in-lieu fee mitigation option. The OCM has set forth goals and objectives that state that mitigation should: achieve no net loss of wetlands and other important coastal resources due to permitted activities, be easily tracked and monitored while not being a drain of public resources, be sustainable, and support the State's overall goal of coastal ecosystem restoration by locating projects in coastal areas that are consistent with the State's Master Plan. In order for the state to meet these goals and objectives, the OCM must implement this robust in-lieu fee program and ensure accountability to achieve these results. OCM must monitor the implementation of mitigation to ensure that the program is achieving the desired results.

One of the most profound changes to the mitigation program would be the development of a specific set of guidelines that will be used to evaluate mitigation options for specific projects. These guidelines for mitigation should ensure that the most effective and equitable means to accomplish mitigation are selected during the mitigation process. Arbitrary, predetermined regulation guidelines currently being used to determine mitigation priorities do not take OCM's goals and objectives for mitigation. These new guidelines will use objective criteria to determine the mitigation outcome for specific projects and utilized a scoring system based on the goals of the program, not a predetermined hierarchy. Additionally, a list of recommendations for fundamental changes to the mitigation program is provided in **APPENDIX B - Summary of Recommendations for Programmatic Improvement**, that will further enhance the effectiveness of the program and attain the goals and objectives that have been established.

APPENDIX A - Process Appendix to the Evaluation of Louisiana's Mitigation Program

Evaluation of Individual Mitigation Measures (Plans/Projects):

An individual mitigation measure or project is any activity that provides a net ecological benefit to wetland habitat (an ecological enhancement.) Examples of a mitigation measures include but are not limited to: vegetation plantings, marsh creation, hydrology improvement, converting a non-wetland site to a wetland, etc. Individual mitigation measures are desirable when they are implemented adjacent to or near the corresponding impact, conducted prior to the corresponding impact and produce habitat values that are greater than or equal to the corresponding impact.

Evaluation of the method for proposal of individual mitigation projects (on and off site):

After habitat impacts are quantified, the permit or mitigation analyst sends a letter to the applicant/agent and to the impacted landowner(s) identifying the habitat impacts and outlining general mitigation options. These letters are referred to as the “mitigation letters”. At this point, the applicant may elect to submit a mitigation project proposal to the permit analyst. The permit analyst forwards the project proposal to the mitigation analyst who again uses the WVA to evaluate the habitat benefits proposed by the on-site or off-site mitigation project and determines if the proposed project accounts for or offsets the proposed impact. If the analyst determines that the individual mitigation project does account for and/or offset the proposed impacts the project is accepted. If the project does not account for and or offset the proposed impacts, the analyst makes recommendations to account for the proposed impacts by suggesting increasing acreage, altering planting schemes, adjusting target elevations, etc.

The existing mitigation regulations require that letters be sent to the permit applicant and the landowner(s) that will potentially be impacted by a proposed activity. The existing regulations require that the mitigation letters outline what mitigation options are available, to both the applicant and landowner, and give a timeframe by which responses must be received. These letters have been rewritten many times but remain confusing to applicants and landowners. The existing regulations for landowner and applicant mitigation notification are currently inadequate and need to be addressed with new mitigation regulations. For example: under the current regulations §724.J.6.d.v., the mitigation and permit analyst is required to send a letter to: “suggest to each of those landowners, that they assist the applicant in developing a compensatory mitigation proposal”. This item and other items and time requirements need to be structured to be more definitive and efficient.

Suggestions for improvement to methods for proposal of individual mitigation projects (on and off site):

Mitigation analysts should be involved early in the permitting process to ensure a more efficient mitigation process. The mitigation analyst should determine if and when a mitigation letter will

be sent to the permit applicant and landowner(s). The mitigation analyst should also be responsible for contacting the applicant or agent to start the process of developing an applicant/landowner-approved mitigation plan.

Consideration should be given to processing a separate CUP for mitigation obligation as a GP-11. The adequacy of the proposed mitigation project will have been determined prior to the GP-11 permit submittal. OCM/PMD recently initiated a procedural change to allow the mitigation analyst to be responsible for the processing of the GP-11.

There are many resources that the Mitigation Section can use to ensure appropriate mitigation actions. Information provided in pre-application meetings can alert agency personnel to potential wetland impacts. Pre-application field trips provide real-time site-habitat information. Wetland impact avoidance or minimization can be addressed during pre-application visits. Permit applications, including plats, can alert the staff to potential wetland impacts, which would initiate justification documentation.

Procedures that analyze project impacts need to be implemented early in the permitting process to lessen the mitigation process time. OCM should encourage pre-application meetings and/or project site visits to expedite project designs that would reduce or eliminate adverse impacts to vegetated wetlands. Historical and recent, field investigation reports may provide invaluable information about specific site conditions. If this information is still applicable, an impact evaluation can be done without waiting for a new site visit and subsequent field report. An applicant-authored field investigation report, using an OCM-approved format, can be submitted with the permit application; thus allowing for an impact evaluation to be done early in the permit processing.

It is recommended that field services and mitigation section staff personnel cross train one another with regard to individual mitigation project measures. The field services staff will have the opportunity to show the mitigation staff what is being implemented in the field, conversely the mitigation staff will be able to share with field services what is being proposed by permittees. These two sections should work together to develop stronger and more stringent criteria by which to evaluate mitigation proposals.

Evaluation of individual mitigation project implementation (timing):

Ideally, mitigation obligations are fulfilled or individual mitigation project measures are initiated prior to the impact to coastal resources. This is done by purchasing credits from an approved mitigation bank, acquiring advanced mitigation credits from an advanced mitigation project or implementing an individual mitigation measure prior to initiating the impacting activity. However, mitigation obligations are not always fulfilled prior to the coastal use. Permitted actions requiring individual mitigation measures are usually required to occur concurrently, within a reasonable timeframe (30 to 60 days is the usual timeframe stated in the permit conditions.)

In instances where mitigation obligations are not met prior to the coastal use, temporal losses are not accounted for under current guidelines. Such instances include: 1) Enforcement permits and/or after-the-fact permits that require mitigation. 2) Individual mitigation measures that fail

initially and/or repeatedly. 3) Mitigation obligations that go unfulfilled for a period of years and where the permittee is only required to become compliant with or satisfy his initial mitigation requirement. 4) Delays in detection of temporal losses due to the volume of projects that require monitoring by our enforcement/field staff. 5) The “complete growing season” being approved for project impacts that may be considered temporary but are not.

In circumstances where mitigation is required for an enforcement permit or an after-the-fact permit, immediate fulfillment of mitigation obligations should occur. This could be accomplished by requiring the purchase of credits from a mitigation bank, a monetary contribution to the mitigation trust fund, or perhaps an additional contribution to the mitigation trust fund as a penalty for not implementing a mitigation project within a reasonable time frame (3 months is suggested) where appropriate. The applicant should not have the option of submitting a mitigation plan for review and approval as this would add to temporal losses. By requiring the immediate satisfaction of mitigation obligations with these options, the temporal loss can be minimized and mitigation obligations can be satisfied with the added benefit of mitigation being streamlined. A similar monetary penalty or requirement to purchase credits from a mitigation bank could also be required for other temporal losses like “one year growing season” losses.

The process of approving individual mitigation plans requires coordination between applicants and mitigation analysts/supervisors consuming valuable time and both public and private resources. They account for a large amount of staff resources, time, and money. These projects often fail at least once which causes applicants to rebuild or replant subsequently increasing maintenance time. There is no real data on the percentage that fail initially because these projects are not coded and recorded when they fail, however, anecdotal data from the Field Services staff indicate that between 30 and 40% of individual projects fail initially. The primary reason they fail is because many individual mitigation measures involve vegetative and tree plantings which often require additional planting. It is much easier and may be better business to simply monitor the mitigation bank/area(s) and/or in-lieu-fee project(s) for success. They are easier to monitor because they are far fewer in number and much larger in size and scope.

Evaluation of permit conditions as required for individual mitigation projects:

Coastal Use Permits that authorize activities resulting in unavoidable impacts to vegetated wetlands and other coastal resources include special conditions that require the permittee to provide compensatory mitigation for the replacement of ecological resources lost as a result of those activities. The replacement may involve restoration of the impacted site which can be on-site or off-site activities that create or enhance wetlands through individual projects, the purchase of credits from an approved mitigation area bank, or some other action determined to be appropriate by the DNR Secretary (contribution to the Mitigation Fund.)

Based on the individual project data queried from 1997 through 2009, 68% of all individual mitigation projects included vegetative plantings of marsh, bottomland hardwood or fresh swamp with the intent of restoring a site that has been previously impacted or converted from a wetland to a non-wetland site. Permit conditions will provide planting details; including species to be planted, spacing of plants, sources of plants, and maintenance requirements (20 or 50 years.) OCM has not required permittee monitoring of individual mitigation projects. For future

projects, it is thought that some type of structured monitoring and associated reporting to DNR should be required of the permittee to determine the ongoing success or failure of these actions. OCM should strongly consider requiring permittees to submit monitoring reports with digital imagery on a 1 Year, 3 Year, 5 Year, 10 Year and 20 Year basis (marsh) and 50 Year basis when applicable (forested habitat types.)

Based on the individual project data queried from 1997 through 2009, 30% of all permittees opted to use an approved mitigation bank or area to satisfy his mitigation obligations. OCM has permit conditions that address the purchase of credits from approved mitigation banks currently specify the mitigation bank to be used, the number of credits to be purchased, and the habitat type of the required credits. Currently, work authorized by the permit cannot begin until OCM receives proof that the necessary credits have been purchased. In general, OCM has been receiving timely proof of credit purchases from permittees and bank sponsors.

Coastal Use Permits that authorize linear activities, such as the installation and maintenance of pipelines, board roads, spoil bank maintenance, etc., that may result in wetland impacts and are in locations that have historically recovered within a short period of time are conditioned to allow one full growing season to recover before any adverse impacts are assessed. (OCM considers a full growing season to be March 1 through November 1 of the same calendar year.) OCM's field staff conducts a visit to the impact site after a complete growing season to determine if any resulting impacts have indeed recovered. Any evidence of residual wetland impacts is reported and compensatory mitigation is pursued. A condition asking for pre- and post photos of the work area may be required. Based on the individual project data from 1997 to 2009, approximately 1,154 distinct permits required a one year growing season condition for impacts to marsh habitat. Of these 1,154 permits, 585 of these permits required no mitigation (the site fully recovered), 92 of the permits required mitigation because fully habitat recovery did not occur, and 477 permits are still waiting on a one year growing season field investigation report to determine if mitigation will be required. The Mitigation Section has alerted the Field Services Section and has submitted a list of these 477 permits and recommended that the field staff gradually monitor these projects by segmenting the permits into specific regions and then monitor 3 to 5 of these on a monthly or bi-monthly timetable.

Spoil Bank Maintenance:

In the interest of implementing smart public policy, the OCM has recently adopted a new policy regarding the maintenance of spoil banks in coastal Louisiana. The OCM now has a policy of allowing a one year growing season for impacts relating to spoil bank maintenance. The OCM recognizes that in many, but not all, instances it is in the best ecological interest to maintain existing spoil banks for the conservation and protection of adjacent and/or nearby marshes and other coastal habitats. The OCM has implemented a one year growing season to allow for the regeneration of wetland vegetation on spoil banks that have been impacted by dredging activities (new spoil placement on existing spoil banks) prior to assessment of mitigation requirements. The OCM acknowledges that these existing spoil banks are impacted by the aforementioned activities but believes that the benefits of maintaining these spoil banks outweigh the temporal loss from impacts in many instances and that public policy that encourages this practice is in the best interest of Louisiana's coastal wetlands. At this time, it is recommended that this policy be continued.

Temporary Impacts Leading to Sustainable Habitat:

OCM has also adopted a policy of allowing habitat impacts relating to deposition of spoil and other material to existing wetland habitat and adjacent wetland habitat. The OCM has adopted a policy of allowing a one year growing season in instances when spoil, in-situ material, or other dredged material is placed on existing broken or deteriorating wetland habitats in coastal Louisiana. The OCM recognizes that in many, but not all, instances it is in the best ecological interest to nourish these marshes in severe decline for the conservation and protection of adjacent and/or nearby marshes and that the habitat benefits outweigh the temporary impacts to these habitats in most instances. At this time, it is recommended that this policy be continued.

For longer linear projects, usually greater than 10,000 feet in length, or for projects in sensitive locations, pre- and post-construction scaled aerial photographs are required and this is stated as a permit condition. Post-construction photographs are required to be taken and submitted by the permittee to the mitigation analyst after one full growing season. Mitigation obligations are determined by comparing pre and post photographs and site visits on the ground. Historically, the use of this condition has been accepted by permittees and these conditions encourage them to restore or minimize project impacts, thus reducing mitigation impacts for these types of permitted activities. In some cases, aerial photographs are not required in the permit condition; instead, on-the-ground images of the completed work are requested of all of the vegetated portions of the work area.

In some instances, the permittee may be required to submit proof that a bond has been secured prior to commencing the activity for which mitigation is required. This may be required to allow the permittee to commence activities until the final mitigation obligation is determined. The permittee is required to submit proof of renewal of the bond no less than 60 days prior to the expiration of the bond. In the event that the permittee fails to renew the bond within the specified time period, the bond will be cashed and resulting monies will be deposited in the mitigation fund. Once the permittee has met the mitigation obligation, the value of the bond is returned to the permittee.

Permit conditions relating to mitigation need improvement. Mitigation conditions, as outlined in the permit conditions, need to be more clearly stated. Specifically, OCM feels there should be a requirement clearly stated in the permit conditions that mitigation is required prior to impact activity initiation or that a bond is required to cover the mitigation obligations before allowing commencement of activity. The permit conditions need to clearly state the requirements for initiation dates so that one year growing season inspections can be set more accurately. OCM should clearly state any associated penalties for not performing the required mitigation and for not maintaining individual mitigation projects in the permit conditions. If a bond is required, the OCM should consider assessing a penalty (require more mitigation) for temporal loss based on a multiplier or other factor.

OCM believes a permit condition should be initiated that requires self-reporting of mitigation monitoring by the permittee to OCM mitigation analysts and field services staff. This is not intended to supplant OCM's monitoring efforts but will be used to supplement OCM's

mitigation monitoring. Total reliance on OCM field staff is not reasonable, cost efficient or effective.

Evaluation of protocols used for tracking and implementation of individual mitigation projects:

Currently the permittee notifies OCM of commencement of mitigation work which is authorized under a permit. The permittee can notify the analyst at OCM by using one of three methods: providing the information in writing, entering the information through the online system within three (3) days of the date of initiation of the authorized work, or by mailing the green card that is issued with the permit on the day of project initiation. The permittee is not responsible for notifying OCM when the work is complete, however, the OCM should consider requiring the permittee to notify OCM when work has been completed.

The Field Services Section of OCM is responsible for systematically monitoring and conducting surveillance of mitigation activities to ensure that conditions of the permit(s) are satisfied. If a project is determined to be out of compliance with the stated permit conditions, the following process is put into place for bringing the project back into compliance with permit conditions. Once the field services biologist performs a biological assessment of a mitigation project and finds the project to be out of compliant, they notify OCM Enforcement personnel. This notification can occur in a number of ways. However, a compliance assessment report marked as “Major” or “Minor” is the usual method of notification. Failed mitigation or non-completed/initiated mitigation is marked on the report by field services personnel when given to Enforcement. Enforcement personnel reviews the conditions of the permit and cross-references the SONRIS monitoring database and the permit file to see if required information was submitted. The enforcement staff ensures that non-compliance is documented in the monitoring database and the applicant is then promptly notified of the non-compliance by Enforcement personnel via letter, phone call or both.

An enforcement file can be opened at any time by enforcement personnel once non-compliance is verified and documented. An explanation letter is requested by enforcement personnel from the non-compliant party within 30 days to procure relevant information regarding the processing and disposition of the non-compliance. When a mitigation effort fails to meet the minimum requirements of enforcement, the protocol is to inform the permittee of the field assessment and request action to bring the mitigation obligation into compliance (more planting, increased species diversity, alternate site, etc.). Coordination takes place between the enforcement section and the mitigation section for a WVA to determine the remaining credits owed.

The enforcement staff also coordinates with the applicant to determine whether to correct the existing mitigation, conduct an alternative mitigation project or purchase mitigation credits from an approved mitigation bank. Enforcement notifies the applicant of remaining mitigation obligations in writing or by phone and provides the follow up effort approximately 60 days later to make sure that mitigation obligations are met.

The Field Services Section is also responsible for providing timely and accurate information, including monitoring schedules and success criteria, about mitigation projects performed in conformance with the Louisiana Coastal Resources Program and the Louisiana Coastal Wetlands

Conservation Plan. To that end, OCM maintains a database of mitigation projects associated with uses of state concern and a separate database of mitigation projects associated with uses of local concern. The local programs section of OCM has provided the local coastal programs with programmatic mitigation success criteria for use in local mitigation projects. 1,465 permits were issued by local programs from 1997 to 2009. Of the 1,465 permits issued, 100 permits required mitigation, 57 of them made contributions to the mitigation trust fund, 27 purchased credits from a mitigation bank and 16 individual projects were implemented. Current procedures provide for entry of the mitigation data into the monitoring database of all mitigation projects.

OCM Field Services Section maintains a database of mitigation activities including specific monitoring requirements for each of those activities. A complete listing of the mitigation activities and pertinent data from those activities is maintained by GIS personnel in order to fully track the mitigation activities performed as requirements of each individual CUP. This data is used in the Legislative Performance Indicators Report and the Coastal Wetland Conservation Plan reports.

Ideally, mitigation projects should be initiated prior to or concurrently with the impacting activity's occurrence. Some permits state that mitigation shall occur prior to the initiation of work while others require mitigation to be performed within a specified time period (usually 30 to 60 days.) These items are usually addressed in the mitigation plan. Only sound, attainable mitigation plans with upfront guarantees for whole or partial failure to prevent protracted mitigation disputes should be approved and/or accepted. In some instances, on-site mitigation should be required at the time of the impacting activity.

The USACE has started requiring proof of purchase of credits from a mitigation bank prior to permit issuance (when the purchase of credits from a mitigation bank are acceptable.) The OCM currently requires the applicant to submit proof of credit purchase before initiating impact(s) or similar, however OCM currently issues permits prior to receiving proof of credit purchase. The OCM should consider moving toward the USACE policy of requiring proof of purchase prior to issuing permits to further ensure that temporal loss is accounted for, although permit applicants may not be in favor of this policy change.

In general, the protocols currently in place for tracking and implementing mitigation projects are adequate. In December of 2009, the monitoring database was audited and sanitized by several mitigation and support services section staff members. The primary cause for discrepancy in the monitoring database was missing or incorrect habitat code sheets. It is recommended at this time that an effort be made to create "electronic" code sheets within the current electronic permitting system.

It should be noted that there are problems associated with applicants being responsible for mitigation obligations. This problem is most prevalent with regard to impacts generated from oil and gas exploration and production activities. Within the oil and gas industry, smaller companies and operators frequently go bankrupt, fold or get consumed by other companies and/or corporations, leaving mitigation that may have not been completed and the new ownership may be unaware of these mitigation obligations. When this happens, OCM must ensure that a responsible party for the mitigation obligation exists and these associated habitat

loss does not go unaccounted for. It is recommended that that OCM develop a method to notify new ownership of the previous company's mitigation obligations.

Evaluation of the adequacy of individual mitigation project monitoring:

The field services staff is currently responsible for the monitoring and subsequent compliance verification of individual mitigation projects. The compliance program for mitigation projects is based on the conditions that are set forth in the Coastal Use Permit (CUP) or GP -11 for the mitigation project.

In an effort to address the issues that have been identified, OCM has developed numerous interrelated database tables, applications, and reports within the electronic system to aid the staff in tracking permit conditions and mitigation requirements and documenting their progression toward completion. This monitoring database is set up to notify the appropriate field service personnel of required mitigation monitoring at Year 1, Year 3, Year 5, Year 10 Year 20 (marsh mitigation), and Year 50 (wetland/swamp forest mitigation). The OCM policy of project monitoring after initial (Year 1) compliance is relatively new.

It is OCM's responsibility to ensure that there is no net loss of wetlands resulting from a permitted activity. In order to meet this responsibility, OCM assigns specific monitoring periods and success criteria to all mitigation projects. Historically, prior to 2004, OCM performed field inspections on all mitigation projects to determine initial compliance; however, they were not evaluating the mitigation projects over the long term (20 or 50-year projects.) In general, permittees are responsible for the maintenance of the mitigation project for either 20 or 50 year life spans.

Restoration or recovery of impacted sites and individual mitigation projects are monitored by OCM's field staff for compliance. Monitoring for compliance and maintenance of mitigation banks/or mitigation project areas is overseen by OCM's mitigation staff in conjunction with the Interagency Review Team (IRT). During field monitoring, field services staff evaluates the potential of individual mitigation projects and their continued success or failure. The field services staff makes the decision as to whether or not failing mitigation plan should be allowed to continue or require the responsible party to seek an alternative mitigation plan. Mitigation plans do fail occasionally, dependent upon the mitigation site selection during the permit processing.

The Data:

The Field Services Section of OCM has developed numerous interrelated database tables, applications, and reports within the electronic system to aid the staff in tracking permit conditions and mitigation requirements and documenting their progression toward completion. This monitoring database has been assigned to one of the field services staff (Chuck/Peggy) for data entry and system updates. This monitoring database is set up to notify the appropriate field service personnel of required mitigation monitoring at Year 1, Year 3, Year 5, Year 10 Year 20 (marsh mitigation), and Year 50 (wetland/swamp forest mitigation). The OCM policy of project monitoring after initial (Year 1) compliance is relatively new. Prior to 2004 mitigation projects were only required to be monitored for initial project compliance. As of October 2009,

approximately 20 of the 694 mitigation projects have been monitored for survival following their Year 1 compliance check (Year 3 monitoring.)

According to the OCM monitoring database, 72 mitigation projects have no record of ever having even one field investigation. The database shows that currently, there are 149 permits dating from 1996-2006 that are open and being examined by the mitigation section. A list of these projects was turned over to the field service staff for monitoring in February 2010.

GIS support staff has queried the database for mitigation data associated with impacting projects from P19970010 through P20090421. The data for 647 impacting projects covered by 694 mitigation requirements yielded results from which a few conclusions were drawn. For 50.1% of impacted acres, the mitigation was satisfied through purchase of credits from a mitigation bank or by contribution to the mitigation trust fund or contribution to the affected landowner. The query on impacting projects also showed that there have been at least 4 other types of compensatory mitigation implemented to offset impacted coastal habitats (by impacted acreage): 6% shoreline stabilization, 21% tree or herbaceous plantings, 13% wetlands creation, and 7% of coastal habitat impacts were offset with conservation easements. Less than 2% of all individual mitigation measures (by amount and acreage impacted) were mitigation projects consisting of sediment fences, backfill activities, terracing and herbaceous plantings, earthen plugs, culverts or weirs. **(See Appendix C, Figure 1.)**

The field services staff performs on the ground monitoring, aerial monitoring, photo analysis/interpretation and other forms of remote sensing to monitor individual mitigation projects. All monitoring reports address the conditions of the permit as they relate to mitigation activities and all associated records are generated by the field services staff. Through the life of the CUP Program, each year the mitigation monitoring work load has grown exponentially, however monitoring OCM field staff levels have remained the same. Neither the field services section nor the mitigation section has the staff required to do adequate monitoring and tracking of all mitigation projects. It is thought that without additional staffing, the current field services staff will struggle to keep up with initial compliance monitoring and monitoring of projects at Year 3, Year 5, Year 10, to Year 50. Significant staff increases would be required to adequately address the current mitigation monitoring requirements in addition to addressing the concerns of any new monitoring requirements. This is yet another reason that it is recommended that OCM require the applicants to be responsible for the monitoring and self reporting of their mitigation project(s).

Evaluation of permittee options for reconstruction and/or protection strategies:

At the present time, there is no contingency plan in place for failed mitigation projects that require 20 or 50 year follow-up. The applicant is responsible for maintaining the mitigation project for the required time period; however this uncertainty, with regard to the mitigation maintenance obligation, makes the purchase of credits from a mitigation bank or mitigation contribution more appealing to the applicant.

In order to avert project failure, the best way to ensure mitigation project viability and sustainability is to address all potential shortfalls during the mitigation evaluation process. The

permit and/or mitigation analysts must direct the applicant to perform mitigation work at a site that will be self-sustaining over the 20 or 50 year life of the project. It is recommended that the mitigation analysts become more specialized in the evaluation of individual mitigation projects and thoroughly review and make recommendations on individual mitigation plans. This is best accomplished in the field with the field services staff.

When the field services monitoring or enforcement staff person encounters a failed mitigation project during a site visit he or she begins the process of deciding whether or not to continue with a mitigation plan that appears to be failing or seek an alternative mitigation plan. The field services staff person assists applicants by making mitigation recommendations and providing the applicants with alternative mitigation options when mitigation projects fail.

There are many environmental factors that can not be anticipated which can lead to project failure: tropical events, drought, flood, insects, disease, fire and other “force majeure” events. Such events are difficult to quantify or address considering the ongoing, dynamic processes within coastal Louisiana. These events (mainly tropical storms and hurricanes) leave little or no insurance for success of individual mitigation projects. All protection and reconstruction obligations remain with the applicant and it should be understood that the applicant’s mitigation project is vulnerable at these times. There is currently no viable way to insure or protect mitigation projects except to “over-construct” the project to account for accidental, natural, anticipated, and unanticipated negative environmental impacts.

Mitigation Bank Option - Evaluation of the process by which a mitigation banks are approved and mitigation bank instrument conditions:

Prospective mitigation bank sponsors, usually the landowner, contacts the OCM concerning the desire to establish a mitigation bank. OCM encourages the sponsor to prepare a draft prospectus using the USACE Prospectus Checklist that will provide preliminary details about the establishment and operation of the mitigation bank. If the landowner does not have the knowledge or background to provide the information required in the checklist, he may choose to employ an agent to do most of the background work. This usually results in additional costs to the bank’s sponsor but can save time. The prospective sponsor then presents the prospective bank to the Interagency Review Team (IRT.) The IRT is co-chaired by the OCM and the USACE, with commenting members consisting of, but not limited to, the USFWS, NOAA, EPA and LDWF.

If the IRT sees potential in the proposal, the sponsor will be asked to meet with IRT members, either at the proposed bank site or in an office meeting, to explain the scope of the proposal. Setting up these meetings or site visits may be delayed due to agency schedule conflicts. If the bank is located in a relatively remote location, access to the bank site may require complicated logistics (transportation, etc.) It is preferred that the initial meeting be held in an office setting to allow the agency personnel present to make preliminary comments and provide time for the agencies to review their in-house data before meeting at the prospective bank site. Each commenting-agency member of the IRT has an agency mandate that differs from the others, so it is in the prospective bank sponsor’s best interest that all agencies with an interest in the proposed bank are in attendance. If an agency is absent from a meeting or site visit, their comments may be delayed until any questions or suggestions they may have are addressed. Armed with in-

house database information, the agencies can meet with the prospective sponsor at the bank site and discuss the proposal in a more efficient and timely manner. The IRT members can suggest, if necessary, bank plan modifications that would make the design of the bank more acceptable to the agencies and the IRT as a whole.

Following several meetings and site visits, the IRT members generate and distribute their individual agency comments to the prospective bank sponsor, at which time he or she prepares the final prospectus to be submitted with a permit application to OCM. OCM permit staff reviews the application and a public notice is filed. The issuance of a permit may be delayed if comments received during the commenting period result in the need for additional information from the applicant or if the comments result in the need for design changes. While the bank proposal is on public notice, the prospective bank sponsor usually (should) prepares a draft mitigation banking instrument (MBI) that details the physical and legal characteristics of the bank and how the bank will be established and operated. If the landowner is unable to prepare the draft document, it may be in his best interest to have a qualified agent prepare the document.

Once the draft MBI has been prepared and submitted to the IRT, each IRT agency will independently review the document and provide comments as necessary. Reviews are sometimes delayed due to agency work load. The IRT may discuss the bank proposal and the MBI language at an IRT meeting. Scheduling the IRT meetings are subject to agency availability and also lengthens the mitigation bank evaluation process but are critical to evaluating and assigning habitat credits to the banks. Occasionally, agency comments will require modifications to the MBI. When the IRT is satisfied that the MBI is appropriate for the particular bank proposal, a conservation easement has been established on the bank property, and financial assurances have been properly documented, the MBI will be circulated for signature by the sponsor and the IRT agencies that wish to participate in the use of the bank. After the applicable permits are issued, the sponsor will be allowed to sell mitigation credits as indicated in the signed/approved MBI. It is recommended that OCM and the NOD consider setting a recurring monthly meeting of the IRT.

In January of 2010, the Environmental Law Institute released free guidance for developing mitigation banking instruments and in-lieu fee programs. The guidance document even includes sample language that is recommended for use in developing these documents. This document can be found at the following address: http://www.elistore.org/reports_detail.asp?ID=11390

The mitigation bank review and approval process takes approximately 9-12 months to complete due to new federal regulations regarding the mitigation bank process. In general, OCM believes the current mitigation bank process to be acceptable and will not request any significant changes to the process at this time. However, OCM's is concerned that the USACE is still getting acclimated to their new system, as revised, under the 2008 Rules, and consequently is frequently changing the MBI template. OCM's greatest concern at this time is having language in these new MBIs that specifically references OCM, particularly with regard to the reporting and monitoring portions of these instruments. Progress and improvements have been made recently and the "OCM language" is currently being included in all of the most recent MBIs that the OCM is reviewing. OCM should continue its communication with its USACE partners. With

better predictability, the IRT will encourage more potential bank sponsors to apply and subsequently get approved.

(Financial Assurances and Credit Release addressed below in Economic Viability Section.)

Evaluation of the current method of tracking of mitigation bank credits:

In December 2008, mitigation banks within Coastal Louisiana were notified by OCM that they would be required to report annually to OCM all habitat credits purchased, as required by OCM and/or the USACE for unavoidable loss of wetland habitat as a result of any permitted activity. This letter did not explicitly state that OCM would need proof of purchases for each OCM & USACE required purchase at it occurred. Please note that the banks had been accustomed to sending proofs of purchases to only the entity that required the purchase, and therefore, to date, OCM has only received letters for proofs of purchases for our own requirements. Another letter was sent to the banks in August 2009 explicitly stating that OCM intended for the banks to send proofs of purchases for each required purchase resulting from permitted activities made by OCM & USACE as they occur.

In January of 2009, OCM received the ledgers from the banks detailing all transactions stemming from OCM & USACE permitting requirements. These ledgers enabled OCM to more accurately assess the credit availability of the banks because they included both the credits the USACE required as well as the credits OCM required their permittees to purchase; nevertheless these ledgers only represented what the banks themselves declare as true and accurate regarding availability of credits. Subsequently, in January 2010, OCM again requested this information of the mitigation banks.

OCM's GIS staff entered information from the mitigation bank ledgers as a layer on the interactive map application in February 2009; making the information available to the public for use as an up-to-date mitigation bank credit tracking system. The tracking system is frequently updated and is believed to be sufficient. Placing this information on the SORIS interactive map feature has given the applicants the ability to determine the availability of mitigation bank credits and has added transparency to the mitigation process.

While it is the responsibility of the banks to be honest in their transactions, it is OCM's responsibility to ensure that banks and bank sponsors report the purchase of bank credits accurately and in a manner that affords OCM the opportunity to monitor, audit, and challenge, where necessary, any erroneous findings. To meet this responsibility, OCM must work to improve communications with the USACE and the mitigation banks. OCM recently discovered, from the ledgers, that one mitigation bank oversold by approximately 80 acres, constituting an unlawful enrichment of itself by hundreds of thousands of permittee dollars. The overage in acres sold went unnoticed by the mitigation staff because they were not in possession of the original, signed mitigation banking agreements. Once in possession of those agreements, OCM mitigation staff was able to audit the acres sold to determine reporting accuracy. This finding reinforced the need for OCM to take a more aggressive approach to monitoring their mitigation requirements. In response to this, the OCM worked with the USACE and the sponsor of the mitigation bank to rectify the situation.

Today, viable, healthy, and successful mitigation banks in coastal Louisiana hold significant value presumably due to the unusual role they play in reshaping the fragile landscape and complicated ecosystems they come to function as. In an effort to promote successful banks in the coastal Louisiana, the banks have been given a high degree of latitude. Since the OCM and the USACE have both initiated the use of on-line mitigation bank credit tracking, these issues appear to have been resolved.

Suggestions for Tracking Mitigation Credits:

OCM and the USACE should request that each agency notify the other of credit purchases or the intent to purchase credits from any particular bank. The request should be sent directly to the requesting party. OCM should require that all proof of purchase notifications from USACE for mitigation be sent directly to the OCM Mitigation Manager. OCM should locate and organize all original, signed mitigation banking agreements. These, and all other important documents pertaining to mitigation, should be stored in one place, in alphabetical order, and OCM should be vigilant with upkeep of all records associated with mitigation credits and projects. OCM should require consistency with regard to mitigation banks requesting and keeping the same records. Most importantly OCM should perform unannounced field investigations of banks to assess habitat condition and certify survival. OCM should audit each credit transaction and subsequently perform a WVA to verify compliance. While OCM should still require the ledgers and proofs of purchases, it would be irresponsible of OCM once again to rely exclusively on the banks to supply the information needed to continuously update the success (or failure) of the banks. OCM and USACE must take action to protect the integrity of their requirements for mitigation.

Assessment of the economic viability of mitigation banks in Coastal Louisiana:

There are nine (9) mitigation banks currently online in coastal Louisiana. Of the banks, only four (4) are actually in the coastal zone, while the other five (5) are located wholly or partially in the Conservation Plan Boundary, which was actually changed to accommodate creation of some banks. For the most part, the banks that currently exist are fresh swamp and bottomland hardwood banks. There is also one (1) fresh/intermediate marsh bank and one (1) brackish/salt marsh bank. In December 2009, the NOD notified the salt marsh bank Sponsor that he was out of compliance and required that all money received by the bank be placed in an escrow account. State and commenting members of the IRT are working with the sponsors of this bank at this time to ensure that the bank remains compliant. The lack of marsh mitigation bank opportunities has created out-of-basin and out-of-kind credit issues for the regulatory community.

Marsh Mitigation Banks:

OCM and members of the IRT have serious concerns about the economic viability of marsh mitigation banks in the coastal area of Louisiana because of the high up front costs involved in creating these banks. It appears that the engineering and construction costs associated with starting a marsh mitigation bank, deter mitigation bank investors. Additionally, the sale of credits for salt marsh banks has greatly reduced due to the slowing of marsh impacts as they relate to damage from oil and gas activities, directional drilling, etc. It could take a number of years for a marsh mitigation bank to sell the majority of its credits, and when coupled with the

high up-front cost of marsh construction, salt marsh bank ventures become unappealing to bank investors.

Because there is still a need to mitigate for damage to salt marsh in coastal Louisiana, the State solicited ideas for solutions. One suggestion was for the State to become the bank sponsor for salt marsh banks and another was for the creation and utilization of in-lieu Marsh Fee options. Recommendations are for the State to collect and bank the monies generated through an approved in-lieu fee fund instrument and for State's Dedicated Dredge Program, or a similar program, to fund small marsh creation projects in critical, shallow, open-water brackish/saline areas of the marsh within coastal Louisiana. OCM's potential in-lieu program would work hand in hand with the Office of Coastal Protection and Restoration (OCPR)'s marsh restoration and conservation efforts. Due to the lack of availability of marsh mitigation bank credits, the State will need to assume the responsibility of being the "marsh mitigation banker" through the development and implementation of its proposed in-lieu fee program to ensure that coastal Louisiana's marsh habitat are replaced and protected.

Assessment of the functionality of Mitigation Bank Financial Assurances:

Mitigation bank financial assurances are those monies required to fund a banking project from construction through achievement of long term success criteria (a viable bank.) Examples of these individual expenditures are: site preparation, hydrology improvement, planting, exotic invasive species control, and ongoing silvicultural practices. Assurances for all banks are formulated by the USACE with input from the individual bank Sponsor and the IRT. The process begins with the USACE requiring the bank sponsor to provide the total cost for establishing the bank. The USACE then verifies the cost information with a third party, usually a similar type bank, or may use a cost analysis software program to verify the cost. The USACE requires that the total cost of the financial assurance be established prior to release of credits and that not be released until after construction milestones have been reached and success criteria are achieved. The amount of financial assurance released is based on the potential for work recurrence. Every project varies in amount of financial assurances released due to the variability in construction complexities. (For example: when a sponsor indicates that site preparation will cost \$80,000 to perform, as a portion of the total cost of bank establishment, \$80,000 from the total financial assurances are released once it is confirmed that the site preparation has taken place and it is deemed to be adequate.)

OCM opines that the financial assurances currently required of a bank sponsor for establishment of forested wetlands are adequate. However, the financial assurances for marsh mitigation banks limit those bank's opportunities; in part due to the high initial construction investment required for development. These financial assurances, nevertheless, remain necessary for marsh mitigation banks as well as forested wetland banks due to the risk of failure that these banks experience.

Mitigation Bank Credit Release Schedules –

Mitigation bank credit release schedules are the amount (percentage) of credits that are released for sale after a bank has met predetermined criteria and are determined by the USACE with input from the IRT. The IRT determines the total amount of the bank's credits prior to establishment of the bank. Bank credits are calculated using the WVA and/or best professional judgment

methods as mentioned earlier. The IRT establishes a schedule for credit release based on percentage of credits available, once specific compliance milestones are reached. Below is an example of a forested wetland bank general schedule by which credits are released.

Credit Release Schedule

- 35% Administration Release (Signed MBI, Escrow, Permitted, Easement)
- 20% Site Preparation/Construction and Planting (Initial Establishment)
- 20% Initial Success Criteria (Year 1 Success Criteria Met)
- 20% Interim Success Criteria (Year 5 Success Criteria Met)
- 5% Long Term Success Criteria (Year 15, or Other Criteria Met)

The OCM believes that credit release schedules are adequate at this time. The credit release schedule is currently based upon early success milestones that allows for enough credits to be available for early sale of credit (in proportion to bank life) to help offset the large upfront bank investment. The credit release schedule also reserves enough bank credits to ensure bank success and compliance.

In-Lieu Fee Option - Evaluation of the current procedure for use of the Mitigation Trust fund:

A provision (R.S.49:214.41) of the State and Local Coastal Resources Management Act (SLCRMA) requires that the ecological value of wetlands lost due to permitted activities must be replaced or substituted. The regulations written pursuant to SCLRMA set forth the acceptable measures which may be used to provide such replacement or substitution. One such method of substitution is an in-lieu fee contribution to the “Mitigation Account” as provided by Title 43, §724. The in-lieu fee option is generally not approved unless there is no acceptable individual mitigation project or mitigation banking credits are available.

The amount of monetary contribution which can be required by the Secretary is set forth in a table in Title 43, §724.I.6, however, the schedule is outdated and does not provide sufficient funding to offset actual coastal for impacts to wetland habitats. For instance, the maximum amount the schedule allows for salt marsh is \$10,360/acre, and this does not include design costs. The Secretary cannot require that a permittee pay more than the schedule allows, but the permittee may voluntarily pay a larger amount. The federal agencies, in particular, the National Marine Fisheries Service (NMFS), contend that permittees who use in-lieu contributions should pay a higher rate than the regulations require. (Louisiana Department of Natural Resources, 2008, p.1)

OCM does not currently have a USACE compliant “In-Lieu Fee” Mitigation Program. It has been necessary from time to time to collect in-lieu fees for impacts to coastal resources and those fees have been placed in the State Wetland Trust fund, now known as the Coastal Protection and Restoration Trust Fund as required by the state’s mitigation regulations. The Department of Natural Resources is required to use monies from the Trust Fund for coastal resource restoration/creation/enhancement projects and for no other purpose. Historically, the Fund has been used to bolster a few state-only funded projects that were contracted through the Coastal Engineering or Coastal Restoration Divisions of the DNR’s Office of Coastal Restoration and Management (ex. the Dedicated Dredge Program.)

Following review of the new USACE Compensatory Mitigation for Losses of Aquatic Resources; Final Rule, dated April 10, 2008, it was determined by the OCM's mitigation section that OCM is not currently in compliance with the new Final Rule. OCM has been provided a copy of the federal rules dealing with mitigation banks and in-lieu fee programs (§332.8). In order for the state to have a "true" in-lieu fee program, as required by the new USACE regulations, it is recommended that OCM submit a proposed in-lieu fee program prospectus for USACE review and approval. OCM will likely have the only in-lieu fee fund in the State of Louisiana.

In 2007, in-lieu mitigation funds were used to supplement work being performed under a State-only funded dedicated dredge marsh creation project located on Point Au Fer Island. This expenditure of funds exhausted all funds for all habitat types. OCM's Mitigation Section recently audited the mitigation fund numbers from 2007-current and as of December 2009, the fund showed a balance of approximately \$1.1 million dollars. **Please see Appendix C, Figure 2**

Evaluation of the current in-lieu-fee fund level requirements:

Federal agencies are involved in the mitigation process for several reasons; the primary reason is that Section 404 of The Clean Water Act requires permits for entities performing action which result in discharges into water and/or wetlands. The USACE is the agency responsible for implementing the 404 program, which the Environmental Protection Agency (EPA) has delegated to it. The EPA still retains authority over aspects of the 404 program. In addition, the US Fish and Wildlife Service (USFWS) and NMFS have the authority to comment on 404 permit applications. In some cases, the New Orleans District allows contributions to the state Mitigation Account to serve as mitigation for 404 permits even though representatives of EPA, USFWS, and NMFS contend that projects that impact wetlands are not sufficiently mitigated when an in-lieu contribution is made to the Mitigation Account using the state schedule. However, the agency representatives will allow a mitigation obligation to be satisfied with a monetary contribution provided that a higher rate than the required state rate is obtained, and the state is allowed to accept a voluntary contribution in excess of amount allowed under the schedule. This means that the USACE allows in-lieu fee contributions, but at a higher rate than the state schedule. In January 2009, the USACE went on public notice to increase the in-lieu fee contribution amount it accepts to \$60,000/acre but has still been accepting contributions in the amount of \$25,400/acre (the current USACE fee amount) as recently as June 2009. The NMFS contends that the rate should be \$88,500/acre, which is based on actual cost of DNR marsh restoration projects with a 1.5 multiplier and design costs factored in. John Lopez of the Lake Pontchartrain Basin Foundation has independently arrived at a figure of \$90,000/acre (OCM has not seen the figures upon which this independent figure is based.)

The current cost of marsh creation in Louisiana is widely debated. The cost data for marsh creation, received from the Office of Coastal Protection and Restoration (OCPR), indicates the cost to be between \$36,000 and \$43,000 per acre. This estimate was based on six (6) marsh creation projects located across the coast of LA over the last three years. The average low bid per acre extended cost was \$36,284.81 and the average bid per acre extended cost was \$43,077.40. It is important to note that these costs did not take into account: the cost of preliminary engineering, surveying, land rights, engineering and design, maintenance,

construction oversight or monitoring. Using OCPR’s estimates, the cost of engineering and design (including surveying, etc.) is between \$3,000 and \$4,000 per acre. Once these amounts are added to the cost of marsh creation, the cost of building marsh in shallow open water areas of the coast is between \$39,000 and \$47,000 acre (not including land rights, easements, construction oversight and maintenance) – this is the actual cost of creating an acre of marsh in shallow open water areas using a hydraulic dredge. **Please see Appendix C, Figure 3**

In addition to the federal role indicated above, the state also has “no net loss of wetland” mitigation requirements pursuant to the Breaux Act, and by doing so, the state’s contribution for CWPPRA restoration projects was reduced from 25% to 15%. This savings has allowed the state to conserve approximately \$61 Million of the trust fund monies over the past ten years. The federal agencies keep track of the mitigation record of the state and produce a report to Congress every two years. The federal agencies have stated repeatedly that they believe that the state’s in-lieu mitigation fee system does not provide adequate mitigation to satisfy the no net loss requirements of the Breaux Act. However, they do concede that the state achieves no net loss (and greater) when state funded restoration projects are factored, so they have not found the state’s compliance with no net loss to be deficient.

Any change to the in lieu fee amount will require this change to be made to the Rules and Procedures for Mitigation (§724.I). It is also important to note that this fund level amount needs to be re-calculated on a periodic basis (every three years is suggested.) The frequency of major tropical storms and/or hurricanes also has a tremendous impact on the cost of marsh creation.

Evaluation of the process used to implement the in-lieu-fee program:

The new USACE In-Lieu Requirements clearly outline the process by which an in-lieu-fee program is implemented. The General Considerations are (33CFR332.8):

1. All in-lieu-fee programs must have an approved instrument signed by the sponsor and the district engineer prior to being used to provide compensatory mitigation for USACE permits.
2. To the maximum extent practicable, in-lieu fee project sites must be planned and designed to be self-sustaining over time, but some active management and maintenance may be required to ensure their long-term viability and sustainability.
3. All in-lieu fee programs must comply with the standards in this part, if they are to be used to provide compensatory mitigation for activities authorized by USACE permits, regardless of whether they are sited on public or private lands and whether the sponsor is a governmental or private entity.

The first step in developing a USACE approved in-lieu program is to submit a program planning document called “the compensation planning framework” in the Final Rule. The approved instrument for an in-lieu-fee program must include a compensation planning framework that will be used to select, secure, and implement aquatic resource restoration, establishment, enhancement, and/or preservation activities. The compensation planning framework must support a watershed approach to compensatory mitigation. All specific projects used to provide compensation for DA permits must be consistent with the approved compensation planning framework. Modifications to the framework must be approved as a significant modification to

the instrument by the district engineer, after consultation with the Interagency Review Team (IRT).

Next, the sponsor (State) must develop a prospectus which will then undergo the USACE review process. The sponsor is responsible for preparing all documentation associated with establishment of the mitigation bank or in-lieu fee program, including the prospectus, instrument, and other appropriate documents. The prospectus provides an overview of the proposed mitigation bank or in-lieu fee program and serves as the basis for public and initial IRT comment. For a mitigation bank, the mitigation plan, as described in §332.4(c), provides detailed plans and specifications for the mitigation bank site. For in-lieu fee programs, mitigation plans will be prepared as in-lieu fee project sites are identified after the instrument has been approved and the in-lieu fee program becomes operational. The prospectus must provide a summary of the information regarding the proposed mitigation bank or in-lieu fee program, at a sufficient level of detail to support informed public and IRT comment.

After the IRT has received public comment and reviewed the prospectus and the State chooses to proceed, the State will provide the IRT with a Draft “In-lieu Instrument.” The draft instrument must be based on the prospectus and must describe in detail the physical and legal characteristics of the in-lieu fee program and outline how it will be established and operated. For in-lieu fee programs, the draft instrument must include the following information: a description of the proposed geographic service area of the in-lieu fee program, the service area is the watershed, eco-region, physiographic province, and/or other geographic area within which the in-lieu fee program is authorized to provide compensatory mitigation required by DA permits, and the service area must be appropriately sized to ensure that the aquatic resources provided will effectively compensate for adverse environmental impacts across the entire service area. The economic viability of the mitigation bank or in-lieu fee program may also be considered in determining the size of the service area. The basis for the proposed service area must be documented in the instrument. An in-lieu fee program or umbrella mitigation banking instrument may have multiple service areas governed by its instrument (e.g., each watershed within a state or Corps district may be a separate service area under the instrument); however, all impacts and compensatory mitigation must be accounted for by service area.

Finally, after the IRT and district engineer review and approve this Draft Instrument, the State must provide the district engineer with the final in-lieu fee instrument with supporting documentation that explains how the final instrument addresses the comments provided by the IRT to the sponsor.

There may be problems related to the new USACE in-lieu requirements. The new mitigation rules require that the money collected in-lieu of mitigation be placed in an FDIC protected account. The mitigation funds are currently being placed in the State’s Coastal Protection and Restoration Fund (Trust fund) which is held by the State Treasurer’s Office. These funds are in the state treasury with the full faith and credit of the state behind them. The state treasury funds eventually make their way to an FDIC bank account. The OCM is hopeful that this will satisfy the USACE’s requirements.

Another potential concern would be the USACE's oversight of how the state funds would be dispersed. The USACE will require access to the funds located in the mitigation account in the event that the State does not implement mitigation within a reasonable time frame. However, the USACE has indicated that there will be some flexibility in regard to time requirements and the use of a consolidated set of habitat types and watershed areas.

Long Term Solution to the In-Lieu Fee Program:

The OCM should consider developing a rule change which will upgrade the in-lieu fee schedule so that it can require appropriate in-lieu contributions for permitted impacts. The OCM is currently working with the USACE to develop an in-lieu fee instrument which is compatible and compliant, to the greatest extent possible, with the new 2008 Final Rule federal requirements so that permit applicants will not have to perform separate mitigation projects or pay different fee amount to meet different agency requirements. It should be noted that when this is done, it is likely that in-lieu mitigation fee costs will increase substantially (as discussed previously.)

For OCM to come into compliance with the new 2008 Rules for Mitigation modification of its guidelines and fund levels will likely be required. Specifically, the state may need to have the three year requirement extended to 4 or 5 years to allow adequate funding levels for meaningful (large) allocations/contributions to be made to ongoing State restoration projects. Some flexibility may also be required for certain habitat types (fresh swamp), in-basin/in-kind requirements, etc. The 2008 Rules for Mitigation also assert that the State must submit in-lieu fee projects to the USACE for approval prior to spending the funds on a particular project. In general, the level of in-lieu fee program oversight the USACE is likely to require may prove detrimental to the effective implementation of this program and not be acceptable to the State.

This proposed ILF program will give permittees another legitimate compensatory mitigation option in the proposed service area. This proposed FIL program is necessary to allow for greater flexibility in regard to options for compensatory mitigation by giving a permittee a fee-in-lieu option when approved mitigation bank options are not available or when the permittee lacks the capacity to implement an individual mitigation measure. The State of Louisiana's proposed ILF program will provide funding for the restoration all habitat types in the state's coastal area. The program will provide for the funding of construction projects that will impart environmental and ecological benefits by producing marsh immediately (ex. marsh creation), enhancing existing wetlands, and improving wildlife and fisheries habitats, reducing open water areas, and protecting wetland and development infrastructures.

This program will work in concert with the State's ongoing restoration and habitat conservation efforts. The moneys collected through this program will be used to add supplemental funding to the State's restoration efforts across the Louisiana coast (adding additional acreage to marsh creation projects and enlarging other habitat conservation efforts.) Implementing mitigation immediately adjacent to and in addition to ongoing State restoration measures will help to ensure the sustainability of the mitigation and the restoration effort, and ultimately adds to the sustainability of the coastal estuary.

This program will help to facilitate important economic development projects in the coastal area of Louisiana by offering a flexible alternative for mitigation when responsible development takes

place in the coastal area. Louisiana's working coast generates more than 50% of the state's income, therefore it is important to offer this flexible mitigation option that will ultimately allow for economic development and protect and maintain the sustainability of the coastal estuary. This program will allow greater flexibility in regard to the State's and other public entity's (levee boards, etc.) implementation of Louisiana's Comprehensive Master Plan for a Sustainable Coast by allowing these public entities to protect the citizens of our great state and more feasibly mitigate the impacts associated with protection efforts.

Evaluation of the success of in-lieu-fee funded projects:

There has never been any formal monitoring of mitigation projects that have been constructed using Mitigation Trust Fund monies. Historically, the Coastal Restoration or Coastal Engineering Division of DNR managed the construction and oversight of these in-lieu fee projects and never monitored the projects because there was no money in the budget for monitoring. However, anecdotal evidence suggests that these projects have been successfully constructed, continue to persist, and appear to be self-sustaining. The projects were never monitored as that was never a budgeted item.

The OCM Mitigation Section initiated contact with the Field Services Section of OCM and a monitoring of the two (2) mitigation fund projects was conducted jointly by both sections in April 2010. Both of these projects were found to be in compliance and a report by both sections will be placed in the project permit files. These in-lieu projects have proven to provide effective and sustainable mitigation and OCM must continue to strive towards implementing a robust in-lieu fee program.

Mitigation Trust Fund Expenditures to Date:
Please see Appendix C, Figure 4

Images of Point Au Fer Dedicated Dredge Project (2007):
Please see Appendix C, Figures 5 & 6

Images of Lake Salvador Shoreline Protection Project (2001):
Please see Appendix C, Figures 7 & 8

Mitigation Contributions and Expenditures (FY 99/00-08/09):
Please see Appendix C, Figure 9

The OCM Mitigation Process - Evaluation of alternatives to avoid or minimize adverse impacts in coastal habitats:

This section provides general procedures for avoiding and minimizing adverse impacts identified in the permit review process. In addition, this section discusses restoring impacted sites when appropriate, quantifying the value of anticipated, unavoidable ecological losses within wetland areas, and appropriate and sufficient compensatory mitigation requirements.

Currently, if a proposed project shows any indication that there may be wetland impacts; a field investigation is usually requested before the permit is assigned to an analyst. During analyst's

review of a permit application regarding any activity other than oil and gas exploration, avoidance and minimization of possible impacts are discussed with the applicant. When a permit application for a proposed oil and gas exploration site is received that would impact wetlands, the determination regarding the avoidance and minimization of adverse impacts and site restoration for the proposed activity is made through the geologic review (GR) procedure (this procedure is described later in the paper.) Field investigators participate in this process when their report is submitted by suggesting alternative sites or methods to minimize impacts.

Field investigation reports include existing site conditions and parameters for mitigation calculations of habitats being impacted by project proposals. Historical field investigation reports can be used to determine area habitat trends and may be used to evaluate adverse impacts for more recent projects. (Some historical Field Investigation reports can be accessed thru the electronic system under the comments section while others can be found using document imaging.) It should be noted that mitigation is calculated on existing site conditions, not historic.

Permit and mitigation analysts are able to access in-house GIS maps provided in the OCM electronic permitting system; another tool used to evaluate potential adverse impacts, in addition to being used to review mitigation proposals. The benefits provided by this resource are similar to the information provided by OCM's topographic maps and aerial photographs.

Geologic Review Procedure:

When a new oil or gas well location falls within vegetated wetland habitat or otherwise has a direct and significant impact on coastal resources, the application must go through the geologic review process. This process involves a review of geologic and engineering data associated with the proposed new well in order to determine the least damaging surface location, while retaining the operator's ability to reach all intended target zones. OCM has an ongoing contract with the Louisiana Geologic Survey to provide the personnel with the expertise and experience necessary to satisfactorily review the project in a timely manner.

Utilizing the WVA to assess habitat losses to the impacted coastal ecosystems:

After the initial permit review, field investigation, and alternatives analysis is performed, a mitigation analyst will calculate the ecological value for unavoidable impacts and subsequently the mitigation required utilizing the WVA model. The WVA is outlined in OCM's current regulations for quantification of net gains and losses of ecological value.

The WVA, which incorporates information from the field investigation, mapping/GIS analysis and historical records, is used to quantify impacts and assess the amount of mitigation required. This method is intended to provide a timely, predictable, and transparent tool for all parties to evaluate the options available in order to make economic decisions regarding proposed projects. A more in-depth description of the WVA is included in the section of the paper that evaluates the methods used to quantify mitigation requirements.

Compensatory Mitigation Options/Procedures:

After impacts to habitat are quantified, the analyst sends a letter to the applicant/agent and/or to the impacted landowner(s) identifying the habitat impacts. The intent of this letter is determine if the landowner desired mitigation on his property and outlines several mitigation options: restoring habitat to pre-project conditions; proposing an individual mitigation plan; purchase of credits from an available mitigation bank; or contribution to the Mitigation Trust fund.

Habitat restoration to pre-project conditions is a type of mitigation requirement resulting from a project with anticipated temporary impacts that has been given a full growing season to recover. This requirement is assessed when the field biologist performs the follow-up investigation after the full growing season and determines that the site has recovered within the allotted time period. When the follow up investigation determines that the impacts are permanent, then field biologist make recommendations on what needs to be done to return the site to pre-project conditions or permanent impacts are assessed and additional mitigation may be required on or off site. The mitigation staff will review, approve and notify the applicant of the plan. The field services biologist is responsible for monitoring the completion of all mitigation requirements.

If the applicant elects to submit an individual mitigation project proposal to the permit analyst, the permit analyst forwards the project proposal to the mitigation analyst who again uses the WVA to evaluate the habitat benefits proposed by the mitigation project and determines if the proposed project accounts for or offsets the permitted impact. If it is determined by the mitigation analyst and mitigation supervisor that the individual mitigation project does account for and/or offsets the impacted action, the project is usually accepted.

Evaluation of the method of quantifying mitigation requirements (WVA & MCM):

The WVA method was originally developed for wetland restoration and planning projects in coastal Louisiana, and is a tool used to evaluate potential changes in ecosystem benefits. The use of the WVA to assess net gains and losses of ecological value is detailed in the Rules and Procedures for Mitigation and is located in §724.C. It directly applies the Habitat Evaluation Procedures (HEP), which were developed by the U.S. Fish and Wildlife Service (USFWS) and other agencies to evaluate the impacts of development projects and other activities on wetland resources. Other State and Federal agencies also use the WVA to evaluate the potential benefits of ecosystem restoration projects.

As explained in the CWPPRA WVA Methodology Introduction (USFWS 2006a):

“The WVA operates under the assumption that optimal conditions for fish and wildlife habitat within a given coastal habitat type can be characterized, and that existing or predicted conditions can be compared to that optimum to provide an index of habitat quality. Habitat quality is estimated or expressed through the use of community models developed specifically for each habitat type. Each model consists of 1) a list of variables that are considered important in characterizing fish and wildlife habitat, 2) a Suitability Index graph for each variable, which defines the assumed relationship between habitat quality (Suitability Index) and different variable values, and 3) a mathematical formula that combines the Suitability Indices for each of the component variables into a single value for habitat quality; that single value is referred to as the HSI. The output of each

model (the HSI) is assumed to have a linear relationship with the suitability of coastal ecosystems in providing fish and wildlife habitat.”

An independent peer review prepared for the USACE in July 2009 by the Battelle Memorial Institute concluded that:

“Overall, the concept and application of the models are sound for planning efforts. Models are simple representations of complex systems and, as such, must balance complexity and reality with simplicity and usability. For the WVA models, the balance has been struck fairly well. The HEP method, which is equivalent to the WVA method, has a long history of being applied to these situations. The models seem to sufficiently capture the habitats being modeled and do not have any irreparable deficiencies.”

“However, there were some issues identified with the models’ documentation, application, variables, and spreadsheet calculations and formulas. The most glaring deficiency in the WVA models is the lack of documentation to support model development, including the development of aggregation formulas, SI curves, variable weighting, data collection and variable measurement, and use of the model spreadsheets for calculations. Thorough documentation is critical to the scientific defensibility and usability of the models. Because the development and application of the models is not well-documented, there are substantial concerns regarding how future conditions will be projected and the consistent application of models within and across projects.”

The weakness of the WVA is its: lack of non-professional repeatability, lack of model verification, and it utilizes a relatively short timeframe for analysis. However, the strengths of the WVA are that: it provides a common currency across projects influencing all habitat types, it is well-suited for evaluating small projects, and the model has the ability to evolve as new information and/or data is developed.

Possible suggestions in regard to evaluating the need for mitigation and amount of mitigation would be other habitat evaluation models available to OCM. One that has been moderately well evaluated by OCM staff is the Modified Charleston Method (MCM.) However, OCM has similar concerns with MCM as with the WVA. This model is not backed by scientific data or clearly stated assumptions. Another solution would involve stating the assumptions for the WVA method and Habitat Suitability Index (HSI) models to improve confidence in the model results and provide model users with guidance on how the models are to be applied.

An independent peer review prepared for the USACE in July 2009 by the Battelle Memorial Institute concluded that:

“By necessity, models are simplified representations of complex systems. As such, only a limited number of variables can be included in models before they become unnecessarily complex. However, several external components were identified that could impact the quality of the ecosystems being modeled but were not included in the models, and the peer reviewers suggested that additional variables to reflect sea level changes (all models) and more local and direct human disturbance (some models) be included. Although the

variables in the models will certainly respond to these external stressors, it was strongly suggested that they might be included in the models as important variables. Furthermore, risk and uncertainty associated with the models capturing, responding to, and predicting the impacts of extreme environmental conditions (*e.g.*, severe weather) were not considered. “

HGM:

Another assessment tool that can potentially be considered for use in assessing coastal habitats is the HGM (Hydrogeomorphic) approach. The key assumption of the HGM approach is that abiotic properties of a wetland strongly influence the function of the wetland (i.e. hydrology and geomorphology.) The HGM approach utilizes reference sites as a standard to identify a decline in function or recovery of function. The HGM approach evaluates functions that result from the interaction of the characteristics of the site and its surrounding landscape and the physical, chemical and biological processes occurring at the site. (Shafer. USACE. 2005.)

The HGM approach uses a quantitative approach that reduces subjectivity and increases consistency in the assessment process. It provides a rapid assessment procedure that is required by regulatory personnel. However, the HGM approach lacks the ability to assess offsite impacts, assess impacts at a landscape scale and does not adequately compare different habitat types.

If OCM wants to move towards an evaluation model that incorporates some reference data, it may choose to move toward a model similar to the HGM approach of wetland evaluation. However, the development phase of the HGM would be very costly and very time consuming. It is the author's estimate that the development of an HGM model for each coastal habitat would cost between \$500,000 and \$1,000,000 (based on HGM development estimates from CalFed Program.) Coast-wide HGM development could cost more than \$10,000,000 to initially develop (author's preliminary cost estimate) and would likely not be feasible due to all of the reference sites that would be required.

It is recommended that the WVA evaluation tool continue be used by the OCM because, at this time, it is the only habitat based model (derived from the HEP), but it should consider allowing the use of the more recent WVA models which have been “stratified” to better estimate habitat increases and more accurately estimate habitat losses/impacts. The newer WVA model can more easily separate and evaluate different habitats by quantifying the benefits or impacts to habitats that are at different levels and/or degrees of degradation. The most recent WVA model modifications by the CWPPRA Environmental Work Group occurred in 2005. It is recommended that OCM consider adopting rule changes to allow for the use of the most recently updated WVA models.

Evaluation of the methods by which mitigation is proposed (Hierarchy of Mitigation):

The OCM has been using rules that dictate the “hierarchy” of mitigation. (§724.J outlines the selection of compensatory mitigation.) The Mitigation Rules state that the Secretary of DNR will consider recommendations of state and federal agencies and parishes with approved local coastal programs when selecting mitigation. The landowner is always given first right of refusal to implement a mitigation project on the affected landowners property. The rules are as follows:

First, the rules state that the mitigation must be properly located. The mitigation have an anticipated positive impact on the ecological value of the Louisiana Coastal Zone, should be on-site if the opportunity exists and located on the affected landowner's property. The mitigation should be located within the same hydrologic basin as the impact unless no feasible alternatives exist in that basin. The preference should be of the same habitat type as the impact. When no mitigation opportunities exist for the same habitat in the basin, different habitat types can be accepted. Mitigation out of basin is only accepted when no other mitigation alternatives exist within the basin. Once out of basin, same habitat types are the preferred.

When the affected landowner forfeits his/her right to require mitigation on the effected property, the acquisition of credits from an approved mitigation bank or area is given higher priority than a donation to a mitigation fund. Monetary contributions are accepted when individual mitigation project opportunities and mitigation bank opportunities do not exist. The rules state that monetary contributions are not acceptable for impacts of more than ten (10) acres.

The 2008 federal Compensatory Mitigation Rule gives top priority to mitigation banks in regard to compensatory mitigation, then individual mitigation projects and lastly, in-lieu-fee programs. The 2008 Rule also requires that permit applicants state their mitigation intentions when they apply for an application where impacts are anticipated.

Rule changes would be required in order to change the current hierarchy of mitigation. One of the most profound changes that should be considered is elevating the hierarchy of the in-lieu fee contribution and allowing for more opportunities for contributions to the mitigation trust fund. **The collection of monies into an aggregate mitigation fund allows for larger and more meaningful mitigation projects that, in turn, generate greater net ecological benefits to Louisiana's coastal resources.** The OCM should reevaluate the current hierarchy of mitigation as currently outlined in the Mitigation Rules and Regulations. One of the most profound changes to the mitigation program would be the development of a specific set of guidelines that will be used to evaluate mitigation options for specific projects. These guidelines for mitigation should ensure that the most effective and equitable means to accomplish mitigation are selected during the mitigation process. Arbitrary, predetermined regulation guidelines currently being used to determine mitigation priorities do not take OCM's goals and objectives for mitigation. These new guidelines will use objective criteria to determine the mitigation outcome for specific projects and utilized a scoring system based on the goals of the program, not a predetermined hierarchy. It is recommended that the OCM reevaluate the current hierarchy of mitigation and consider changing the current hierarchy of mitigation.

Between \$3.5 and \$4.5 billion are spent annually on compensatory mitigation, nationally (Wilkinson, Environmental Law Institute, 2009). Even though the nation is currently in an economic down turn, there will likely always be a need for infrastructure projects and infrastructure repairs to be undertaken in Louisiana's coastal area. Funds generated from mitigation could be considered a large source of conservation outlay funding for mitigation restoration. This idea works in concert with the State's (OCPR) coastal restoration and habitat conservation efforts and use of mitigation funds can be used to bolster ongoing coastal restoration efforts.

Other Efforts Contributing to No Net Loss of Wetlands:

Overall, the State is achieving no net loss of coastal wetlands. This is due in large part to the State's on-going coastal restoration efforts. There may be some small loss in habitat units and/or acreage due to the minor program deficiencies and gaps/lapses in attaining adequate mitigation due to temporal losses, etc. However, the habitat unit gains achieved by the State's ongoing coastal restoration and conservation efforts far outweigh any of these deficiencies and therefore the State of Louisiana far exceeds the mandate for 'no net loss'. The net result from state-funded restoration activities indicates wetland habitat increases of a magnitude of three times the habitat losses that take place under state permit activities.

Importance of the State's Coastal Forest Resources:

Louisiana's economy was historically driven by 2 industries, forestry and farming. Early explorers took advantage of the abundant forest stands that once flourished along the coast, often serving as the first line of defense against hazardous storms that today remain a major threat to Louisiana's coastal communities. As early settlers to the region harvested the valuable wood, they converted the rich, fertile forest land to agriculture. Today, much of Louisiana's second growth coastal forest landscape is in peril from factors such as levees, navigation and oil and gas canals, roads, railways, and agricultural lands that bisect the once-forested landscape. In addition to these factors, Louisiana has experienced a renewed interest in harvesting many wetland forest species, specifically bald cypress. Many of these factors, over time, have led to degradation of the State's coastal, wetland, and tidally influenced forests. Where alterations to hydrology have occurred, these same factors have led to introduced salt water, removal of freshwater (leading to subsidence), and water being held in the forest for greater periods of time, rendering valuable productive second growth forests unproductive and unable to offer the public and private landowner the same functions and associated values that historically they once did.

Act 548 of the 2006 Louisiana Legislative Session added R.S. 49:214.22(8) to the list of public policy statements of our coastal statute. It was enacted to promote sustainability and take hurricanes into account when managing the coast. Pursuant to R.S. 49:214.22(8), the public policy of the State is: "to support sustainable development in the coastal zone that accounts for potential impacts from hurricanes and other natural disasters and avoids environmental degradation resulting from damage to infrastructure caused by natural disasters." This statute and others dictate that the State should do all within her power to both protect and mitigate for coastal forests and other landforms and broaden the scope of mitigation as it relates to coastal forests. Also, §214.5.8 which prohibits certain activities on dunes, also illustrates the legislative intent to go beyond what we already have in SLCRMA in protecting beach dunes and other critical habitat types.

The Office of Coastal Management (OCM) proposes to implement the public policy envisioned by the legislature that encourages an overall strategy for restoring, protecting and conserving Louisiana's coastal forest system, which consists of barrier live oak forests, salt dome hardwood forests, coastal live oak-hackberry forests, bottomland hardwood forests, natural levee and Chenier forests, mixed hardwood-pine forests, pond cypress and bald cypress-tupelo forests. These coastal forest habitats help to mitigate the effects of wind and waves in the overland wind

fetch zone of the coast. These zones or areas are the portions of the coast that assist in reducing the harmful effects of wind and waves associated with tropical and other weather events. After the winds and waves are initially reduced after having come into contact with the barrier shorelines of the coast (mineral and vegetated shorelines, barrier islands, and marsh habitats), the forested coastal habitats play a much more critical role in further reducing the effects of wind speed and other effects of these powerful weather events.

The Office of Coastal Protection and Restoration (OCPR)'s *Coastal Forest Conservation Initiative* project invests in the acquisition of conservation easements, buffer zones, or fee title properties that are deemed coastal, wetland, tidally influenced or maritime forests and that meet the criteria for priority conservation properties, as defined in NOAA's Coastal Estuarine Land Conservation Plan (CELCP), within Louisiana's 19 coastal zone parishes. Implementation of the Coastal Forest Initiative consists of purchasing upwards of 40,000 forested wetland acres from several different hydrologic classes that have been shown to play a significant role as part of Louisiana's estuarine and deltaic ecosystems. The Nature Conservancy (TNC) and other NGO's have also played a role in the conservation of Louisiana's coastal forests by investing in coastal forest habitat conservation. OCM is in support of the State's *Coastal Forest Conservation Initiative* as well as TNC's efforts to restore and sustain coastal forests and aims to create and restore other coastal forest habitats to remain consistent with the portions of the State's Master Plan that pertain to coastal forestry.

Implementing a robust coastal forest mitigation program will help to restore the functionality and sustainability of coastal forests in Louisiana. The OCM should implement a program that is similar to and consistent with the State's *Coastal Forest Conservation Initiative*, would have areas be planted with desirable and sustainable coastal forest species and subsequently protected through the use of a conservation servitude and/or easement (whatever instrument is most appropriate) while minimizing the bureaucratic process associated with mitigation of coastal forest habitats. These coastal forests are critical for storm damage reduction, and furthermore, coastal forest conservation efforts aid in the protection of rare, declining, or ecologically sensitive habitats.

APPENDIX B - Summary of Recommendations for Programmatic Improvement:

- Mitigation analysts should be involved early in the permitting process to ensure a more efficient mitigation process. The mitigation analyst should determine if and when a mitigation letter will be sent to the permit applicant and landowner(s). The mitigation analyst should also be responsible for contacting the applicant or agent to start the process of developing an applicant/landowner-approved mitigation plan. Also, all individual mitigation measures and other restorative projects should be processed by a mitigation analyst as a GP-11.
- The OCM should address the shortage of field services resources (manpower) by required applicants to monitor and report (self-reporting) on individual mitigation projects. The field services staff would subsequently audit these reports to ensure compliance and perform monitoring as required. This change would require rulemaking.
- The OCM should reevaluate the current hierarchy of mitigation as currently outlined in the Mitigation Rules and Regulations. The hierarchy of mitigation should ensure that the most effective and equitable means to accomplish mitigation goals and objectives is selected during the mitigation process.
- Due to the lack of availability of marsh mitigation bank credits, the State will need to assume the responsibility of being the “marsh mitigation banker” through the development and implementation of its proposed in-lieu fee program to ensure that coastal Louisiana’s marsh habitats are replaced and protected. The State should strive to implement mitigation immediately adjacent to and in addition to ongoing State restoration measures that will help to ensure the sustainability of the mitigation and the restoration effort, and ultimately adds to the sustainability of the coastal estuary.
- The OCM should continue to strive towards implementing a robust in-lieu fee program. This program will help to facilitate important economic development projects in the coastal area of Louisiana by offering a flexible alternative for mitigation when responsible development takes place in the coastal area. Louisiana’s working coast generates more than 50% of the state’s income, therefore it is important to offer this flexible mitigation option that will ultimately allow for economic development and protect and maintain the sustainability of the coastal estuary. This program will allow greater flexibility in regard to the State’s and other public entity’s (levee boards, etc.) implementation of Louisiana’s Comprehensive Master Plan for a Sustainable Coast by allowing these public entities to protect the citizens of our great state and more feasibly mitigate the impacts associated with protection efforts in concert with the State Master Plan. The OCM does not intend to deter economic development by requiring applicants to double mitigate. Implementation of a robust in-lieu fee program will eliminate the problems and possible penalties associated with out of basin and out of kind issues.
- In order for the state to have a “true” in-lieu fee program, as required by the new USACE regulations, it is recommended that OCM submit a proposed in-lieu fee program

prospectus for USACE review and approval. It is recommended that OCM and the USACE utilize the In-Lieu Fee Program when marsh mitigation bank options or other habitat niches are not available or when mitigation options are not available due to basin location.

- OCM should consider requiring mitigation be implemented prior to or concurrently with impacting activity to account for temporal loss.
- The OCM permitting section should take action to ensure consistency in regard to permit conditions. (Permit conditions for impact permit(s) and associated mitigation permit(s) should be consistent.)
- New regulations should be developed to allow for more mitigation options including use of a USACE approved in-lieu-fee program. Also, continue to progress in regard to receiving an USACE approved in-lieu-fee program.
- The OCM permitting section should seek implementation of electronic code sheets.
- The OCM should consider that all enforcement and/or after-the-fact permittees be required to satisfy compensatory mitigation obligations by purchasing credits from a mitigation bank or in-lieu-fee program as appropriate.
- The existing regulations for landowner and applicant mitigation notification are currently inadequate and need to be addressed with new mitigation regulations.
- The OCM should continue to analyze habitat evaluation tools other than the WVA including but not limited to the MCM and HGM. Consider implementing use of the newer “stratified” WVA that has been developed by the CWPPRA Environmental Work Group through the rule making process.
- The OCM should consider implementing a penalty associated with non-compliance to account for temporal loss of habitat value during the period of non-compliance. This penalty could be based on a small multiplier or other factor.
- It is recommended that OCM develop a method to notify new ownership of the previous company’s mitigation obligations. This effort will help eliminate some enforcement actions by making companies aware of all of their mitigation obligations when business ownership changes.
- Cross training of mitigation and field services staff should occur. The cross training of staff will educate the mitigation staff as to what field services staff is seeing being implemented on the ground so that they can be more aware of what to look for during the permitting and mitigation process. Conversely, the mitigation staff will inform the field services staff of what mitigation proposals are being submitted by applicants.

- The OCM should consider requiring the permittee to notify OCM when mitigation related work has been completed. This action would give OCM another method by which to track mitigation activities.
- It is recommended that OCM and the NOD consider setting a recurring monthly meeting of the IRT.

APPENDIX C

MITIGATION COVERAGE FOR WETLAND HABITAT IMPACT PROJECTS P19970010-P20090421
647 Impact Projects Covered by 694 Mitigation Requirements

MITIGATION TYPE	MITIGATION TYPE DESCRIPTION	TYPE COUNT	TYPE PERCENT	PERDOMINANT HABITAT IMPACTED	ACREAGE IMPACTED	ACREAGE PERCENT	AMU/LOST
K10	SHORELINE STABILIZATION	14	2.0%	MARSH	145.11	6.0%	62.44
K11	SEDIMENT FENCE	1	0.1%	MARSH	2.6	0.1%	2.34
K13a	PLANTINGS: TREES	23	3.3%	FOREST	159.87	6.7%	49.23
K13b	PLANTINGS: HERBACEOUS	61	8.8%	MARSH	338.49	14.1%	274.19
K14	SPRAY	9	1.3%	MARSH	15.09	0.6%	7.98
K17	BACKFILL	1	0.1%	MARSH	3.8	0.2%	2.00
K1a	PURCHASE OF MITIGATION AREA CREDITS	168	24.2%	FOREST	658.63	27.4%	385.56
K1b	PURCHASE OF MITIGATION BANK CREDITS	111	16.0%	MARSH	202.01	8.4%	104.06
K22	CONTRIBUTION TO TRUST FUND	188	27.1%	MARSH	194.7	8.1%	88.12
K22		74	10.7%	FOREST	148.68	6.2%	26.05
K23	WETLANDS CREATION	18	2.6%	MARSH	302.3	12.6%	152.02
K24	CONSERVATION EASEMENT	7	1.0%	FOREST	177.38	7.4%	117.07
K25	PAYMENT TO LANDOWNER OR OTHER ENTITY	9	1.3%	MARSH	16.11	0.7%	6.87
K26b	TERRACING HERBACEOUS PLANTINGS	5	0.7%	MARSH	5.7	0.2%	2.19
K3a	PLUG-EARTHEN	1	0.1%	MARSH	0.58	0.0%	0.50
K4b	CULVERT FLAGGATED	1	0.1%	MARSH	0.43	0.0%	0.30
K5a	WEIR FLAGGATED	1	0.1%	MARSH	2.57	0.1%	1.59
K5b	WEIR: VARIABLE CREST	1	0.1%	MARSH	3.2	0.1%	1.79
K5c	WEIR: FIXED CREST	1	0.1%	MARSH	24	1.0%	16.66
		694			2401.25		1,300.94
							approx. CHU Lost = 48,444

Figure 1

LDNR MITIGATION CONTRIBUTIONS TO WETLANDS TRUST FOR FY07-12/1/2009

HABITAT TYPE	FY07-PRESENT SUBTOTAL
BOTTOMLAND HARDWOODS	\$ 104,472.10
FRESH/INTERMEDIATE MARSH	\$ 512,739.10
BARCKISH/SALINE MARSH	\$ 420,157.80
INTEREST (APPROXIMATE)	\$ 100,000.00
SUBTOTAL WITHOUT INTEREST	\$ 1,037,369.00

Figure 2

Marsh Creation Projects Since 2007	Funding	Extended Cost/Acre (Low)	Extended Cost/Acre (Avg)
Point Au Fer Ded. Dredge	Mitigation	\$36,854.48	\$52,151.47
Grand Bayou Blue Ded Dredge	State	\$48,198.27	\$58,319.50
Goose Point/Point Platte	CWPPRA	\$22,174.43	\$24,785.74
North Lake Mechant	CWPPRA	\$44,221.73	\$52,348.17
Ded. Dredge at Barataria Landbridge	CWPPRA	\$24,233.31	\$26,252.17
Mississippi Sediment (Bayou Dupont)	CWPPRA	\$42,026.66	\$44,607.35
AVERAGE COST/ACRE:		\$36,284.81	\$43,077.40

Does not include:

1. E & D
2. Maintenance
3. Construction Oversight
4. Monitoring
5. Landrights

Figure 3

Mitigation Expenditures

Project	Year	Project Cost
Lake Salvador Mitigation	2001	\$367,753
Forested Wetlands	2003	\$234,600
Point Au Fer Mitigation	2007	\$915,025

Figure 4

Images of 2007 Mitigation Fund Project
Dedicated Dredge Project at Point Au Fer (Under Construction)



Dedicated Dredge Project at Point Au Fer (6 Months Post-Construction)



Figures 5 and 6

Images of 2001 Mitigation Fund Project
Lake Salvador Shoreline Protection Project



Figures 7 & 8

Mitigation Contributions and Expenditures FY 99/00-08/09

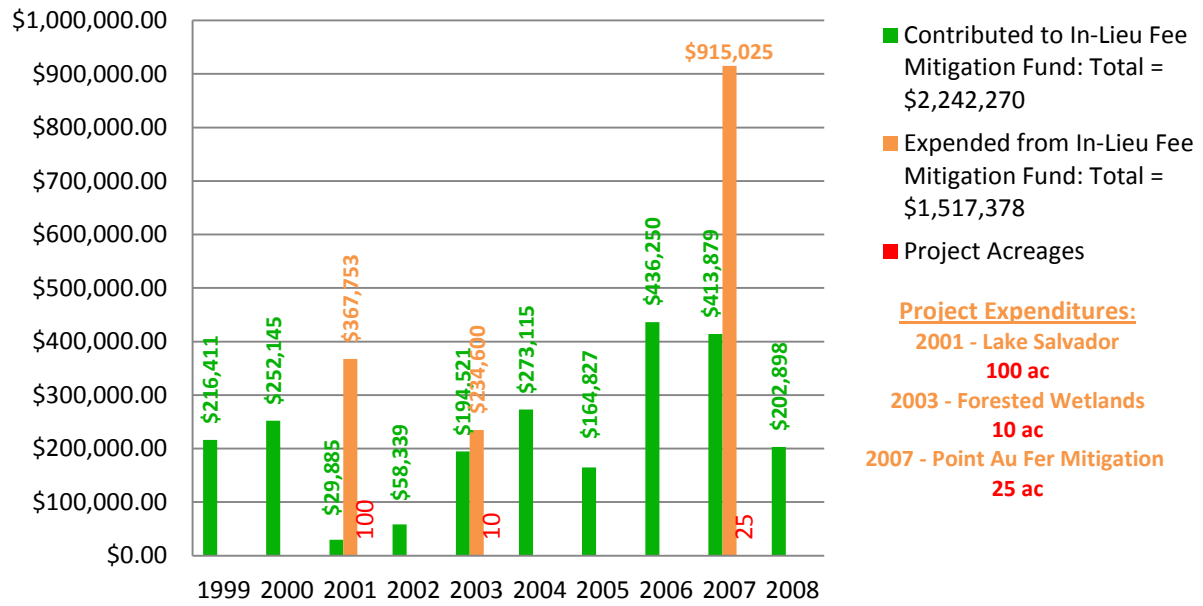


Figure 9

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