

STATE OF MISSISSIPPI

MISSISSIPPI ADVISORY COMMISSION ON MARINE RESOURCES

COMMISSION MEETING

Tuesday, July 18, 2023, 9:05 a.m.

Bolton Building Auditorium

1141 Bayview Avenue, Biloxi, Mississippi 39530

COMMISSION MEMBERS:

Ronnie Daniels
Jonathan McLendon
Jason Osborne
Cammack "Cam" Roberds

ALSO PRESENT:

Joe Spraggins, Director
Sandy Chesnut, Esquire
Steven Eckert, Esquire

REPORTED BY:

Melissa Burdine-Rodolfich
mburdine@sbmreporting.com

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1 RONNIE DANIELS:

2 Good morning, ladies and gentlemen.
3 Thank y'all for coming out. Welcome to the
4 July 18th meeting. At this time we're going to
5 call the meeting to order.

6 I would like to ask our newest
7 commissioner, Mr. Jason Osborne, to lead us in the
8 pledge of allegiance.

9 (Pledge of allegiance was recited.)

10 RONNIE DANIELS:

11 Mr. Joe, would you like to lead us in a
12 prayer this morning?

13 JOE SPRAGGINS:

14 Yeah, I would. And before we get
15 started and before we go to the prayer, you know,
16 we need to think about a lot of things. We had a
17 4th of July weekend that come out with very few
18 casualties or anything else happening during that
19 time, which is very good. Marine Patrol did a
20 fantastic job out there, and we want to thank
21 everybody for being conscious and being safe on
22 the waters in what they did, because there have
23 been a lot of weekends that we've had some things
24 happen.

25 But when you have that many boats out --

1 and it was a beautiful weekend. And when you have
2 that many boats out and that many people and good
3 Lord lets us get by with -- actually, in the Gulf,
4 none. We had no accidents or anything to amount
5 to anything. We had no casualties, so you've got
6 to be thankful for Him for that. So let's go to
7 the Lord in prayer.

8 (Moment of prayer.)

9 RONNIE DANIELS:

10 Thank you, Joe.

11 All right. Finally, we get to do this
12 again. We're going to have our oath for our new
13 commissioner, Jason Osborne.

14 JOE SPRAGGINS:

15 Go down to her. She'll do it for you.

16 (Oath administered to Jason Osborne.)

17 JOE SPRAGGINS:

18 Welcome.

19 JASON OSBORNE:

20 Thank you, sir.

21 RONNIE DANIELS:

22 Thank you for joining us, Jason. We're
23 happy to have you on board.

24 You got anything you would like to say?

25 JASON OSBORNE:

1 I would just like thank the governor for
2 giving me this opportunity. And Director
3 Spraggins and the rest of the Commissioners, I
4 look forward to working with y'all.

5 RONNIE DANIELS:

6 We look forward to it, as well.

7 JOE SPRAGGINS:

8 Yeah. I would just like to thank him.
9 Thank you very much for taking the opportunity,
10 because I know each and every one of our
11 commissioners take a lot of time out of their own
12 businesses, busy schedules just to be a part of
13 this. And the pay is so outrageous, I know that's
14 why you're doing it, but the -- but we appreciate
15 the people that take the time to do it.

16 We -- you know, I have done a little
17 research with Jason to see what's -- what his life
18 is about. And I tell you what, he comes from a
19 little bit further north than I-10, and, you know,
20 he was born in Alaska and spent some time there
21 and worked on a boat in -- boats in Alaska as far
22 as commercial fishing and doing halibut fishing
23 and did a lot of work. And you have got to think
24 about that, you know. He is bringing some
25 knowledge to us that a lot of us have never had

1 the opportunity to be able to look at.

2 He worked with a senator out of Alaska
3 named Stevens. Senator Stevens is one of the
4 Magnuson-Stevens Act. As you -- we all know, that
5 really directs a lot of things that goes on with
6 our fisheries and what we do. While -- he didn't
7 write it, but he did do a lot of the amendments
8 and worked on a lot of the amendments out of it.

9 And I told him yesterday, I said, you
10 just don't know how much I'm going to milk your
11 brain, as much as I can, to be able to find out a
12 lot of things that's going on with the
13 Magnuson-Stevens Act and what it does to us as far
14 as our fisheries, so we have a wealth of knowledge
15 coming to us with that.

16 He has been living -- you know,
17 Louisiana resident and went to school there, and
18 then for some reason, went to that Godforsaken
19 Alabama, and -- but, you know, went over there.
20 You know, can't say too much about that. He's
21 pretty good and -- but went to University of
22 Alabama.

23 But he has also -- did a lot of research
24 all over the country and he traveled daily doing
25 stuff for us, and we just don't realize what kind

1 of asset we're getting here with Mr. Osborne being
2 with us. And we appreciate you. We thank you
3 very much.

4 I think the governor was very smart by
5 appointing you. And we look forward to milking
6 that brain some every now and then whenever you're
7 at home and you get a chance and being able to
8 look at some things that you can help us with and
9 not just in the -- in the Magnuson-Stevens Act,
10 but in your wealth of knowledge of what you have
11 done over the years, and so we appreciate it.

12 JASON OSBORNE:

13 Thank you.

14 RONNIE DANIELS:

15 All righty. Do we have any discussion
16 on the minutes from June 20th?

17 CRYSTAL MATTA:

18 You need to do a motion. Never mind.
19 Okay. Ignore me.

20 RONNIE DANIELS:

21 Do we have a motion to approve the
22 minutes from June 20th?

23 CAM ROBERDS:

24 I will make a motion to approve the
25 minutes.

1 JONATHAN McLENDON:

2 I'll second.

3 RONNIE DANIELS:

4 All in favor? Aye.

5 CAM ROBERDS:

6 Aye.

7 JONATHAN McLENDON:

8 Aye.

9 JASON OSBORNE:

10 Aye.

11 RONNIE DANIELS:

12 All right. Before we do the agenda
13 here, we're going to have to make some changes to
14 the agenda for today.

15 We're going to be removing G1A, and
16 under A4, we're going to add election of officers.

17 All right. Do we have a motion to
18 approve the changes to the agenda?

19 CAM ROBERDS:

20 I will make a motion to approve the
21 changes to the agenda.

22 RONNIE DANIELS:

23 I will second.

24 All in favor?

25 JASON OSBORNE:

1 Aye.

2 CAM ROBERDS:

3 Aye.

4 JONATHAN McLENDON:

5 Aye.

6 RONNIE DANIELS:

7 Aye.

8 All right. So now, do we have a motion
9 to approve that agenda as it's now written?

10 JONATHAN McLENDON:

11 I will make that motion.

12 CAM ROBERDS:

13 I'll second.

14 RONNIE DANIELS:

15 All in favor?

16 CAM ROBERDS:

17 Aye.

18 JONATHAN McLENDON:

19 Aye.

20 JASON OSBORNE:

21 Aye.

22 RONNIE DANIELS:

23 Aye.

24 All right. We're going to back up to A4
25 now.

1 We need to have our election of officers
2 for the '23-'24 year. Every year, we elect
3 officers. We start the election with the chairman
4 and then go to vice chair.

5 Do we have any nominations for chairman?

6 CAM ROBERDS:

7 I will make a motion to nominate
8 Commissioner Daniels for chairman.

9 RONNIE DANIELS:

10 Okay.

11 JONATHAN McLENDON:

12 I will second.

13 RONNIE DANIELS:

14 We have a motion and second.

15 All in favor?

16 JASON OSBORNE:

17 Aye.

18 RONNIE DANIELS:

19 Aye.

20 CAM ROBERDS:

21 Aye.

22 JONATHAN McLENDON:

23 Aye.

24 Do we have any other nominations for
25 chairman?

1 (No response.)

2 RONNIE DANIELS:

3 All right. Can we have a motion to
4 close the nominations?

5 JONATHAN McLENDON:

6 I will make that motion.

7 RONNIE DANIELS:

8 I'll second.

9 All in favor?

10 CAM ROBERDS:

11 Aye.

12 JONATHAN McLENDON:

13 Aye.

14 JASON OSBORNE:

15 Aye.

16 RONNIE DANIELS:

17 Aye.

18 Nominations for vice chair. I would
19 like to nominate Commissioner Roberds as vice
20 chair. I will make that motion.

21 JONATHAN McLENDON:

22 I will second that.

23 RONNIE DANIELS:

24 All right. All in favor?

25 JASON OSBORNE:

1 Aye.

2 CAM ROBERDS:

3 Aye.

4 JONATHAN McLENDON:

5 Aye.

6 RONNIE DANIELS:

7 Aye.

8 Do we have any other nominations for
9 vice chair?

10 If we have no other nominations, do we
11 have a motion to close the nominations?

12 JONATHAN McLENDON:

13 I will make that motion.

14 RONNIE DANIELS:

15 I'll second.

16 All in favor?

17 JASON OSBORNE:

18 Aye.

19 JONATHAN McLENDON:

20 Aye.

21 CAM ROBERDS:

22 Aye.

23 RONNIE DANIELS:

24 Aye.

25 Sandy, we don't have to vote on anything

1 since there were only two, right?

2 SANDY CHESNUT:

3 Why don't you just ask if there is any
4 that are not in favor?

5 RONNIE DANIELS:

6 Okay. Do we have anybody not in favor
7 of the nominations that we just made?

8 SANDY CHESNUT:

9 Hearing none --

10 RONNIE DANIELS:

11 Hearing none, moving on. Thank you,
12 guys. We got that out of the way.

13 JOE SPRAGGINS:

14 It cost a lot of money to run that one.

15 RONNIE DANIELS:

16 Yeah. We've got our agenda.

17 Mr. Joe, I'm going to turn it over to
18 you.

19 JOE SPRAGGINS:

20 All right. Well, I appreciate it, and
21 I'm glad to be back. I haven't been in the office
22 for about three weeks now. I had a little knee
23 surgery, and I tell you what, the office -- I want
24 to thank the staff and everybody for what they
25 have done because they -- and I learned years ago

1 in the military that if you can leave and the
2 office run -- and the operation run the way it's
3 supposed to, then you have done a pretty good job
4 and that's the way I feel. They did a great job
5 because the staff did exactly what they were
6 supposed to do and they ran it without me and that
7 was great. And it probably ran better, so I
8 appreciate y'all doing that.

9 All right. We have got a couple of
10 things we need to talk about. Employment and
11 contracts, I don't think --

12 SANDY CHESNUT:

13 There weren't any.

14 JOE SPRAGGINS:

15 Maybe we're not going to talk about
16 them. I don't think we had any, to be honest with
17 you.

18 RONNIE DANIELS:

19 It's saying we have none for contracts.

20 CRYSTAL MATTA:

21 There isn't any.

22 JOE SPRAGGINS:

23 No contracts and no employment, right.

24 All right. Agency update. I don't know
25 if you were around 4th of July, but they made a --

1 there was a fireball out on Deer Island, and, you
2 know, it happened in the -- during the middle of
3 the fireworks that night of 4th of July. And they
4 were doing -- the fireworks went off and one of
5 them decided that -- a few of them decided to land
6 on Deer Island.

7 And Jennifer, can you give us just a
8 little bit of update on what happened there? I
9 think it wasn't that bad, but we want to let
10 people know.

11 JENNIFER WITTMANN:

12 That's correct. It was approximately
13 .22 acres that burned. It was just west of the
14 Deer Island Pier. Marine Patrol responded, as
15 well as Biloxi Fire Department.

16 Our staff went back out the next day and
17 surveyed the area. There wasn't any significant
18 damage. According to Marine Patrol and Biloxi
19 Fire, there were no injuries. And it was
20 basically just grassy shrub portions of the island
21 right next to the water line so nothing that we're
22 really concerned about. We're very glad that no
23 one was injured and that, you know, there weren't
24 any damages to the private property that was on
25 the island or the state pier.

1 JOE SPRAGGINS:

2 And that was opened back up the next
3 day, right?

4 JENNIFER WITTMANN:

5 Yes, sir. After staff went to the
6 island and we verified the information that we
7 gathered on site with the Biloxi Fire Department,
8 we re-opened the island before the close of
9 business on July 5th.

10 JOE SPRAGGINS:

11 Okay. Any questions on that?

12 (No response.)

13 JOE SPRAGGINS:

14 I just want to let you know, you know,
15 it was a lot of publicity about the fire and it
16 looked bad if you looked on TV and saw a picture
17 of it, but it wasn't as bad -- we normally burn
18 Deer Island on a regular basis, and it was -- just
19 took a little bit of it for us, so we didn't have
20 to do it.

21 All right. The oyster lease program,
22 you remember we started back in -- started the
23 session this year that we want to lease the
24 bottoms, 80 percent of them or up to 80 percent of
25 them, to people to be private industry to do

1 oyster leases.

2 I'm sad -- I mean, I'm not sad. I'm
3 glad to say that today we will be able to brief
4 you on -- and it will be in the fisheries time of
5 the briefing today that we will brief you on the
6 whole process of what we're going to do and how
7 people can go out and apply to do this and how
8 we'll be able to move forward, and it looks like
9 that everything can go live as early as this
10 Friday. And we went through the reports and went
11 through the comment period for 30 days, and then
12 we put it back out. And then we have not had any
13 issues, and so everyone seems to be on board.

14 I think this will be a great thing to be
15 able to get private industry to be able to go out
16 and do their on-bottom leases and to go along with
17 our off-bottom leases. So we'll talk about that
18 when the time comes and I will let Jason -- he's
19 going to be able to give that briefing for us at
20 that time.

21 If you haven't ever been to Neshoba
22 County Fair, you need to go one time. You know, I
23 didn't understand what it all meant. And I wasn't
24 born and raised in Mississippi, so I didn't
25 understand it, right? But about five or six years

1 ago I went to the first one that I had ever been
2 to and I tell you what, I won't miss another one
3 if the good Lord is willing.

4 It's up in a little place called
5 Philadelphia, Mississippi, and it's probably about
6 the hottest place in America in the end of July.
7 And it's going to rain, and it's going to be a
8 little bit of an issue there every now and then
9 during it, but you will never have more fun.
10 You're not going to ride a whole bunch of rides.
11 That's not what we're talking about, but there is
12 a lot of great things that happen.

13 And one of the things that happen every
14 year there is they have -- especially during
15 election years, they have all the candidates.
16 They come for the statewide elections and national
17 elections to speak. And you actually get a
18 one-on-one with them and sit there and listen to
19 them and talk to them and you can go back and talk
20 to them afterwards. They're there.

21 It's a great deal, so that's happening
22 the end of this month. And we have the luxury of
23 a few years ago, we started a thing there we
24 called "Coast Day." So the Mississippi Coast has
25 a day, and it's on the day of when a lot of the

1 elected officials come and speak. And so what we
2 do is we bring vendors there and we take vendors
3 from across the Coast and we take them up there.
4 And they basically go in and set up tents and
5 everything else and be able to talk about their
6 operation and what they're doing in Mississippi,
7 in South Mississippi. The Department of Marine
8 Resources is the one of the sponsors there and
9 we'll have it and Charmaine and them will be there
10 with the booths and we'll be giving out things.
11 And they have got this little thing called a fan.
12 It's an electric fan, you know, they give out.
13 I'll tell you what, everybody in the world wants
14 one of them because it's hot up there, and so it
15 goes over big. So a lot of things happen and you
16 will see a lot of people there you will get to
17 meet.

18 So if you -- for some reason, if you
19 have any time toward the end of July, I think it's
20 July 27th is when we will be there for the Coast
21 Day. The night before that we have a big dinner.
22 It's a cookout, and it's at one of the cabins
23 there. And it's being publicized, and it's called
24 the One Coast. And that's where everybody comes
25 together from the Coast of Mississippi and puts

1 together and we will be cooking shrimp and oysters
2 and some fish. And we will have some oysters on
3 the half shell and we will do a lot of things
4 there.

5 But we -- it started out about three or
6 four years ago with 30 people. We're up to over
7 600 now that's showing up for that. It is a huge
8 event and it's a chance for us to sell our
9 seafood. And when I say that, it's -- one of the
10 biggest things, just because you don't live on the
11 Gulf Coast of Mississippi, if you live anywhere
12 else in Mississippi, you may not know about it.
13 You may not know how great our seafood is. And so
14 what we do, we're trying to get everybody to
15 understand that this is the best seafood in the
16 world, fresh caught seafood out of the Gulf of
17 Mexico in Mississippi, some of the best that you
18 will ever eat. And so one of our goals is to sell
19 that, and we do it through Mississippi Seafood
20 Fund.

21 So if you get a chance, come up there.
22 And Commissioner, if you're in town that week,
23 just come up. Any of the other Commissioners,
24 please come up, and, you know, let's -- we will
25 have a good time, and especially on that Wednesday

1 night before. There will be a lot of great food
2 and all going on, and then the next day, there
3 will be a lot of things happening.

4 You'll get to hear the governors, the --
5 and also lieutenant governors and anyone for -- I
6 think Secretary of State even, and I'm not sure
7 exactly who's all that day, but it's both days,
8 Wednesday and Thursday. I know the Governor,
9 Lieutenant Governor, Secretary of State will be
10 there on that date, so you will be able to hear
11 them.

12 Any questions?

13 RONNIE DANIELS:

14 No, sir.

15 JOE SPRAGGINS:

16 All right. Our 2019 Bonnet Carré funds
17 have been received. Finally, we got our
18 22 million, right at it, and so we're working
19 right now to finalize it. And hopefully by the
20 first of August we will have it to where we can go
21 out and have people being able to put their
22 process together to be able to get funds, like our
23 shrimpers and oystermen and crabbers that had any
24 loss during that time. And we will also start
25 doing the programs that we need to do to be able

1 to rebuild the industry.

2 So any questions on it?

3 RONNIE DANIELS:

4 Joe, what do -- what do the fishermen
5 need to be thinking about getting together to be
6 able to apply for that?

7 JOE SPRAGGINS:

8 Rick, Traci, one of them want to come
9 up? I would rather take it straight from them.

10 RONNIE DANIELS:

11 Got it.

12 RICK BURRIS:

13 Yeah. So what we'll do is, we'll put
14 out a press release and we'll have an application
15 period. We'll have an on line application. They
16 can come in and fill out an application. Just put
17 all their information, as far as their license
18 numbers and things. We can look at names and we
19 can look at license numbers and gather all that
20 information, but they will need to come forward
21 and apply. But we will make it widely publicized
22 and have a -- probably a 30-day period where
23 people can send us all their information.

24 And once we get all the information from
25 all the applicants, then we'll start processing

1 and seeing, you know, where to go from there, but
2 that's typically how we have done it.

3 RONNIE DANIELS:

4 So all they're going to have to do is
5 verify that they had a license during that time?

6 RICK BURRIS:

7 Correct.

8 RONNIE DANIELS:

9 Okay.

10 RICK BURRIS:

11 Correct. If they could just provide us
12 with their name and their license numbers and
13 everything, then we can verify and put them in the
14 portal to start the process.

15 JOE SPRAGGINS:

16 Yeah. We will have a trip ticket part
17 of it to be able to look at it as far as --

18 RICK BURRIS:

19 They can verify all that.

20 JOE SPRAGGINS:

21 -- what they actually harvested and what
22 they lost in it.

23 RONNIE DANIELS:

24 And is that just commercial licensing?

25 RICK BURRIS:

1 So the way that we -- our spend plan had
2 some money allocated for commercial fishermen --
3 commercial fisheries losses. We had some money
4 allocated for seafood processors in there and some
5 grant programs in there. There is funds allocated
6 for charter-for-hires as well.

7 RONNIE DANIELS:

8 Okay.

9 RICK BURRIS:

10 And then several other programs for
11 restoration and seafood market and things like
12 that.

13 RONNIE DANIELS:

14 Okay. Good deal. Thank you.

15 JOE SPRAGGINS:

16 All right. Any other questions?

17 If not, we had a meeting with NOAA's
18 Assistant Secretary of Commerce and Oceans and
19 Atmosphere and the Deputy Administrator, and her
20 name is Jainey and I have -- no way in the world
21 I'm going to say this right. It's Bavishi.

22 But B -- for the record, for you, it's
23 B-A-V-I-S-H-I. So that way you will know what it
24 is.

25 But she came and met with us and a great

1 meeting. Sat down and talked to us. She was here
2 mainly to look at our NERR education and research,
3 and she was looking at it because she wanted to
4 see what we were doing on some programs and all.
5 But we had the opportunity to talk to her about
6 other programs too, and it was a great
7 opportunity. She really enjoyed being here.

8 We did not get to go to the NERR because
9 of the flooding issue during that time, but she
10 promised to come back because she wants to see it.
11 And she has promised to work with us on several
12 things that we're doing and helping us get grants
13 to be able to continue to move forward. So it was
14 a great idea to have an opportunity to meet with
15 her, and we thank her for taking the time. She
16 was over in Alabama doing some other research
17 stuff and came here to do it, so we appreciate
18 that.

19 Red snapper is closed. We have met our
20 quota. Y'all know that we -- we're cut back this
21 year, and we met our quota of 62,000 pounds and
22 it's done. The snapper is plenty -- it's
23 plentiful. There's more snapper out there than we
24 can catch. I just don't have the allocation to
25 give it to you. I wish I did, because I know it's

1 there. And if you just notice that Louisiana went
2 to four fish a day, that tells you how many durn
3 fish are out there.

4 We -- NOAA just will not bump -- back
5 off what they are doing, and we're fighting with
6 them every day. I'm hoping to get something more
7 for the future, but right now, we're in a
8 situation to where we have nothing to do -- that
9 we can do other than that because we're -- we have
10 reached our limit this year. And even though
11 that -- we have plenty of fish and plenty of big
12 fish to catch, there is not much I can do about
13 it, and I apologize.

14 We fought with NOAA over this, and we're
15 going to continue to fight with them. And if it
16 comes to it, we will do what we have to do and
17 that is, that we will take our own actions and
18 become -- doing our own MRIP studies and do it
19 ourselves and not work under NOAA anymore. That
20 will cost us between 750- and \$1 million a year to
21 do, but the legislature has been gracious to tell
22 me that they will work with me to give me the
23 money to do it.

24 So one way or the other we're going to
25 make it work, so just hang with us and hopefully

1 we can get something worked out. I'm working with
2 NOAA every day, and Andy Strelcheck is trying to
3 help me at NOAA and he's trying to help me do what
4 we can.

5 And let's see where we're at. Any
6 questions on that?

7 RONNIE DANIELS:

8 Do we know anything about the potential
9 bump in quota that they had --

10 JOE SPRAGGINS:

11 Potential bump would be 20,000 pounds,
12 and hopefully -- it's been approved by the Council
13 and it's going to NOAA, and NOAA has to get it
14 approved by the Secretary of Commerce. And we're
15 trying to get them to get that done between now
16 and like October or some time frame. And if we
17 know that it's at the Secretary of Commerce and
18 know that she is going to be able to do it, we may
19 take a gamble and just say, hey, we're opening
20 back up, and you know, we will take the gamble
21 with them.

22 But lets see what happens. I don't want
23 to tell you something that I can't -- I don't want
24 to put some false information out there, but we're
25 fighting hard to do that. We're working with the

1 states, the other states to do a reallocation and
2 it's just hard to -- you know, when you're less
3 than four percent of the total allocation -- which
4 any statistics that I have ever taken in my life,
5 four percent is a variable, and anything else less
6 than four percent is really not even accountable.

7 And we're at 3.55 percent, and they're
8 taking that -- and we're taking the brunt of
9 everything. And it's all because of a thing
10 called MRIP, and it's where they do a study and
11 the study for MRIP says that we sell 80,000
12 saltwater fishing licenses a year, and as far as
13 they're concerned, all 80,000 of them fish.

14 RONNIE DANIELS:

15 For snapper?

16 JOE SPRAGGINS:

17 Huh?

18 RONNIE DANIELS:

19 For snapper?

20 JOE SPRAGGINS:

21 Yeah. And caught their limit and they
22 caught it every day. And so it's not right, and
23 then they turn around and because -- there's
24 3 million people in Mississippi. There's a large
25 majority of them that didn't buy a license that

1 they count, too, is what they're saying, that went
2 snapper fishing and they caught our snapper. So
3 we're -- according to NOAA, we caught 700,000
4 pounds over what we should have caught every year.
5 And according to NOAA, we had an average of 800,
6 900 boats a day to go out and fish every day of
7 the season.

8 And they know this is wrong. They know
9 it's wrong. They know it 100 percent, but they
10 will not budge. And, you know, Trevor could
11 probably pull all the hair that he's got on his
12 head and off his face and everything else trying
13 to figuring it out. But Trevor Moncrief is
14 pushing for us in that and he does it. And he's
15 one of ours at the -- that goes and fights for us
16 every day for this.

17 But it doesn't work for a small state.
18 It works for a state like Florida, you know. It
19 does good because of the study and everything
20 else, percentages, but it does not -- and they
21 know this, but yet, they will not fix it. We've
22 been working with the -- Secretary Raimondo on
23 this. We've worked with Janet Coit. She
24 understands it too. They all understand that it's
25 wrong, but the scientists will not budge, and they

1 will not budge off of what they say.

2 And I don't know. It doesn't make
3 sense, you know. I'm not going to violate a law.
4 That's not what my job is, to do something to
5 violate some law, and that's the only option I
6 would have to do that, is to basically just tell
7 them I'm violating a law and not going to pay any
8 attention, and I'm just not going to do that.
9 That's not the way this business needs to be
10 operated. We will get it straightened out. It
11 may take us a year or so, but we're going to get
12 it straightened out. And one way or the other,
13 we're going to get it straightened out.

14 Any other questions?

15 (No response.)

16 JOE SPRAGGINS:

17 All right. The other thing is if you've
18 got some money sitting in your pocket and you want
19 to be able to donate and -- there is a raffle for
20 Wildlife Foundation, which we're a part of, for
21 the State of Mississippi. And it closes on
22 June -- the 30th. And I tell you what, it's --
23 there's a big expo going up on July 28th through
24 the 30th in Jackson for the Wildlife Expo, but
25 it's a lot of money there to be given away.

1 The top prize is a \$50,000 voucher from
2 Ford to buy anything you want from them, so we go
3 from there to safaris, to the big turkey hunts
4 with the greatest turkey hunters in the world to
5 fishing trips with some of the greatest fisherman
6 in salt -- you know, deep sea fishing. There is a
7 lot of things out there.

8 So if you want to, it's -- you can buy
9 them online there at www.MWFW -- FP --
10 MWFP.foundationraffle.com, and you can buy them.
11 And I think you can get 10 tickets for \$150 or you
12 can get one for -- so, you know -- but you can buy
13 whatever you want to. And, you know, a chance to
14 be able to donate to the Wildlife Foundation and
15 also a chance to win some big prizes. So go in
16 there and look at it, if you get a chance.

17 I'm getting through here in a minute,
18 sir.

19 All right. The last thing is derelict
20 vessels. 109 derelict vessel cases since last
21 July. 70 have been removed. 39 are pending right
22 now and zero left in the courts.

23 Okay. I think that's all the agency
24 updates, and now the only thing we'd like is
25 Actions Updates from Sandy.

1 SANDY CHESNUT:

2 Okay. At the June meeting, the
3 Commission recommended and the Director approved
4 the following: A fine to be issued to Doug DeLuca
5 in the amount of \$1,500 for work completed without
6 a permit on the Chambers project located at Bayou
7 Circle in Gulfport. This fine is to be paid
8 within 45 days or the matter will be forwarded to
9 the Attorney General's office for further
10 enforcement.

11 Let's see. The proposed changes to
12 Title 22, Part 1 for the oysters that conform to
13 the requirements of Senate Bill 2544 be forwarded
14 to the Secretary of State's office for final
15 adoption. That was done and that should be
16 finalized very soon.

17 They had several state saltwater finfish
18 records. They were all youth conventional tackle
19 for cownose ray for Rodie Arms, Atlantic needle
20 fish for Rodie Arms and gray trigger fish for
21 Thomas Brown. And that is it.

22 JOE SPRAGGINS:

23 Okay. Questions?

24 RONNIE DANIELS:

25 No, sir.

1 JOE SPRAGGINS:

2 All right, sir. That's all I have
3 and -- as far as I know.

4 RONNIE DANIELS:

5 That's a lot of information packed in
6 there.

7 Do any of our Commissioners have
8 anything to report today?

9 CAM ROBERDS:

10 No.

11 JONATHAN McLENDON:

12 I don't, no.

13 RONNIE DANIELS:

14 All right. Moving on, Marine Parole.
15 Chief.

16 KYLE WILKERSON:

17 Good morning. Good to see all of y'all.
18 Director, good to see you back, see you mobile.
19 You'll be running marathons before it's over with.

20 JOE SPRAGGINS:

21 I don't know about that.

22 KYLE WILKERSON:

23 Welcome, Commissioner Osborne, to the
24 panel.

25 Marine Patrol had a very compliant month

1 in June, being that is the last month of the
2 fiscal year. We were at 27 -- there was 2,700
3 checks -- or 2,700 trips for tails and scales.
4 9.8 percent on checks, so we were right at
5 above five -- well, almost 10 percent. That's
6 where we want to be. Seven citations, so we were
7 at 98 percent compliance. So at the end of the
8 day, that's what we strive for. Okay?

9 JOE SPRAGGINS:

10 Real quick on that. And NOAA won't
11 acknowledge that we have the best in America for
12 that. And whenever you get that, about how our --
13 we check, look at that. 98 percent compliance.
14 There's no other state anywhere close.

15 KYLE WILKERSON:

16 That's exactly right.

17 Year to date on total checks, we checked
18 2,484 individuals in June. That is, that puts
19 year to date, year 2023 at 21,606. That's 8,000
20 more checks than last year. So your Marine Patrol
21 officers are doing -- they're busting their butts.
22 Okay?

23 We had seven assists for the year from
24 Marine Patrol, assists for other agencies. Other
25 than that, we -- oh, I'm sorry. I digress. We

1 had three tails and scales for -- violations for
2 June. So once again, everybody is playing well.

3 That's about it, folks. If you have any
4 questions, please -- I will entertain them.

5 JOE SPRAGGINS:

6 I do have one thing that was sent to me
7 today from a mayor and -- about a help that y'all
8 did around the July the 4th time frame or 5th
9 and -- where you helped rescue some people out in
10 a boat, and they were out of Petal, Mississippi.
11 And they sent a nice note back to tell everyone
12 thank you --

13 KYLE WILKERSON:

14 I've seen it.

15 JOE SPRAGGINS:

16 -- about what had happened, but --
17 because our marine patrol saved their lives. And
18 I want to -- and they did mention Captain
19 Strickland and -- Officer Strickland also and
20 Jada, so I appreciate that, Jada Whittington. So
21 just tell them all we thank you very much and
22 y'all did a great job, and it's not left unknown,
23 that people are looking at it every day.

24 KYLE WILKERSON:

25 Well, that -- and, you know, we don't do

1 it for accolades. We -- that's our job, but it
2 does -- it does go a long way when we get a pat on
3 the back. Thank you.

4 RONNIE DANIELS:

5 Y'all are doing a fine job of it.

6 KYLE WILKERSON:

7 Thank you.

8 RONNIE DANIELS:

9 Anything else?

10 CAM ROBERDS:

11 Thank you.

12 RONNIE DANIELS:

13 We appreciate it, Chief. Thank you.

14 JONATHAN McLENDON:

15 Yes, Chief.

16 RONNIE DANIELS:

17 All right. We're going to Resources
18 Management. G1A has been removed.

19 So let's talk about Cat Island.

20 WILLA BRANTLEY:

21 Good morning. I will be presenting the
22 proposal for Cat Island.

23 It's a Mississippi Department of Marine
24 Resources Beneficial Use Dredged Material Program.

25 Oh, I'm sorry. I thought the light was on.

1 Beneficial Use of Dredged Material Program is the
2 applicant. It's on the southeastern side of Cat
3 Island in the Sound. It's in a General Use
4 District, and the agent is Anchor QEA, Renee
5 Robertson.

6 So got quite a bit of impacts here. The
7 fill is for a total of 660 acres of unvegetated
8 water bottoms. They'll create marsh habitat, dune
9 habitat and submerged berm habitat. If you add
10 those up, they do equal more than 660 acres, and
11 that's because of that berm habitat being at an
12 angle going upwards the sides of the berm, so it
13 actually is bigger in the number of acres than it
14 would be if it laid flat.

15 To create those berms, they'll be
16 dredging 13.1 million cubic yards from the Corps'
17 disposal site, which is located on the eastern
18 side of the Gulfport Federal Navigation Channel.
19 That will create the 25,000 linear feet of
20 containment berms. They will also create sediment
21 berms with some -- with dredged material, so
22 that's material that would be dredged anyway by
23 maintenance dredging projects locally, will be
24 used to create the rest of the habitat in the
25 area.

1 The berm crest maximum height will be
2 eight feet below mean lower -- eight feet mean
3 lower low water. And then the berm crest width
4 will be 300 feet, and the base width will be a
5 maximum of 1,100 feet. There will actually be two
6 phases. One phase will be 900 feet maximum base
7 width and the second one will be 1,100 feet.

8 They will construct marsh with dredged
9 material, and the final elevations are expected to
10 range between minus .5 to three feet mean lower
11 low water.

12 And this is a picture of the overall
13 site of Cat Island, and then we have a closeup
14 picture with the actual diagram of the project,
15 showing the footprint with both phases built out.

16 And then this is a much closer view.
17 This would be the berm for the first phase, and
18 then the second phase would come further to the
19 southwest here.

20 These are side views of the different
21 areas of the berms and the maximum heights and
22 widths.

23 They have asked for a variance to the
24 Mississippi Coastal Program for the regulation
25 that states that, Permanent filling of coastal

1 wetlands below the mean high tide line because of
2 potential adverse and cumulative environmental
3 impacts is not authorized.

4 They have justified this by stating that
5 the impacts on coastal wetlands would be no worse
6 than if the requirements were followed, and that's
7 because ultimately this is a restoration project.
8 It is an environmental benefit overall to create
9 habitat that's been lost.

10 Public notice appeared in the *Sun Herald*
11 and on our website as required. DEQ issued a 401
12 Water Quality Certification on July 5th of 2023.
13 Department of Archives and History had no
14 comments. The Secretary of State's office had no
15 objections, and Wildlife Fisheries and Parks had
16 no comments.

17 So based on our review and the findings
18 on the decision factors and the Coastal Program,
19 we have determined that the project is consistent
20 with the Coastal Program because it serves a
21 higher public purpose with restoration of the
22 660 acres on the southeastern tip of Cat Island
23 and by providing a beneficial use site in the
24 western Mississippi Sound where it is needed.

25 Staff requests a motion that the

1 Commission recommend to the Executive Director to
2 approve the requested variance and approve the
3 permit as requested.

4 If you have any questions, I'll be happy
5 to try to answer them.

6 CAM ROBERDS:

7 What's the duration of this project,
8 anticipated?

9 WILLA BRANTLEY:

10 I actually don't know. We give a
11 10-year permit and it can have up to two years'
12 extension on that. I think the filling in of the
13 area with dredge material will depend on how
14 quickly people are doing maintenance dredging
15 projects, so I think they want to get the berms
16 first, the Phase 1 berms built as quickly as
17 possible, and then they would fill those in as
18 dredging projects make dredge materials available.

19 CAM ROBERDS:

20 So it could be ongoing for quite some
21 time, it sounds like?

22 WILLA BRANTLEY:

23 It could be.

24 JONATHAN McLENDON:

25 And maybe I missed it, but where is

1 the -- where is the tidal flow coming from in that
2 pool?

3 WILLA BRANTLEY:

4 They actually -- when they finish
5 putting in the material that will become the
6 marsh, they will actually either let those berms
7 naturally breach, or if they don't naturally
8 breach, what they usually do is go in and breach
9 them in strategic areas.

10 JASON OSBORNE:

11 Where does the funding come from?

12 WILLA BRANTLEY:

13 It's -- all I know is it's Deepwater
14 Horizon Funds. I don't know which actual specific
15 funds it comes from.

16 JOE SPRAGGINS:

17 It's RESTORE funds, isn't it?

18 JENNIFER WITTMANN:

19 I think it's RESTORE.

20 JOE SPRAGGINS:

21 Is it RESTORE or NFWF?

22 JENNIFER WITTMANN:

23 I think it's RESTORE.

24 JOE SPRAGGINS:

25 I think it is. I think it's part of

1 the -- one of their RESTORE funds.

2 JENNIFER WITTMANN:

3 Yeah. The funding is coming through
4 Department of Environmental Quality to the agency.
5 They're actually -- DE -- or DMR will manage the
6 site because we have the Beneficial Use Program
7 and we will hold the permit, but all of the
8 engineering design and funding is coming through
9 the Department of Environmental Quality with
10 DEQ -- I mean, with Deep Water Horizon funds and I
11 believe the Director is correct that it is
12 RESTORE.

13 RONNIE DANIELS:

14 I love seeing projects like this.
15 Twelve years now I have spent on the water
16 professionally and watching habitat lost every
17 single year. So whenever we're able to put
18 something back is a massive win for everybody.
19 Even for people that don't realize how big of a
20 win this is for them, this is -- this is great for
21 Mississippi.

22 JOE SPRAGGINS:

23 Can you put the slide back up that
24 showed the map of it, of the area? That one.

25 Yeah. If you look at it, that southern

1 part of it, is that the part that we're talking
2 about working with Park Service to be -- them to
3 swap some land with us? Is that part of that?

4 JENNIFER WITTMANN:

5 So as far as I know, the discussions
6 between the National Park Service and the
7 Secretary of State's office are ongoing, but it is
8 not something that's moving very quickly. So this
9 project is being designed so that it does not
10 actually touch the Park Service property above the
11 water line. So there will be an area where it can
12 naturally fill in, but it will not -- there is not
13 an actual connection above.

14 JOE SPRAGGINS:

15 Was that southern tip, is that part of
16 that Park Service?

17 JENNIFER WITTMANN:

18 Yes, sir, the Park Service does have
19 property.

20 JOE SPRAGGINS:

21 But that's a second phase anyway, right?

22 JENNIFER WITTMANN:

23 You can see -- you can see on the -- so
24 it's right here, NPS property.

25 JOE SPRAGGINS:

1 Yeah.

2 JENNIFER WITTMANN:

3 So this indicates the location of the
4 Park Service property and then the State boundary
5 is this dotted line here, and then the Corps of
6 Engineers 2017 Cat Island template. So that's all
7 be taken into account in the engineering and
8 design of the project.

9 This is a 30 percent design, which is
10 all that is required for the permitting, and we
11 continue to move on in the process and once -- if
12 the project is approved, final design could take
13 into account changes that may take place.

14 JOE SPRAGGINS:

15 Yeah. I'm sure the Corps doesn't have a
16 problem with us doing it anyway --

17 JENNIFER WITTMANN:

18 No, sir, they do not.

19 JOE SPRAGGINS:

20 -- and being able to be that and neither
21 would the Park Service. And we're also working in
22 another area to the west side of Pelican Key,
23 right?

24 JENNIFER WITTMANN:

25 Yes, sir.

1 JOE SPRAGGINS:

2 And so both of those are going to be
3 dredge areas we can be able to put dredge for
4 whenever they dig the port.

5 JENNIFER WITTMANN:

6 Yes, sir.

7 JOE SPRAGGINS:

8 Okay. So we will be able to salvage all
9 that from what -- whenever they dredge the port
10 out and also the channels.

11 JENNIFER WITTMANN:

12 Yes, sir. And we're going to be
13 utilizing 13.1 million cubic yards of material
14 that is currently in the Corps' disposal site, as
15 well as that to the east side of the Gulfport ship
16 channel so that will free up some more capacity
17 for the Corps dredging projects as well.

18 JOE SPRAGGINS:

19 Okay.

20 WILLA BRANTLEY:

21 And just to point out that any of those
22 changes in design as they go along, this is the
23 maximum footprint, so any of that would be within
24 this footprint. It might get smaller. The berms
25 might get shorter, narrower, but they won't go

1 outside of this footprint.

2 JASON OSBORNE:

3 Where is the bottom line of the Park
4 Service boundary?

5 WILLA BRANTLEY:

6 Is it right above -- is it that?

7 JENNIFER WITTMANN:

8 I believe it's right above the "A."

9 RONNIE DANIELS:

10 Have we got any more questions?

11 (No response.)

12 RONNIE DANIELS:

13 I would like to make the motion.

14 JENNIFER WITTMANN:

15 Commissioner, we have the --

16 RONNIE DANIELS:

17 Oh, yeah, yeah, yeah. I'm sorry. We
18 have two public comments that have come in. The
19 people were unable to be here today, but they have
20 asked that they be read into the record.

21 JENNIFER WITTMANN:

22 Yes, sir. The first one is from
23 Mr. George Boddie, sent to Jennifer Wittmann,
24 Kaaren Neumann with the Corps of Engineers and
25 Jared Harris.

1 It says: Jennifer and Jared, I want to
2 compliment and thank the DMR for pursuing these
3 proactive dredging and beneficial use project
4 proposals for Cat Island. There has always been
5 an incredible burden and opportunity for Cat
6 Island because it was located down-drift and
7 adjacent to the Gulfport Ship Channel.

8 This proposed project will increase the
9 footprint of Cat Island bringing it closer to the
10 historical pre-Camille size and sustain the
11 long-term integrity, habitat and storm protection
12 it provides to the Mississippi Gulf Coast.

13 The Mobile district's last restoration
14 project has truly turned out to be a great benefit
15 to Cat Island and to our Gulf Coast. The dunes
16 that have developed as a result of the sand
17 fencing and plantings have probably exceeded
18 everyone's expectations in enhancing the island's
19 habitat.

20 I have two observations that I ask DMR
21 and the Corps to consider as part of this
22 application. The two weakest sections of the
23 beach are at the base of North Point, 30.230371,
24 89.07152, and the easternmost send of South Bayou,
25 30.220037, 89.079030. These areas have

1 historically breached, first in 1998 and again in
2 Katrina. The North Point location actually
3 experiences tidal flood -- a tidal funneling
4 effect, where the east-west island ridge
5 intersects the southern base of North Point. This
6 area also has tidal marsh ponds that extend
7 eastward to the back of the beach platform.
8 Breaches have occurred when tidal surge rapidly
9 retreats Gulfward after passage of a storm eye.
10 Extending the north end of disposal area, CP-1,
11 approximately 1,200 feet to the north would
12 strengthen this weak section. I would also
13 suggest a more gradual transition into the
14 existing beach.

15 My other suggestion is to include sand
16 fencing component and possibly some plantings to
17 the dunes and platform.

18 Thank you for your work on Cat Island
19 and consideration of these suggestions. Please
20 let me know if any additional information is
21 needed, George R. Boddie, PE.

22 And the second e-mail that was sent is
23 from Mr. Mitch Tinsley. Address, 818 Oio Place,
24 Diamondhead, Mississippi. This e-mail was just
25 sent to me.

1 Good morning, Mississippi Advisory on --
2 Commission on Marine Resources. I apologize for
3 my inability to personally attend this meeting,
4 but we appreciate the opportunity to provide
5 comments.

6 First, I would like to state that I
7 think the proposed Cat Island Beneficial Use site
8 project has incredible potential and is much
9 needed to restore and protect one of our state's
10 great resources. However, I would like to put --
11 put on record a few concerns and suggestions.

12 According to the information provided in
13 the public notice dated March 6th, 2023, it is
14 expected that pioneer plant species will
15 naturally -- will be naturally recruited within
16 the marsh and possibly the dune areas. The
17 project appears to rely solely on natural
18 recruitment without employing additional methods
19 like vegetative planting, watering or fertilizing
20 to promote seed germination and ensure plant
21 survival. Without the implementation of suitable
22 cultivation practices, the establishment of
23 healthy plant communities in the newly created
24 dune zones would be highly unlikely, if not
25 impossible. The location of the proposed

1 restoration leaves many acres of dunes, which are
2 notably separated and distanced from other
3 existing dune vegetation.

4 Additionally, there is also no mention
5 of sand fencing included in the project, which is
6 another immediate tool and means to stabilize
7 newly constructed sand dune environments. Sand
8 fencing is very effective when installed in high
9 wind environments and will trap windblown sand
10 from being displaced from the project area.

11 I believe the project should include the
12 installation of notable pioneer dune species
13 within the constructed dunes and marshes from
14 local seed and plant stock currently growing in
15 Harrison County and more specifically originating
16 from Cat Island, including suitable pioneer
17 community in a project -- I'm sorry. Including
18 suitable pioneer community in the project will
19 play a crucial role in stabilizing the dredge
20 material, preventing erosion, accumulating
21 additional materials and creating habitats for
22 critical animal species.

23 Mr. Tinsley has also included three
24 documents with his comment. One is, Restoring and
25 Managing Coastal Dune Vegetation, which is a

1 publication of the North Carolina State Extension
2 Service; Coastal Dunes, which was a publication of
3 the Texas General Land Office, and Sand Dunes
4 Could Improve Sustainable Infrastructure, which
5 was from Texas A&M Today.

6 And again, those were comments from
7 Mr. Mitch Tinsley.

8 And I have given these to the court
9 reporter to be added to the official record.

10 RONNIE DANIELS:

11 All right. Do we have any questions on
12 the comments? I guess --

13 CAM ROBERDS:

14 Yes. Sorry.

15 RONNIE DANIELS:

16 Go ahead.

17 CAM ROBERDS:

18 If it's a 30 percent design as we sit
19 now, will the -- as it gets further along in the
20 design process, will the actual projects
21 individually come in front of the Commissioners,
22 Advisory Panel or --

23 JENNIFER WITTMANN:

24 I don't believe so. Willa?

25 WILLA BRANTLEY:

1 Not typically. We and the Corps have
2 kind of learned over the years of permitting these
3 beneficial use projects that we have to build
4 adaptive management into the projects, so we
5 present them as the largest footprint, the amount
6 of fill that will take place and the type of
7 restoration that will take place, and then that
8 allows them to make some moves as they get the
9 final design done. They can, as long as they
10 don't go outside of this footprint, incorporate
11 those dune fences and plantings as needed to make
12 sure the habitat becomes what they need it to be.

13 CAM ROBERDS:

14 Understood. Thank you.

15 RONNIE DANIELS:

16 So the 30 percent completion part of it,
17 is that why we don't currently have any type of
18 fencing or vegetation in the plan?

19 WILLA BRANTLEY:

20 I am assuming so, correct. They don't
21 have those tiny -- every little detail planned
22 out. They just have the footprint.

23 JONATHAN McLENDON:

24 So if the DMR staff finds any of this
25 useful at all, it can be incorporated into the

1 project on the remaining 70 percent?

2 WILLA BRANTLEY:

3 Yes, sir.

4 RONNIE DANIELS:

5 Any more?

6 (No response.)

7 RONNIE DANIELS:

8 I will make the motion to approve the
9 staff's recommendations.

10 Do we have a second?

11 JONATHAN McLENDON:

12 I will second.

13 RONNIE DANIELS:

14 All in favor?

15 JONATHAN McLENDON:

16 Aye.

17 JASON OSBORNE:

18 Aye.

19 CAM ROBERDS:

20 Aye.

21 RONNIE DANIELS:

22 Aye.

23 All right. Thank you.

24 WILLA BRANTLEY:

25 Thank you.

1 RONNIE DANIELS:

2 Let's see. Finance and Administration,
3 Ms. Brewer.

4 LESLIE BREWER:

5 Good morning, everyone. I will be
6 presenting the financials for the end of the year,
7 June 30th, 2023.

8 At the end of the year, we had
9 \$6.1 million of state revenue. Our agency revenue
10 is at \$66.9 million.

11 Our state net income is negative
12 \$1.8 million. Our agency net income is
13 \$30.2 million. We have -- we're showing a state
14 deficit, but we don't get our appropriations until
15 usually around September, so it won't ever be
16 reflected.

17 We're ending the year with operating
18 funds of 78.2 percent of our budget and then our
19 tidelands has 22.9 percent left.

20 Any questions?

21 RONNIE DANIELS:

22 No, ma'am. Thank you.

23 LESLIE BREWER:

24 Thank you.

25 RONNIE DANIELS:

1 We'll move on to Public Affairs,
2 Ms. Charmaine.

3 CHARMAINE SCHMERMUND:

4 Good morning, Commissioners, Director
5 Spraggins, Legal. Welcome, Commissioner Osborne.

6 The Mississippi Department of Marine
7 Resources was mentioned 14 times in the local,
8 state and national media since the June MACMR
9 meeting. News items included GOMESA projects
10 announced by Governor Reeves, legislative changes
11 with derelict vessels, beginning -- oh, my gosh,
12 I'm so sorry. I printed the wrong report. This
13 is last year. Could I come back up later?

14 RONNIE DANIELS:

15 That's okay. Absolutely.

16 All right. We will move on to Marine
17 Fisheries.

18 We have got a whole lot of state records
19 to talk about here today.

20 TREVOR MONCRIEF:

21 Yeah, we made up for it.

22 RONNIE DANIELS:

23 And Rodie Armes is not on a single one
24 of them.

25 TREVOR MONCRIEF:

1 I think a couple of his records got
2 broken, so I'm sure he is going to be coming back
3 after them.

4 All right. So we've got two
5 conventional records. The first one is a
6 whitebone porgy. We don't see many of these. The
7 old record was two pounds, five ounces. The new
8 record is two pounds, 8.8 ounces. And the angler
9 Connie Boykin. This is a picture of the fish.
10 That's a picture of the angler with the fish.

11 Next one is the yellowtail snapper, also
12 one we don't see here very often, usually in South
13 Florida. The old record was seven pounds, 3.52
14 ounces. The new record is seven pounds, 9.6
15 ounces, and the angler is Mr. Gavin Friend. This
16 is the picture of the fish, picture of Gavin with
17 the fish.

18 And then we have a whole host of youth
19 conventional tackle records, and we've got some
20 impressive ones on this one.

21 So the red snapper record finally got
22 broken. The old record was 19 pounds, 1.0 ounces.
23 The new record is 20 pounds, 1.6 ounces by angler,
24 Peyton Morgan. There is a picture of Peyton with
25 the fish.

1 RONNIE DANIELS:

2 Nice.

3 TREVOR MONCRIEF:

4 Rock hind, the -- it's a new record
5 altogether. It was two pounds, 6.4 ounces, by
6 Mr. Finn Lipps. And with a name like that, you
7 can imagine he's probably going to a few records
8 in the future. There is the fish. There is Finn
9 with the fish.

10 Spanish mackerel, it's a new record as
11 well, four pounds, 6.4 ounces by angler, Ryan
12 Ross. There is a picture of the fish, and there
13 is Ryan with the fish.

14 And then that's a little typo there, but
15 it's a jack crevalle. Should be E. The older
16 record was 25 pounds, 6.4 ounces. That was
17 Rodie's record. The new record is 30 pounds, 9.0
18 ounces, which will be touch to beat. The angler
19 is Maddox Foucha. Here's a picture of the fish.
20 Here is a picture of Maddox with the fish. This
21 one was from the fishing rodeo on the 4th.

22 So all we need is a motion to recommend
23 adoption of the new state records.

24 JONATHAN McLENDON:

25 I'll make that motion.

1 RONNIE DANIELS:

2 Do we have a second?

3 CAM ROBERDS:

4 I'll second.

5 RONNIE DANIELS:

6 All in favor?

7 JASON OSBORNE:

8 Aye.

9 RONNIE DANIELS:

10 Aye.

11 CAM ROBERDS:

12 Aye.

13 JONATHAN McLENDON:

14 Aye.

15 TREVOR MONCRIEF:

16 And welcome, Commissioner Osborne.

17 Sorry about that.

18 JASON OSBORNE:

19 Thank you.

20 RONNIE DANIELS:

21 All right. Other business?

22 JOE SPRAGGINS:

23 We have got a couple of things.

24 Number 1, is GOMESA. If you want to put in for

25 your FY24 funds, we would like to have them in by

1 the end of this month, the 31st of July. And we
2 have funds to be able to do that this year and we
3 would like for you to be able to put in, and we
4 will be doing a selection on quite a bit of that
5 money probably in the next few weeks after that.
6 So if you can, go ahead and get your FY24 GOMESA
7 funds in. We appreciate it.

8 The other thing is, we would like to
9 talk about -- we talked about the on-bottom
10 fishing as far as the oysters, and I would like to
11 add that to this and -- at this time and ask Jason
12 to come up and give you a briefing.

13 JASON RIDER:

14 Good morning, Commissioners.

15 Karen, do you mind switching it?

16 This morning, I'm going to go over the
17 website we worked with -- in house to draft and to
18 give information to applicants for the on-bottom
19 leasing process.

20 So as y'all know, as y'all are well
21 aware, the last two months we have developed
22 regulations internally to match the Senate Bill
23 2544. And with those, we have developed a leasing
24 process and application for on -- anyone that's
25 interested to lease on-bottom acreage in

1 Mississippi.

2 This is not the way it's been done
3 historically, so we wanted to get a quick web page
4 up and running so people can answer most questions
5 and people become educated and then apply
6 appropriately.

7 So as you see, this web page will be --
8 if y'all have any questions at any point, please
9 stop and ask, but I will just give a brief
10 overview.

11 This web page will be on the DMR website
12 and you can gather any information related to this
13 project in this section here with the Senate Bill
14 2544. The official RFP is what we're actually
15 going to call it, so anyone that wants to apply
16 for leases will complete a Request for Proposals,
17 and this is the official document that they can
18 review and learn information.

19 Also, they can see the updated Title 21,
20 Part 1 that we have -- will officially go into
21 place this week. It will go into effect, I
22 believe, on Thursday. These are all the changes
23 that y'all have approved and y'all are aware of
24 over the last two months.

25 And then finally, we do have our permit.

1 This is our permit that we have with the Corps of
2 Engineers. It shows all the permitted area along
3 the Mississippi Gulf Coast that will be available
4 to us for this project or for these leases.

5 We have some programmatic information at
6 the top, and then we'll get into exactly what
7 people need to know. These are the conditions and
8 the requirements of what will be required of the
9 applicants while they have these leases. The
10 conditions are listed here. The property
11 classifications, I will go into this in a second,
12 but this does identify the areas of the
13 Mississippi Sound and how, essentially, we have
14 rated them for leasing -- for private leasing.

15 Cultivation and propagation requirements
16 are listed here. Reporting, terminations and
17 waivers and then subleases. At that point, that
18 gives a pretty good understanding of all the
19 requirements that the applicants will be expected
20 to abide by and follow.

21 And then they get into where exactly --
22 if they want to lease an area. So if someone has
23 an idea of where they want to lease an area in the
24 Sound, but they don't know the coordinates on
25 that, they can click this map right here. And in

1 the top left-hand corner, you do have this layers
2 tab. This is a GIS map. We have a lot of
3 information in this map and we do expect to have
4 some -- a good amount of dialogue with the
5 applicants regarding this, and we're more than
6 happy to help.

7 But as you can see, this is the western
8 Mississippi Sound and you can toggle in between
9 all these layers. This is the harvest zones,
10 riparian rights, historic footprints, property
11 classifications, that's the ranking system that we
12 have come up with. And then state-owned reefs,
13 that's the areas that the state is not leasing out
14 for private harvesting.

15 So if you're interested in a spot in the
16 Sound and you want to identify the coordinates,
17 the coordinates are listed down here in the bottom
18 right-hand corner. But you can also draw a box,
19 and what this allows you to do is pinpoint an
20 area, exactly what you want it -- where you want
21 to submit your application and gather those
22 coordinates with that. There -- we do have a
23 tutorial on the website that will show you how to
24 do this, but you can draw a box and click the
25 coordinates on that and that gives you the

1 coordinates of that area. And then if you hover
2 over the corners, it will also give the
3 coordinates. So this is a pretty good tool, and I
4 really appreciate Karen with our IT helping
5 develop that.

6 And then also on the right-hand side,
7 these are the map layers that will explain the
8 layers and what's associated with each.

9 So back to the web page, after you've
10 determined where you want to apply and you
11 understand the conditions and requirements of the
12 lease, now you're ready to apply. You have two
13 methods to apply. You can do it -- you can click
14 this, and this is a PDF form and you can fill it
15 out on your computer or you can complete it and
16 bring it to the office. We're asking that all
17 people, all applicants complete this, bring it to
18 the licensing desk on the first floor. And there
19 will be a \$50 application fee associated with all
20 applications. So, please, if you are submitting
21 this in person, you will have to bring your check
22 or cash.

23 If you don't want to print it out and
24 you'd like to do it online, you're more than
25 welcome to do so. We also have a link where you

1 complete the application on line, put in your
2 information and then you will be prompted to pay
3 at the end or submit your credit card information
4 at the end.

5 We are expected to go live with this
6 application process on July 14th, which is this
7 Friday and the -- we will close -- I'm sorry. I
8 apologize. The 21st is this Friday, and then we
9 will close -- I believe it's August 4th of next --
10 of the first week of August.

11 So if anyone has any questions, please
12 let me know at this time, and I will be happy to
13 answer.

14 JOE SPRAGGINS:

15 And Commissioners, that's with your
16 approval. We would like to have your approval to
17 say that it's okay with y'all. We went through
18 the public comments. We went through everything
19 else, and we'd like to go live on the 21st, if we
20 could.

21 RONNIE DANIELS:

22 Do y'all have any questions?

23 JONATHAN McLENDON:

24 No. Some real nice features.

25 RONNIE DANIELS:

1 Yeah. Looks great and hopefully we can
2 get our oystermen actually doing something. They
3 need it.

4 JOE SPRAGGINS:

5 Do y'all give approval?

6 RONNIE DANIELS:

7 I'm happy to make a motion to give
8 approval, if we have a second.

9 CAM ROBERDS:

10 I will second.

11 RONNIE DANIELS:

12 All in favor.

13 JONATHAN McLENDON:

14 Aye.

15 CAM ROBERDS:

16 Aye.

17 JONATHAN McLENDON:

18 Aye.

19 JASON OSBORNE:

20 Aye.

21 RONNIE DANIELS:

22 All right.

23 JASON RIDER:

24 Thank y'all very much.

25 And I do want to take a minute and just

1 tell -- say -- put a thank you to you Brian in our
2 IT department and Karen and John and also our
3 procurement department. Everyone helped out
4 tremendously with this website, and it was very
5 easy to work with. So thank y'all.

6 RONNIE DANIELS:

7 It looks good.

8 Ms. Charmaine, you ready?

9 CHARMAINE SCHMERMUND:

10 I apologize for that.

11 RONNIE DANIELS:

12 That's fine.

13 CHARMAINE SCHMERMUND:

14 The Mississippi Department of Marine
15 Resources had 14 media mentions since the June
16 MACMR meeting. News items of the small fire that
17 occurred on Deer Island on July 4th, fish records
18 and the Office of Marine fisheries tripletail
19 tagging project.

20 Office of Marine Patrol took part in the
21 summer reading program at Orange Grove Public
22 Library on June 22nd, the Stay Safe and Play event
23 on Point Cadet on June 25th, a CCA meeting in Bay
24 St. Louis on July 6th and the Biloxi Explorer
25 Academy on July 11th.

1 The Office of Coastal Resources
2 Management's Jenny Stout, Laura Moncrief and Chaz
3 Newman took part in Camp Day at the Shuckers Game
4 on June 21st. They handed out MDMR coloring books
5 and other items to campers and attendees.

6 Madison Parker gave her second
7 presentation this summer at the Humane Society of
8 South Mississippi on July 11th, where she
9 discussed crab traps with terrapin excluder
10 devices, a model shrimp trawl with a turtle
11 excluder device to show how Gulf of Mexico
12 shrimpers protect sea turtles and monofilament
13 recycling tubes found along the Coast to protect
14 marine life from being lost to abandoned fishing
15 line.

16 Class 1 and 2 of the 2023-24 Off-bottom
17 Oyster Aquaculture Training Program was June 17th
18 and July 8th. The first class was held in the
19 auditorium, had 18 participants and gave an
20 overview of oyster aquaculture, biology, growing
21 areas and business planning, among other topics.

22 The second class had 19 participants and
23 was held at USM's Thad Cochran Marine Aquaculture
24 Center. Shellfish Bureau staff began class by
25 discussing aquaculture gear, biofouling control

1 methods and storm preparation. USM's oyster
2 hatchery manager followed with a presentation on
3 hatchery basics and a tour of USM's shellfish
4 hatchery. The class concluded with a
5 demonstration on tying knots and constructing
6 off-bottom grow bags and anchor lines, and
7 participants were able to practice the techniques
8 using the various aquaculture gear.

9 And then the Mississippi Deep Sea
10 Fishing Rodeo was held July 1st through the 4th,
11 and the agency was on hand each day at the fishing
12 rodeo distributing rules and regulations
13 publications, fish ruler stickers, fish posters
14 and other informational pieces to the public.

15 RONNIE DANIELS:

16 All right.

17 JOE SPRAGGINS:

18 And one other thing, too, the Gulf --
19 Mississippi seafood will be the title sponsor this
20 year for Cruisin' the Coast.

21 RONNIE DANIELS:

22 Wow.

23 JOE SPRAGGINS:

24 And so we'll be the title sponsor for
25 Cruisin' the Coast to 30,000 people that have --

1 just from the cars.

2 CHARMAINE SCHMERMUND:

3 10,000.

4 JOE SPRAGGINS:

5 Huh?

6 CHARMAINE SCHMERMUND:

7 10,000 registrants.

8 JOE SPRAGGINS:

9 No. 30,000 is what they say come in
10 for --

11 CHARMAINE SCHMERMUND:

12 Oh, yeah, yeah, way more than that.

13 JOE SPRAGGINS:

14 And a total of 100,000 people, so what
15 better way for us to get the Mississippi seafood
16 out. And we're going to have -- be able to meet
17 every one of them as they come in and give them
18 seafood, Mississippi seafood, fresh seafood,
19 that's boiled shrimp or whatever, right there as
20 they come and register. And then also, we're
21 going to have booths set up in different places
22 during the time of Cruisin' the Coast. So
23 Charmaine and them are going to be heading that up
24 for us.

25 RONNIE DANIELS:

1 Thank you, Charmaine.

2 All right. So we have got a few public
3 comments. I'm going to bring these up how they
4 were turned in to us. First up is going to be
5 Mr. Ron Sheldon.

6 Come on up, Mr. Sheldon. If you don't
7 mind, please state your name for her.

8 RON SHELDON:

9 Good morning. My name is Ron Sheldon,
10 and I'm a lifelong resident of Pascagoula. Ever
11 since I was a little kid, a recreational
12 fishermen, and I do have some concerns that I
13 would like to bring before the Commission today.

14 One -- and this is not going to be news
15 to anyone in this room -- but mainly what I target
16 when I fish is speckled trout. I like using
17 artificials. And the speckled trout numbers are
18 steadily declining drastically over the last few
19 years.

20 And my friends -- I have a lot friends
21 that fish for trout. And, you know, the current
22 quota, I believe is 15 fish. There is no
23 limitation on the slot size, and I really wish and
24 my friends -- a lot of my friends wish there were,
25 especially during spawning season. You know,

1 there is a lot of people that go out and hit those
2 trout hard day in, day out. You know, they go and
3 get their limit of -- some people I know where
4 you've got four fishermen in the boat are getting
5 60 fish, you know, out around Horn Island, Petit
6 Bois, and they're all what I consider quite large
7 fish. They're all in the 20-inch and above range.

8 I applaud the regulations that we have
9 on redfish, the slot size that we have there. I
10 really wish the Commission would consider
11 something like that for speckled trout. To me,
12 the ideal slot size for eating is around somewhere
13 between 16 and 19 inches, you know. And when you
14 start keeping, you know, a sow that's full of roe
15 that's 25 inches long, you know, just -- I think
16 it's kind of self-defeating.

17 And it's not just the summertime when
18 they're spawning. It's the wintertime as well. I
19 fish up in Inner Harbor and around the west side
20 of the West Bank on of that oyster reef, and
21 nobody is catching the number of fish than -- what
22 we were in previous years, and I am concerned. I
23 know a lot of it was because Bonnet Carré Spillway
24 opening in 2019. It hit everybody hard.

25 I will tell you this. I fish a lot out

1 of Round Island. I'm out there. I would be out
2 there this morning -- it's slick as glass -- if I
3 wasn't here. Previous, when they opened up Bonnet
4 Carré Spillway, they didn't keep it open as long
5 for the duration as what they did in 2019, but
6 what was bad news for the western part of
7 Mississippi was good news for me because I saw it
8 time and time again when they'd open up the
9 spillway in years previous. I would catch more
10 trout on Round Island than we ever would in the
11 other years, and my theory was that freshwater was
12 pushing them further east. But it's something I
13 do wish the Commission would consider, you know.

14 15 fish, you know, you could feed a lot
15 of people with 15 fish, you know. Six fish will
16 feed a family of two. And, you know, I'm not
17 against commercial fishermen. I support
18 commercial fisherman. I think it's a good thing.
19 A lot of my friends blame it on the commercial
20 fishermen, and I don't think that's it at all.

21 When you have a group of people going
22 out, catching that many fish full of roe day in
23 and day out, it hammers them, so that's something
24 I would like to talk about there or the comments.

25 Thank you, Mr. Sheldon.

1 Anybody have any questions?

2 (No response.)

3 RONNIE DANIELS:

4 We appreciate your comments, sir.

5 RON SHELDON:

6 Okay.

7 RONNIE DANIELS:

8 Thank you.

9 RON SHELDON:

10 One more comment, and that's really what
11 I'm here for more than the rest. It's interesting
12 that y'all are speaking about the restoration of
13 Cat Island. One thing I do -- I have a lot of
14 concern about and that is the erosion of Round
15 Island. And I know -- I think this past March
16 y'all completed the transfer of that last little
17 piece of property that City of Pascagoula owned,
18 so now it is open to y'all, as I understand, to go
19 ahead and do your restoration work that y'all have
20 planned for Round Island.

21 My question to you is today -- Round
22 Island and especially over the last three or four
23 years, especially the west side of it, Hurricane
24 Zeta hammered the west of Round Island.
25 100-year-old live oak trees that have been there

1 ever since I was kid -- and I've going out there
2 longer than I care to admit here this morning --
3 you know, fell off -- they're gone. You know,
4 they're laying -- it's eroding away the west side
5 of Round Island.

6 I know there are plans from -- I think,
7 Jennifer, I spoke to you in the past on the
8 telephone. It's a pleasure to meet you in person
9 this morning -- to restore the island. But I
10 would like to know, what are the plans? Is there
11 funding being allocated? Are there permits being
12 sought after? So that's where I'm at this
13 morning.

14 I don't think Round Island has much
15 longer. We get another storm with strong winds
16 like Zeta hit coming out of the west and the
17 southwest, Round Island is disappearing in a
18 hurry.

19 JOE SPRAGGINS:

20 Yeah. We -- we're working with DEQ on
21 it, and DEQ has -- is in the process right now of
22 finalizing the purchase of that other part, you
23 know, but -- the area that Pascagoula owns, being
24 able to get it and being able to utilize it. And
25 we're working on it. And Jennifer is standing up,

1 so she's got something to say on it, so go ahead.

2 RON SHELDON:

3 Please.

4 JENNIFER WITTMANN:

5 We cannot actually purchase the property
6 that Pascagoula owns at Round Island.

7 JOE SPRAGGINS:

8 They going to give it to us?

9 JENNIFER WITTMANN:

10 We have a management agreement that has
11 been signed with them to allow the state to manage
12 invasive species on the property. I believe
13 they've also entered into a boundary agreement
14 with the Secretary of State's office so that
15 restoration can take place.

16 It had to do with the funding source
17 that was used when Round Island was originally
18 purchased by the City. It wasn't something that
19 was transferable, but we've worked through that
20 with their legal staff. DEQ has been really
21 instrumental in that and, again, the Secretary of
22 State's office.

23 And so there are some plans that are,
24 you know, starting to move forward for additional
25 restoration out at historic Round Island and the

1 newly created Beneficial Use Island.

2 JOE SPRAGGINS:

3 Yeah. I know they're looking at -- I've
4 talked to Chris about it several times, and
5 they're looking at what we're doing, and
6 Covington's looking at it also. They manage that
7 for DEQ, and they are looking at the area there
8 where we're at and the berms and how they're
9 holding.

10 We have rebuilt a lot of Round Island
11 and, you know, quite a bit of it has been rebuilt
12 over the years with that dredge and -- that
13 they've brought in, beneficial use and other
14 stuff. And they put some berm areas out for that,
15 so it is getting built some.

16 I'm not sure when you --

17 RON SHELDON:

18 When you say rebuilding Round Island,
19 are you talking about the original footprint of
20 Round Island or are you talking about the -- what
21 I call the Round Island Annex that was built to
22 the north and the northwest?

23 RONNIE DANIELS:

24 Jennifer is standing behind you there.

25 RON SHELDON:

1 There you are. Maybe you and I can just
2 meet afterwards.

3 JENNIFER WITTMANN:

4 So we have not done any work on historic
5 Round Island yet. Now that we have -- we did have
6 an acquisition about two years ago for one portion
7 that was privately owned and then, again, we had
8 the boundary agreement and the management
9 agreement with the City of Pascagoula for the
10 other portion, so there are preliminary
11 discussions to go ahead and increase beneficial
12 use in the area to be able to restore the historic
13 portions of Round Island and to help supplement
14 some of the newly created Round Island Beneficial
15 Use site.

16 RONNIE DANIELS:

17 Okay. Sounds like she has got all your
18 answers.

19 JENNIFER WITTMANN:

20 And when we do move forward, those
21 projects will obviously go out on public notice
22 for any public comment, and it would be a similar
23 situation to the Cat Island project where it will
24 be presented to the Advisory Commission on -- at a
25 30 percent design. And, you know, we could take

1 comments through the permitting process and then
2 again at the -- at the meeting when it's
3 presented.

4 JOE SPRAGGINS:

5 What was the area that George walked on
6 so much?

7 JENNIFER WITTMANN:

8 That is the -- the Round Island Annex,
9 so -- we call it the Round Island Beneficial use
10 site.

11 JOE SPRAGGINS:

12 Because I knew there was a lot of stuff
13 done in that area.

14 JENNIFER WITTMANN:

15 Yes, sir. And it's adjacent to the
16 historic Round Island. We couldn't include
17 historic Round Island originally because it was
18 privately held, and then there was a portion that
19 was held by the City.

20 JOE SPRAGGINS:

21 Okay. All right.

22 JENNIFER WITTMANN:

23 But we have addressed those -- I hate to
24 say issues. That sounds bad, but we have
25 addressed those concerns and are in a position

1 where we can start to move forward.

2 JOE SPRAGGINS:

3 Okay.

4 RONNIE DANIELS:

5 All right. We appreciate you,
6 Mr. Sheldon. Commissioner Roberds and I will take
7 the coordinates where those 25-inch trout are
8 coming so we can keep an eye on that for you, so
9 you feel free to reach out to us.

10 Thank you.

11 All right. Next up is Mr. Tommy Elkins
12 with CCA.

13 TOMMY ELKINS:

14 Tommy Elkins. I'm here -- chairperson
15 of CCA Mississippi. And just as -- our
16 organization has finally gotten a chance to
17 rebuild and get back on our feet after the
18 pandemic. We're happy to see the Commission
19 rebuilding. We want to recommend or commend
20 Mr. Osborne on his position, to thank this
21 Commission for the work they're doing, to really
22 thank General Spraggins, DMR, Chief Wilkerson.
23 You guys are just knocking this thing right out of
24 the park.

25 And everyone that I talk to in the

1 recreational business is very happy with what job
2 you guys are doing. So we just wanted to take
3 this opportunity to say thank y'all.

4 JASON OSBORNE:

5 Thank you.

6 CAM ROBERDS:

7 Thanks, Tom.

8 RONNIE DANIELS:

9 Thank you, Tommy. It's always good to
10 hear praise.

11 Next up is going to be Mr. Johnny
12 Marquez. I think he has got some questions on the
13 Cat Island -- or comments on the Cat Island
14 project.

15 JOHNNY MARQUEZ:

16 Thank you. Johnny Marquez with the --
17 I'm the director of Coastal Policy and Programs
18 for the Mississippi Wildlife Federation.

19 And I just wanted to give a couple of
20 comments on Cat Island project. First off, I'm
21 very glad to see the project taking place.
22 Commend the department for pursuing that. But I
23 did want to -- particularly since it's a, you
24 know, 30 percent design right now and there will
25 continue to be work being done on that -- to

1 emphasize a concern, which is that -- the
2 siltation that can occur from that, so making sure
3 that there are adequate berms. Agreeing with
4 Mr. Tinsley's comments about dune fencing,
5 vegetation planting.

6 And you can just look at some of the
7 other restoration projects that have taken place
8 on the Coast. So for example, Ship Island,
9 although it may not have been an intended benefit,
10 initially when it was filled in, it created a
11 great lagoon. It was a great fishing spot. It's
12 probably six, seven feet deep. But, you know, it
13 took some time to get the planting going, for that
14 to get established. And that's a high-energy
15 area, so over time, that silted in. It became
16 shallow and that was kind of lost. Now, that
17 was maybe something that was created by the
18 project. It wasn't intended.

19 But another example would be some
20 restoration work that just took place on Breton
21 Island, which the focus was birds out there. And
22 that did have an unintended consequence where it
23 silted in on the east side where there was kind of
24 a deep harbor and channel there. It was a great
25 fishing spot. There was a place for fish to take

1 shelter in the cooler, deeper water in the summer.
2 And although I haven't been there, my
3 understanding from fishermen is that that has
4 largely silted in, is --

5 RONNIE DANIELS:

6 West side, I believe. I think it was
7 the west side.

8 JOHNNY MARQUEZ:

9 Oh, I'm sorry. The west side, you're
10 correct. On the west side at Breton. And so, you
11 know, on Goose Point where this restoration is
12 taking place, you've got, you know, all of
13 Smugglers Cove that's a nice deep area. You've
14 got grass beds all in there. You've got Good
15 Scotch Point full of grass.

16 And so I think, you know, the highest
17 priority is making sure that that sediment stays
18 there where it's being placed, and so whatever
19 measures can be taken to ensure that are, you
20 know, important to look at in that completion of
21 the design phase. So thank you.

22 RONNIE DANIELS:

23 Appreciate it. Thank you for the
24 comment on that.

25 I think that's all of them.

1 All right. If we don't have anything
2 else, we will make a motion to adjourn.

3 CAM ROBERDS:

4 I will make a motion to adjourn.

5 RONNIE DANIELS:

6 I'll second.

7 All in favor?

8 JONATHAN McLENDON:

9 Aye.

10 RONNIE DANIELS:

11 Aye.

12 JASON OSBORNE:

13 Aye.

14 CAM ROBERDS:

15 Aye.

16 RONNIE DANIELS:

17 Thank you, folks.

18 (Exhibits 1 through 5 were marked.)

19 - - -

20 (Adjourned at 10:26 a.m.)

21

22

23

24

25

CERTIFICATE OF COURT REPORTER

1
2 I, MELISSA BURDINE-RODOLFICH, Court Reporter
3 and Notary Public, in and for the County of
4 Harrison, State of Mississippi, hereby certify that
5 the foregoing pages, and including this page,
6 contain a true and correct copy of my stenotype
7 notes and/or electronic tape recording of the
8 proceedings, as taken by me at the time and place
9 heretofore stated, to the best of my skill and
10 ability.

11 I further certify that I am not in the employ
12 of, or related to, any counsel or party in this
13 matter, and have no interest, monetary or
14 otherwise, in the final outcome of the proceedings.

15 Witness my signature and seal, this the
16 _____ day of _____, 2023.

17
18 /s/ Melissa Burdine-Rodolfich

19
20 Melissa Burdine-Rodolfich
21 My Commission Expires 4/28/24
22
23
24
25



Jennifer Wittmann

From: George Boddie <grboddie@gmail.com>
Sent: Monday, July 17, 2023 9:40 PM
To: Jennifer Wittmann; kaaren.m.neumann@usace.army.mil; Jared Harris
Subject: Cat Island

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you know the content is safe.

Jennifer & Jared,

I want to compliment and thank the DMR for pursuing these proactive dredging/beneficial use proposals for Cat Island. There has always been an incredible burden and opportunity for Cat Island because it is located, down-drift and adjacent to the Gulfport Ship Channel.

This proposed project will increase the footprint of Cat Island bringing it closer to its historical pre-Camille size, and sustain the long-term integrity, habitat, and storm protection it provides to our Mississippi Gulf Coast.

The Mobile District's last restoration project has truly turned out to be a great benefit to Cat Island and our Gulf Coast. The dunes that have developed as a result of the sand fencing/plantings have probably exceeded everyone's expectations and enhanced the Island's habitat.

I have two observations that I ask DMR and the Corps to consider as part of this application. The two weakest sections of the beach are at the base of North Point (30.230371, 89.071524) and the easternmost end of South Bayou (30.220037, 89.079030). These areas have been historically breached first in 1998 and again in Katrina. The North Point location actually experiences a tidal funneling effect where the east-west island ridge intersects the southern base of North Point. This area also has tidal marsh ponds that extend eastward to the back of the beach platform. Breaches have occurred when storm tidal surge rapidly retreats Gulfward after passage of a storm eye. Extending the north end of the proposed disposal area (CP-1) approximately 1,200-ft north would strengthen this weak section. I would also suggest a more gradual transition into the existing beach.

My other suggestion is to include a sand fencing component and possibly some planting to the dunes and platform.

Thank you for your work on Cat Island and consideration of these suggestions. Please let me know if any additional information is needed.

George R. Boddie, P.E



Jennifer Wittmann

From: mitch tinsleygroup.net <mitch@tinsleygroup.net>
Sent: Monday, July 17, 2023 6:14 PM
To: Jennifer Wittmann
Subject: PROPOSED CONSTRUCTION OF CAT ISLAND BENEFICIAL USE SITE FOR DISPOSAL OF DREDGED MATERIAL, HARRISON COUNTY, MISSISSIPPI

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you know the content is safe.

Good morning Mississippi Advisory Commission on Marine Resources,

I apologize for my inability to personally attend this meeting but I appreciate the ability to provide comments.

First, I would like to state that I think the proposed Cat Island Beneficial Use Site Project has incredible potential and is much needed to restore and protect one of our states great resources. However, I would like to put on the record a few concerns and suggestions.

According to the information provided in the public notice dated March 6, 2023, it is expected that pioneer plant species will be naturally recruited within the marsh and possibly the dune areas. The project appears to rely solely on natural recruitment without employing additional methods like vegetative planting, watering or fertilizing to promote seed germination and ensure plant survival. Without the implementation of suitable cultivation practices, the establishment of healthy plant communities in the newly created dune zones would be highly unlikely, if not impossible. The location of the proposed restoration leaves many acres of dunes which are notably separated and distanced from other existing dune vegetation.

Additionally, there is also no mention of sand fencing included in the project, which is another immediate tool and means to stabilize newly constructed sand dune environments. Sand fencing is very effective when installed in high wind environments and will trap wind-blown sand from being displaced from the project area.

I believe the project should include the installation of notable pioneer dune species within the constructed dunes and marshes from local seed and plant stock currently growing in Harrison County and more specifically originating from Cat Island. Including a suitable pioneer community in the project will play a crucial role in stabilizing dredge material, preventing erosion, accumulating additional materials, and creating habitats for critical animal species.

See the links below for additional academic and scientific information.

<https://content.ces.ncsu.edu/restoration-and-management-of-coastal-dune-vegetation>

<https://www.glo.texas.gov/coast/coastal-management/forms/files/dune-protection-manual-gpb.pdf>

<https://today.tamu.edu/2023/06/22/sand-dunes-vegetation-could-improve-sustainable-infrastructure/>



Restoration and Management of Coastal Dune Vegetation

NC STATE EXTENSION

SoilFacts

Introduction

Picturesque though they are, coastal sand dunes serve a more important purpose than beauty. Dunes act as flexible barriers to ocean storm surges and waves, protect low-lying backshore areas, and help preserve the integrity of low barrier islands. In addition, they provide a habitat for many animals, including migratory birds. With proper planning and management, their functions may be enhanced. This publication discusses the features of coastal dunes and construction of new dunes using vegetation.

The Beach-Dune System: Functions, Values, and Limitations

Coastal barrier dunes are formed by wave and wind action. In North Carolina, waves bring sand to shore from the adjacent inner continental shelf, and it is transported landward by onshore winds. Obstacles, such as driftwood, a sand fence, or vegetation, reduce wind speed, causing sand to accumulate. As sand accumulates, plants adapted to the beach environment emerge, stabilizing the surface and promoting further dune formation. In the absence of stabilizing vegetation, blowing sand may drift into large "live" dunes that move back and forth with the wind, such as Jockey's Ridge near Kill Devil Hills.

Dunes formed as a result of establishing vegetation act as flexible barriers to storm tides and waves and serve as sand reservoirs for beach nourishment. During storms, sand erodes from the beach-dune system and redeposits as shallow sandbars offshore. In a stable beach-dune system, the sand moved offshore during storms is returned during calm weather. Thus, the dunes, beach, and near-shore sandbars act as a dynamic, integrated unit, often referred to as the beach-dune system.

Although dunes serve as temporary protective barriers during storm tides of short duration, they are not effective against persistent beach recession caused by rising sea level, migrating inlets, or changing shoreline dynamics. Therefore, they cannot be considered permanent structures that will "hold off the ocean."

The value of dunes and their fragile nature are often misunderstood or not appreciated. Excessive use often upsets the natural balance, damaging the vegetation and deteriorating the dune system. One of the earliest uses of dunes in North Carolina, which resulted in considerable damage, was overgrazing by livestock, including cattle, horses, and sheep. Today, shoreline development and pounding of dunes by feet and vehicles pose serious threats to dune vegetation and dune stability. Intensive beach use increases the need to restore, construct, protect, and manage dunes.



Restoration of Slightly Damaged Dunes

Dune sands are readily moved and shaped by wind and water action. Consequently, disturbed dunes revert rapidly to unstable conditions, regardless of their stage of development at the time of the disturbance. As a result, dune restoration usually begins with the establishment of pioneer plants.

Dunes that are only slightly damaged may be repaired by planting vegetation in bare areas, giving stressed grasses a judicious amount of fertilizer, and protecting the area from trampling and traffic.

Vegetation is critical to dune formation and stabilization. Without vegetation, blowing sand will migrate inland.

Selection of plant species is of paramount importance when restoring vegetation in bare areas of existing dunes. Dune plants must be able to survive sand blasting, sand burial, salt spray, saltwater flooding, heat, drought, and a limited nutrient supply. Only a few plant species can tolerate these stresses.

Dune Grasses

Perennial grasses are the primary stabilizers of frontal dune systems along the Atlantic and Gulf Coasts. The North Carolina coast is a transition zone between the northern-dominant American beachgrass and the southern-dominant sea oats. Bitter panicum or "running beachgrass" is also an important grass on frontal dunes in North Carolina. A woody shrub, seashore elder, grows well on frontal dunes and may be transplanted to add diversity to the dune system. A fourth grass, saltmeadow cordgrass, is not a true dune grass, but often traps sand to initiate dune growth. Saltmeadow cordgrass grows well in low, moist areas such as sand flats and high salt marshes. It is more salt- and flood-tolerant than the dune grasses. Planting a combination of several of these species can enhance the beach-dune system's diversity and long-term viability.

American beachgrass (*Ammophila breviligulata*)

American beachgrass is a cool-season dune grass native to the North, Mid-Atlantic, and Great Lakes coasts. North Carolina is at the southern end of its natural range. American beachgrass is a vigorous, upright grass that grows in dense clumps and is capable of rapid lateral spread by runners. Hence, it is widely used for initial stilling of blowing sand. It is easily recognizable by its dense, cylindrical spikes or seed heads (Figure 1). Several characteristics make American beachgrass suitable for dune building and stabilization in North Carolina:

- Quick establishment and effective trapping of sand the first growing season.
- Ease of harvest, storage, and transplanting, with an excellent survival rate.
- Commercial availability from nurseries at a low cost.

Recommended cultivars include Hatteras, Bogue, and Cape. Hatteras is a fine-leaf type that produces good results in the Carolinas. Bogue is another selection being used in the state. Cape, a northern strain that declines rapidly after the first growing season, is not recommended. Hatteras and Bogue are both available from commercial producers.

After establishment, American beachgrass will grow through as much as 4 feet of sand accumulation during one growing season. Although it grows quickly where sand accumulates on the seaward dune edge, it tends to die out behind the dune crest after only a few years. This die-out is caused by climatic effects, fungal disease, and insects. Dead patches of beachgrass should be replaced with sea oats, bitter panicum, or seashore elder. To further increase the diversity and stability of the beach-dune system, sea oats and bitter panicum should be included in beachgrass plantings.

Because American beachgrass is a cool-season grass, the best planting dates are November through March. Plant small areas by hand using a dibble to open a hole 1 inch in diameter and 8 to 10 inches deep. Pack sand firmly around the plants after they are placed in the holes. Space the



Figure 1. American beachgrass (*Ammophila breviligulata*).



Figure 2. Sea oats (*Uniola paniculata*).



Figure 3. Bitter panicum (*Panicum amarum*).



Figure 4. Seashore elder (*Iva imbricata*).

Fertilization of Dune Vegetation

Dune sand is relatively low in plant nutrients, and dune plants are adapted to this condition. However, small amounts of nutrients, primarily nitrogen and phosphorus, supplied by commercial fertilizers, are useful for promoting rapid establishment of transplants and encouraging existing vegetation. Fertilizer may also be needed for periodic maintenance. Other plant nutrients are normally supplied from soil or salt spray.

Fertilizers should not be used indiscriminately in the beach and dune area. Excess amounts may damage the development of diverse and stable plant communities and increase the occurrence of plant diseases. Excess nitrogen also may leach through beach sand and pollute groundwater.

Suggested rates and timing for dune fertilization are listed in Table 1 and Table 2. During the first growing season, fertilizer should supply nitrogen at the rate of 150 to 200 pounds N per acre and phosphorus at the rate of 50 to 60 pounds P_2O_5 per acre, which converts to about 3.5 to 4.5 pounds N per 1,000 square feet and 1.0 to 1.5 pounds P_2O_5 per 1,000 square feet. This should be split into three equal applications.

Fertilizer with a ratio of 3 parts N to 1 part P_2O_5 is ideal, but many fertilizer materials can be used to supply these rates. The need for fertilizer after the first year varies with location and can be determined by the appearance of the grass. Fertilizer materials and rates suggested in the table are a mixed fertilizer (10-10-10) and ammonium nitrate because these materials are readily available at farm and garden stores.

The suggested dates of fertilization are different for American beachgrass, sea oats, and bitter panicum. In mixed plantings, follow the fertilizer dates recommended for American beachgrass for the first two years. In later years, fertilize to favor sea oats and bitter panicum.

use vegetation for dune building. Where adequate distance exists between the ocean and property to be protected, well-vegetated dunes will provide valuable protection from storm waves.

The first step to dune establishment is providing a barrier to trap sand. Sand fences create areas of lower wind speed both in front of and behind the fence, which encourages sand deposition. The amount of sand trapped depends on the fence height, the size of spaces between fence slats, and the wind speed. Wooden slat fences are most commonly used and are generally preferable to fabric fences.

The initial dune crest is located by installing a 2-foot-high sand fence several hundred feet behind and parallel to the high tide line to accumulate wind-blown sand. Install the fence several months before transplanting vegetation to allow the sand to accumulate without burying the transplants. For additional options in establishing dunes with fencing, contact [your county Extension agent](#), regional office of the [North Carolina Division of Coastal Management](#), or the [North Carolina Sea Grant office](#) in Raleigh. Sand fences should be avoided in areas where sea turtles are likely to nest.

Plant small areas and steep slopes by hand, as described in the earlier section on the [Restoration of Slightly Damaged Dunes](#). Plant large, flat areas with tractor-drawn tobacco or vegetable transplanters with extended planting shoes to make furrows 8 to 10 inches deep. Space the furrows at least 18 inches apart. When building a dune, plants should be closely spaced, 18 inches by 18 inches, in several rows where the crest of the dune is to be located. Then spacing should be increased to 2 feet and then 3 feet for several rows on each side to allow sand to penetrate to the center of the planting.

Protection of Dunes

Although dune plants tolerate harsh beach conditions, they cannot withstand foot and vehicular traffic. These activities crush plant shoots and roots. Trampling by pedestrians and traffic such as four-wheel vehicles and trail bikes often lead to greater sand removal by wind. In addition, soil compaction often results from vehicular traffic and decreases water infiltration, leading to erosion from rain and increased damage during droughts. Restricting or banning access to dunes can reduce the need for other sand control measures. However, some dunes will have to bear traffic, and to protect them, crosswalks and beach access areas should be designated.

Conclusion

Human activity has accelerated the loss of dune vegetation along North Carolina beaches. Recreational and commercial development, off-road vehicles, and population pressures associated with urban growth in coastal areas have altered the natural seashore. The building of streets and structures near the sea disrupts normal beach and dune processes. The procedures recommended here can help restore, enhance, and protect dune vegetation.

Recommended Readings

Broome, Seneca and Woodhouse. *Building and Stabilizing Coastal Dunes with Vegetation*, UNC Sea Grant College Publication, UNC-SG-82-05. June 1982.

Pilkey, Neal, Pilkey and Riggs. 1982. *From Currituck to Calabash: Living with North Carolina's Barrier Islands*. Durham, NC: Duke University Press.

This publication replaces publication number AG-591.

Author

Stephen Broome
Professor Crop and Soil Sciences

Coastal DUNES

DUNE PROTECTION AND IMPROVEMENT MANUAL
FOR THE TEXAS GULF COAST - 6th EDITION



EXHIBIT
4



VERNON'S TEXAS STATUTES AND CODES ANNOTATED
NATURAL RESOURCES CODE
TITLE 2. PUBLIC DOMAIN
SUBTITLE E. BEACHES AND DUNES
CHAPTER 63. DUNES

SUBCHAPTER A. GENERAL PROVISIONS

SEC. 63.001. FINDINGS OF FACT

The legislature finds and declares:

- (1)** that the mainland gulf shoreline, barrier islands, and peninsulas of this state contain a significant portion of the state's human, natural, and recreational resources;
- (2)** that these areas are and historically have been wholly or in part protected from the action of the water of the Gulf of Mexico and storms on the Gulf by a system of vegetated and unvegetated sand dunes that provide a protective barrier for adjacent land and inland water and land against the action of sand, wind, and water;
- (3)** that certain persons have from time to time modified or destroyed the effectiveness of the protective barriers and caused environmental damage in the process of developing the shoreline for various purposes;
- (4)** that the operation of recreational vehicles and other activities over these dunes have destroyed the natural vegetation on them;
- (5)** that these practices constitute serious threats to the safety of adjacent properties, to public highways, to the taxable basis of adjacent property and constitute a real danger to natural resources and to the health, safety, and welfare of persons living, visiting, or sojourning in the area;
- (6)** that it is necessary to protect these dunes as provided in this chapter because stabilized, vegetated dunes offer the best natural defense against storms and are areas of significant biological diversity;
- (7)** that vegetated stabilized dunes help preserve state-owned beaches and shores by protecting against erosion of the shoreline; and
- (8)** that different areas of the coast are characterized by dunes of various types and values, all of which should be afforded protection.

Acts 1977, 65th Leg., p. 2499, ch. 871, art. 1, Sec. 1, eff. Sept. 1, 1977.

Amended by Acts 1985, 69th Leg., ch. 814, Sec. 1, eff. Aug. 26, 1985; Acts 1991, 72nd Leg., ch. 295, Sec. 18, eff. June 7, 1991.

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FOREWARD

The Texas Coast is an environmental and economic treasure composed of interlocking, interdependent ecological systems. Coastal sand dunes are a crucial part of that system. Dunes serve not only as a vital habitat for numerous native plants and animals, but an irreplaceable recreational resource upon which humans must tread lightly.

But the coast is changing. With every passing hurricane or tropical storm our coastline is physically altered through erosion and accretion. New mapping systems and new technologies help us predict and mitigate the effect of these changes. As we consider these changes, we must also take into account the effect of human development along the coast. That is why this booklet is so important.

Through helpful definitions, concise standards and photographic examples, this book aims to raise awareness of the fragile beach/dune system and provide concise guidelines for dune protection and improvement along the Texas Gulf Coast. Now in its sixth edition, this publication continues to be updated to reflect the needs of the ever-changing Texas Coast. The Texas Coast belongs to you. Consider this your Owner's Manual. Use it well.



INTRODUCTION

As a resilient natural barrier to the destructive forces of wind and waves, sand dunes are the least expensive and most efficient defense against storm-surge flooding and beach erosion. Dunes absorb the impact of storm surge and high waves, preventing or delaying intrusion of waters into inland areas. Dunes hold sand that replaces eroded beaches after storms and buffer windblown sand and salt spray. This natural defense can be strengthened by increasing the height and stability of existing dunes and by building new dunes.

Beach and dune protection is important along the Texas Gulf Coast, particularly in areas experiencing shoreline erosion and concentrated urban development.

The growth of mainland coastal population centers and the increasing development and recreational use of the barrier islands can impact the stability of the dune environment. Construction and heavy recreational use of the beaches can contribute to fragmentation of the beach/dune system and deterioration of dunes. The vegetation that secures sand is destroyed, sand is lost, and the dune line is breached by roads, trails, and storm runoff. Dune damage that results from human activities accelerates the damage caused by wind and wave erosion.

Inland areas become more vulnerable to hurricanes and tropical storms when the dune line is weakened. Protecting dunes helps prevent loss of life and property during storms and safeguards the sand supply that slows shoreline erosion. Protecting dunes also preserves and enhances the beauty of the coast and coastal ecosystems.

To succeed, dune improvement and protection efforts must be undertaken by federal, state, and local governmental entities. But even more valuable are efforts by those who live on the coast.

The Texas Coast will continue to attract Texans and other visitors in ever-greater numbers for years to come. This manual describes measures that landowners, city and county planners, developers, and industry can use to preserve sand dunes and promote dune restoration on the coast so that future generations can enjoy the natural beauty of the Texas Coast.

BEACHES & DUNES

TERMINOLOGY

The **beach** extends from the mean low tide line to the line of natural vegetation along the shoreline (Figure 1).

The **foreshore** (wet beach) is the area affected by normal daily tides.

The **backshore** (dry beach) is inundated only by storm tides and the higher spring tides. The backshore also supplies sand to the dunes.

Coppice mounds, the initial stages of dune growth, are formed as sand accumulates on the downwind side of plants and other obstructions on or immediately adjacent to the beach. The mounds are a source of sand that is exchanged via water with offshore bars. Coppice mounds may become vegetated and eventually increase in height, becoming foredunes.

Foredunes (also called fore-island dunes or primary frontal dunes) are the first clearly distinguishable, vegetated dune formations landward of the water. They are also the first to dissipate storm-generated wave and current energy. Although foredunes may be large and continuous, they typically are separate rounded knolls.

The **foredune ridge** is high, continuous, and well stabilized by vegetation. This ridge normally rises sharply landward from the foredune area but may rise directly from a flat, wave-cut beach immediately after a hurricane. The foredune ridge helps block storm surge and prevents it from washing inland.

Critical dune areas are all portions of the beach/dune system that contain dunes and dune complexes (including coppice mounds, foredunes, foredune ridge, backdunes, and swales) that are essential to the protection of public beaches, submerged land, and state owned land. Critical dune areas include, but are not limited to, the dunes that store sand to replenish eroding public beaches.

Backdunes—The dunes located landward of the foredune ridge which are usually well vegetated but may also be unvegetated and migratory. These dunes supply sediment to the beach after the foredunes and the foredune ridge have been destroyed by natural or human activities.

A **dune protection line** is established by a local government to preserve critical dunes and may be set no farther than 1,000 feet landward of mean high tide of the Gulf of Mexico. Special criteria apply to construction activities seaward of this line.

The **beach/dune system** includes all of the land from the line of mean low tide to the landward limit of dune formation.

A **public beach** is any beach, whether publicly or privately owned, extending inland from the line of mean low tide to the natural line of vegetation bordering on the Gulf of Mexico or such a larger contiguous area to which the public has acquired the right of use. This definition does not include a beach that is not accessible by a public road or public ferry.

Blowout is a breach in the dunes caused by wind erosion.

Washover areas are low areas that are adjacent to beaches and are inundated by waves and storm tides from the Gulf of Mexico. Washovers may be found in abandoned tidal channels or where foredunes are poorly developed or breached by storm tides and wind erosion.

Swales are low areas within a dune complex located in some portions of the Texas coast which function as natural rainwater collection areas and are an integral part of the dune complex.

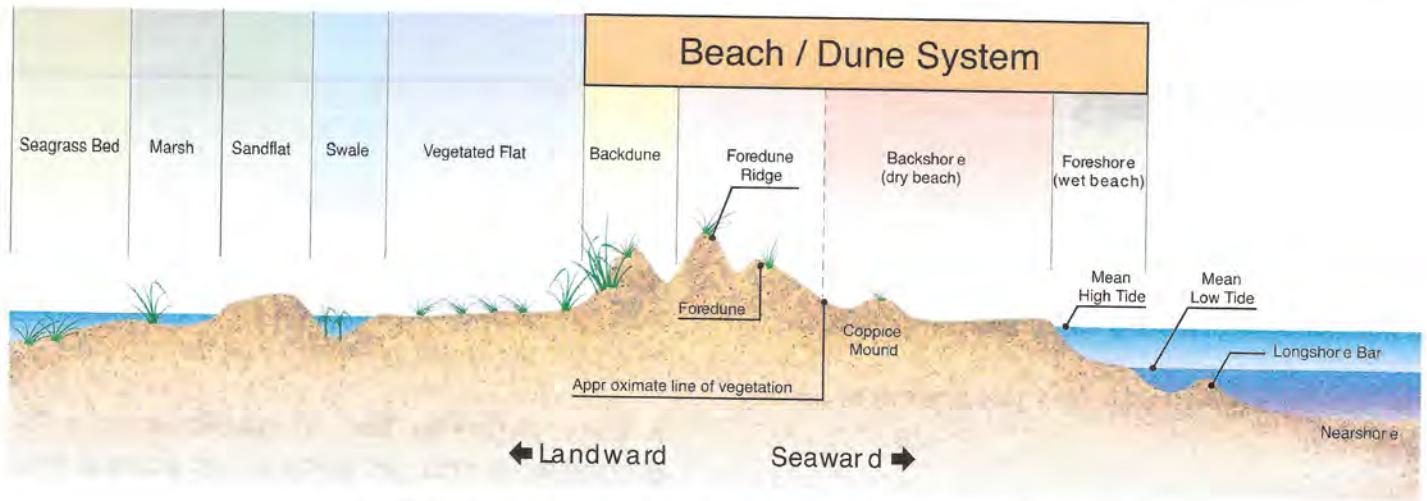


Figure 1. Typical cross section of a Texas barrier island. Actual conditions may vary.

THE SAND CYCLE

Beaches and dunes are integral parts of a dynamic environment in which sand is constantly exchanged.

During the calm conditions that prevail throughout most of the year on the Texas coast, waves average two to four feet in height and are less frequent than during storms. These calmer waves transport sand from offshore bars and the surf zone to the beach, causing the beach to gradually build up, or accrete. In time, sand is blown onto the foredune, where it is trapped by vegetation and stored until it is displaced by storms.

During a storm, high-energy waves flatten the beach. Waves washing against the base of the foredunes erode sand, undermining and collapsing the seaward dune face. In severe storms, the dune face commonly recedes several yards — in extreme cases as much as 100 yards — leaving a steep cliff (Figure 2). Sometimes dunes are completely destroyed. Retreating waves carry the eroded sand offshore and deposit it just seaward of the surf zone in large bars.

This process of dune erosion and sand movement dissipates much of the energy of storm waves. Sandbars also dissipate storm wave energy by causing waves to break further offshore thereby diminishing wave runup and attack on the dunes or backshore environments.

If the supply of sand remains constant, the natural exchange between the beach, dunes, and offshore areas will repair and rebuild dunes to an equilibrium height and width determined by local conditions. However, the loss of vegetation that traps and holds sand makes the beach and dunes more susceptible to wind and water erosion, thus inhibiting their recovery from storms. Bays, channels, marshes, and grass flats behind the weakened foredune are exposed to storm-surge flooding and to accumulating of windblown sand.

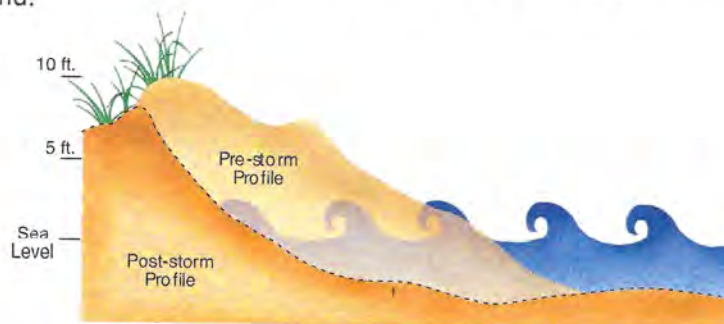


Figure 2. Result of storm waves on beaches and foredunes.

DUNE DAMAGE

When the height of approaching storm waves exceeds the height of depressions along the dune ridge, water overflows the low points and washes down the landward side of the dunes, eroding sand and carrying it inland (**Figures 3 and 4**). These washover (or overwash) areas deepen and widen under continual wave attack, allowing larger volumes of water to spill across the dune line and flow farther inland. Eroded sand may be deposited behind the dunes or carried into the bay, channel, marsh, or grass flat. In very severe storms, washover waters may even inundate interior land areas.

Areas of frequent major washovers may regenerate dunes slowly because of the volume of sand removed through erosion and because vegetation has been scoured away. Dune development may be impeded if the sand in a washover is too wet to be blown by the wind. Evidence of hurricane washovers is apparent on many Texas barrier islands (**Figure 4**).

Storms may also produce washouts in dune areas. These are similar to washovers, differing primarily in the direction of eroding waters. Generally, storm runoff from barrier islands and peninsulas is directed toward the bays. If there are breaches or depressions in the dunes, however, rainwater that collects in the swales (valleys between the dunes) may be channeled through these low points and overflow onto the beach, carrying sand with it.

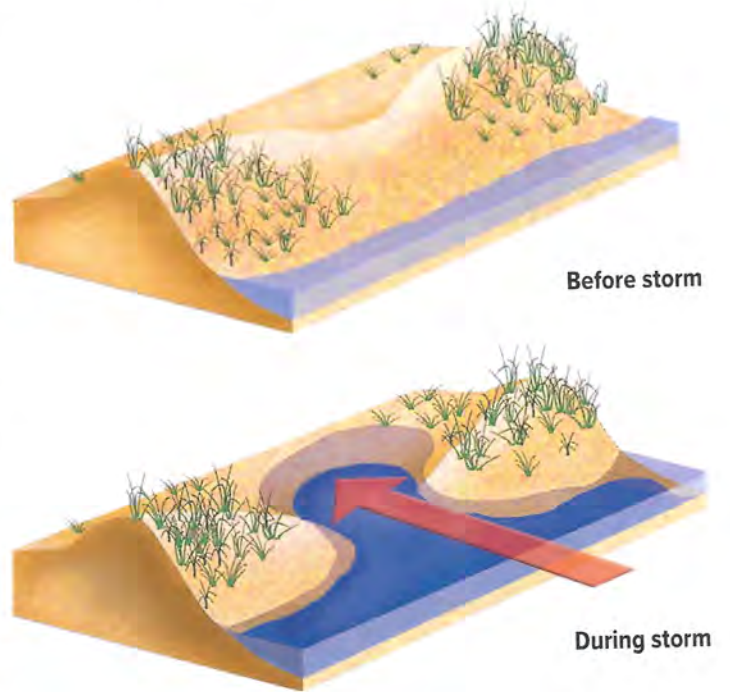


Figure 3. Washover from storm surge.



Figure 4. Oblique aerial photo of washover channels on Padre Island following Hurricane Brett in August 1999. Photo courtesy of David M. Stephens.

Washouts may also be formed by retreating bay waters. Hurricanes, particularly slow-moving ones, may pile water into bay systems. If natural channels to the Gulf are too narrow to accommodate water retreating from the bays, washouts may cut across the low areas of least resistance in the barrier islands.

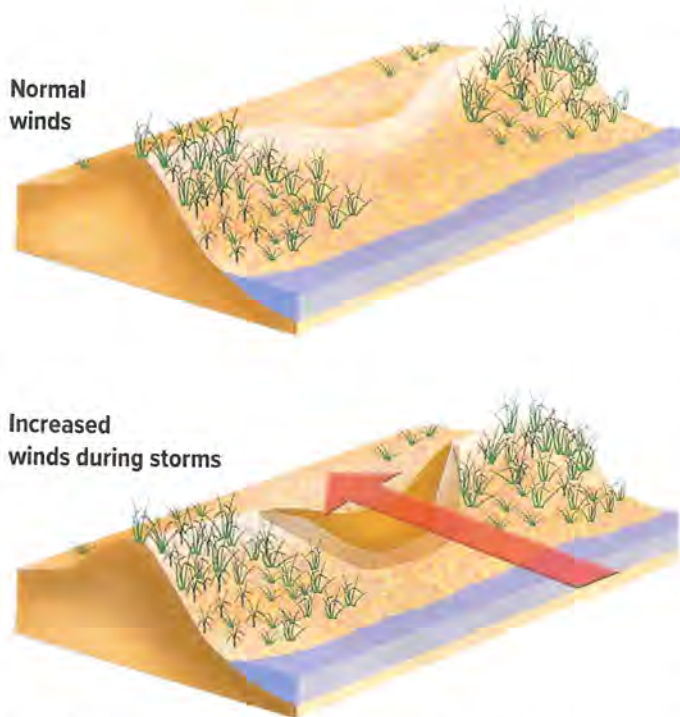


Figure 5. Formation of a blowout by wind in areas of a dune with little vegetative cover.

Blowouts are breaches in the dunes caused by wind erosion. They are aligned with prevailing southeasterly winds and are often cut down to the water table (**Figure 5**). During storms, blowouts may become channels for storm-surge waters from the Gulf.

Eventually, following a storm, the natural beach/dune system can recover its pre-storm shape if enough sediment is available in the littoral system. In Texas, this process can take up to five years, first by beach accretion, then by dune formation, expansion, and vegetation colonization. Sometimes this process is interrupted by structures, such as buildings, that prevent winds from blowing sand necessary for dunes to form.

Human activities also take a toll on dunes. Construction, recreation, and grazing animals may accelerate or aggravate natural damage to the dunes by destroying vegetative cover and promoting development of breaches.

Seawalls, bulkheads, and groins may protect property landward of them against erosion. However, if waves persist, these structures can enhance shoreline erosion of adjacent properties and of the beach seaward of the structures. By withholding sand that would otherwise be transported alongshore, erosion control structures such as groins inhibit dune development in areas downdrift of them. In general, rigid structures are less efficient than the naturally resilient dunes as defense for the beach against storm surge. The beach directly in front of a vertical seawall may be eroded by waves rebounding off the structure during storms. The seawall itself may eventually be undermined via wave scouring at the toe of the wall, creating an unstable base for the structure.

Disturbance of the foredunes by vehicles, pedestrians, construction work, or grazing animals can promote wind erosion of the backdune environment as well. If unchecked, this erosion can lead to almost complete removal of dunes, depleting the supply of sand available for exchange during storms. Sometimes entire dunes are bulldozed to level a construction site or to lay pipelines. In these cases, damage is not limited to the immediate site, as adjacent dunes will also be exposed to increased wind erosion without the previous protection of the neighboring dunes.

Devegetation of dunes can ultimately be as damaging as direct removal or withholding of sand. Vegetation is often removed from a large area when a construction site is cleared. Plants are trampled and uprooted by pedestrian traffic, motor vehicles, horses, and grazing cattle (**Figure 6**). As trails are established along frequently used routes through the dunes, the vegetation is destroyed and the wind begins to carry sand from the exposed area.

The continual loss of sand deepens the trail. Sloughing away of sand from the trail's sides widens it. As a greater area is exposed to wind erosion, a blowout, washout, or washover may develop.

Beach access roads through the dunes are subject to the same erosive processes and may become channels for storm surge.



Figure 6. Human influence on dune stability; access through critical dune areas on Mustang Island.

Texas Coastal Dunes

The Texas coastline is composed of barrier islands, ancient deltaic headlands and peninsulas, bays and estuaries, and natural and man-made passes (**Figure 7**). These are mobile environments, constantly reshaped by the processes of erosion and accretion.



Figure 7. The Texas Coast.

Dune development varies with sediment supply to the beach. The supply is determined by the quantity of inner-shelf sand carried onshore by waves and wind, the amount and kind of sediment discharged by rivers, and the degree of human interference with natural sand transport (for example, the interruption of longshore currents by jetties and groins). Dunes are most likely to develop when there is an ample supply of sand brought onshore by waves and wind. Rainfall patterns also affect dune development by impacting dune vegetation growth and density. Dune vegetation is less likely to take hold in areas with less rainfall.

On the upper coast, in Jefferson and Chambers counties, beach and dune development is limited. The Sabine River carries silt rather than sand to the coast. The shoreline is characterized by low-lying marshes and tidal flats with intermittent thin, linear sand ridges (Chenier Plain). Dunes are also scarce along the Brazos-Colorado river headland—the southern portion of the Brazoria County shoreline. Here, too, little dune-building sand is available to the longshore current.

Few and smaller naturally occurring dunes can be found on Galveston Island and portions of Follets Island because many of the foredunes were wiped out during Hurricane Alicia in 1983 and subsequent storms such as Tropical Storm Francis in 1999, Hurricane Claudette in 2003 and Hurricane Ike in 2008. Shoreline development and high erosion rates have inhibited dune recovery (**Figure 8**).

Vegetated and relatively stable dunes occur on Mustang Island and North Padre Island. On Matagorda and San Jose islands, where there is limited shorefront development, there is a continuous, well-defined foredune ridge averaging 15 to 20 feet above sea level. The most highly developed dune formations are found in Nueces and northern Kleberg counties, where there is a foredune ridge consisting of several rows of dunes that average 20 to 25 feet in height. Some dunes reach an elevation of 40 feet. Sandflats and areas of low coppice mounds are also characteristic of this region (**Figure 9**).

As rainfall decreases southward along the Texas Coast, dunes have less of the vegetative cover necessary for stabilization. Migrating dunes—bare of vegetation and highly susceptible to wind erosion—are common in the arid environment of the lower coast (**Figure 10**). Dunes of this type occur on Padre Island. In Kenedy, Willacy, and Cameron counties, the foredune ridge is generally poorly developed and breached by numerous washovers and blowouts. In the City of South Padre Island in Cameron County, dune restoration projects, included projects funded by GLO programs, have helped stabilize and restore the dune system.



Figure 8. Aerial imagery of natural dune formation adjacent to shorefront development on Galveston Island. Natural dunes exist where there is room for dunes to migrate.



Figure 9. Natural dune formations on Padre Island in Kleberg County.



Figure 10. Migrating dune at Padre Island National Seashore.

DUNE CONSTRUCTION, IMPROVEMENT, AND REPAIR

Several methods may be used to increase the height and stability of existing dunes, repair damaged dunes, encourage sand accumulation closer to the beach, or establish dunes where a low sand supply has inhibited dune formation or where dunes have been destroyed.

Where fresh sand deposits around obstructions such as grass clumps show conditions conducive to natural dune formation, plantings of native vegetation or structural barriers, such as sand fences, can be used to start and accelerate sand accumulation. Plantings of native vegetation should be the primary method for dune construction, improvement, and repair. Plant vegetation on natural grade of the dry backshore region and close to the existing line of vegetation. Sand fencing can help trap sand and stabilize dunes, but it should be used as a last resort and removed when vegetation is established.

In areas where the local sand supply is insufficient for these two sand-trapping methods to be effective, dunes can be artificially constructed with imported sand. Any sand brought to the site must be beach quality sand, the correct grain size for building dunes, and should be vegetated immediately in order to maintain stability.

Dune restoration projects must not extend more than 20 feet seaward of the line of vegetation in most cases or interfere with access to or use of the public beach easement, regardless of the type of dune restoration being undertaken. Any dune restoration projects occurring seaward of the line of vegetation must receive prior approval from the GLO.

Before any of the following procedures for dune construction or shoreline stabilization are employed, check with the local building official or the Texas General Land Office to avoid violation of state laws (see “Beach Access and Dune Protection Laws”).

USE OF VEGETATION

Only dune vegetation indigenous to the dune system in the area where the vegetation will be planted may be used in dune restoration projects. Three species of grass are recommended for dune restoration projects anywhere along the Texas coast: bitter panicum (*Panicum amarum*), sea oats (*Uniola paniculata*), and marshhay cordgrass (*Spartina patens*). **Table 1** lists additional species of dune vegetation that may be used for dune restoration projects, such as beach morning glory, and outlines the location in the beach dune system where each species should be planted.

TABLE 1

Vegetative Species for Coastal Dune Restoration in Texas

Species	Recommended Site	Comments
Marshhay cordgrass <i>Spartina patens</i>	Frontal and back dune	Recommended plant spacing: 1-3 foot center Variety recommended: 'Gulf Coast', 'Sharp'
Bitter panicum <i>Panicum amarum</i>	Mid to upper areas of frontal and back dune	Recommended plant spacing: 2-3 foot center Plant in high percentage with sea oats due to soil binding abilities. Recommended planting percentage: 20% sea oats, 80% bitter panicum. Variety recommended: Fourchon Germplasm, 'Northpa', 'Southpa'
Sea oats <i>Uniola paniculata</i>	Mid to upper areas of frontal and back dune	Recommended plant spacing: 2-3 foot center Plant in high percentage with bitter panicum due to soil binding abilities. Recommended planting percentage: 20% sea oats, 80% bitter panicum. Variety recommended: Caminada Germplasm
Beach morning glory <i>Ipomea pes-caprae;</i> <i>Ipomea imperati</i>	Lower area of frontal dune	Recommended plant spacing: 2-3 foot center
Sea purslane <i>Sesuvium portulacastrum</i>	Lower area of frontal dune and back dune	Recommended plant spacing: 2-3 foot center
Seashore dropseed <i>Sporobolus virginicus</i>	Mid to upper areas of frontal and back dune	Recommended plant spacing: 1-3 foot center
Seashore Paspalum <i>Paspalum vaginatum</i>	Back dunes	Recommended plant spacing: 1-3 foot centers; generally Port Lavaca northward Variety recommended: Brazoria Germplasm

Dune plants are not always available commercially in Texas and may be transplanted from natural stands if the proper procedure is followed. Transplants from the vicinity of the project area are more likely to survive than imported ones. If suitable stands cannot be found on the property where the vegetation project will be undertaken, it may be possible to obtain plants from neighboring property by agreement with property owners or from a commercial vendor within the region. A permit from the county commissioners court or from a city may be required if the harvesting or planting site is seaward of a dune protection line (see “Beach Access and Dune Protection Laws”).

The best time of year to transplant vegetation south of Corpus Christi is January or February. The optimum time for transplanting north of Corpus Christi is February, March, or April. Plants to be transplanted should only be taken from dense stands in areas that are not subject to erosion and should not be taken from coppice mounds or from foredunes that are sparsely vegetated. Be careful not to trample plants. Remove individual plants in a scattered pattern at intervals of no less than two feet. Dig them out with a “sharpshooter” shovel. Pulling plants damages the small hair roots needed for re-establishment. Obtain a good root structure to ensure plant survival.

Project sites are best vegetated by hand to avoid impacting surrounding dunes and dune vegetation. Set single plants into individual holes at least 6 inches deep made with a shovel or dibble and pack each planting firmly. Each species should be planted at certain locations within the dune system based on species adaptation to the surrounding environment (**Table 1**). There are multiple different plant configurations that can be used on a restored dune; an example is shown in **Figure 11**. Generally, grass species, such as bitter panicum, sea oats and marshhay cordgrass, should be planted at higher

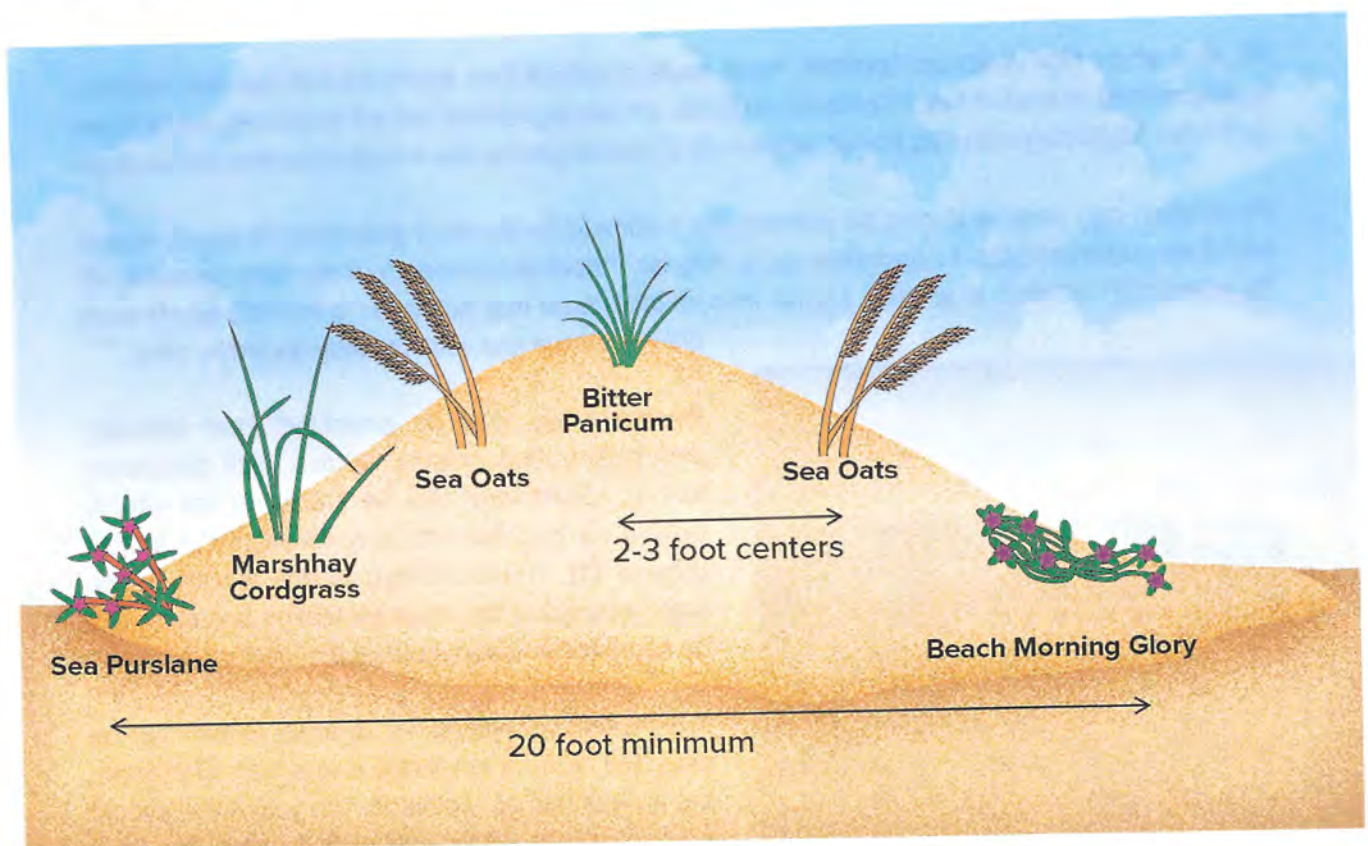


Figure 11. An example of a plant configuration on a restored dune.



Figure 12. Recently planted dune vegetation.

elevations on the dune crest and non-grass species, such as beach morning glory and sea purslane, should be planted on lower parts of the dune to provide groundcover for erosion reduction. One thousand plants should stabilize a 50- by 40-foot area within a year (Figure 12).

Immediate watering of transplants is not imperative, but success is increased if planting is done after a rain or if the dune is watered before the planting. Continual watering of the newly planted vegetation, especially during drought conditions, is encouraged to help increase the likelihood of survival. Dune grasses should never be mowed as this destroys their ability to trap sand and may kill the plants.

Stabilizing materials may be applied either before or after planting to minimize wind erosion, moderate soil temperature, and help retain moisture. Hay, seaweed and mesh made of natural fiber may be used for this purpose. Hay is an economical stabilizing material when used properly but may contain nonindigenous seeds or vegetation and can easily become dispersed from wave and wind action. If hay is used, it must be locally sourced and packed into the sand to prevent it from blowing away.

In areas where high winds are common, mesh made of natural fiber anchored with wooden stakes is recommended instead of hay. All of these materials are biodegradable and will eventually break down over time. Stabilizing materials that contain seeds of nonindigenous dune vegetation may not be used.

Fertilization may be used during the planting if it is allowed by the local government's beach access and dune protection plan. An approved soil testing laboratory can provide fertilizer recommendations for a particular location. In general, a small amount of fertilizer may be placed in the hole where each plant is placed and subsequently buried by sand..



Figure 13. Sign for dune restoration project.

Planted areas may be protected from vehicles, pedestrians, and grazing animals with temporary fencing. Signs may also be placed at the site to explain the purpose and importance of the project (Figure 13). The placement of any fencing in the area seaward of the dune protection line must first be approved and permitted by the local government.

A transplant survival rate of 50 to 80 percent can be expected. If the survival rate is less than 10 percent, the area should be replanted. The vegetation should be fairly dense within one or two years. Any bare areas that remain after that time can be replanted with vegetation from the well-established sites.



Figure 14. Bitter panicum (*Panicum amarum*).

Bitter Panicum

Bitter panicum has proved to be the best species for dune stabilization on the Texas coast. This native beach plant has a higher salt tolerance than many other coastal species and is a hardy grower. Its leaves are smooth, bluish-green, 1/4 to 1/2 inch wide, and four to 12 inches long (**Figure 14**). New plants are generated from tillers, or culms shoots that grow from nodes on the roots, or rooted stem cuttings. The seeds of bitter panicum are sterile and will not propagate new plants.

Bitter panicum plants taken for vegetation projects should be two to three feet tall. Cut off the tops of

harvested plants about one foot from the roots to reduce water loss (**Figure 15**). The plants can be stored for up to four weeks if the roots are wrapped in wet cloth or paper towels or immersed in fresh water.

Bitter panicum can be established in the fall with rooted cuttings, in the late winter or early spring with potted plants, or in the late spring and early summer with young tillers or culm shoots. Survival will be mainly dependent on adequate moisture. The plants can be placed in the ground either upright or horizontally. In areas of rapidly shifting sand, upright planting will prevent the plants from being buried. Generally, the plants should be planted on two-foot centers, but closer placement is recommended on the tops of dunes and on steep slopes. Nursery-grown plants should be planted 8 to 10 inches deep in moist sand, but unrooted stems should only be planted 4 to 6 inches deep, leaving 6 to 10 inches of the stem exposed. The transplant site must be protected from grazing animals, as bitter panicum is palatable to them.

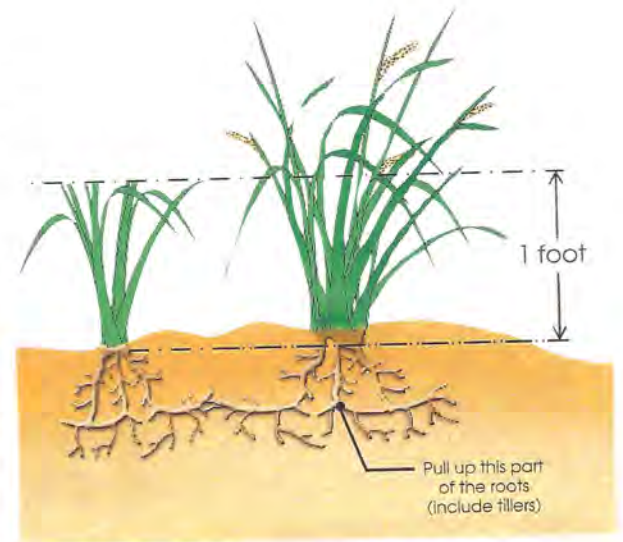


Figure 15. Harvesting and cutting bitter panicum.

Sea Oats

Sea oats, also native to the Texas coast, may be interspersed among plantings of bitter panicum. This grass has pale green, hardy leaves that die back each winter and stiff, seed-topped stems that grow to three feet or more in length (**Figure 16**). Sea oats are less tolerant of salt spray than bitter panicum but grow rapidly enough to avoid being smothered in rapidly shifting sand. Sea oats have an extensive underground root system, which help stabilize the sand. Interplanting sea oats and bitter panicum will reduce the risk of disease or pest infestation.

Harvest only healthy, vigorous plants for transplanting. The younger sea oats have a greater success rate than the older, longer-rooted plants. Do not take a plant that has a seed head, since this plant is



Figure 16. Sea oats (*Uniola paniculata*).

likely older. Transplant the plants as soon as possible after they have been harvested. The plants will generally remain alive for up to four days if the roots are wrapped in wet cloth or paper towels or immersed in fresh water. As with bitter panicum, the tops of the plants should be cut to within one foot of the roots to reduce water loss.

Nursery-grown plant materials can be planted year-round, but the best time for planting is mid-winter to early spring. Bareroot propagules should be planted November through March. Place plants at least eight to 10 inches deep on 18-inch centers in the main area of the dune.

It is best to mix a sea oat planting with bitter panicum at a ratio of one to four. Sea oats usually take two growing seasons to fully stabilize a dune, while bitter panicum, which grows more rapidly, can become established in one year.



Figure 17. Marshhay cordgrass (*Spartina patens*).

Photo courtesy of Frederique Perret.

Marshhay Cordgrass

Marshhay cordgrass is a small, wiry perennial which spreads by rhizomes (**Figure 17**). This grass does well on the landward side of dunes. If planted on the beach side, the grass is easily buried and destroyed by shifting sands. The most appropriate use for marshhay cordgrass is to repair the more stable portions of existing and new dunes.

Late winter through early spring is the best time to plant marshhay cordgrass. Place the plants six to 10 inches deep and 12 to 36 inches apart to keep the base of each plant moist. Mixing marshhay cordgrass with plantings of bitter panicum produces best results.

Other Plants

Sea oats and bitter panicum, which commonly grow on the seaward face of foredunes, are highly erosion-resistant and easily established. However, other species of herbaceous plants also capture windblown sand and stabilize dunes.

Beach morning glory, sea purslane and seagrape vines can form a dense cover on the lower parts of a dune within a few growing seasons, providing groundcover for erosion reduction. Low-growing plants and shrubs found on the backside of the dunes include seacoast bluestem, cucumber leaf sunflower, rose ring gallardia, partridge pea, prickly pear, and lantana. Many of these are flowering plants, an attractive alternative to dune grasses though less effective as dune stabilizers.

Some of these species are available commercially in Texas. Contact the Texas General Land Office, the Kika de la Garza Texas Plant Materials Center, or the Lady Bird Johnson National Wildflower Center if you have questions regarding the use of a specific plant species for a dune restoration project (see "Where to Get Help").

USE OF SAND FENCES

Sand fencing may only be installed for the purpose of building sand dunes by trapping wind-blown sand and the protection of dunes and dune vegetation. The planting of native vegetation to trap sand is always preferable to the use of man-made structures, but temporary, discontinuous sand fences may be used as a dune restoration material when site conditions are appropriate. Sand fences are most effective as a dune restoration method when they are placed at sites where there is a high amount of wind and wind-blown sand and at a high enough elevation to avoid regular wave action and washouts. Discontinuous sand fencing creates wind and sand corridors for sand deposition between the fencing and also allows wildlife, such as sea turtles, to be able to access the habitat behind the fencing.

For reasons of aesthetics, safety, and possible interruption of public access, sand fences must be removed as soon as they have served their purpose, become at least 50% buried by sand, or are damaged or no longer functioning. While sand fences can help trap sand and increase the dune width at the base of the fence, they can also prevent sand accumulation in the area behind the fence, limiting the extent and height of the developing dunes and natural dunes behind the fence. Removing or relocating the fencing after it is semi-buried or damaged will help allow any accumulated sand to migrate towards the natural dunes.

Standard sand fencing consisting of wooden slats wired together with space between the slats is an ideal dune-building material because it has been proven to be effective and is inexpensive, readily available, easy to handle, and can be erected and removed quickly.

Sand fences are typically two to four feet high measured from the ground surface after installation. In most areas, three-foot high sand fencing is recommended. In areas where the beach is narrow or there is a low amount of wind-blown sand, a height of two feet is more appropriate.

The fencing can be supported with wooden posts at 10-foot intervals. The minimum practical length for posts is 6.5 feet; a length of 7 to 8 feet is optimum. Wooden posts should be no larger than three inches in diameter (**Figure 18**).

Secure the fencing material by fastening it to each post with four ties of galvanized wire (no smaller than 12 gauge), and weave the material between the posts so that every other post has fencing on the seaward side.

If the base of a sand fence is placed at ground level, dunes will build over the structure. If the base is elevated four to six inches above the ground, dunes will build on the downwind side of the structure, and the fencing can be retrieved for reuse as the dunes are formed.

Sand fencing located on the public beach must be located as far landward as possible and may not extend more than 20 feet seaward of the line of vegetation, contingent upon GLO approval.

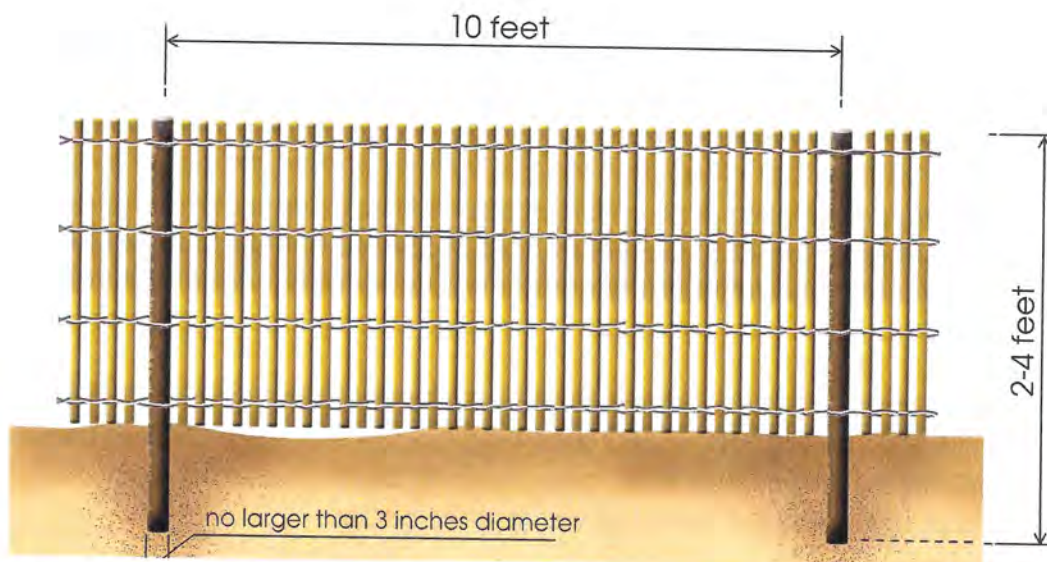


Figure 18. Sand fencing specifications for dune construction.

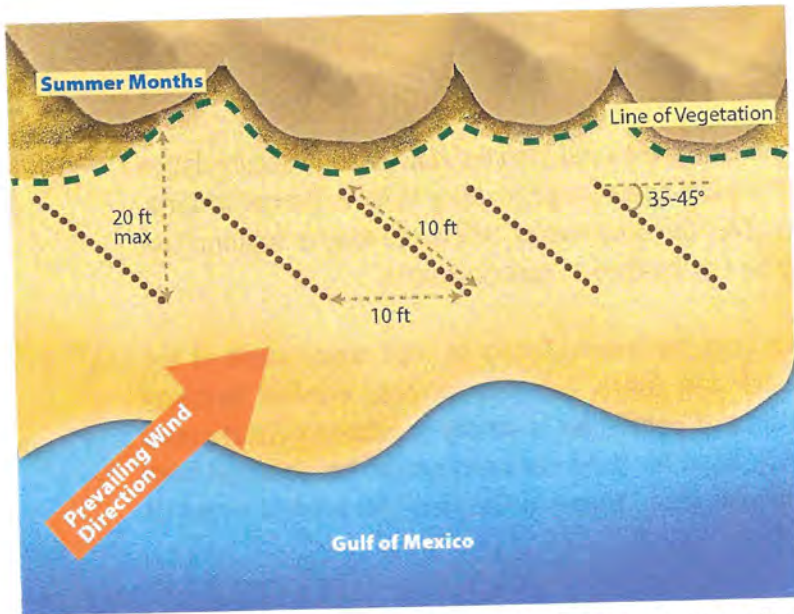


Figure 19. Recommended placement of sand fencing during sea turtle nesting season.

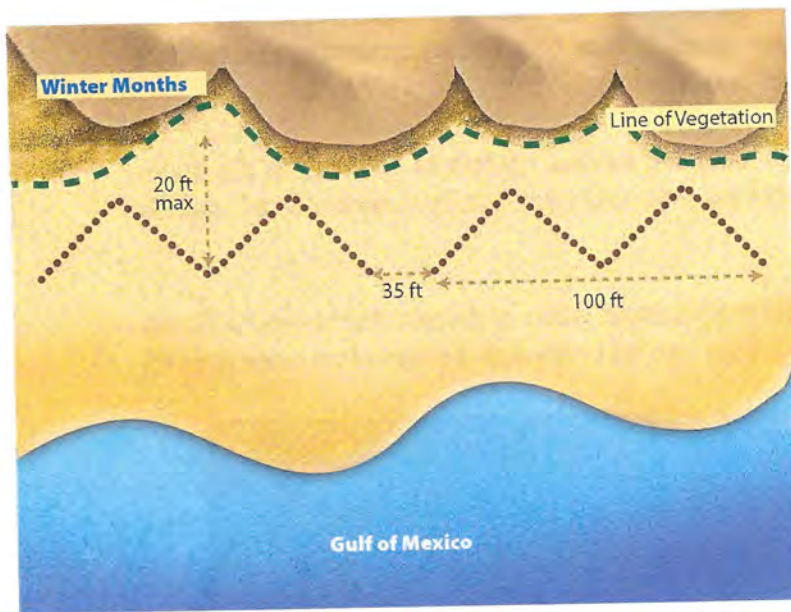


Figure 20. Optional placement of sand fencing outside of sea turtle nesting season.

During sea turtle nesting season in Texas, March 15th through October 1st, sand fences must be no more than 10 feet long and placed in segments spaced at a minimum of 10 feet apart (**Figure 19**). The sand fencing should also be positioned to face the predominate wind direction and be at a 35-to-45-degree angle to the shoreline. This configuration is optimal to help protect nesting sea turtles, but sea turtle experts still recommend not using any sand fencing during the months of March through September since nesting sea turtles can easily become trapped or inhibited by fencing. The discontinuous sand fencing also creates wind and sand corridors for deposition between the fencing.

From October 1st through March 14th, sand fences may run parallel to the shore in a V-formation so long as they do not exceed 100 feet in length and are placed in segments at a minimum of 35 feet apart. (**Figure 20**).

Alternative sand fence configurations may be used to repair breaches in the dune complex or washout areas with GLO approval.

Organic Brushy Material

Brush and seaweed can also be used to build dunes as long as the piles are not too dense and air can flow within them. Piles of organic brushy material that are too dense or large may cause scouring or erosion of adjacent properties. Christmas trees can be

an effective dune-building material as well if they are used in a region with a high amount of wind-blown sand and are placed at a high enough elevation to avoid wave action. Christmas trees, seaweed and brush can be held in place with stakes made of an organic, biodegradable material, such as wood.

Inorganic debris such as sandbags, rocks, bulkheads, riprap, asphalt rubble, concrete, or tires may not be used for dune building. These materials are not biodegradable and are safety hazards.

CONSTRUCTION WITH IMPORTED SAND

Some Texas beaches, particularly along the upper coast, are sand-starved. Natural sand accumulation occurs very slowly, and it may take as long as 20 years for a six-foot-high dune to form. Even with dune-building structures, the process is slow. In areas of limited sand supply, where the sand is saturated, or where it is restrained from blowing, dunes may be constructed of imported sand.

Sand for dune construction must not be taken from the beach. Doing so robs donor areas of the material necessary for maintenance of the beach and dunes, and may increase erosion. Removal of sand and other materials from barrier islands and peninsulas is strictly regulated by state laws (see "Beach Access and Dune Protection Laws"). Sand for dune construction can be obtained from construction-material suppliers or cement companies (see "Where to Get Help" for a list of potential beach quality sand suppliers in your area).

The salt content of sand used to construct dunes should not exceed four parts per thousand (ppt). Higher salt concentrations will inhibit plant growth. For this reason, freshly dredged spoil material is usually not a good source of sand for dune construction projects. If dredged material is to be used, its salinity can be lowered by allowing it to sit until rain has leached the salt. Depending on the material, this may take from six months to three years. A local soils testing laboratory can conduct salinity tests at a particular location (see "Where to Get Help").

Imported sand should be similar in color, grain size, and mineral content to the sand at the dune-building site. If native sand is topped with imported finer sediment, the finer sediment will quickly erode.

Man-made dunes should be of the same general height, slope, width, and shape as the natural dunes in the vicinity. Generally, they should be no less than four feet high with a slope of no more than 45

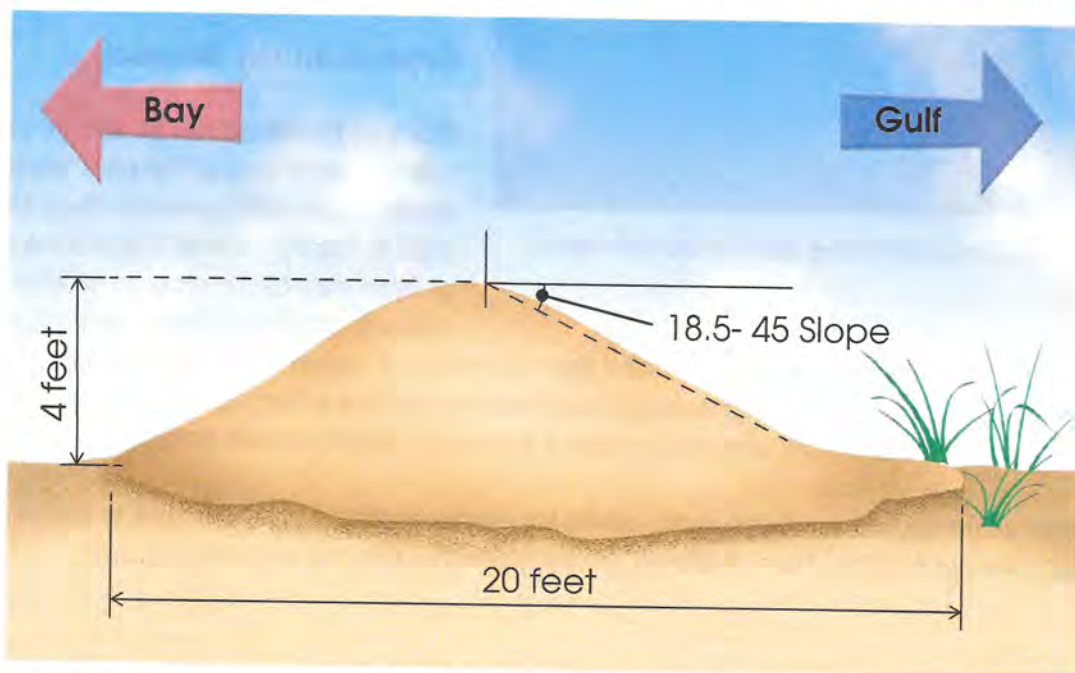


Figure 21. Minimum height, width, and slope of a dune constructed of imported sand.

degrees (a rise of one foot for every one horizontal foot). A slope of about 18.5 degrees (a rise of one foot for every three horizontal feet) is preferred. The initial width of the dune base should be at least 20 feet. A dune with a smaller base will not build to a height sufficient to provide storm protection (**Figure 21**).

More specifically, in Nueces County and the City of Corpus Christi, a continuous foredune ridge of at least 14 feet in height with a minimum width of 350 feet and at least 50% vegetative cover is recommended. In the City of Port Aransas, a continuous foredune ridge with a minimum height of 10 feet, a minimum width of 100 feet and 85% vegetative cover is recommended. In the City of Galveston and Galveston County, restored dunes should be constructed at a 3:1 slope, at an average height of 75% of the island's base flood elevation, with more than 50% vegetative cover, and not extending further seaward than 4.1 feet elevation from mean sea level. In the City of South Padre Island, a dune system with a minimum 85% vegetative cover and with primary dune and inter-dune elevations of 10 feet, with some dunes reaching an optimum 12 feet in elevation or greater, is recommended. In Cameron County, a continuous dune ridge with a height of at least 16 feet and a minimum base width of 200 feet which contains 575 cubic feet of sand volume per linear feet above base flood elevation is recommended. These recommendations are found in each local government's Erosion Response Plan.

Where there is an ample supply of sand, construct dunes slightly landward of the location where foredunes would naturally occur to allow for natural seaward expansion. Generally, dunes may not be built more than 20 feet seaward of the line of vegetation, unless there is a demonstration that dunes would naturally form further seaward and will not interfere with the public's ability to use the beach during normal tide events. Dunes built too close to the Gulf can be destroyed by wave action during even minor storms and may interfere with public access along the beach.

Fine, clayey or silty sediments, hard or engineered structures, and materials such as bulkheads, riprap, concrete, asphalt, or other non-biodegradable items, may not be used to restore dunes.

Shoreline protection structures, such as seawalls and rock revetments, have been placed along portions of the coastline. While these structures protect public infrastructure and property landward of them, they are not considered dunes and should not be used as a method of, or core for, dune restoration. These structures do not provide the same habitat for flora and fauna that dunes do or store and supply sand to the beach system.

MITIGATION OR COMPENSATION FOR IMPACTS TO DUNES AND DUNE VEGETATION

When homes or other structures are constructed in the critical dune area, there will often be unavoidable adverse impacts to dunes and dune vegetation. If dunes and dune vegetation will be adversely affected by construction, the Dune Protection Act requires mitigation, or restoration, for those damages.

At the same time a beachfront construction certificate and dune protection permit is obtained, a mitigation plan must be submitted to the local government and the GLO that shows that the following steps, called the mitigation sequence, will be followed:

- 1. Avoidance:** avoiding the negative effects on dunes and dune vegetation altogether by not taking a certain action or parts of an action. Example: locating the construction in an area where critical dunes and dune vegetation are not located.
- 2. Minimization:** minimizing negative effects on dunes and dune vegetation by limiting the degree or magnitude of the action and its implementation. Example: reducing the size of the area that will be impacted.
- 3. Mitigation:** repairing, rehabilitating, or restoring damaged dunes and dune vegetation.
- 4. Compensation:** replacing or providing substitute dunes and dune vegetation, either on-site or off-site.

Each step in the mitigation sequence must be demonstrated in the mitigation plan. If adverse impacts to dunes and dune vegetation have been (1) avoided and (2) minimized as much as possible, then the impacts must be accounted for by either repairing or restoring the damaged dunes and dune vegetation in a (3) mitigation project or providing substitute dunes and dune vegetation in a (4) compensation project.

The volume of dunes and square footage of dune vegetation in a mitigation or compensation project must be the same as or more than the volume of dunes and square footage of dune vegetation that were damaged or adversely impacted. This is called 1:1 mitigation. **(Figure 22)**

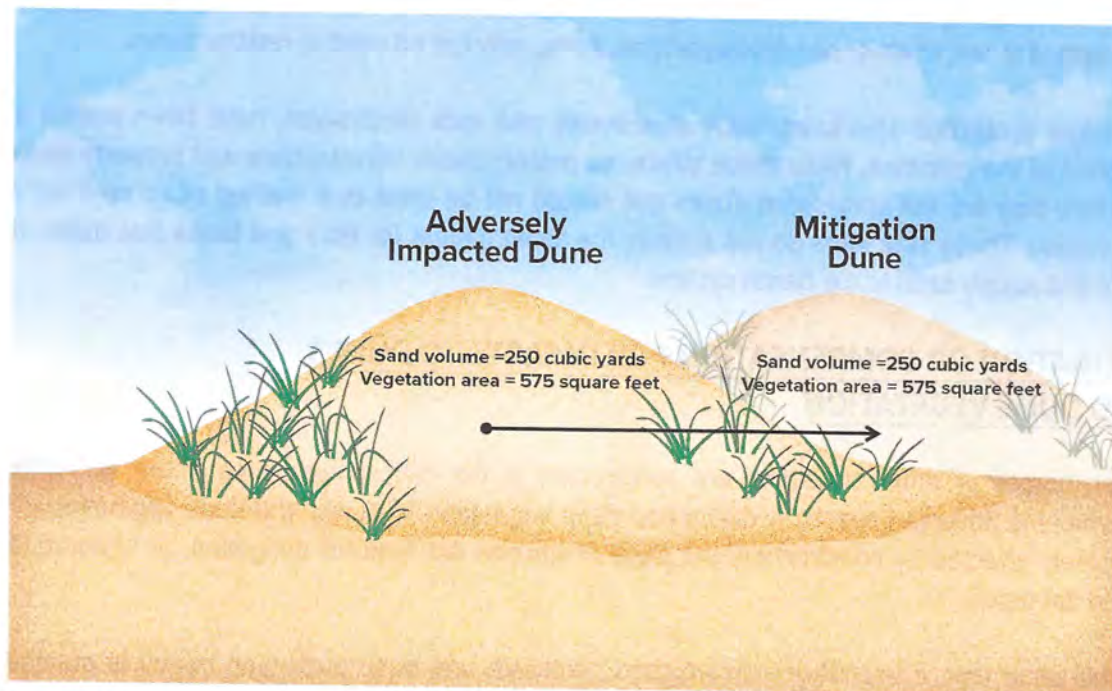


Figure 22. An example of 1:1 mitigation.

Mitigation and compensation projects must be located as closely as possible to the area where dunes and dune vegetation were adversely impacted, in order to provide a similar level of protection from the Gulf. Compensation projects may only be conducted off-site (meaning on a different property than where the damages occurred) if it is not possible to locate the compensation on the same site.

When developing a mitigation plan, the process of dune construction and restoration should follow the same methods outlined in this guidance document. The location, contour, volume, elevation, vegetative cover, and sediment content of the dunes in mitigation and compensation projects must be similar to the naturally formed dunes in the area.

Mitigation or compensation for adverse effects to dunes and dune vegetation must begin before or at the same time as construction and must continue until the restored dunes and dune vegetation are equal or superior to the pre-existing dunes and dune vegetation. Mitigation or compensation dunes and dune vegetation must be preserved and maintained until the local government determines that the mitigation or compensation project is complete, meaning the shape, size and vegetative cover of the dune restoration project matches or is greater than the surrounding naturally formed dunes.

The time necessary to restore dunes and dune vegetation may change depending on climate, time of year, soil moisture, plant stability, and storm activity. For this reason, permit holders have three years to complete mitigation or compensation after beginning restoration efforts.

DUNE WALKOVERS

Damage to dunes from pedestrian traffic can be avoided by the use of elevated walkovers for access to the beach. If walkovers are conveniently placed near access roads, parking areas, beachfront subdivisions, and public facilities, pedestrians will be less likely to cut footpaths through the dunes. Also, providing walkovers may increase public awareness of the importance of dunes and promote an appreciation of the sensitivity of the dune environment (**Figure 23**). Dune walkovers should be shared between multiple property owners and subdivisions when possible in order to reduce impacts to the dune system by the proliferation of walkovers.

A walkover should begin behind the critical dune area and end just seaward of the dunes or line of vegetation where it will not interfere with public use of the beach at normal high tide. The structure should be oriented at an angle to the prevailing wind direction. Otherwise, wind blowing directly up the path of the walkover may impede the growth of vegetation beneath it, erode sand from the seaward end, and increase the possibility of washout or blowout occurrences.

CONSTRUCTION STANDARDS

Wood is the preferred construction material for walkovers because it is less expensive than metal, does not collect and retain heat as metal does, and is readily adapted to a number of designs. Although there are a few walkovers made from polyvinyl plastic, treated lumber and galvanized nuts and bolts may be used. The use of lumber treated with hazardous or toxic treatments, such as creosote, is discouraged. Basic structural guidelines for walkovers are detailed in **Figure 24**.

The width of a dune walkover or similar structure should be limited to four feet wide. An increased width of up to six feet, excluding limited passing areas, should only be permitted for public access walkovers, shared walkovers for three or more residences, or for wheelchair or golf-cart use. Dune walkovers greater in width than six feet should be limited to public dune walkovers. If a walkover will be infrequently used, a width of two feet is recommended.



Figure 23. Dune walkover.

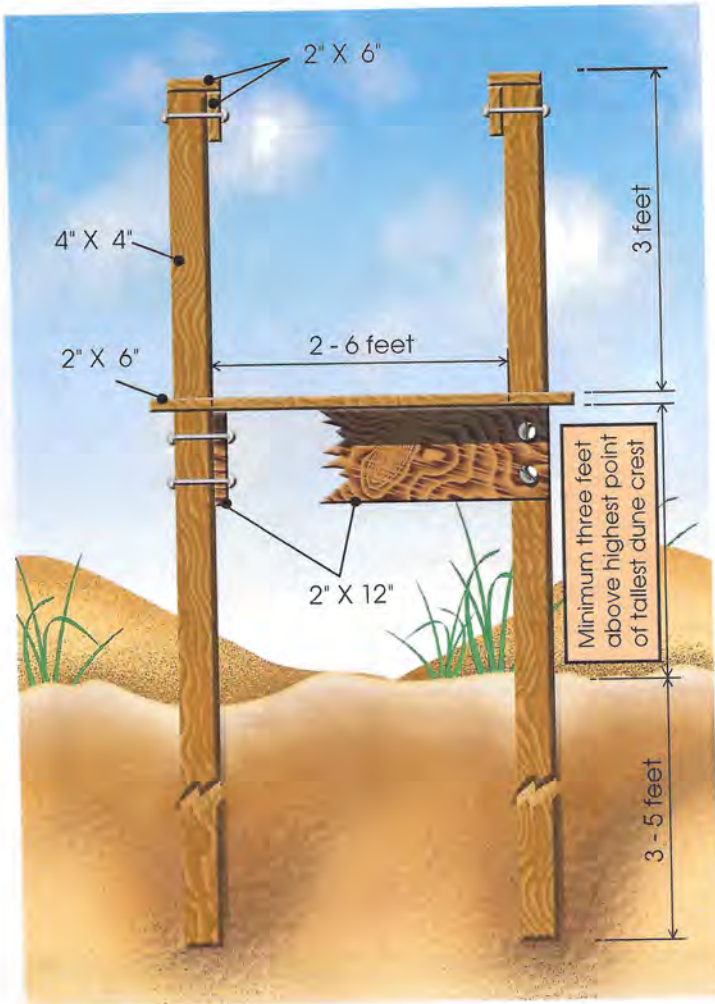


Figure 24. Construction details for a dune walkover.

pilings is prohibited. Any damages to the dune area must be authorized by the local government and repaired as soon as possible.

Providing handrails on both sides of the walkover is recommended as a safety measure and to discourage people from jumping off into the dunes. Railings are particularly advisable on public walkovers and those that are high above the ground. Railings should be at least three feet high.

For all new construction of public dune walkovers in areas where vehicles are prohibited from driving on and along the public beach, local governments should construct walkovers in a manner that is accessible for persons with disabilities, where practicable. Guidelines for constructing a dune walkover to be accessible for persons with disabilities are located in the GLO's Texas Beach Accessibility Guide.

Walkovers should be inspected on a regular basis and promptly repaired as needed. To avoid damage to dunes, workers should enter the dune area on foot rather than by vehicle.

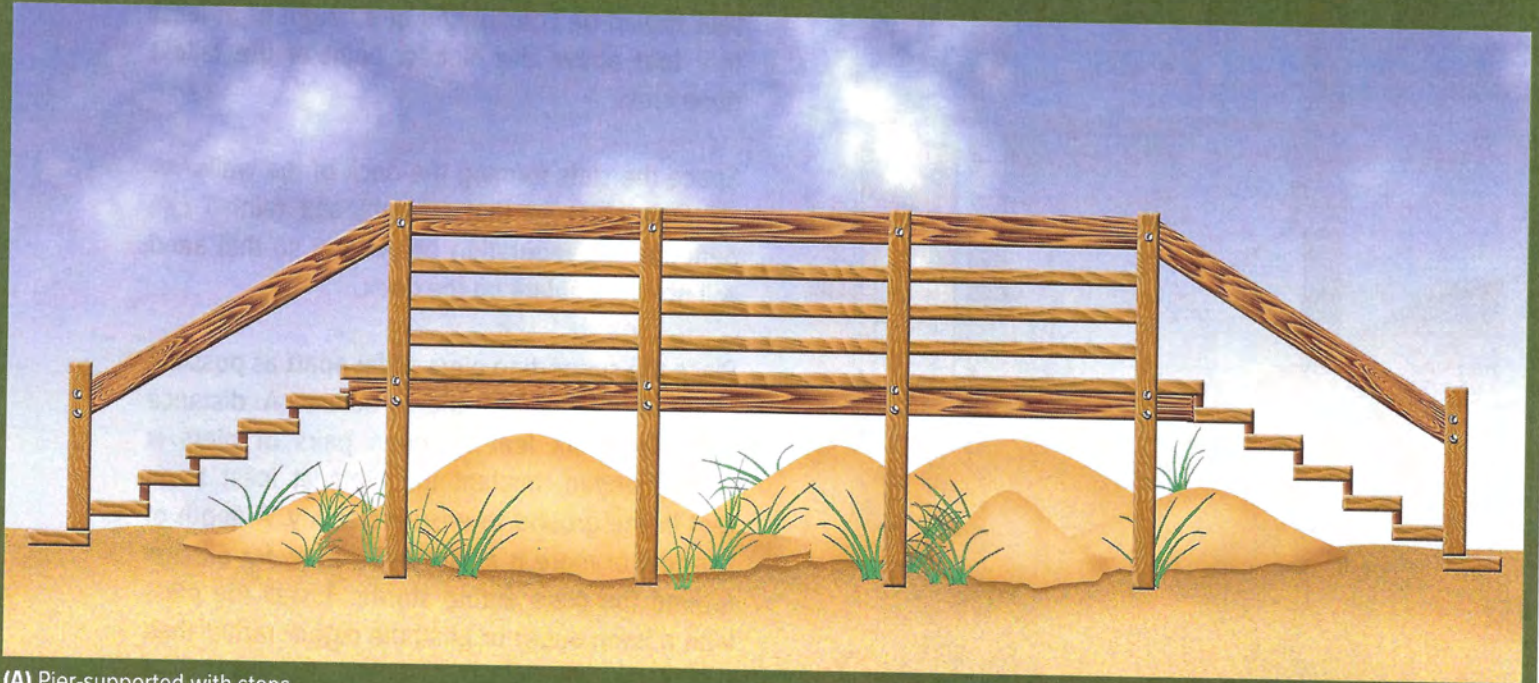
The lowest level of the walkover must be of sufficient elevation to accommodate the expected increases in dune height. At a minimum, the lowest level of a dune walkover with a width of four feet or less should be constructed at a height of at least three feet above the highest point of the tallest dune crest beneath and immediately adjacent to the dune walkover. The lowest level of a dune walkover with a width greater than four feet should be constructed at a height of at least four feet above the highest point of the tallest dune crest.

Space the slats forming the deck of the walkover 1/2 inch apart so that sunlight and rainfall can penetrate to vegetation below and so that sand will not accumulate on the deck.

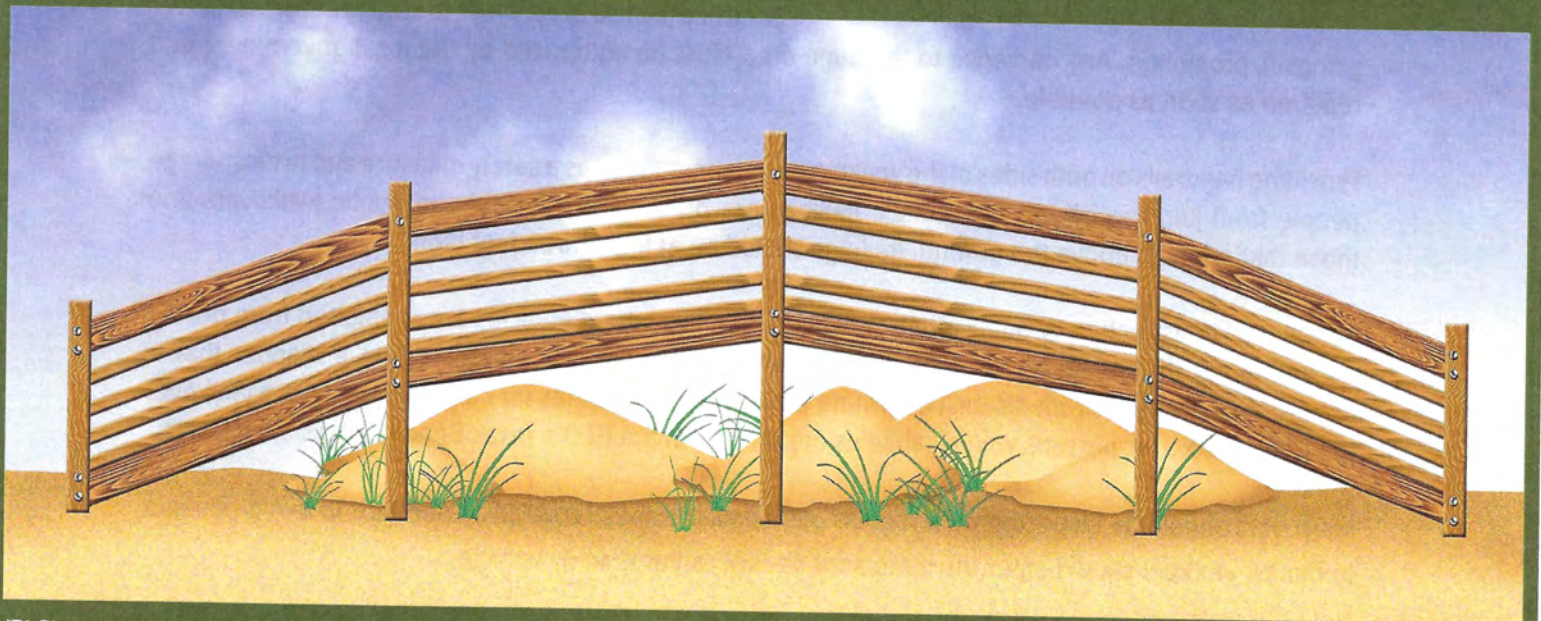
Place the supporting piers as far apart as possible along the length of the structure. A distance of at least six feet between pairs of piers is recommended. Implant the piers at least three feet in the ground to ensure stability. A depth of five feet or more is advisable to allow for erosion around the piers during storms. Install the piers with a hand auger or posthole digger rather than with a tractor.

Walkover piers should not be set with cement, since the use of concrete to stabilize dune walkover

Figure 25 A and B show two of the most common designs for dune walkovers in Texas and are variations of the common pier-supported structure employing telephone pole or fence post piers. Design A has a flat deck with steps at each end. Design B has ramps instead of steps, and the deck is arched where dune formations are highest. Prior to construction, check with the local building inspector for preferred specifications for dune walkovers.



(A) Pier-supported with steps



(B) Pier-supported with ramps

Figure 25. Dune walkover designs.

BEACH ACCESS AND DRAINAGE

ACCESS ROADS

The need for public roads to provide access to beaches often conflicts with the need to protect dunes; however, damage to dune areas by access roads can be minimized if the roads are properly designed.

Roads constructed parallel to the shoreline should be located as far landward of the dunes as possible. Beach access roads built perpendicular to the beach should be located in washover or blowout areas whenever possible, following natural land contours.

Beach access roads should be oriented at an angle to the prevailing wind direction. This will reduce the chance that water and wind will be channeled along them and erode the dunes at the sides of the road cuts (**Figure 26**). Access roads near beaches should be elevated (similar to a speed bump) near the foredune ridge near the foredune ridge to reduce channelization of water during high tides (**Figure 27**).

To minimize dune destruction, access roads should be as narrow as practicable. Any dune area damaged during road construction should be revegetated. Sand fencing can be used to retard erosion along the sides of the roads.

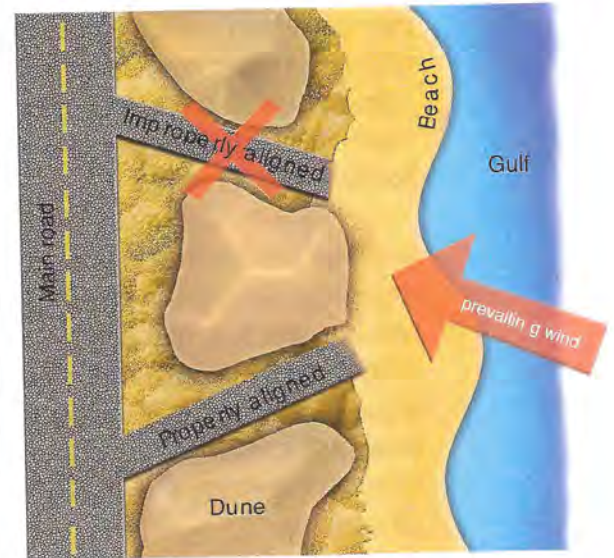


Figure 26. Alignment of beach access roads.

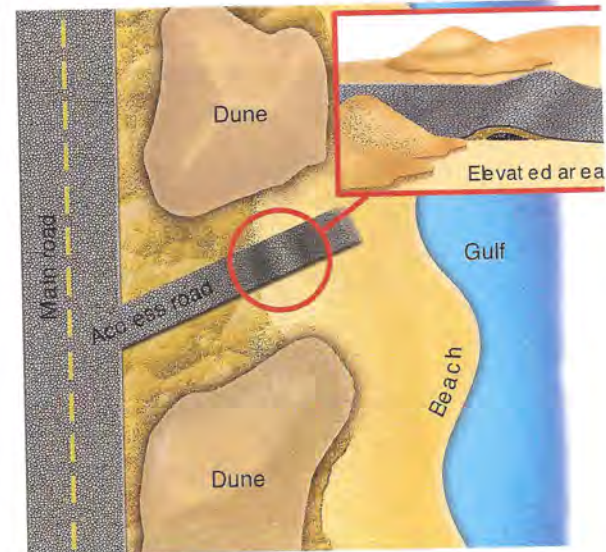


Figure 27. Elevating beach access roads at beach juncture.

DRAINAGE

On an undeveloped barrier island, rainwater generally seeps into the ground or drains toward open water. As an island is developed and land is covered with buildings and pavement, the amount of permeable land surface exposed to absorb rainfall is reduced, and runoff increases. On barrier islands with dense urban development or areas where the contour of the land has been altered, storm runoff does not follow the natural course to the Gulf and can create a washout, resulting in flooding of shoreline property. In addition, the washout exposes land and buildings behind the dunes to further flooding by storm surge.

Drainage patterns resulting from construction must not erode dunes, the public beach, or adjacent properties. General Land Office rules require that new channels be directed inland instead of through critical dunes toward the gulf. Damage to dunes and to property behind them can be prevented or halted by the installation of a retention pond to collect and contain rainwater until it can seep into the ground. Either man-made or natural swales will serve this purpose. The retention pond should be large enough to contain the anticipated volume of runoff and located where it will receive the maximum amount of drainage (**Figure 28**). A qualified professional should design the system and oversee its construction.

More information regarding managing stormwater and coastal nonpoint source pollution can be found on the GLO's Clean Coast website: cleancoast.texas.gov.

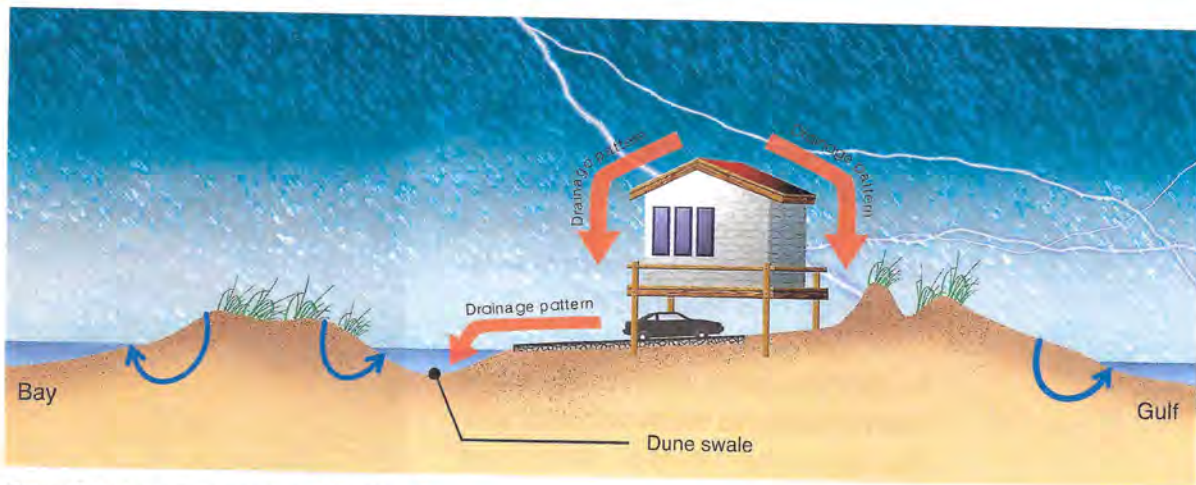


Figure 28. Utilizing a retention pond for drainage.

BEACH MAINTENANCE

Beach maintenance is defined as the cleaning or removal of debris from the beach or redistribution of seaweed on the beachfront by handpicking, raking, or mechanical means. Local governments may conduct or authorize beach maintenance activities for the purpose of providing access to the beach, as long as these activities do not materially weaken dunes or dune vegetation and will not result in the significant redistribution of sand or significantly alter the beach profile or line of vegetation.

The GLO encourages the removal of litter and other debris by handpicking or raking and strongly discourages the use of machines which disturb the natural balance of gains and losses in the sand budget and natural cycle of nutrients.

Sargassum

One of the most common beach maintenance activities is the redistribution of Gulf Seaweed or *Sargassum*, often by mechanical means. The seaweed is removed from the wrack line and placed in low areas or breaches within the primary dune complex or at the toe of the dunes immediately adjacent to the line of vegetation.

Sargassum acts as a home for many animals, including sea turtles, while it is floating on the water and can serve as both protection and a food source on the beach. *Sargassum* also helps protect the sand from wind- and wave-driven erosion and promotes the development of embryo dunes, or coppice mounds. *Sargassum* can be beneficial if left on the beachfront, but it can also help protect and build dune systems if placed at the toe of the dunes.

BEACH ACCESS AND DUNE PROTECTION LAWS

Any group or individual planning to undertake a dune protection or improvement project on the Texas coast must be aware of federal, state, and local laws and regulations that apply to the proposed action.

FEDERAL GUIDELINES

In 1987, the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, the U.S. Environmental Protection Agency, and the U.S. Department of Agriculture Natural Resources Conservation Service (then the Soil Conservation Service) drafted the Federal Manual for Identifying and Delineating Jurisdictional Wetlands. Federal permits must be obtained from the Corps of Engineers for activities in these areas. Jurisdictional wetlands are identified on the basis of plant type, soils, and local hydrology.

In many cases, activities in coastal sand dunes will not affect jurisdictional wetlands and no federal permit will be required; however, seasonally wet swales between dunes may be considered wetlands. Questions regarding jurisdictional wetlands in Texas and procedures for obtaining proper permits can be directed to the local county commissioners court or to the U.S. Army Corps of Engineers, Galveston District (see "Where to Get Help").

The Federal Emergency Management Agency (FEMA) classifies all foredunes as "coastal high-hazard areas," or "high-velocity zones" (V-zones). A "V-zone" is defined as "a special flood hazard area extending from offshore to the inland limit of a foredune along the open coast, and any other area subject to high velocity wave action from storms or seismic sources."

Foredunes are included in V-zones because they absorb the brunt of storm attack. FEMA requires more rigorous construction standards within V-zones and also prohibits "any human-caused alterations of sand dunes which could increase potential flood damage." For more information concerning V-zones, and to obtain flood maps, contact a FEMA representative or your local floodplain coordinator. The Texas Water Development Board is the State Coordinating Office for the National Flood Insurance Program (see "Where to Get Help").

STATE LAWS

The Open Beaches Act (Chapter 61 of the Texas Natural Resources Code), passed by the Texas Legislature in 1959, codified the public's common law right of free and unrestricted access to the "public beach," which extends from the line of mean low tide to the line of vegetation on the shoreline bordering the Gulf of Mexico. The act makes it unlawful to prevent or impede access to or use of the public beach by erecting barriers or by posting signs declaring a beach closed to the public. The act also required local governments to create beach access and use plans to preserve and enhance access to and the use of public beaches within their jurisdiction.

The Dune Protection Act (Chapter 63 of the Texas Natural Resources Code), enacted in 1973 and amended by the Texas Legislature in 1991, requires the commissioners court of any county with public beaches bordering on the Gulf of Mexico to establish a dune protection line on the Gulf shoreline. This requirement applies to mainland shoreline fronting the open Gulf as well as to the Gulf shoreline of islands and peninsulas. The county may allow the governing body of a municipality to assume this responsibility within its corporate limits and extraterritorial jurisdiction. The dune protection line can be established up to 1,000 feet landward of the mean high tide line. A dune protection permit from the county commissioners court or city is required for most activities seaward of the line.

Beachfront Construction Certificate and Dune Protection Permit

All construction activities within 1,000 feet of mean high tide or seaward of the first public road, whichever is greater, must be authorized by a beachfront construction certificate and all activities seaward of the local dune protection line must be authorized by a dune protection permit. Construction involves building, bulkheading, filling, clearing, excavation, or substantial improvement to or alteration of land or any structure and includes any impacts to sand dunes or dune vegetation.

To obtain a beachfront construction certificate and dune protection permit, an application must be submitted to the local government, the permitting entity. Once the local government receives a complete application that contains all necessary documentation, the application is sent to the Land Office to review and provide comments. After the local government has received comments from the Land Office, they may approve the proposed construction and issue a beachfront construction certificate and dune protection permit if they determine that the proposed activities are consistent with their dune protection and beach access plan.

Questions about the beach dune regulations or the permitting process should be directed to the county commissioners court, city, or the Land Office, (see "Where to Get Help").

Texas Coastal Management Plan

The Texas Coastal Management Program (CMP) is a federally approved, networked program that works to improve the management of Texas coastal natural resources. The CMP links the knowledge and expertise of eight (8) state agencies and four (4) Commissioner appointed representatives, collectively known as the Coastal Coordination Advisory Committee (CCAC), to provide advice and make decisions to ensure the long-term ecological and economic productivity of the Texas coast. The CMP receives funding from the National Oceanic and Atmospheric Administration that allows the Land Office to administer grant money for coastal projects. Additionally, the CMP reviews federal actions, activities, licenses, permits and applications for federal assistance issued under other federal programs for consistency with the goals and policies of the CMP. The CCAC may review applications for beachfront construction certificates and dune protection permits issued by local governments, funds for dune restoration and walkovers, and local government dune protection and beach access plan certifications.

Coastal Erosion Planning and Response Act

In 1999, the Texas Legislature passed the Coastal Erosion Planning and Response Act (CEPRA) to provide funding to coastal communities for projects that slow the effects of coastal and shoreline erosion. Dune restoration and beach nourishment projects may be funded through this program. Communities may submit proposals for the Land Office for such projects.

Removal of Sediments

Sections 61.211 through 61.227 of the Texas Natural Resources Code regulate the removal of sand, marl, gravel, and shell from islands, peninsulas, and land within 1,500 feet of mainland public beaches outside corporate limits. A permit must be obtained from the relevant county commissioners court for the excavation of any of these materials unless the material is to be moved by a landowner, or with a landowner's consent, from one location to another on the same piece of property. No permit is required if the removal is officially undertaken by a federal, state, or local government entity. An incorporated city, town, or village may not authorize the removal of sand, marl, gravel, or shell from a public beach within its boundaries for any purpose other than the construction of a public-sponsored recreational facility or a shoreline protection structure.

The Texas Parks and Wildlife Department, under Chapter 86 of the Parks and Wildlife Code, regulates the disturbance and removal of marl, sand, gravel, shell, or mudshell located within tidewater areas for any purpose other than that necessary or incidental to navigation or dredging under state or federal authority. Questions may be direct to this department (see "Where to Get Help").

WHERE TO GET HELP

FEDERAL

For construction standards in floodplains and coastal high-velocity zones:

Federal Emergency Management Agency, Region VI

(940) 898-5399

www.fema.gov

For information on permitting in jurisdictional wetlands:

U.S. Army Corps of Engineers Galveston District

(409) 766-3004

www.swg.usace.army.mil

Corps of Engineers – Corpus Christi

(361) 814-5847

For information related to endangered species:

U.S. Fish & Wildlife Service Texas Coastal Ecological Services

Houston Field Office

(281) 286-8282

Corpus Christi Field Office

(361) 994-9005

STATE

For information on permitting coastal construction:

Texas General Land Office Coastal Resources

(800) 998-4456

www.glo.texas.gov

For information on Environmental permits for activities within the Texas Coastal Management and Joint Permit application boundaries or on state-owned submerged land:

Texas General Land Office Corpus Christi Permit Service Center

602 N. Staples St., Suite 240

Corpus Christi, TX 78401

(361) 886-1630

Texas General Land Office Galveston Permit Service Center

Texas A&M University Galveston Campus
1001 Texas Clipper Road, Building 3026,
Room 912

Galveston, TX 77533

(409) 741-4057

For information on sand, marl and gravel removal from tidal waters:

Texas Parks and Wildlife Department

(512) 389-4864

www.tpwd.texas.gov

For general flood-related questions:

Texas Water Development Board

(512) 463-7847

www.twdb.texas.gov

COASTAL COUNTIES

Coastal counties that administer dune protection and beachfront construction programs:

Jefferson County

1149 Pearl Street, 5th floor

Beaumont, TX 77701-3619

(409) 835-8584

Chambers County

P.O. Box 1180

201 Airport Road

Anahuac, Texas 77514-1708

(409) 267-3623

Galveston County

722 Moody, Suite 200

Galveston, Texas 77550

(409) 766-2244

Brazoria County

451 North Velasco, Suite #210

Angleton, Texas 77515

(979) 864-1295

Matagorda County

2200 7th Street

Bay City, Texas 77414-0571

(979) 244-2717

Nueces County

P.O. Box 18608

Corpus Christi, TX 78480

(361) 949-8121

Cameron County

P.O. Box 2106

South Padre Island, TX 78597-2106

(956) 761-5493

COASTAL MUNICIPALITIES

Coastal municipalities that administer dune protection and beachfront construction programs:

City of Galveston

3015 Market St.

Galveston, TX 77550

(409) 797-3660

coastalresources@galvestontx.gov

City of Jamaica Beach

5264 Jamaica Beach Road

Jamaica Beach, TX 77554-8674

(409) 737-1142

Village of Surfside Beach

1304 Monument Dr.

Surfside, TX 77541

(979) 233-1531

Town of Quintana

814 N. Lamar

Quintana, TX 77541

(979) 233-0848

City of Port Aransas

710 W Ave A

Port Aransas, TX 78373

(361) 749-4111

City of Corpus Christi

2406 Leopard Street

Corpus Christi, TX 78408

(361) 826-3240

City of South Padre Island

4601 Padre Blvd

South Padre Island, TX 78597

(956) 761-3044

City of Freeport

200 W 2nd Street

Freeport, TX 77541

(979) 233-3526

SOURCES OF VEGETATION INFORMATION

U.S. Department of Agriculture Natural Resources Conservation Service

(817) 774-1261
www.tx.nrcs.usda.gov

Kika de la Garza Plant Materials Center

3409 N. FM 1355
Kingsville, TX 78363
(361) 595-1313

Lady Bird Johnson National Wildflower Center

4801 La Crosse Avenue
Austin, TX 78739-1702
(512) 292-4200
www.wildflower.org

Texas A&M University – Galveston

Marine Biology Department
(409) 740-4528
www.tamug.tamu.edu/mars/

Apache Ecological Service

27426 Dobbin Hufsmith Road
Magnolia, TX 77354
(281) 356-3135

BEACH-QUALITY SAND INFORMATION

*Potential local suppliers of beach-quality
sand*:*

Texas International Terminals

4800 Old Port Industrial Road
Galveston, TX 77554

Sorrell Construction, Equipment & Materials LLC

P.O. Box 2049
Freeport, TX 77542

Olmito Sand Pit

5926 Maverick Rd
Brownsville, TX 78521

Sediment analysis testing facilities:*

Terracon Consultants Inc.

11555 Clay Road
Houston, TX 77043
(713) 690-8989

1740 W 4th St., Ste 101
Freeport, TX 77541-5051
(979) 705-4942

**This list may not be exhaustive and does
not constitute endorsement by the GLO.*

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CONTRIBUTORS

The original contributors to this manual were Michael H. McKann, Jerry McAtee, John Campbell, Eddie Seidensticker, Ray Quay, Craig Stafford, John Taylor, and Kimberly K. McKenna. Revisions by Michelle Culver and Natalie Bell.

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Sand Dunes, Vegetation Could Improve Sustainable Infrastructure

A new Texas A&M AgriLife study provides insights into natural protective storm barriers along coastlines.

By Adam Russell, Texas A&M AgriLife Communications • JUNE 22, 2023



SHARE



A sand dune on Galveston Island.

Laura McKenzie/Texas A&M Division of Marketing & Communications

Nature is helping scientists design better ways to protect people and property along coastlines from extreme weather events like hurricanes.

A team of scientists from [Texas A&M AgriLife Research \(https://agriliferesearch.tamu.edu/\)](https://agriliferesearch.tamu.edu/), the University of Delaware, Oregon State University, the University of Oxford, England and the Universidad Nacional Autonoma de Mexico published

an article in *Science Advances* (<https://www.science.org/doi/10.1126/sciadv.adg7135>) that could change how structures to protect coastlines are constructed.

The study investigated how sand dunes and vegetation interact with heavy storm waves. Sand dunes block waves and decrease storm surges that flood homes, damage infrastructure and disrupt critical ecosystems. The research fundamentally alters the previous understanding of how natural and vegetative features can provide protection during extreme storm events.

Dr. Rusty Feagin, an AgriLife Research professor and ecologist in the [Department of Ecology and Conservation Biology](https://eccb.tamu.edu/) (<https://eccb.tamu.edu/>), in the [College of Agricultural and Life Sciences](https://aglifesciences.tamu.edu/) (<https://aglifesciences.tamu.edu/>), led the study. He is also an adjunct faculty member of the [Department of Ocean Engineering](https://engineering.tamu.edu/ocean/index.html) (<https://engineering.tamu.edu/ocean/index.html>) in the [College of Engineering](https://engineering.tamu.edu/) (<https://engineering.tamu.edu/>) at [Texas A&M University](https://www.tamu.edu/) (<https://www.tamu.edu/>).

Below, Feagin discusses the study, its significance in related scientific and engineering fields and how researchers simulated waves equivalent to Hurricane Sandy, which in 2012 caused more than 100 deaths, over \$60 billion in damages and wrecked natural habitats along the East Coast.

Researchers conducted the simulation at Oregon State University's O.H. Hinsdale Wave Research Laboratory, the largest wave tank in the U.S. The team used more than 100 truckloads of sand to create 15-foot sand dunes inside the wave tank, which is longer than a football field. Hundreds of native *Panicum amrum* plants were planted in the dunes and grown for six months before scientists battered them with waves.

Why is researching sand dunes important?

Hurricanes, tsunamis and other extreme wave events cause lots of erosion and property damage along coastlines. One way to mitigate the impact is to use natural solutions like sand dunes, wetlands and living oyster or coral reefs for protection. This research provides insight into what native vegetation does during an extreme event, which will help us design dune construction and restoration projects for protection.

What preparation and equipment was used to simulate waves produced by Hurricane Sandy?

We first measured and modeled nearshore buoy records that detailed the structure of the waves that hit sand dunes in Mantoloking, New Jersey, during Hurricane Sandy. We then programmed a computer to push a large paddle that generated the waves inside the wave tank to re-create those waves in an experimental context.

Were the findings something your team anticipated or a surprise revelation?

We were surprised, although we had already vaguely hypothesized that this sequence of events could occur. It is one thing to imagine that something is possible in a theoretical sense, in a little play "sand box" in your mind. It is an entirely different thing to put years of man-hours into building a massive sand box, and then see the phenomena happen in real life. You kind of feel lucky to have seen it, because it is really hard to design and create experiments to isolate the factor that you want to understand.

In this case, we had to go big to see the revelation. We had conducted many similar experiments over the prior decade in smaller wave tanks. By small, I mean on the order of a gigantic fish tank the size of a house. At that size, you can only simulate smaller waves and only over a few minutes before the sand is flying everywhere.

However, in this new experiment, we did what we had always dreamed - we had an even bigger fish tank, in this case about the length of a football field and with a 15-foot dune inside of it. At this size, you can simulate real-life tidal bores, over the course of an entire extreme event like Hurricane Sandy.

How did your findings differ from what was previously understood about dunes and beach features designed to mitigate storm damages?

We were surprised to see that during the extreme event, the vegetation actually accelerated the erosion. The plants created a porous barrier, which protected the dune in the landward direction, but re-directed and amplified the wave energy into the dune in the seaward direction. This patterning resulted in scour, which created a scarp, or a little cliff, on the dune face.

The vegetation also forced the entire volume of water into the sand at this location, which supersaturated and liquified the sand. Once the scarp formed and interrupted the formerly smooth dune slope, the erosion became locked into a

feedback cycle where the waves, vegetation and sand continued to create a bigger and bigger scarp. The dune became locked into what we call the "collision regime," where the waves just slam into the vertical scarp of sand and undercut it.

When that happens, the erosion happens really fast and the dune catastrophically falls apart. So, vegetation basically causes the dune to fall apart more quickly than it otherwise would.

What do you hope this study can do in terms of how we plan infrastructure to mitigate damage from storms like hurricanes?

We discovered that plants are good in the years before the extreme event, but bad during the actual extreme event itself. Thus, we want to select the plants and tools that maximize the growth of the dune in the years before the event and minimize the erosion during the event.

Vegetation, and other living materials and natural solutions, are tools that can help us to protect properties. But we've learned that we must use the right tool when and where it is applicable. "Hard" solutions like walls and rock jetties are also tools, but they can throw the hydrodynamics — the forces exerted by waves — out of equilibrium with the morphodynamics — the form and functions of the sand moving within the coastal system. So, you might reduce erosion in one spot but rapidly increase its severity in another. Plants and other natural materials provide a softer solution that can flex both ways in response to the changing hydrodynamic and morphodynamic conditions.

Our study showed that plants still act a bit like a hard solution during an actual extreme event. Importantly, however, plants and other natural materials help provide equilibrium on longer time scales, like over years. They help build the land by slowing the wind and accumulating sand and construct the sand dune to taller and taller heights. Thus, over years, the plants are very important because they build the dune in the first place.

Did the study data provide any recommendations for protective designs along U.S. beaches?

It did. It showed we want to grow native plants adapted to building the dunes most efficiently — not plants that look like they are big in physical structure or stiff and can protect against waves. For this reason, beach and dune managers should use plants such as sea oats or beach panic grass on the Gulf Coast, sea oats on the lower East Coast, American beach grass on the upper East Coast and American Lyme grass on the West Coast. These native species will build the dune much better than other species and provide the best suitable habitat for animals like sea turtles, lizards, snakes, beach mice, beach rabbits and shorebirds. Additionally, once an extreme event hits, these flexible plant species will not precipitate the formation of a scarp as rapidly as dunes with non-native woody species like salt cedar or Australian pine or even old Christmas trees that are placed by well-meaning residents to reduce erosion.

In the end, we want plants that go with the flow rather than against the grain. We want the plants to build the dune before the storm, and then during the storm just lay back and stay in equilibrium, not try to resist.

What are some other benefits to restoring beaches and dunes using the method prescribed in this study?

Sand dunes enhance public and private property values. They provide an aesthetic appeal over ugly concrete seawalls, bulkheads or rocky barriers. They look natural, even if humans constructed or restored them. This improves the property value for homeowners. Moreover, people will visit a beach that looks natural and nice, over a small strip of sand next to an ugly seawall. A dune helps keep the beach natural-looking and wider for these visitors. Many coastal communities are dependent on tourism for their economic survival, and natural-looking dunes and beaches attract visitors.

Dunes also help divide the public beach from private land. In Texas, the "line of vegetation" demarcates where the public beach ends and private property starts. So, private landowners have an interest in pushing that vegetation seaward, and they will pay for people to restore dunes to do it.

As I mentioned earlier, dunes also provide critical habitat for many animals, including rare and threatened species. In Texas, for example, endangered Kemp's ridley sea turtles lay their eggs at the foot of dunes.

How important is collaboration when it comes to a study like this?

Without the help of many collaborators and technicians, it would be impossible to build a sand dune in a football field-sized wave tank. Personnel from at least 10 universities and several countries worked on this project. Several state and federal agencies contributed to the effort as well. The cost of this effort was millions of dollars.

Of course, when we design an effort on this scale, we do not design for only one outcome. So, stay tuned: We have additional research findings from this experiment that will come out soon. We are gaining a better understanding about the physics of sand particle movement during storms, how undertow currents work, and how we can create more resilient dunes.

What do you hope your research will ultimately contribute to how we prepare for catastrophic storms?

Our hope is that people can better manage coasts to meet the needs of both the natural world and humans.

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This article by Adam Russell originally appeared on [AgriLife Today](https://agrilifetoday.tamu.edu/2023/06/15/sand-dunes/) (<https://agrilifetoday.tamu.edu/2023/06/15/sand-dunes/>).

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