



o u



"(3"%&\$*.*&/504
-*45" %& "\$3'/*.04 : "#3&7**563"4
13&'"\$*0

ö.
ö,
ö¹

\$"1<56-0 ö²
46.*%&304 /"563"-&4 %& "\$3#0/0 -04 &\$04*45&."4
%& "\$3#0/0 ";6- &/ -" .*5*("\$*'/ %&- "\$.#*0 \$-*.•5*\$ ö²ö±
}26‡ &4 &- "\$3#0/0 ";6- ö²öµ
-" *.1035"/\$*" %& \$0/4&37"3 -04 &\$04*45&."4 &6301&04 :
. &.*5&33*/&04 %& "\$3#0/0 ";6- ö²ö¹

\$"1<56-0 ö³
10-<5*\$"4 : /6&704 .&\$"/*4.04 %& (&45*'/ %& "\$3#0/0 ö³ö³
-04 .&3\$"%04 %&- "\$3#0/0 "/5&\$&%&/5&4 : 13*/\$*1*0 ö³ö.
;...:... #! , '1+-1 "# *",# "# 1# 7 !0•"2- - "# !-+.#, 1ö³öÄ,
;...;... #! , '1+-1 "# !-+#0!' - "# ! 0 -,-, - !3 '#02-1 .-0 #* <13#0"- "# 0"1
;...< #0! "-1 "# ! 0 -,- 4-*3,2 0'-1 32
ö³ö³ 32
@ 38
\$0.&3\$*" - *; "\$*'/ %& 37& *5.0 öµö²



\$"1<56-0 ö´
&7"-6"\$*'/ %& -" 7**#*-*%"% 0 -" "%.*4*#*-*%"%
%& 130:&\$504 %& "\$3#0/0 öµö³
<... = ... 0', !'. '-1 Â ðÃQ 3=0\$ 5 0Â ðÃQ 3p1 ÿ o 0

\$"1<56-0 ö¶
\$0/\$&156"-*;"\$*/ %& 6/ 130:&\$50 %& \$"3#0/0 ";6- @;
1-"/**"\$*/ %& 6/ 130:&\$50 %& \$"3#0/0 ";6- @=
"\$5*7*%"%&4 : 4"-7"(6"3%"4 1"3" 130:&\$504 %& \$"3#0/0@?";6-
3&4&3703*04 %& \$"3#0/0 @A
*%&/5**"\$*/ %&- "-\$"/\$& %&- 130:&\$50 : 1-"/ %& .6&453&0

\$"1<56-0 ö-
.6&453&0 40#3& &- 5&33&/0 1"3" %&5&3.*/"3
3&4&37"4 : '-6+04 %& \$"3#0/0 &/ -04 46&-04
130'6/%*%"% %&- 46&-0
%&/4*%"% %&- 46&-0 : \$0/5&/%0 %& \$"3#0/0 B9
? ...: ... 620 !!'À, + ,3 * "# ,ë!*#-1 B:
? ...; ... #'!'À, "# * 2 1 "# !0#!'À, "# 1#"'+#,2-1 B?
? ...< ... #,1'" " . 0#,2# 1#! BA
%&5&3.*/"\$*/ %&- \$0/5&/%0 %& \$"3#0/0 03(*/*\$0 %&- B6&-0

86
88

\$)"15&3 ö,
%&5&3.*/"\$*/ %&- \$0/5&/%0 %& \$"3#0/0 03(*/*\$0 %&- 946&-0
&45*."\$*/ %&- "4 &9*45&/\$"4 %& \$"3#0/0 :9=
&45*."\$*/ %&- "4 5"4"4 %& \$"1563" &/ -" 4*56"\$*/ :9 & # "4 &
\$6"/5**"\$*/ %& &.4*0/&4 : &-*."/ "\$0/&4 %& (&* %&- 46&-0
&/ 6/" 4*56"\$*/ %& 130:&\$50 :9 @

\$"1<56-0 ö'
3&45"63"\$*/ %& 4*45&."4 %& \$"3#0/0 ";6- ::9
\$0/\$&156"-*;"\$*/ : %&4"330--0 %& 6/ 130:&\$50
%& 3&45"63"\$*/ %& \$"3#0/0 ";6- ::<
3&45"63"\$*/ %& 13"%&3"4 ."3*/"4 ::@
3&45"63"\$*/ %& ."3*4."4 4"-%"4 ::;>

\$"1<56-0 ö°
'656304 130:&\$504 %& \$"3#0/0 ";6- &/ &6301"
: &- .&%*5&33*/&0 :<9

(-04"3*0 %& 5‡3.* /04 :<=
3&'&3&/\$"4 :<?

- * 45" % & "\$ 3' / * . 0 4 : "# 3 & 7 * " 5 6 3 " 4

UCA 6 O J E B E E F

./6*- 1*3* -* \$3&*S**/ %&



* + ,3 * 1# *'+#,2 "# "4#01 1 +#2-"- *-%" 1 #6'12#,2#1,, !-+- #* .0-7#!2-
Coastal Blue Carbon: methods for assessing carbon stocks and emissions factors

in mangroves, tidal salt marshes, and seagrass meadows œœ 0 -,- 83* !-12#0-†
+•2-"-1 . 0 * 4 *-0 !'À, "# 0#1#04 1 "# ! 0 -,- 7 \$!2-0#1 "# #+'1'-,#1 #,
+ ,%* 0#1,, + 0'1+ 1 1 * " 1 + 0# *#1 7 .0 "#0 1 + 0', 1£• "#1 00-*** "- .-0
,!' 2'4 ,2#0, !'-, * "# 0 -,- 83* 7 *-1 20 (-1 #* -0 "-1 .-0 #* .0-7#!
*3# 230 "# * ...

* + ,3 * .0#1#,2 #2 . 1 +#2-"- *À%!' 1 . 0 "'#,2%'! 0,œ#4 *3 0,, .0#. 0 0,, #
2 0 7 -0% ,!8 0 3, .0-7#!2- "# ! 0 -,- 83* 1- 0# #* 2#0œ#,-, ',!*37#,"- ',#!!
,#1 1- 0# !À+- -.2'+!8 0 * 1%', !'À, "# #1\$3#08-1 * &-0 "# 0#!-.'* 0 " 2-
2#00#, - 7 !À+- - 2#, #0 #12'+ !'-, #1 1À*' 1 "#,20- "# *-1 *"+'2#1 "# *-1 .0-7
"# ! 0 -,- 83*... + '•, 02'!3* #*#+#,2-1 #1#,!' *#1 . 0 * '+.*#+#,2 !'À, "#
0#12 30 !'-, #1,, #1.#!' *+#,2# !-, %' ,#1 "# +'2%' !'À,, œ#1!0' # 0#!301-1 "
, *#1 *-1 /3# .3#"#, 0#!300'0 *-1 "#1 00-*** "-0#1 "# .0-7#!2-1 . 0 #,2#, "#
!2'4'" "#1 "# % #12'À, /3# 0#13*2 , # \$#!2'4 1 . 0 \$-+#,2 0 #12# 4 *-0... #
! 1-1 "# #(+.*- "# "'12',2 1 0#%'-,#1 . 0 '*3120 0 *-1œ!-,!#.2-1,, * 1 ',2#04
,#1 7 *-1 #,\$-/3#1 "-.2 "-1...

%', "# .-2#,!' 0 * !.!' " "# #1203!230 !'À, "# .0-7#!2-1 /3# 1# & 7 , "#
%', ,!' 0 .-0 +#" "- "# +#! ,!1+-1 "# %', ,!' !'À, "# ! 0 -,-, #* + ,3 * -\$0#!#
, \$-0+ !'À, #6& 312'4 7 "#2 ** " !#0! "# "'!&-1 +#! ,!1+-1 7 � +'#,2 1
"# %', ,!' !'À, "# ! 0 -,-, !-, *-1 1'%3'#,2#1 #*#+#,2-1† œ'• ', \$-0+ !'À, !-,2#
!#0! "# *-1 +#0! "-1 "#* ! 0 -,-, +#! ,!1+-1 "# *",# "# œ1# 7 !0•"2-,, #12m,
0#1 "# !#02!'%' !'À, "# ! 0 -,-, !-+#0!' *'8 !'À, !-, -,-1 "# ! 0 -,- 7 .0-7#!2-1
#6'12#,2#1 #, + 2#0' "# ! 0 -,- 83*† œ'• ',1203+#,2-1 . 0 , *'8 0 * 4' '
* "+'1' *'" "# .0-7#!2-1 #, + 2#0' "# ! 0 -,- 83*,, ',!*37#,"- #4 *3 !'-, #1
+ #2-"- *À%!' 1,, f3(-1 "# !-12# 7 #,%%'!'-1, "#0#!&-1 "œ .0-.'#" " 7 !-,1'"#0 !
,#1 "'!'-, *#1† œ'• #6.*'!' !'À, "#2 ** " "#* .0-!#1- "# !#02!'%' !'À, "# .0-7
"# ! 0 -,-, "#1"# * 0#" !'À, .0#*'+', 0 "# 3, ,-2 "# "'# "# .0-7#!2- & 12 *
#+'1'À, "# -,-1 "# ! 0 -,-† 7 œ'4• !-,1'"#0 !'À, "# * "- *# !3 ,2%'!' !'À, 7 "#
!-+.0-+'1-1 "# *-1 . "1#1 0#!#.2-0#1 . 0 !-, 20 2 "-1 ',2#0, !'-, *#1...

12# 20 (- & 1'"- "#1 00-*** "- #, #* !-,2#62- "# 3, * -0 %', ,!' " .-0 #*
.0-7#!2- *3# 230 "# * 7 !-%', ,!' " .-0 3, " !'À, " 7
"# *•!20' !,, /3# 2'#, # !-+- - (#2'4- \$-+#,2 0 * !-+.0#,1'À, #,20# -0% ,!1+-1
.ë *'!-1 7 .0'4 "-1 "# *-1 "'12',2-1 #12m," 0#1 # ',!' 2'4 1 "# ! 0 -,- 83*...
#,\$-/3# 1# !#,20 #, \$!*'2 0 * 1 . 02#1 ',2#0#1 " œ#* 1#%'3'+#,2- "# *-1
%0#1-1 #, *-1 +ë*2'.*#1 \$-0-1 /3# .0-+3#4#, #12m," 0#1 4-*3,2 0'-1 7 1'#,2
!'+'#,2-1 "# *-1 . %-1 1 "-1 #, 0#13*2 "-1... 3#12- /œ# #12-1 #1\$3#08-1 7
"-*-%" 1 "'1.-, ' *#1 . 0 #* !m*!3*- 7 * 4#0%'!' !'À, "# *-1 -,-1 "# ! 0 -,- .-
* -0#1 "# 0#12 30 !'À, 7 !-,1#04 !'À, 1# #,!3#,20 , ë, #, 3, \$ 1# 2#+.0 ,
#, 30-. 7 #, #* #'2#00m,#-,, *-1 .0-7#!2-1 ', "'4'3 *#1 "# #0m, "#!3 01#
"1.-1'!'-,#1 7 .0'-0'" "#1 ë,!' 1 ,!4* , !'-, *, ,!'!37#,"-,, #,20# -20-1 \$!2-0
* 1 !-, "'!'-, #1 #!- *À%!' 1,, 1-!' *#1 7 .- *2'!-œ (30 "'! 1,, #* !-,2#62- %#-%0m%
"1.-, ' *' " "# %', ,!' !'À, ... -0 ë*2'+-,, * 1 0#!-+##, " !'œ#1 %', *#1 .0-.-0!' -
, , , "'! !'-, #1 "# ! 0 * \$3230- "# #12-1 #12m," 0#1 7 +#! ,!1+-1...

CAPÍTULO 1:





* carbono azul costero #1 #* ! 0 -,- /3# OE# * +
 !#, #, #!-1'12#+ 1 "# 8-, 1 !-12#OE1 - .#0'!-12#
 0 1,, #1.#!' *+#,2# #, + ,%* 0#1,, + 0'1+ 1 1 * " 1
 7 .0 "#0 1 + 0,'6,9120]. 12# 2'.- "# ! 0 -,-
 .3#"# /3#" 0 *+ !#, "- #, #12-1 #!-1'12#+ 1
 !-02- .* 8- œ#,20# + #1#1 7 "•! " 1OE#, \$-0+ "# '-
 + 1 7 "30 ,2# +'*#,'-1 ! .230 "- #, #* 13 13#*-
 [21]. , ! + '-,, #* carbono azul oceánico !-,12 "#*
 ! 0 -,- *+ !#, "- #, #* %3 7 *-1 1#"'+#,2-1 "#
 * 1 .0-\$3,"'" "#1 -!#m,'! 1 .-0 !!'À, "# -0% ,1OE
 +-1 + 0',-1 !-+- #* %'2-.* ,!2-, 7 -20-1 2'-.1 "#
 '-2 "# -!• , - '#02-,, 1" !-+- .-0 #* # \$#!2- "#
 .0-!#1-1 /3"'+!-1...

, #12 .3 *'!!'À, ,-1 !#,20 +-1 #, #* ! 0 -,- 83*
 !-12#0-,, " " 13 0#*#4 ,!' !-+- � +'#,2 . 0 *
 !-,1#04 !'À, "# *-1 #!-1'12#+ 1 !-12#0-1 4#%#2 "-1...

+ 7-0 . 02# "#* ! 0 -,- "# #12-1 #!-1'12#+ 1
 /3#" 0#2#,'"- #, *-1 13120 2-1,, #, * '-+ 1 4'4
 "# * 13.#0%'!' 00000 f€0#"sA1, 7 -, *V 83€@- 0!,, "P-1 #-#0#1•,D11•€D





'JHVS B öf \$PNQBSBDJ±O EFM BMNBDFOB NJFUSPTE/QSSJPS EFM TVFMP DPO FM BMNBDFOB NJFOUP EF UPUBM FO MPT QSJODJQBMFT UJQPT EF FDPTJTJTFNVEPO&θ PDPOB TDVDAF Z MCB TV QLS BCSFBFSBF NBSJOB ,OJDB FO USSNJOPT EF DBOUJEBE EF DBSCPOP PSHYJDP RVF QVFEF BMNBDFOBSTF FO TVT %BUPT EFM TVFMP NFUSP TVQFSJPS EFM TFEJNF OUP [12, 111, 112, 113].



.0'+ 0' 7 13 # %o'!!' * &-0 "E * #, 0 ! 0
-, - 7 ,320'# ,2#1 #, 1#"'+ #, 2#1 [28], À 6'! ž
"\$ #0 #,!' "# *- /3# -!300# #, *-1 &m '2 2 # 2 # 0 # 120 # 1,, z+ E z E [21].
#* ! 0 -, - 1#!3#120 "- #, #* 13 13#*- "# + ,%* 0#1,,
+ 0'1+ 1 1 * " 1 7 .0 "#0 1 + 0', 1 .3 Este índice que el potencial económico de la restau -
!3+3* "- "30 ,2# 1'%*-1 - ',! *31- +' #ación de estos ecosistemas radica más en el efecto
! 1-1 "# * 1 #1.#!'#1 4#%#2 *#1 + m 1 de la protección de las reservas de carbono que en la
[29, 30]. "# + m 1,, * 1 !-, "'!'-, #1 "# 1 *', ' " tasa anual de captura de CO₂.
13#*-1 "# *-1 &3+#" *#1 !-12#0-1 2'#, #, * 4#, 2 (
"# #+'2'0 .-2#,!' *+#, 2# ! ,2'" "#1 ', 1'%, ' %3'!!&,- 2#*1-1 \$!2-0#1 /3# ', f37# #, * ! ,2'" "
"# -20-1 % 1#1,, !-+- #* = #72#*,- À 6' "- "# 6 !2 "# ! 0 -, - /3# .3# "#, 1-0 #0 *-1 #!-1'1CE
', '20À%#₂- [oe] œ 3,/3# #6'12#, #6!#. !2#1#,, "# ! 0 -, - 83*... ,20# #*-1 1# #, !3#, 20 ,
/3# #(#0!#, 3, # \$#!2- ', 4#0, "#0- , -2 ## 2#, 2## &m '2 2,, * !-+-1'!'À, "# * 1 #1.#!'#1
+ m 1 ', 2#, 1- /3# # 2 # 2 # * 4#%#2 *#1,, * 3 '!'!'À,, * .0-\$3, "" " "#* %3 7
3# 2 # 2 # 3 E #* .-02# "# ,320'# ,2#1... 3 '!'!'À, ', f37#,, .-0
#(#+.*-,, 1- 0# #* 2'-. 7 * 3, " ,!' "# 1#"'+ #, 2-1
7 * 1 !-, "'!'-, #1 !*!perm 2', !1+ . 0 !'À,
!-, -20-1 1'12#+ 1 !-12#0-1,, *-1 CE'12#+ 1 #123 0
,-1 13#*#, !-, 2 0 !-, 3, + 7-0 "'1.-, ' '*'" "
"# 1#"'+ #, 2-1 %o', -1,, ,320'# ,2#1 7 + 2#0' *#1 /3#
.3# "#, ', !-0.-0 01# *-1 1#"'+ #, 2-1 .0.-' -1 "#
*-1 &3+#" *#1 !-12#0-1... "# + m 1,, * !3+3* !'À, "
! 0 -, - #, .0 "#0 1 + 0', 1 1# 4# \$ 4-0#!" #,

#,2-0,-1 0#1%3 0" "-1 7 .-!- .0-\$3,"-1 "# #1!
#,#0%" 7 230 '"#8,, !-, 3, .-02# #,20# (- 7 +#"
"# ,320'#p2#1

«La pérdida y la degradación de los ecosistemas de carbono azul pueden provocar la liberación a la atmósfera del carbono almacenado, lo que aumenta las emisiones de CO₂ y contribuye al calentamiento global» [10].

Residonia spp. 7 Thalassia spp.) - "# #OE.#



- 1 #!-1'12#+ 1 !-12#0-1 "# ! 0 -,- 83* #, 30-.
7 #, * !3#,! +#"2#00m,# 0! , #1.#!' *+#,2#
+ 0'1+ 1 1 * " 1 7 .0 "#0 [18, 39].0',12-1
&m '2 21 ! .230 , ! 0 -,- *# ,2 +#,2# *- * 0%- "#*
2'#+.-" !-, *- /3# !3+3* , 0#1#04 1 "# ! 0 -,- /3#
.3#"#, *! ,8 0 +'*#1 "# ¿-1 "# ,2'%i#" " (-
3, !3 '#02 "# '-+ 1 4'4 ... Estas reservas de car-
bono se consideran «emisiones protegidas», siempre
y cuando no se vean afectados los sedimentos ni las
condiciones de humedad del suelo.

• A partir de las estimaciones globales de unos 3 millones de hectáreas cubiertas de

./6*- 1*3* -* \$3&*S**/ %&



0510

330

1E2 1E6

2+ 1E2 1E•[54].

' , #+ 0%-„ * 1 + 0'1+ 1 1 * " 1 13\$0# , 2 + '• ,

CAPÍTULO 2:





"#!'1'À, .-0 . 02# "# :B> . "1#1 "# "-.2 0 #*
Acuerdo de París #, * -,\$#0#,!' "# * 1 02#1
œ • "#* ; "# "'!'+ 0# "# ;9:> 13.31- 3, .3,2- "#
,f#6'À, &'12À0!'- #, *-1 #1\$3#08-1 !-,20 #* ! + '-
!*'+m2'!-‡ #, 4'023" "# #12#„ * 1 , !'-,#1 1# !-+.0-+#œ
2#, *'+2 0 #* 1!#,1- %*- * "# 2#+.#0 230 +3!&-
+#,-1 "# ; Á „ !-, 2-"-1 *-1 #1\$3#08-1 !#,20 "-1 #,
'+2 0- > Á

0#

2#

3#

2#(30)

2#

=...

2#

2#38#0

2 #2#

2#1#

2#

2#E

2#

2 [58].

-+- . 02# "#* !3#0"- "# 0"1„ * 1 02#1 %'0+ ,2#1
1# !-+.0-+#2#, .0#1#,2 0



"\$#0#,' #,20# * 1'23 !'À, "# 1# 7 * • *#f #02-7.#127 *-1 .0-!#1-1 "# !#02'%'!! !'À,±
0#f#(* 1 #+'1'-,#1 0#"3!" 1,, #4'2 " 1 - ! #2*""#1 00-**- 7 * .0- !'À, "# +#2- "-*-%` 1
%0 !' 1 * .0-7#!2-...

%', "# *'," 0 * ',2#%0'" " +#"'- + '#,2
-,-1 "# ! 0 -, - 7 "# % 0 ,2'8 0 /3# #12-1
1#,2 , 3, 0#"3!!'À,µ.0#4#,'!À,µ! .2 !'À, "#4 *3 !'-,#1 +#"'- + '#,2 *#1 7 0#/3'1'2-1
#+ '1'-,#1 /3# , - 1#0" .-1' *# 1', * 1 !2'4
*-1 .0-7#!2-1 .0-.3#12-1,, *-1 #120#," 0#1 *#1!0#23%1"2-1 "# .0- !'À, "#* .`1 0#!#.2-0
!!'À, "# ! 0 -, - & , #12 *#!"- 3, +.*'- 13*02'!0#"2 !'À, "# 3"2-0" 1 32-0'8 " 1 .0
"# , -0+ 1 * 1 /3# "# #, 2#,#01# *-1 .0-74!2"10 714#0%'! 0 .0-7#!2-1 7 0#"3!!'-,#1 "
!-+- "# !0'2#0'-1 /3# "# #, !3+.*'0... #+'1'-,#1...

-1 .0'+#0-1 #12m," 0#1 "# !#02'%'!! !'À,1"#%0'#,2#1 1#!!'-,#1 .0-.-0!'-, , 3, 4'1'À,
130%'-1 "#* 0-2-!- *- "# '-2-, \$3#0-, %##,##0 *,'1#-* 1 ! 0 !2#0"12'! 1 "# *-1 +#0! "-1 "#
"# #1 00-**- '+.'- 7 * .*!! !'À, !-, (3
,-0+ 1 0! ,†

'JHVSb ö' 7JTUB HFOFSBM EF MBT JOUFSBDDJPOFT FOUFS MPT NFSDBEPT EF DBSCPOP WPMVOUBS
BOUFSJPSFT DPO BSSFHMP BM 1SPUPDPMP EF ,JPUP 1, Z MPT OVFWPT FO EFTBSSPMMP FO WJSU
*OTUJUVUF -BNCFSU 4DIOFJEFS



.FSDBEPT EF DBSCPOP EF DVNQMJNJFOUP SFHVMBEP

-1 + #0! "-1 "# ! 0 -, - 1-, +#! , '1+-1 #12 *#œ
!"-1 #, 4'023" "#* 0-2-!-* - "# '-2- œ:BB@• # '+.*#œ
+ #, 2 "-1 20 4•1 "# *-1 !3#0"-1 "# 00)#!& œ;99:•
. 0 73" 0 * 1 02#1 "# * -, 4#, !'À, 0!- "# * 1
!'-, #1 , " 1 1- 0# #* + '- *'+m2'!- œ •
!3+.*'0 "# \$-0+ 1#/3' *# !-, 131 œ#1.#!2'4 1 - *'
% !'-, #1 "# 0#"3!!'À, "# * 1 #+'1'-, #1...

* 0-2-!-* - "# '-2- "#%o', # 20#1 +#! , '1+-1 "#
f#6' '*' " +

•

• Artículo 6.2. ~~REDACTED~~

~~REDACTED~~

~~REDACTED~~

~~REDACTED~~

~~REDACTED~~ternationally

Transferred Mitigation Outcomes, ç 0# 1 3* 2 "- 1 "GE + ' 2'

% !'À, ', 2# 0, !' -, * + #, 2# 2 0 , 1 \$ # 0' "- 1 £ • ...

• Artículo 6.4. * 0 2"! 3* - ? ... = . * , 2# 3, 1' 1 2# + "' 1 2', 2 -,,

+ 3! & - + m 1 1' + ' * 0 * # ! , ' 1 + - "# # 1 0 0 - * * - ' + . ' -

œ • „ ! - , * "' \$ # 0 # , ! ' "# / 3 # , - 1 # * ' + ' 2 . 0 - 7 # ! 2 - 1

(# ! 3 2 "- 1 # , . " 1 # 1 "# "# 1 0 0 - * * - ... - , # 1 2 # + # 0 ! "- ,,

~~REDACTED~~

~~REDACTED~~u3 <0030>230023>02 Tc 0.0000300001F002A0023001F002AA0247.02 Tw 0 -1.43 <0030>23 <002D00200003002A>13 3 <20.02 Tw 0 -1.

./6*- 1*3* -* \$3&*S**/ %&

0'02

1MBO EF DPNQFOTBDJ±O Z
SFEVDDJ±O EF DBSCPOP QBSB
MB BWJBDJ±O JOUFSOBDJPOBM

%O OO IBIO < BKQB' O' ILP' < BO2 O ALP' AB' 2 O O1 LKL' AB' IO'

./6*- 1*3* -* \$3&*S**/ %&



.#,1 0 131 #+'1'-,#1 !-, .0-7#!2-1 *-! *#1,, #, 4#8
"# #+.0#,"#0 .0-7#!2-1 #, . "1#1 #, "#1 00-**- !-,
-1 /3# , - 2'#,#, 0# !'À,... ', #+ 0%-,, *-1 +#0! "-1
, - .3#"#, 1 2'1\$!#0 #12 "#+ ," #, * !23 *'" " "
.0',!'. *+#,2# "# '- .0- *#+ 1 "# "œ*# !3 ,2'%'
!!'À, 7 * .0#!'- 0# * "# *-1 !0•"'2-1 "# ! 0 -, -...

* #',- ,'" - & "#1 00-** "- #* Woodland Carbon
Code œ!À "'%- "# ! 0 -,- \$-0#12 *• 7 #* Peatland Carbon
Code

Sistema Andaluz de Compensación de Emisiones

-1 -, -1 "# ! 0 -, - 4#, "'-1 #, *-1 + #0! "-4#0#'"- #, #* #12m," 0 "# .0#\$#0#,!' . 0 #,#0%"
! 0 -, - 4-*3,2 0'-1 13#*#, 1#0 #+'2'"-1 .-0 1'#2#
#12m," 0#1 "# !#02'%o'!!'À,, 2 * 7 !-+- 1.#103#14Ä ö#0,-4 #00 0 *-1 0`ö0Ä !'À# 3#00 0 Q* ð Ä
%o'%30 :<... „ #00 €,, öf0*12ð p00ðÄ(GS)

12-1 #12m," 0#1 1-, *-1 1'%3'#,2#1†

- * #12m," 0 4#0'%o'! "- "# ! 0 -, - œ • \$3# #12 œ
*#!'"- #, ;99> .-0 &# *'+ 2# 0-3., * 7 #*
-0- !-,Ä+'!- 3,"' * œ.-12#0'-0+#,2# 1# 3,'Ä #*
• „ #, 0#.0#1#,2 !'Ä, "# %03.-1 "# ',2#0#1#1
.0'4 "-1... #1"# ;9:A,, #00 #1 * -0% ,'8 !'Ä, /3#
.-1## 7 % #12'-, #* ... -, #* 2'#+.-, 1# & !-,œ



. 0 #* „ 1# 0#"1#¿À #, ;99? . 0 /3# .3"1#
-2-0% 0 131 .0-.'-1 -,-1 "# ! 0 -,- 7 -0'#,2 01#
& !' *-1 (#2'4-1 "# #1 00-**- "#* '*#,'-...
"#1 00-** "- ;9 +#2- "-*-%" 1 .0-.' 1 7 #1 #* #12m," 0
"# .0#\$#0#,!'. 0 .0-7#!2-1 -0'#,2 "-1 * !-+3œ
,'" "... #12 *#!'"- 1-!' !'-,#1 !-, '020 "#
,2#0, 2'-, * 7 #* -,1#(- "# "+','120 !'À, -0#12 *
œ •„ 7 0#!' # .-7-1 "# 3, #62#,1 0#" "# ...
, ;9:@„ * 3," !'ÀQœS,'8À 131 , -0+ 1 7
.0',!'.'-1 !-, *-1 (#2'4-1 "# #1 00-**- -12#, ' *# 7
* ,8À * !#02'‰!' !'À, Gold Standard . 0 *-1 - (#2'4-1
%*- *#1 œ = •... #!'#,2&+#,2#„"GS3,
,3#4 +#2- "-*-%" + 0!- . 0 #* 1#%30 +'#,2-
"# !0•"'2-1 "# ! 0 -,- œ. 0 13#*-1•„ !-, "'12',2-1
+-"#*-1 "# !2'4
= # #À "0 1 0‰,j,#'A- = # #À " - p ð -À•!,0p ð ð<0 &gp%^# "À#À # 0R ð 0 Â <”

./6"- 1"3" -" \$3&"S"/ %&

0μ0

6'12#, "-1 2'-.1 .0',!'. *#1 "# 20 ,1 !!'-,#1 #, *-1
+#0! "-1 "# ! 0 -,-† 4#,2 1 . * 8- 7 4#,2 1 -! 1'-, *#1...

7FOUBT B QMB[PT

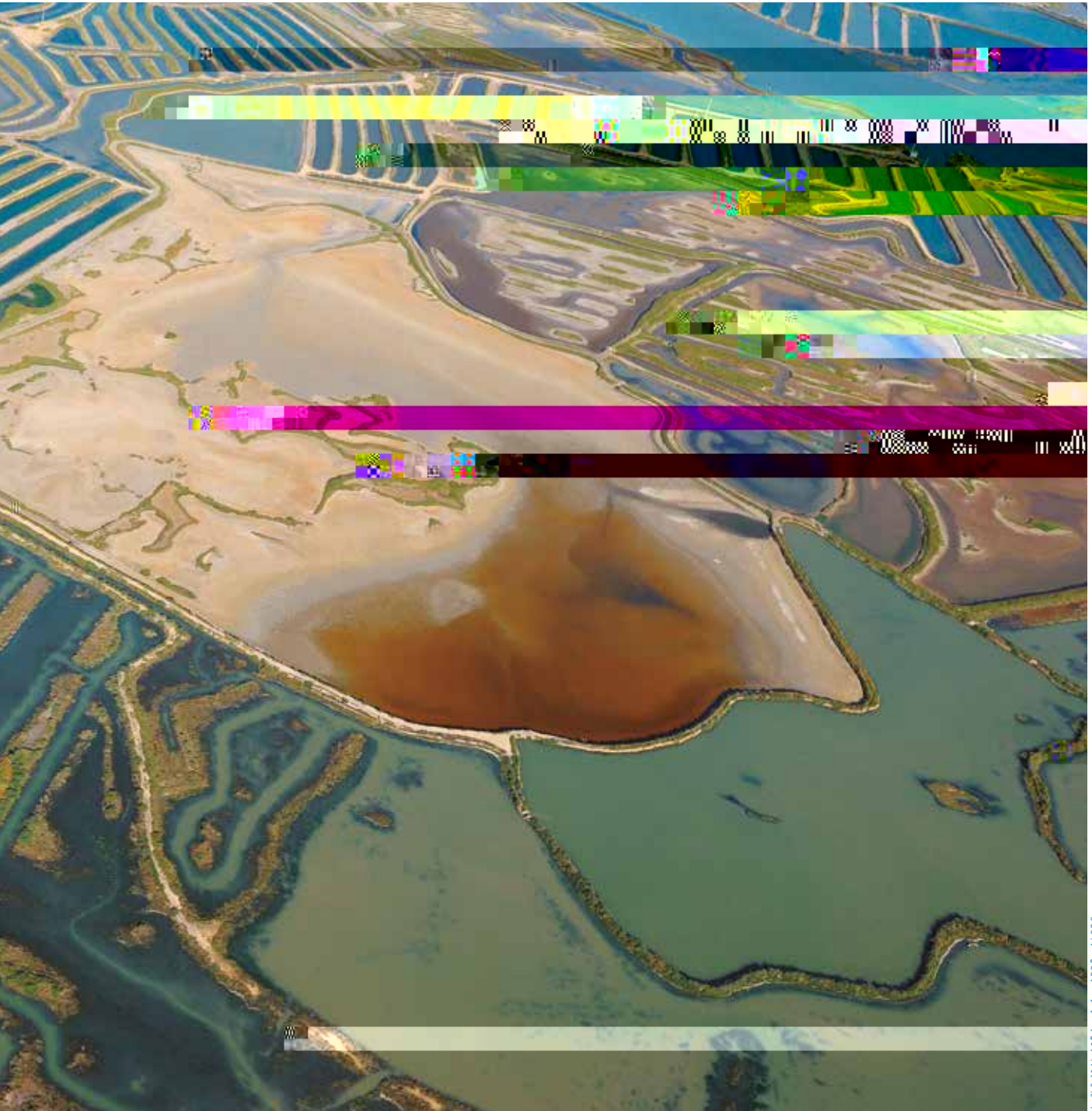
1 4#,2 1 "# #12# 2'-. .3#"#, !-00#1.-,"#01# !-,
群

- 0#"3!!'-,#1 "# #+'1'-,#1 ex-ante œ,- #+'2'" 1•,,

CAPÍTULO 3:

0603





./6"- 1"3" -" \$3&"S"/ %&

0000

, - "# *-1 #*#+#,2-1 +m1 '+.-02 ,2#1 "# ! 0 *
"+'1' '*' " "# 3, .0-7#!2- "# ! 0 -, - 0 " ! #, *
. -1' '*' " "# 32'*'8 0 3, + #2- "- * -%" 7 #6'12#,2#

, \$3,!'À, "# * #1203!230 %', ,!'#0 "#* .0-7#!2- #,
#(#!3!'À,, *-1 ',%0#1-1 %#, #0 "-1 . 02'0 "# * 4#,2
"# -, -1 "# ! 0 -, - !-, 12'237#, 3, . 02# #1#,!' *
"#* * ,!# %', ,!'#0- "#* .0-7#!2-... -1 ',%0#1-1
%#, #0 "-1 !-, 12'23'0m, 3, \$!2-0 "#* 4-*3+#, "#
-, -1 "# ! 0 -, - %#, #0 "-1 7 #* .0#!CE "# 4#,2 3,'
2 0'- #, #* +#0! "-...

4' '*' " "# 3, .0-7#!2- 7 * 1 2p



0μ0

.0-.'#" "# * 1 0#"3!!'-, #1 "# #+'1'-, #1 #01-.3#" "# * 1 0#"3!!'-, #1 "# #+'1'-, #1 4', !3*
13, 2- !-+.*#(- 7 2#Ä0'!-... 1 0#"3!!'-, #11#"#, %0#1-CE %#, #0 "-1 "# * 4#, 2 "# -,-1 "# ! 00
, #1 1-, #* 0#13*2 "- "# * #(!3!'Ä, "# 3-, -0!7#!2-1 7%#, 2#1 . 02!'! . , 2#1, "# +-" /3# #1
, - + 2#0' *'8 !'Ä, "# 3, 1'23 !'Ä, "# 1##!#1 2#-0'!-, 0" 0 * 1 !-, "!'!'-, #1 .#02', #, 2#1 #, 3,
* 1 0#"3!!'-, #1 "# #+'1'-, #1 .3#"#, 1#0 \$0-1.##2#+".# , ...
3, - 4 0' 1 -0% , '8 !'-, #1 /3# %0', , !'#, * 1 !2'4" CE
"#1 "#* .0-7#!2-, "#* 2'23* 0 "# * 2'#00, "##+*7-!0+. "# * -1 ! 1-1, * -1 .0-.-, #, 2#1 "# .0-CE
/3# "#1 00-* * .0-7#!2- - ', !*31- "# * 7#2%Ä, * -"1#*, 4#01-0#1 "# #, 1#%30 01# "# /3# 1
. "1 0#!#.2-0... 37 .-!-1 . "1#1 "'1.-, #, "#% , #+*0!2-2 *!" " - . 02# "# * -1 ', %0#1-1 %#, #0 "
(30"#!'- /3# !-, 2#+. *# #12 1 !-, 1"#0 !'-, #0..#* .0-7#!2-...

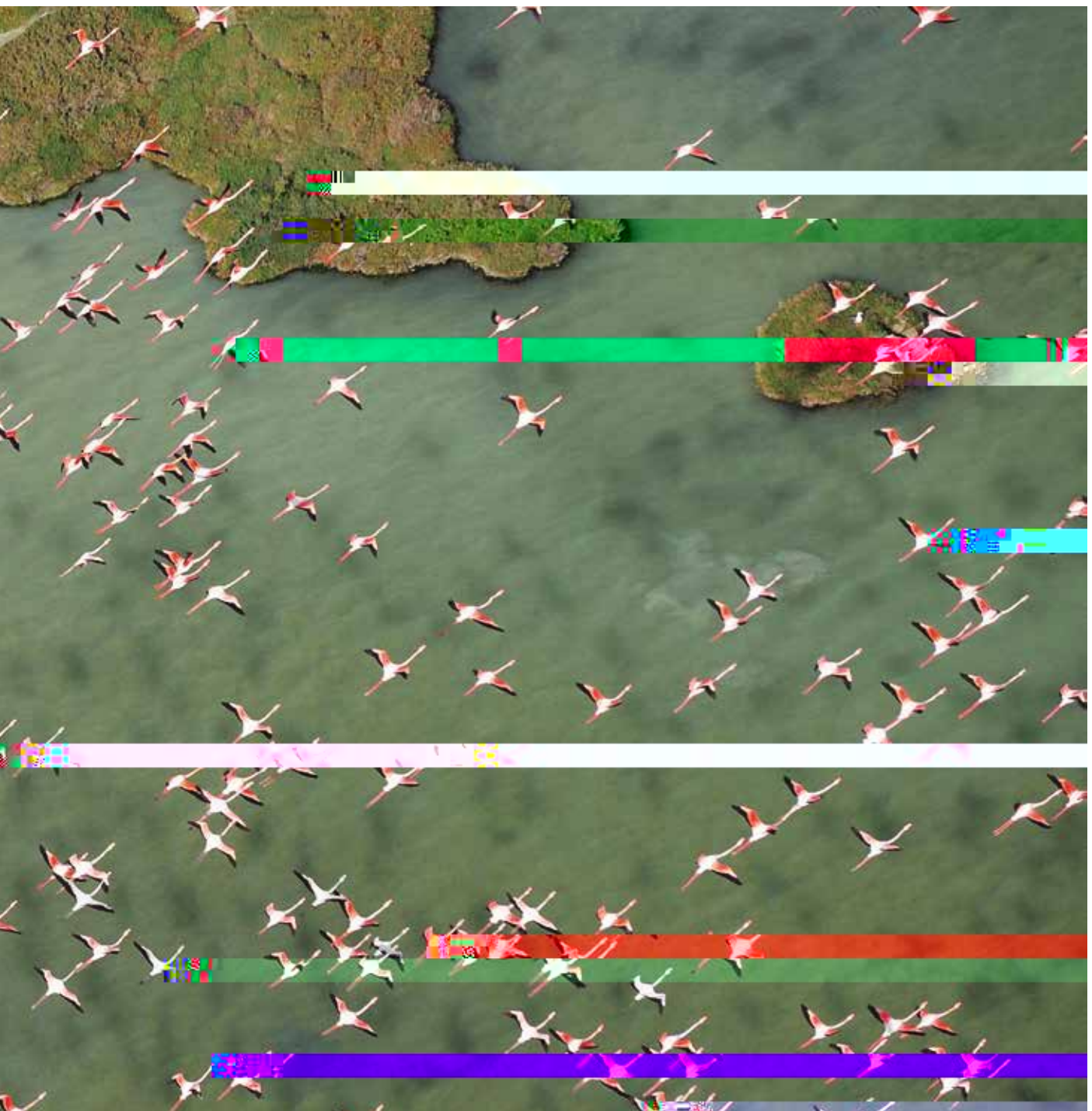
"!'!'-, *!" "# 1 3, .0', !'!'- \$3, " +#, 2 * "#1*-0-7#!2-1 /3# 32'#!!#, * +#2- "-*-%" 99<< "#*
+#!, '1+-1 "# *", # "# 1# 7 !0*"!2-... -+.-02c #!3.#0 !'Ä, "# .0 "#0 1 + 0', 1 7 &3+#" CE
"#+-120 !'Ä, "# /3# * 4#, 2 "# !2'4-1 "##! 0+ -0# *#1, 4 :...9• - #* + 0!- +#2- "-*Ä%!'!- !
. #0+'2'0m * #(!3!'Ä, "#* .0-7#!2-07 0# 3!90 @ #0'+! ! • 7 #12•, 3 '! "-1 \$3#0 "#,
, 0 #+'1'-, #1 "# 3, + , #0 2 * /3# , - .- " & #0
-!300'" - 1', * 4#, 2 "# * -1 +'1+-1... 2#2#0

"- /3# * "!'!'-, *!" "# # .0- 01# "30#2# *
3"!'2-0" "# 4 *!" !'Ä, "#* .0-7#!2-, 1# *37# #,
#* 7 #1 .0#!'1- , 2!'! . 0* ... -1 .0-.-#0#2#1 "#
.0-7#!2-1 "# #, !"#, 2'%'! 0 * -1 0%3+# #1 , #!#1 0'-1
. 0 "#+-120 0 /3# * -1 ', %0#1-1 .0-!#"#0#1 "# *
4#, 2 "# -,-1 "# ! 0 -, - .#0+'2'0m, /3# *# .0-7#!2-
.3#" 13.#0 0 *-1 - 12m!3*-1 /3# .3"!'#0 , & #0
'+.#"!'!'- 13 #(!3!'Ä, #, #* . 1 "-...

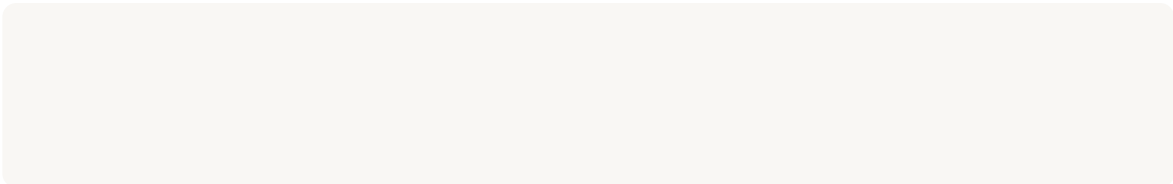
CAPÍTU O 4:

0102





0 %#, #0 0 !-+. #, 1 !'-, #1,, 3, "#1 00-** "-0 "# .0-7#!2-1 "# # !-+.*#2 0 3, 0'%30-1- .0-!



' '#, * , -2 "# '# "# .0-7#!2- œ • , • \$-0+ '*"' "#* .0-7#!2- .0-.3#12- †
 -%o'!' *+#, 2# . 02# "#* .0-!#1- "# !#02'%'o*! !%À, !*0" " 7 * !0#" ' '*"' "# * 1 . 02#1 '+.*!' "
 *-1 #12m, " 0#1 "# -,-1 "# ! 0 -,- " '1.-, ' ## 1#, *#. 027#!2- †
 !-, 12'237# 3, #*#+#, 2- '+.-02 , 2#... • *#1 03#, " " !*3 œ" "#* +-"#*- "# 1-12#, ' '*"' " 7 "# * 1
 +#, 2- "# #, 20# !', !- 7 "'#8 .m%', 1 /3# 1'1, 2*#12 %8 3 #0" 1 .3#12 1 #, .0m!2'! † 7
 !-, !#.#.2- "#* .0-7#!2- 7 .3#"" 2#, #0 4 0' • #* (3 2'4'4'1# , 2- !-, * 1 , -0+ 2'4 1 +#"'- + '#, œ
 2 *#1 7 1-!' *#1...
 • 1'12'0 * "#1 00-** "-0 "#* .0-7#!2- .0 #1203!230 0,,
 !-, !#.#.23 *'8 0,, !-+#0!' *'8 0 7 #, !-, 20 0 %o', , !'!'!À 2 "# 20#1 1#!'!-, #1 .0', !'. *#1 /3# 1#
 . 0 #* +'1+- - . 0 * 4#, 2 "# -,-1 "# ! "œ 1!01†#, !-, 2', 3 !'À, ...
 • 1#0 32' *'8 " .-0 ', 4#01-0#1 .-2#, !' *#1 . 0 #4 *3 0
 7 4 *-0 0 *-1 .0-7#!2-1 †
 • 1#0 32' *'8 " . 0 - 2#, #0 1'12#, !' - Descripción del proyecto œ
 !'À, "# * 1 32-0'" "#1 "#* . "1 0#!# 2-0#2, 4--2#*, œ 0-7#!2- ...
 !' *+#, 2#, "#* . "1 "# .0-!#"#, !' "#* !-+#0!'0'0!'À, "#* .0-7#!2- 7 !2'4'" "#1 .0-.3#12 1...
 -1 -,-1 † 7 • #!, ---% " /3# 1# 32' *'8 0m...
 • 1#0 32' *'8 " !-+- � +'#, 2 "# !-+3, '1#1'À 0-** "-0#1 - . 20-!', "-0#1 "#* .0-7#!2- ...
 . 0 "4#01 1 . 02#1 ', 2#0#1 " 1... • !- "# .0-7#!2- ...
 • !' !'À, ...
 * !-, 1'"#0 0 .0-7#!2-1 #, #2 . 1 2#+.0 •, 0, %*0-1+ !'À, .0#4'12 ...
 . 20-!', "-0#1 7 *-1 \$3230-1 !-+.0 "-0#1 #* 0, !'À, !#0! "# * 0 2'%'o' !'À, "#* 0-2-!-*
 "# ! 0 -,- .3#"" , 32' *'8 0 * . 0 ', 4#1#2' %- 2- *- #* !3#0"- "# 0"1 .0 . 02# "#* . "1
 1'%3'#, 2#1 \$!2-0#1 † 0#!#.#.2-0...
 • * 1 .0- '*"' "#1 /3# 2'#, # #* .0-7#!2- "# - 2#, #0
 %o', , !' !'À, † #, #%o'!'-1 1-!' *#1 7 +#"'- + '#, 2 *#1 #1.#0 "-1
 • *-1 !-12#1 "#* .0-7#!2- 7 *-1 ', %0#1-1 †12'+ !'À, "# #*+'#, "-1 - "# ; ! .230"-...
 • * + , #0 #, /3# *-1 ', %0#1-1 .0-!#"#, 2# 23' #*À, 0 œ 1#...
 -,- .3#"" , 'f3'0 #, * #(#!3!'À, - !3 0'0#,%#3!, -11 #1.#!'%'o'!'-1 . 0 #* +#"'- + '#, 2#,
 "# %o', , !' !'À, .0#4'1' *#1 † #1! * %*- * 7 *-! *...
 • #* 4-*3+#, #1.#0 "- "# -,-1 "# ! 0 -,- /3# #12-1 1-!' -#!-, À+'!-1...
 #+'2'0m, "30 , 2# #* 20 , !!301- "#* .0-7# !-2- † "#1 7 #120 2#%' 1 "#* . "1 0#!#.#.2-0 #, + 2
 • *-1 ', %0#1-1 /3# 1# #1.#0 /3# %#, #0#0, * +1# "-,-4' #, 2 *...
 "# ! 0 -,- 7 * !-+. 0 !'À, "# #12-1 !-, *-1 !-12#1
 1-!' "-1 * "#1 00-** "- "# !2'4-1 "# ! 0 -,- †

* "-!3+#,2- "# "'1#¿- "#* .0-7#!2- œ • #1 * ! 0
4'1' *# "# 3, .0-7#!2- #, #* +#0! "- "# ! 0 -, - %*- *...
1 *- /3# 32'*'8 , *-1 3"'2-0#1,, *-1 -0% , '1+-1 "# !#0

* 2'.- "# .0-7#!2- "%#',# * , 230Œ#8 "# * 1 !2'4'
" "#1,, /3#,, +#,3"-,, 1# ! 0 !2#0'8 .-0 * 1'23 !'À,
"# 1# "# 1# œ#1 "#!'0,, * 1'23 !'À, !23 * - * +m1
. * 31' *# #, ! 1- "# , - 0# *'8 0 #12 1• 7 * 1'23 !'À,
/3# .0-.-, # #* .0-7#!2- œ#1 "#!'0,, * 1 !2'4'" "#1
.0-.3#12 1•... , #* m+ '2- 1#!2-0' * "# 0#\$-0#12 !'À,
7 0#.- * !'À,, #6'12#, 4 0'-1 2'.-1 "# .0-7#!2-1 /3#
.3#"#, 0#f#(0 #12 1 !2'4'" "#1† ... #(...,, +#(-0 "# *
%#12'À, \$-0#12 * 7 0#"3!!'À, "# #+'1'-,#1 .0-!#"#,Œ
2#1 "# * "#\$-0#12 !'À, 7 * "#%0 " !'À, "# *-1 -1Œ
/3#1,, 0#12 30 !'À, 7 0#& '*2 !'À, "# #!-1'12#+ 1...

Proponente del proyecto y otros organismos implicados en el mismo

, * (#0% .0-.' "#* "#1 00-**- "# .0-7#!2-1 "#
! 0 -,-,, #* .0-.-, #,2# "#* .0-7#!2- œ • #1 * #,2'" "
+m1 '+.-02 ,2# "#* +'1+- 7 & !# * 1 4#!#1 "# "#1 Œ
00-**- "-0 .0',!'. *... * .3#"# "#1#+.#ç 0 4 0'-1
. .#*#1† %12-0 "# .0-7#!2-1,, !--0"', "-0,, "#1 00-** Œ
"-0,, ',4#01-0 - .0-+-2-0 !-+#0!' *,, #,20# -20-1... *
.3#"# 1#0 3, #,2'" ".0'4 " „ 3, -0% , '1+- .ë *'!-
- 3, -0% , '8 !'À, , - %3 #0, +#,2 *...



#!& "# ',!'-' "#* .0-7#!2-

* ',!'-' "#* .0-7#!2- , - 2'#,# /3# !-,'!'0 ,#!#Œ
1 0' +#,2# !-, #* +-+#,2- #, /3# 1# " !-+'#,8-
* 1 -.#0 !'-,#1 "#* .0-7#!2-... \$#!& "# ',!'-'
#1 3, !-,!#.2- !* 4# #+.*# "- .0 ',!'! 0 /3# 1#
& , 2-+ "- !'#02 1 "#!'1'-,#1 1', * 1 !3 *#1 , - #1
.-1' *# #* !-+'#,8- "# * 1 !2'4'" "#1 "#* .0-7#!2-...
, . 02'!3* 0,, * "#+-120 !'À, "# & #0 2-+ "- #,
!-,1'"#0 !'À, *-1 ',%0#1-1 "# ! 0 -,- ,2#1 "# ',!'! 0
#* .0-7#!2- !-,12'237# 3, "# #1 1 "#!'1'-,#1...

\$#!& "# ',!'-' "#* .0-7#!2- #1 /3#** #, /3# *-1
. 02'!' .,2#1 #, #* +'1+- 1# !-+.0-+#2#, "#12', 0
% 12-1 .0 * !-,1203!!'À, - * +-"%'0!' !'À, "# *-1
#/3'.-1 # ',12 * !'-,#1 .0',!'. *#1,, - .0 * .0-4'1'À,
- * +-"%'0!' !'À, "# 3, 1#04!'!'-,, "#Œ 0 * 1 !2'4'
" "#1 "#* .0-7#!2-... , *-1 ! 1-1 #, /3# 1# 131!0' # 3,cF002A><00<0010000031002300030030310302703 1>1>

1312'23!'À, "# * 1 +#" 1 "# 13.#04'1'À, "# * 1 -0 * œ .0-6'+ " . 0œ#* #12 *#!
"# 3, *'%#0 +'#,2- "# *-1 0#/3'1'2-1 "#+1#.#04'1'À, "# * 1 7-1,, * +.*'!'À, 7 * 13.#04'1'
- 2-" 1 * 1 +#2-"- *-% " 1 1-, .!*'! *#1 "#0-7#12#12-...
"# 2-" 1 * 1 #1! * 1...
• , "#!* 0!'À, "# /3# #* .0-7#12-,- 1# & **#4
! - . 0 %#,#0 0 #+'1'-,#1 7 .-12#0'-0+#,2
* 1# 4 *# "# * 1 #12'+ !'-,#1 +#" 131,30*#B 0# "3!!'À,, #*'+', !'À, - "#1203!!'À, ...
0# "3!!'À, - #*'+', !'À, "# #+'1'-,#1 "#• , "#0!0'!'À, !#0! "# !À+- *# .0-7#12- !3+.*#
! 2#%-0'8 0 *-1 .0-7#12-1 1#%è, 13 #1!!,*..1 !-1'0-œ#1 "# "+'1' '*'" . 0 *# #12m,œ
7#12-1 /3# !-,1'%3#, 3, 0# "3!!'À, - #*"+0,"# À#02'%o!' !'À, !-00#1.-,"#,2#,, 1' .0-!# "#.
"# +#, -1 "# <99 9 9 2

馬標

雙馬標

三馬標

四馬標

五馬標

六馬標

七馬標

八馬標

2#30

Ubicación del proyecto

* - (#2'4- "# #12 1#!!'À, #1 % 0 ,2'8 0 * "#+
!'À, !* 0 "# * 3 '!'À, "# * 1 !2'4'" "#1 "#* .0-
7#12- 7 1#%30 0 /3# , - 1# 1-* .# !-, * 1 !2'4'"
"# -20- .0-7#12- !#02'%o!' !-...
œ

0 .0-7#12-1 0#* !'-, "-1 !-, #* 31- "# * 2'#00
œ!-+- -!300# !-, *-1 .0-7#12-1 "# ! 0 -,- 83*•,, 1
13#*# #1.#0 0 /3# * 3 '!'À, 1#œ1.#!'%o'/3# "#
,# ,"- #* m0# %#-%0m%o!' "# ! " !2'4'" "#* .
7#12- .-0 +#" "- "# .-*"%-, -1 %#-•1'!-1... + 7-
"# *-1 #12m," 0#1 0#/3'#0#, + . 1 /3# +3#120#,

Descripción de las actividades del proyecto.
condiciones previas al inicio y gestión del proyecto

12 1#!!'À, "# # !-,2#,#0 3, ! ,2'" " 1#0#%2-2'4 "#* .0-7#12- 7 131 *'+2#1...
"# ', \$-0+ !'À, 2*!,!' ,, 7 "# # 0! 0 *-1 1'%3'#,2#1
.3,2-1†

Cumplimiento normativo, estatutario y con

- #1!0'!'À, "# * 1 !23 *#1 .0m!2'! 1 "# 31- "# *
2'#00 7 "# 131 # \$#!2-1 œ!-, ,2#0'-0'" " * ',!'!- "#*
.0-7#12-•...
• #1!0'!'À, "# * 1 ! 31 1 "# * "%#0 " !'À, - *
.•0'" "# * 2'#00 7 "#* #!-1'12#+ ...
• #1!0'!'À, %#-%o"1'! œ!*'+ ,, !-, "'!'-,#1 #!- *À%!' 1,,
13#*-1,, 2-.-%o %o" ,, #2!...•...
• 0#1#,'! "# #1.#!'#1 7 & m '2 21 #, .#*'%0- "# "#1 œ
. 0!'!À, ...
• 20-1 \$!2-0#1 !0"2'!-1 /3# .3#" , \$#!2 0 * %#1œ
2'À, "#* .0-7#12- œ... #(..., ! 00#2#0 1,, '\$0 #1203!230 ,,
0'#1%-1 !*'+m2'!-1•...
• , \$-0+ !'À, !#0! "# * 1 !2'4'" "#1 "# !-,œ
1#04 !'À,, %#12'À, - .* ,2 !'À,, ',!*37#,"- 3,
"#1!0'!'À, "# * ,4#* "# '+.*'!'!'À, "# * 1 "'4#01 1
-0% , '8 !'-,#1,, !-+3,' "#1 7 -20 1 #,2'" "#1...
• , "'! !'À, !#0! "# !À+- * 1 !2'4'" "#1 "#* .0-œ
7#12- !-,20' 37#, * "#1 00-* - 1-12#, ' *#...
• #1!0'!'À, "# * #1203!230 -0% , '8 2'4 "#* .0-œ
7#12- 7 *-1 . .#*#1 /3# & "# "#1#+.#¿ 0 ! " -0% œ
, '8 !'À, '+.*'!' " œ#, ! 1- ,#1#1 0'-,, 1# .3#"#,
,!*3'0 "' %0 + 1 7 !3 "0-1•...
• ! ! " " 7 * #6.#0'#,!' "# ! " -0% , '8 !'À,
,+.*'!' " ...
• , ,m*'1'1 "# *-1 . 02'!' , 2#1...

2-" 1 * 1 *#7#1 , !'-, *#1,, 0#%'-, *#1 7 *-! *#1,, 1"
!-+- -20 1 , -0+ 1 7 + 0!-1 0#%* +#,2 0'-1...

Propiedad y otros programas

* #1 3,- "# *-1 #12m," 0#1 +m1 #120'!2-1 #, *- /3#
0#1.#!2 *-1 13,2-1 (30~"!'!-1... 1~, 1# #1.#0 /3# * 1
"#1!0'!'!-,#1 "# *-1 .0-7#!2-1 4 7 , !-+. ¿ " 1
*%è, 2'!- "# .03# /3# "#+3#120# /3# * .0-.'#" "
"#* .0-7#!2- #12m "(3"!' " * ... !-,2',3 !'À,, 1#
"#2 ** , *%3,-1 2'!-1 "# .03# 1... .0-.'#" " 1#
"#%o',# !-+- #* "#0#!&- (30~"!'!- !-,20-* 0 7 %#12'-, 0
* 1 !2'4'" "#1 "#* .0-7#!2-... ', \$-0+ !'À, /3# 1#
.3##" "(3,2 0 .3##" 1#0 "# *-1 1'%3'#,2#1 2'!-1†

- .0-.'#" " "#* .0-7#!2- -0%'', 0' 3 -2-0% " .-0 *#7
- "#!0#2- .-0 . 02# "# 3, 32-0'" " !-+.#2#,2#† -
- .0-.'#" " "#* .0-7#!2- -0%'', 0' "# 3, !3#0"- !-,
#* 2'23* 0 "# * .0-.'#" " - *-1 "œ0#!&-1 !-,20 !
231#0 œ

À #!0#,-0 "# * 4 %#2 !'À, - "#* .0 !

!-,1#,4 !'À, - %#12'À, . 02'- "#* !3 * 1# %#,#0 *
0#23!!'À, - * *', !'À, "# '1'1#,#1 "# -

7 " .017#!2- "#" 32 *'8 ð 0p0 ,2 0 3, 32- "-*-%"#

3 .0 .* 1 ! 0 !2#!#12#! 0 7 * *3!!'À, "# 3, 3 - 0 1#
1 .5',!,. *3#,2# À, !À pàÐ0 00ð .*†7'" "#1 *-4 * #
! 1-0 * 1! * "# '12 0 7 * 1'231!'À, "# 1#... 7 "#

"#* .0-7#!2- .0-.0 '12- !3 .*3 !-, *-1 !5'2#!'1# "#
" '1"1"1"1" " "# * 32- "-*-%"* !-!0#1.--'# ,2#-

2, .0=7#!2-1 "# ! 1,1.-0 8 0 C 00 à0 " *3#,2# . 0 .0
"#0 1 1', -0 * 32- "-*-%"*1 "# !31, "%o#!,111!'À, "#

. 0 * 0#!3"#01!'À, " .0 "#0 1 1', 0 7 3 ' " ##
0# # 0 7 1*111@, œ 0!- 32- "-'À '!•€ Ð 1`•€Š`9Ó 0



#* 13#*- 7 *-1 .0-"3!2-1 "# + "#0 13 2#03m,2#11..."#-% 1#1 "# #\$\$!2- ',4#0, "#0-
ë,'!-1 #*#+#,2-1 /3# , - 1# "# #, ',!*3'0 130314E1
0#1'"3-1 7 * + "#0 +3#02 ... +2-"- * 999@
0#!-+'#, " !3 ,2'%!' 0 1-* - * '-+ 1 13 289192,1%
7 #* ! 0 -, - "#* 13#*-,, 7 * +2-"- * -%" 99:=
,12 ',!*3'0 * '-+ 1 13.#0%o!' * 7 13 221100m,# ..
!-, * -!'!À, "# !-,1'"#0 0 "!'!-, *+#,2# * + "#0
+3#02 7 #* ! 0 -, - -0%m,'!- "#* 13#*-...B28E9
1 .-1' *# -+'2'0 *-1 0#1#04-0'-1 "# ! 0 -, - 1', #, 13
2-2 *'" " ,, 13.-, #, +#, -1 "#* > , "#* #, #%o!'!- %#, # OE
0 "- .-0 #* .0-7#!2- #, 2•0+', -1 "# 0#"3!!'À, "# ...

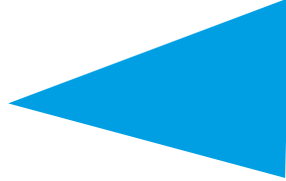
Situación de base

! 0 -, - .#0+'2'0m * #(#!3!'À, "#* .0-7#!2- 7 0#"3!
 - #'+'+', 0 #+'1'-' ,#1 "# 3, + ,#0 2 * /3# , - .-"0"
 1'23 !'À, "# 1# #1 /3#** /3# 0#.0#1#02-!'3#0' "- 1', * 4#,2 "# *-1 +'1+-1 œ%%'%...
 \$-0+ 0 8-, *# * 13+ "# *-1 ! + '-1 #, * 1 #6'1œ
 2#,!' 1 "# ! 0 -, - "# *-1 0#1#04-0'-1 ',!*3!'01%#Q # -1 " " -" 2 , " 0" 7 * , '4-
 ~+'2#1 "# .0-7#!2- /3# 1# .0-"3!'0", 113#*#1#0#/'3#40'œ 3, #,\$-/3# 1 "- #, ! " .0-7#!2-
 0 , ! - * 1 !2'4'" "#1 "#* .0-7#!2- .0#13#1'2œ!-... , * 1 +#2-"*-%" 1 99< 7 999@,
 *-1 .0-7#!2-1 "#1 00-** "-1 \$3#0 "# "# #
 1 +#2-"*-%" 1 13#**#, -\$0#!#0 +•2-"#1+7*#101'2#4#01'À, +m1 0#!'# ,2# "# * � +'#,2
 . 0 * '!"#,2'%'!'!'À, 7 * (312'%'!'!'À,!'# *, "1'2#*!'À, . 0 * '!"#,2'%'!'!'À, "# * 1'23 œ
 "# 1#... !'À, "# 1# 7 * "#+-120 !'À, "# * "'!-', *'" "# ,
 !2'4'" "#1 "# .0-7#!2-1 "# 0#\$-0#12 !'À,µ0#.- * !

Adicionalidad

"#+-120 !'À, "# * "'!-', *'" " 1# 0# *'8
 #1.#!' *+#,2# #, * 1 #2 . 1 "-1 7 20#1 "# * �
 "'!-', *'" " .3#"# "#%œ',01# !-+- * ! .+'#,2 !-+ ', " " !-, * .3#12 "# + ,%'#12- "#
 /3# 2'#,# #* .0-7#!2- . 0 3+#,2 0 * !3/3# "#,20-7#!2-,, .-0 1" +'1+,-,, .3#"# , - 1#0 4' *
 #'+'+', !'À, "# #, *-1 *~+'2#1 "#* .0-7#!2-0,##2 101#œ!-, - 12m!3*-1† %œ', ,!' !'À, ',13%œ'!
 . 0 !'À, !-, 3, 1'23 !'À, ,m*-% #,œ3# \$†2!2"#"1.-1!'À, .-0 .02# "# *-1 .0-.'#2 0'-1
 " "#1 , - &3 '#1#, 2#,'"- *3% 0... , -20 1* .1*2'œ!œ 1#- "# .-7- !-+3,'2 0'-,, *~+'2 !'-' ,#1 %œ
 20 2 "# * "#+-120 !'À, "# /3# * 4#,2 7##!:'2'4%1!"#,, #2!...

'JHVS B 6%, &M QPUFODJBM EF DBSCPOP B[VM TF EFUFSNJOB NFEJBOUF MB EJGFSFODJB FOUF M
 TJUVBDJ±O QMBOUFBE B QPS FM QSPZFDUP EF DBSCPOP B[VM QSPUFDDJ±O GPNFOUP 1BSB QPE
 UFOFS FNJTJPOFT OFUBT OFHBUJWB T



4 FHVJNJFOUP

* 1#%3'+ '#,2- !-,1'12# #, * 0#!-.œ !'À; 7' "#* 70f&','!#02'"3+ 0#...

4 "- "# 2-"-1 *-1 " 2-1 ,#!#1 0'-1 . 0 + #*20" *-1# !m*13*-† 1' #* . 0m+#20- !-00#1.-,"'#,2#

,4#*#1 ,#2-1 "# 0#"3!!'À, ,20-.-%•,'! 1# - 2!#, # +#"', 2# 3, !m*13*-,, 1#0m .0#!'1- ', '!'

#* +•2-"- 1#%3'"- . 0 #**--...

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12-1 " 2-1 7 2 * 1 "# #0m, .0#1œ,2 01# 7 !23 *'

8 01# #, #* ', \$-0+# "# 1#%3'+ '#,2-, 7 "# #0m, 0#4

- " 2-1 7 . 0m+#20-1 "'1.-,' *#1 #, #* +2+œ,2- +œ6+ .0#!'1'À, .-1' *#...
- 4 *' " !'À, †
- " 2-1 7 . 0m+#20-1 - 2#, '-1 "30 ,2# #* 1#%3'+ '#,2-...

[Planes de seguimiento y muestreo](#)

[Datos y parámetros disponibles en el momento de la validación y obtenidos durante el seguimiento](#)

12-1 "-1 !-, (3,2-1 "# . 0m+#20-1 1# .0#1# 027,##2- "30 ,2# #* .#0"- "- "# !0#"2 !'À, "#

1#!!'-, #1 '#, "\$#0#,!' " 1,, 7 "# #, ',!*8'0*,, ',œ-#1œ"# ! " #2 . "# 4#0'œ!!'À,... 1 2 0f

+ !'À, 1' %3'#, 2#†

* .0',!'. * - (#2'4- "#* 1#%3'+ '#,2- "#* .0-7#!2-

0 "'! #, * !3 ,2'œ!!'À, %œ' *# "# * 1 0#1#04 1

"# ! 0 -,- 7* 1 #+'1'-, #1 "# #, * 1'23 !'À,

.0',!'. *#1 1-, * 1 1' %3'#, 2#1†

6-6

- 2-µ 0m+#20-† , -+ 0# "#* . 0m+œ2 0- œ1.2. +#('À, expost "# *-1 , '4#*#1 , #2-1 "# +-"%œ! œ
- 8 ,"- * , -+ #, !* 230 #+.*# " #, * 1 \$À0+3#11#... * 1 0#1#04 1 "# ! 0 -,- 7 "# 0#"3!!'À, "#
- , " " " " 2-1† 3, " " #, * /3# 1# #6.0#† 1#*, #12"† † 7
- . 0m+#20-...
- #1!0'!'À, † #6.*'! !'À, #, 3, *~, # "# 7œ#!*0-,-*"#* .0-7#!2- 7 "# * 0#"3!!'À, "# #+'1'-0
- /3# !-00#1.-, "# #* . 0m+#20-... , #1 "# ...
- !3 !'-, #1† #!3 !'À, * /3# 1# & !# 0#\$#0#,!' #,
- * +#2-"*--% œ... #(...,, 1# .3#"# ',!'! *0*# ,œ-1#œ%3'+ '#,2- "# # !-, 2#, #0,, !-+- +~, '+-,,
- !-00#1.-, "'#, 2#•...
- *-1 1' %3'#, 2#1 " 2-1†
- 3#, 2# "# *-1 " 2-1† #, \$-/3# #+.*# "- . 0 #, !-, œ
- 20 0 3, 4 *-0 - 3, \$3#, 2# "'0#!2 ... • 3, "#1!0'!'À, "# ! " 2 0# "# 1#%3'+ '#,2- /3#
- *-0 .*'! "-† 4 *-0 /3# 1# .*'! ,, "# ' " #, 2œ# *'8 01#, 1' !-+- *-1 0#/3'1'2-1 2œ!, !'-1 /3
- (312'œœ!!'À, "# * #*#!'À, "# " 2-1 -.*#1!0'0m† #2œ-1 /3# "# #, +#"01#†
- *-1 +•2-"-1 "# +#"'" 7 *-1 .0-!#"'+ '#, 2-11 "2!-œ/3# "# #, 0#!-.*' 01#, 1œ!-+- * 1 2œ!,'
- "-1† 0 8-, +'#, 2- /3# !-, "3!# * #*#!'À, 1 "#*0#!-'*' !'À, "# " 2-1†
- " 2-1 !-00#1.-, "'#, 2#1...
- * \$0#!3#, !' "#* 1#%3'+ '#,2-†
- 0-.À1'2- "# *-1 " 2-1† . 0 /3• 4 32*œ-18 .0†##*#1 "# 1#%30 + '#,2- 7 !œ, 20-* "# * !*'
- . 0m+#20-...
- " " œ µ •†
- + #, 2 0'-1† !3 */3'#0 !-+ #, 2 0'- 0#*#4*-1# .0-0#1-1 "# 0!&'4 "- "# " 2-1† 7
- #0.
- *-1 0-*#1,, * 1 0#1.-, 1 '!' " #1 7 * 1 ! . !' " #1
- "# #/3'-. "# 1#%3'+ '#,2-, 1' !-+- * % #12'À, "# *
- + '1+-...

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1 +#2-"*--% 1 99<< 7 999@ -\$0#!#, 1'12#, 0

!' . 0 * % #12'À, "# * ', !#02'"3+ 0# 7 * ! '*' " ,

- #1!0'!'À, "# *-1 +•2-"-1 7 .0-!#1-1 "# + #+œ2À, †1 "# #120 2'œœ!!'À, 7 +3#120#-...
- +•2-"- . 0 * 0# *'8 !'À, "#* 1#%3'+ '#,2- "#*
- . 0m+#20-...
- 0#!3#, !' "# 1#%3'+ '#,2-µ0#%'120-† !-, /3• \$0#!3#, œ
- !' 1# & #123"' "- œ- 1# #123"' 0m• #* . 0m+#20-...

, #* + 0!- "#* , 2-- . 02'!' . ,2# "#* + #0 Œ
! "- /3# /3'#0 ',1!0' '0 3, ! 02#0 "# .0-7#!2-1,,
0#%'120 0 3, .0-7#!2- - #+'2'0,, 0#2'0 0 - !-+#0!' 0 !- ,
!-+.#,1 !'-,#1 "# ! 0 -,- "# # 0'0 3, !3#,2 "#
0#%'120-... , . 02'!' . ,2# "#* + #0! "- .3#"# 1-*!'2 0
* .#0230 "# 3, !3#,2 "# 0#%'12Œ- "#* #, !3 *
/3'#0 +-+#,2-... -"-1 *-1 #12m," 0#1 "# !#02'%!! !'À,
0#/3'#0#, /3# #* 0 3, !3#,2 ...

1# "# " 2-1 "#* !-,12'237# #* 0#.-1'2-0'- !#, Œ
20 * !-, 2-" * ', \$-0+ !'À, 7 "-!3+#,2 !'À, 0#* 2'4
.0-7#!2-1 0#%'120 "-1 7 ! 02#0 1 "# .0-7#!2-1...
1# "# " 2-1 ',!*37# 3, ! 02#0 " 1'À,"-1 7 0 000€, !•!-1 7 0#%'120 0 3, # 0 1•đ0
" 3 -1 7 2Đ ! 3 " Æ 2Đ 0 s1À-"0,7Đ-1 7 0@



* .0-.Ä1'2- "# * 4 *" !'Ä, "#* .0-!#1- !-0!1-2#1#7 * -1 !m*!3*-1 /3# %'%'30 , #, * "#1!0
% 0 ,2'8 0 3, #4 *3 !'Ä, #6& 312'4 # ', "#.#.#'0#7#2-...
"#* "'1#ç- "#* .0-7#!2-, ! 0%- "# 3, #,2,m" #0#2#0!' * "# * "-!3+#,2 !'Ä, .-0 . 02# "# *
, "#.#, "#,2#... 1 #,2'" "#1 "# #12# 2'-. 1#μ##, -œ %', "# #4 *3 0 * ! *'" "# * ', \$-0+
+', , ç#,'2'" "#1 -.#0 !'-, *#1 "#1'% , " 1£!œÄ, *0-.-0!'-, " #, #* 7 * "#!3 !'Ä, "#*
3 ç-0% , '1+-1 "# 4 *" !'Ä, 7 4#0'%!! !'Ä, 0-œ#!2-... * #12m, " 0 "# !#02'%!! !'Ä, ...
#4 *3 !'Ä, 1# 0# *'8 "# !3#0"- !-, *-1 0#1#2'2*1#.#* 8 +'#,2- .-0 . 02# "# * μ#*
#12m, " 0 "# !#02'%!! !'Ä, !-00#1.-, "#,2# œ#...#(4, *-0,0 #* , '4#* "# .0#!'1'Ä, "# *-1 "-!
" #, '4-, #2!... * %', "# % 0 ,2'8 0 /2#1*#;\$-0+7#2- 7 * ! !'" "# * 1 -0% , '8 !'-,
!'Ä, ',"! " #, #* #1 !-00#!2 ... "#+m1, #,#!" \$,1# . 0 "#2#0+', 0 1' *-1 . 02'!' ,2#1
"# 4 *" !'Ä, 1# 0# *'8 , - 1#04 !'-, #1 7 ##!-0-7#1#œ #12m, !-+.0-+#2'" -1 1- 0# * 1# "
!'-, #1 1 " 1 #, 4'1'2 1 "# !+.- * m0# 3#*!-0!œ, 2'+'#,2- 4-*3,2 0'- # ', \$-0+ "-...
7#!2-‡ 2 + '•, 1# "'#,'2'%!! , * 1 !!'-, #1! , 00#!2'4 .0-2-!- *- "# 4 *" !'Ä, *-1 .-0 . 02#
,#!#1 0' 1 "# ! 0 * .0- !'Ä, "#* .0-7#12- .0# #* † *# .0-2-!- *- .3# "# ' ,! *3'0 * 1 ' ,! "#,
#12m, " 0 "# ! 0 -, - !-00#1.-, "#,2#... !' 1 #, !-,20 " 1,, 4',!3* " 1 !-, 1-*!'!23"#1 "# !!'Ä
!-00#!2'4 œ • 7 1-*!'!23"#1 "# !* 0'%!! !'Ä, œ
, .0-!#1- "# 4 *" !'Ä, 2'.'!- 13#*# . 1•03.-10,*!'Ä, "# * 1 7 * 1 .-0 . 02# "# * -1
1'%3'#,2# 1#!3#,'! "# -.#0 !'-, #1† • 4 *3 !'Ä, 2•!,! .-0 . 02# "# * μ#* † 3,
4#8 13 1 , " 1 1 2'1\$!2-0' +#,2# 2-" 1 * 1
• "#,2'%!! !'Ä, "# 3, - 3, .-2#,'! 7 :-œ "#* .0-7#!2- 1# 1-+#2# 3, #4 *3 !'Ä
. 02# "#* † 2-" -1 *-1 .0-7#!2-1 #, #* 2•!Q! "#! 0%- "# 3, 1#%3, "- #/3'-. "# * μ#*
"# #, 1#0 4 *" "-1 .-0 3, !-+. çœ #1.#!' ,*/3# .-"0m !301 0 1-*!'!23"#1 "'!'-, *#1 /3#
8 " ,, +'#,20 1 /3# #12m, " 0#1 !-+- *# "#, #0#1, 1#0 2'Ä 0pp @3,, @', \$ Ò% 4 *3 "
. #0+'2#, * %#,!' "# ', "4'"3-1 !3 *'0#7' * -1.Đ•#! μ3 1 μ3 2'Ä ð 2 œ 0ð ÞÄb@Ð1 0 ð p0,, :
• 3+', '120- * μ * "# ', \$-0+ !'Ä, 7- *0# #*#! 0@0€μ3 1 μ
.0-7#!2- . 0 - 2#,#0 .0#13.3#12-1† #, \$3,!'Ä, "#
* #,2'" " , * ', \$-0+ !'Ä, .0-.-0!'-, " .3#-#-1#0 0 \$ € mp '- r0"Đ0 0 0ð' @0 -4€ •ð 0
#* " * - 3, \$-0+3* 0'- .0-.'- "# * μ#*
#, !3#12'Ä, ...
• #*#!'Ä, "# * .0-.3#12 +m1 "#!3 " 7 %', *'8 !'Ä,
"# 00#%*-1 !-,20 !23 *#1 #,20# #* 7 * μ#* †
. 0 1#*#!'-, 0 * μ#* +m1 !-,4#,'#,2#,, 1#
"# #, 2#,#0 #, !3#,'2 *-1 1'%3'#,2#1 \$!2-0#1†
• #6.#0'#,!' 7 !-, -!'+'#,2-1 !#0! "#* #12m, " 0
"# !#02'%!! !'Ä, "# ! 0 -,- #*#%'! "-‡
• \$ +*' 0' " !-, #* m0# ,, * 0#%'Ä, - #* . "1 "#*
.0-7#!2-‡
• ! . !'" " *',%i"12'! . 0 #,2#,"#01# !-, *-1
. 02'!' ,2#1 #, #* .0-7#!2-‡
• #6.#0'#,!' 2•!,! 0#*#4 ,2# "# ! 0 * .0-7#!2-‡ 7
• ! . !'" " . 0 .0# . 0 0 3, ', \$-0+# "# 4 *" !'Ä,
#, ',%*•1 œ- !3 */3'#0 -20- '!"-+ .#0+'2'" -.-0 #*
#12m, " 0 "# !#02'%!! !'Ä, "# ! 0 -,- !-00#1.-, œ
" '#,2#•...
• 3+', '120- * μ * "# ', \$-0+ !'Ä, 1- 0#
#* .0-7#!2-† *-1 .0-.-, #,2#1 "#* .0-7#!2- "# #0m,
\$!*'2 0 #* ,, .03# 1 "# * .0-.'#" "#* .0-7#!2-
7 !3 */3'#0 2'-. "# ', \$-0+ !'Ä, 36*' 0 1-*!'!2 " ,,
1" !-+- *-1 " 2-1 ,#!#1 0'-1 . 0 .-7 0 * 1 "#!* œ

- #* , '4#* "# 1#%30 +'#,2- "# * 4 *'" !'À,‡
- *-1 - (#2'4-1,, #* *!, !# 7 *-1 !0'2#0'-1 "# * 4 *'" !'À,‡
- 1' * ', \$-0+ !'À, 7 *-1 " 2-1 /3# 1312#,2 , *-1 1#0CE
2-1 #, + 2#0' "# 1-, "# , 230 *#8 &'-.2•2'! ,,
.0-1.#!2'4 - &'12À0'! ‡ 7
- * !-,!*31'À, *!,8 " .-0 * - #* 0#1.#!2-
*-1 1#02-1 #, + 2#0' "# ,, '!*3'" 1 .-1' *#1
! *'%o'! !'-, #1 - *'+2 !'-, #1...

[Archivo de datos](#)

* 0!&'4 "- #1 #* .0-!#1- /3# !-,1'12# #, "#1.* 8 0
"-!3+#,2-1 /3# 7 , - 1# 32'*'8 , !2'4 +#,2# 3,
"1.-1'2'4- 1#. 0 "- "# *+ !#, +'#,2- . 0 13
!-,1#04 !'À, * 0%- .* 8-... -1 "-CB+#,2-1 0!&'
4 "-1 1'%3#, 0#4'12'#,"- %0 , '+.-02 ,!' . 0 *-1
.0-.-, #,2#1 "#* .0-7#!2- 7 .3#"#, 1#0 ,#!#1 0'-1 #,
#* \$3230-... -1 0!&'4-1 "# #, #12 CE',"#6 "-1 7 .-1' '
*'2 0 * 1 ë1/3#" 1,, %'', "# \$!'*'2 0 3, *-! '*8 !'À, 7
3, 0#!3.#0 !'À, 0m.'" "# *-1 "-!3+#,2-1...

' '#, ,',%3,- "# *-1 #12m," 0#1 "# ! 0 -,- .-02
"0#!20'!#1 0#* 2'4 1 * 0!&'4 "-, * 1 , -0+ 1 %#, #0 CE
*#1 /3# .3#"#, 1#%3'01# 1#0" ,†
• 0!&'4 0 *-1 " 2-1 "# 1#%3'+'#,2- "#1.3•1 "# ! "
-2-0% +'#,2-†
• 0!&'4 0 2-"-1 *-1 " 2-1 "# 1#%3'+'#,2- "30 ,2# 3,
.#0"- "- "# 20#1 ħ-1 20 1 * %'', '*8 !'À, "#* .0-7#!2-...

[Procedimientos de QA/QC que se deben aplicar - . 0](#)

-# 1 0 \$Đ .- &\$€ - 0" ÒĐ1 Đ0Đ-Đ+đ # |'ÀbM- #* \$ " &0À0 2 Đ , ,',%-1 "1"#, ÒxÆ 00ĥ!'À,0! -0



4#0'%'!!'À, 2'#,# *3% 0 3, 4#8 /3# #* !0,7#12-7*0#4 "# *-1 #12m," 0#1 "# !#02'%'!!'À,
#,#(#!3!'À, "30 ,2# 3, !'#02- .#0"- "- "#02/#0+0,#/3#* 0#%'120- "# *-1 .0-7#12-1 "#1.3•1 "# *
"## 1#0 "#2#0+', "- .-0 *-1 1'%'3'#," \$*1# "0'#,CE" !'À, œ... #(...,, -*" 2 ," 0", • 7 1-+
2 !'-,#1 "# * +#2- "-*-%" #+.*# " ... # 20,2 *#13+1+1 3, .0-!#1- "# 0#%'120- +m1 - +#,
#4 *3 !'À, #6 .-12 "# * ', \$-0+ !'À, 7 *-1#6 82 3112#4- œ1'+* 0 * "# 3, 3'"2-0" "# 4 *'" !'À,•
1-+#2'" -1 1#%'3'+'#,2-... 30 ,2# #30001#1- "#
4#0'%'!!'À,, #1 "# #1.#0 0 /3# * 7#00 #4 *ë#,,
"#+m1 "# * ', \$-0+# "# 1#%'3'+'#,2-†

• #* *!, !# #, /3# 1# & , #(#!32 "- *-1 +•2- "-1 7
*-1 .0-!#"'+'#,2-1,, ',!*3'" -1 *-1 "# 1#0021'+'#,2-,,
"# !-, \$-0+" " !-, *- #12'.3# "- #, * "#000!'!À,
4 *'" " "#* .0-7#12-,, *- !3 * ',!*37# *321#0'%'!!'À,
"#* !3+.*'+'#,2- "#* .*, "# 1#%'3'+'#,2-† 7

• #* ,4#* "# .0#!'1'À, + 2#0' * "# *-œ, 4##*#1†"# 0#"3!
!'À, 7 #*'+, !'À, "# #+'1'-,#1 "# #12*.3,\$-01# "# 4 *'" !'À, †
#, #* ', \$-0+# "# 1#%'3'+'#,2-... • * 0#.0#1#,2 !'À, "# * 4 *'" !'À, †
• * 0#.0#1#,2 !'À, "#* 0#%'120-† 7

, #* + 0!- "#* ,, * 4 *'" !'À, 7 * 4#0'%'!'/3"À0 "#!3+#,2- #1.#!'%'!223, 0
3, .0-7#12- .3#"#, !-00#0 ! 0%- "# 3, 30000
- 3, +'1+- ,, # ',!*31- .3#"#, 2#, #œ *32À 0 1'+3*
2m,# +#,2# #, #* +-+#,2- "# * 4 *'" !'À,...

* .0-!#1- "# 4#0'%'!!'À, "# # 1#%'3'0#00+1+
1#!3#,!' "# -.#0 !'-,#1 /3# 1# "#1!0' !0000 *
4 *'" !'À,...

• #* ', \$-0+# "# 1#%'3'+'#,2-†
• #* ', \$-0+# "# 4#0'%'!!'À, †
• * 0#.0#1#,2 !'À, "# * 4#0'%'!!'À, † 7
4* 0#.0#1#,2 !'À, "#* -2-0% +'#,2-...

, #* + 0!- "#* ,, 3, 4#8 #,20#% " 2-" * "-13œ
+#,2 !'À, 0##*4 ,2# "#* .0-7#12-,, #00 **#4 ! -
3, #4 *3 !'À,... #4 *3 !'À, "#* .0-7#12- #1 3, .0-œ
!#1- "# 20#1 #2 . 1,, /3# !-,12 "#†

• 3, 4#0'%'!!'À, !-+.*#2 œ0# *'8 " .-0 #* "+',1œ
20 "-0 "#* 0#%'120- "#* • . 0 % 0 ,2'8 0 /3# 2-"
-1 "-!3+#,2-1 #12•, !-+.#2-1 7 "# ' " +#,2#
%'0+ "-1 #, *-1 ! 1-1 #, /3# 1# ,#!#1 0'-,, /3# 1#
& 7 , 0# *'8 "- *-1 .0-!#1-1 "# 4 *'" !'À, 7 4#0'%'!!
!'À, .-0 . 02# "# 3, - 3, "+'1' *# 7 #,
-1 . 8-1 #12 *#!'" -1,, 7 /3# -20- .0-% 0 + "#
& 7 #+'2'" -!#02'%'! "-1 "# 0#"3!!'À, - #*'+, !'À,
"# #+'1'-,#1 "# . 0 #* +'1+- .0-7#12-†

• 3, 0#4'1'À, "# !-+.*#2'23" œ#(#!32 " .-0 #00 •
#,! +', " "#!'!'"0 1' .0-!#"# **#4 0 ! - 3,



#4 *3 !'À, ',2#%0 * "# .0#!'1'À,, !37- - (#2'4- !-,Œ
1'12# #, % 0 ,2'8 0 /3# 1# & 7 32'*'8 "- * ',,\$-0+ Œ
!'À, .0-. ' " . 0 !-+.*#2 0 2-"-1 *-1 "-!3+#,2-1
"* .0-7#!2-,, /3# 1# & 7 , 4 *-0 "- !-00#!2 +#,2# *
1'23 !'À, "# 1# 7 * "'!'-, *'" " 7 /3# *-1 .0-!#1-1
"# 4 *'" !'À, - 4#0'%o!' !'À, & 7 , 1'"- **#4 "-1 ! -
.-0 3, - 3, "+'1' *#‡ 7

•
"# 4+
"##0'%o!' , p À0Ð0 "'#2'À, & 0#!2 +#, ð0àÐ³ 1
"* .% • !" 00Â0 '1'À, 0 9 00.

1SPHSBNBT EF BDUJWJEBEFT 1E" P QSPZFDUPT HSVQBMFT

, " œ- .0-7#!2- %03. *, 1#%ë, * , -+#,!* 230
"#* • #1 3, !!'À, !-, (3,2 4-*3,2 0' #+.0#,œ
"'" .-0 4 0'-1 . 0 !--0"' , 0 7 #œ#!32 0 .-*"2'
! 1,, +#"'" 1 3 - (#2'4-1 "#!* 0 "-1 œ#1/3#+ 1 "#
,!#,2'4-1 - .0-%0 + 1 4-*3,2 0'-1• #,! +', "-1
*-%0 0 0#*3!!'-,#1 "# * 1 #+'1'-,#1 "# - #'+'', œ
!'-,#1 ,#2 1 "# ,20--%•,'!-1,, !-, ! 0m!2#0 "#
"!'!-, *'" " 0#1.#!2- * 1'23 !'À, /3# 1# " 0" #,
31#,! " #* " ,, .-0 +#"!- "# 3, ,ë+#0- '!'+'2 "-
"# !2'4'" "#1 "# .0-7#!2-1 !-+.-, #,2#1...

*%3,-1 2'-.1 "# .0-7#!2-1 "# +#, -0 #1! * œ#, 2•0œ
+,-1 "# *-1 ,4#*#1 #'+'', "-1 - 0#*3!'!-1 "# •
.3#"#, 0#4#12'0 !-12#1 !-,1'"#0 *#1 "# 20 ,1 !!'À,
/3# +#, -1! , * !-,20' 3!'À, /3# 13.-,"0" *
4#,2 "# *-1 -, -1 "# ! 0 -, -... 6'12#, 3+ 0 *#1 (-
*-1 !3 *#1 #* '+. !2- ', "4'"3 * "# 3, .0-7#!2- "#
1# !-,1'"#0 "#+ 1' "-.#/3#ç- !-+- . 0 1 ! 0
. 02'"- "#* "#1 00-**- "# !2'4-1 "# ! 0 -, -... ,
3#, + ,#0 "# 13.#0 0 #12 1 "'%o!'3*2 "#1 !-,1'12#
#, %03. 0 .0-7#!2-1 1'+* 0#1 . 0 !-, \$-0+ 0 (3,2-1
3,- "# + 7-0 #1! * ...



"#+m1,, *-1 " -\$0#!#, 3, *2- ,4#* "# f#6' '!" "
#, *- /3# 0#1.#!2 * ++#,2- "# ',!*31'À, "# !'#02 1
m0# 1 - !'#02-1 2'-.1 "# !2'4'" "#1,, 7 /3# , - #1 .0#œ
!'1- !-, -!#0 !-, ,2#* !'À, * 3 '!'À, - #* 2'#+.-
"# #(#!3!'À,...

3#12- /3# , - #1 .-1' *# !-,4#02'0 3, .0-7#!2- #, 3,
" !-, .-12#0'-0'" ,, #1 !-,4#,'#,2# /3# *-1 .0-œ
.-,#,2#1 "#!' , 1' /3'#0#, "#1 00-** 0 3, " #, *
#2 . "# * !0# !'À, "#* ...

3 ,"- 1# -.2 .-0 3, #,\$-/3# "# " ,, *-1 "#1 œ
00-**-0#1 "#* .0-7#!2- - 2'#,#, * 4 *'" !'À, "# *
"-!3+#,2 !'À, #,2#,"" !-+- 3, + 0!- * !3 * 1#
.3#"#, "�'0 +ë*2'.*#1 .0-7#!2-1 !-, .-12#0'-0'" "...

, #* + 0!- "#* ,, #* "# # !3+.*'0 !-, *-1
!0'2#0'-1 "# "+'1' '!" " . 0 * ',!*31'À, "# ,3#4 1
!2'4'" "#1 "#* .0-7#!2-‡ #12 1 "# #0m,†

•!3+.*'0 !-, * 1 !-, "!'!-, #1 "# .*'! '!" "# *
+ #2- "-*-%" #+.*# " . 0 * !3 ,2'pÿ !0ð °'0 ð0!g0 p 0ð 0ð 0°à 0ð . 7Đ -2,)*'" " p"0 rE

"- 13+.*'3 0

!0-* . 0 .3#" 00-** °0 -"-*- *31'À, "# , 2 ð' 0°pÂÂð0.! 0-*+)!-, 0-* q!ðp0Đ Í .Đ 1

%!'%30 :B +3#120 * *",# 2#+.-0 * "#* .0-!#1- "# !#02'%!!'À,... "30 !'À, "# ! "
4 0' 0...

&WBMVBDJ±O EFM QSPZFDUP
ö³ ö' NFTFT

1*/ /PUB EF DPODFQUP

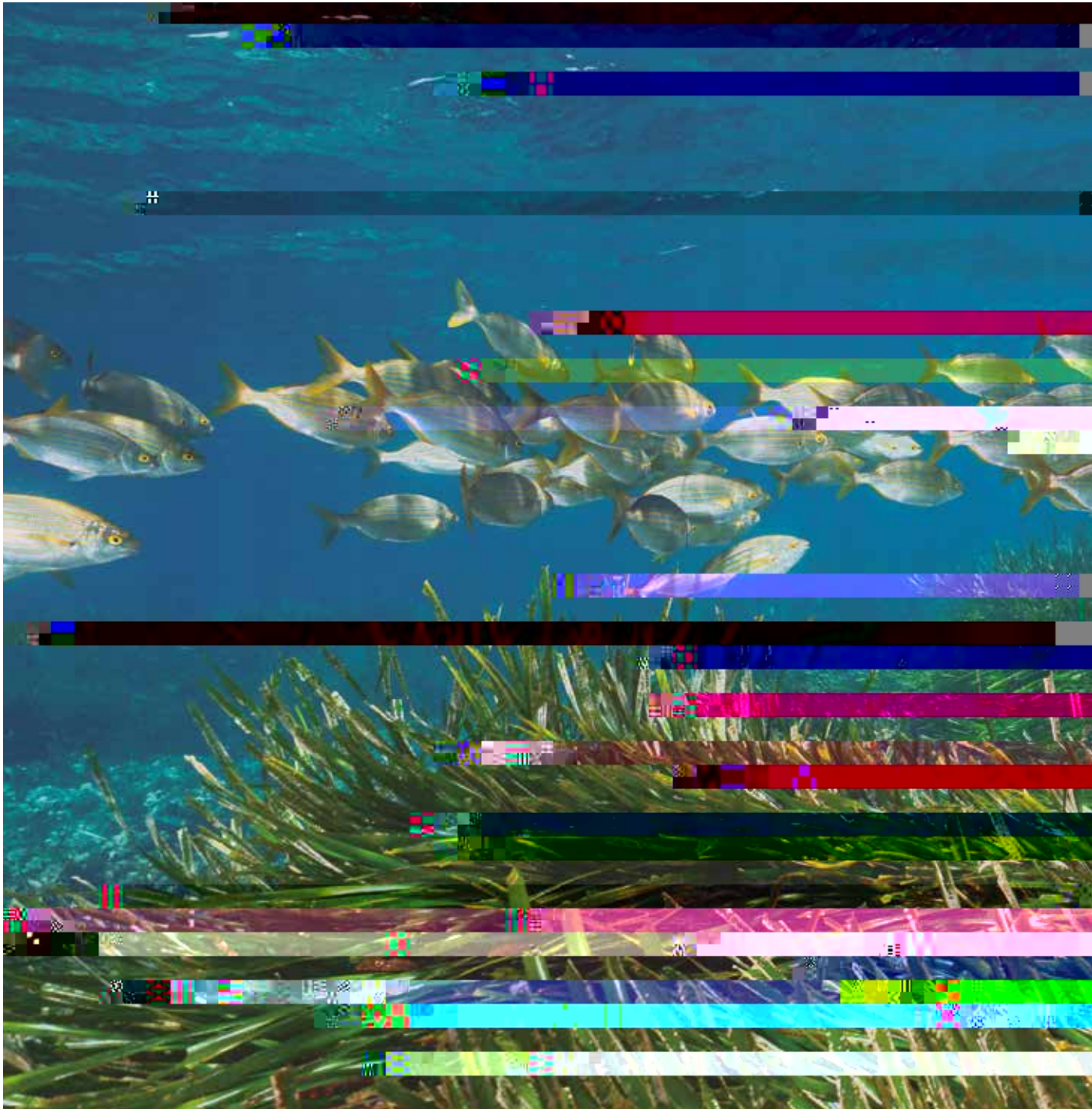
3FHJTUSP
ö² ö' NFTFT

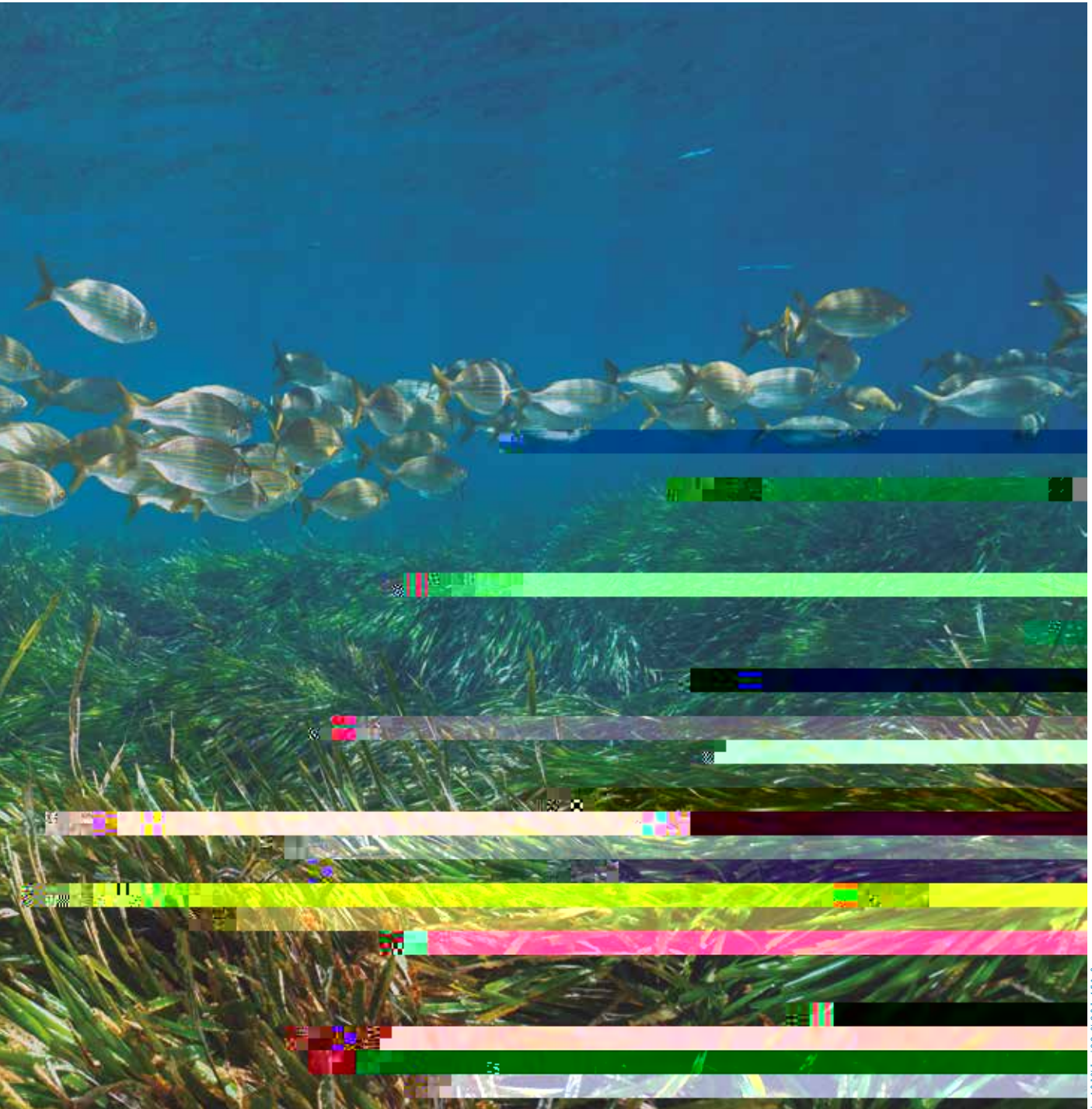
"VEJUPS«B EF WFSJæ_DBDJ±O
öµ ö' NFTFT

3FHJTUSP Z PUPSHBNJFOUP
ö² ö' NFTFT

CAPÍTULO 5:

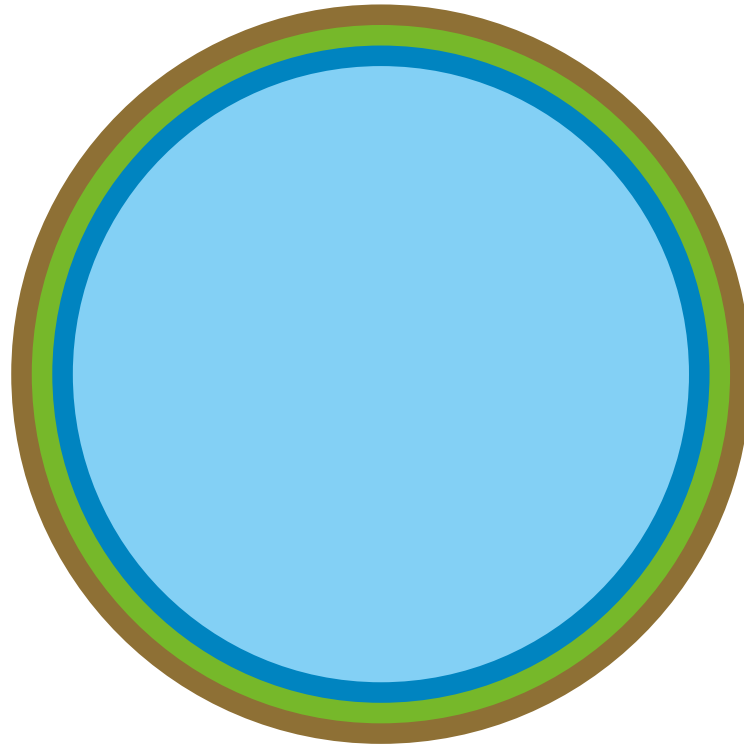
\$0/\$&156"-*;"\$*‘/ %& 6/
130:&\$50 %& \$"3#0/0 ";6-





./6"- 1"3" -" \$3&"S"/ %&

!-, 1'"#0 , .0-7#!2-1 "# ! 0 -,- 83* /3#**-1 /3#
2'#, #, !-+- - (#2'4- œ:• .-2#,!' 0 #œ 1#04'!!- "# #*'



* &-0 "# #6.*-0 0 #* .-2#,! ' * "# ! 0 ;,-3083*, ### .-2#,! ' * "# (#!3!'À, "# .0-7#!2-1 "#
3, .0-7#!2-, #1 '+.-02 ,2# "#2#0+', 0 *0#102# \$00!4À1 "# ! 0 -,- 83* 1# 4#0E'+2 "- .0',!'
- *-1 f3(-1 "# ! 0 -,- #, * 8-, #1.#!"%.'!*+##2#0-0E #* !-12# #!-,À+'!-... 3,/3# #6'12#,
7#!2-‡ .0 #**-, 1' 7 & 7 3, &m '2 2 "##!!#0!'-,#183#** #, *-0 "# +#0! "- "#* ! 0 -,- ! .230E
* 8-, ,, #1 .-1' *# **#4 0 ! - +#" " 1 0'#!'!00-! 1 * .0-7#!2-, .-0 1" '+1+-, , - 13#*# 1#
83* #, * '+1+ ... ' , - & 7 3, &m '2 2 "1#%0'Q'#,-2#8!3#,- .0 + -02'8 0 2-"- #* !-12# "# 3,
.3#"#, #+.*# 01# 3 '!!-',#1 "# 0#\$#0#,,10-7.#02- "# 0#12 30 !'À,... ' , #+ 0%-,, *-1 #,#%
"#2#0+', 0 #* \$3230- .-2#,! ' * "#* .0-7##2*..0#12 30 !'À, "# #!-1'12#+ 1 "# ! 0 -,- 83* 4
+3!&- +m1 **m "# * +#0 ! .230 "# ! 0 -,- ‡ .-0
+ '•, #1 .0#!'1- "#2#0+', 0 * 4' ' * " #192# , +0E'4-, *-1 -,-1 "# ! 0 -,- %#, #0 "-1 .-0 #*
!'#0 ,, 1 #0,, /3• % 12-1 '+.*!' 0m #* .0-7##!!2- .3##", ,3,! 01# #, *-1 +#0! "-1 "# ! 0CE
! 0 -,- 83* .0-.3#12- 7 /3• -. -023, " "#1,-&47*3,0 0'-1 .0#!'-1 +37 13.#0'-0#1 *-1 /3#
4',!3* 0*- !-, -20-1 .0-7#!2-1 "# * 8-, , 2#%0" "##, *-1 +#0! "-1 "# !3+.*'+# ,2- 0#%3* "
%#, #0 0 %%, ,!' !'À, "'!'-, *... , #12 #2 ., 0#13*2
2 + '•, "# ',2#0•1 , *'8 0 #* .0#!'- "#* .0#7##!2-3!&- 2'#+.- /3# 1# 0#!-,-!# * '+.-0CE
.-0 3, " "# ! 0 -,- ! .230 " ,, *- /3# .32# #' 0#0*-1 #!-1'12#+ 1 "# ! 0 -,- 83*, .-0 *
.#01.#!2'4 1 1- 0# #* .0#!'- "# *-1 \$3230# 17 -1#1&# #.3#12- #, + 0!& +3!& 1 +#" " 1 "#
! 0 -,- [65]. 0#12 30 !'À, "# "'!& 1 m0# 1 ,2#1 "# /3# 1# !0;
-1 +#0! "-1 "# ! 0 -,-... 1 !!'-, #1 0# !'-, " 1
' 1# **#4 , ! - !-, •6'2- 2-" 1 * 1 #2!-, 1#*, 2#00'-,0E 83* 1-, +3!&- +m1 # \$#!2'4 1 !3 , "
0#1,, #1 .-1' *# #(!32 0 3, .0-7#!2- "#1#0,2,#%03,*# , .0-7#!2-1 "# 0#12 30 !'À, "# + 7-
/3# "# #0m 1-+#2#01# * 13.#04'1'À, #!6!2#4!3#" "- 1# .*, 2# , !-+- - (#2'4- è, '!- -
* 1 0#1#04 1 0# *#1 "# ! 0 -,- #, * 8-!-+#\$30;2#!2#..% , ,!' !'À,...

1 1 *4 %3 0" 1 !-,12'237#, 3, !-, (3,2* "1!-0',#CE1 !'-,#1 "# ! 0 -,- 7 * 1 1 *4 %3 0" 1
 !'.'-1,, -0+ 1 7 .0-!#"'+#,#2-1 .3#12-1 ## + 0!&3" , *-1 .0-7#!2-1 "'#,2'%'! 0,, .0#4#,'0
 . 0 *--%0 0 - (#2'4-1 1-!' *#1 7 +#"'- +7'#,'2'%'# 0... 1 !-,1#!3#,'! 1 ,#% 2'4 1 ',#1.#0 " 1
 +#" /3# *-1 .0-%0 + 1 "# !-+.#,CE !'À/3#,'23#"#, 130%'0 "# 3, ',2#04#,'!À, !-,!0#2 ... 1
 ,ë , #4-*3!'-, ,"-,, 2 + '•, *- & !#, * 1 1'!4-0%23,2CE !-,2 0 !-, 1 *4 %3 0" 1 %' *#1 2 ,2-
 " 1 !-, .0',!'.'- 7 !0'2#0'-1 "#12', "-1 . 0-0"10%'3!0 0!# "# , - .#0(3"! 0 *-1 0#13*2 "-1 "#
 #6%'#,!' 1 "# * 166!'#"1"#12m," 0#1 4-#3,CE00-*"- "# *-1 20 (-1 "# !-,1#04 !'À, !-+- . 0
 2 0'-1 . 0 .0-7#!2-1 "# !-+.#,1 !'À,, "#% 0 0 0 20#10# .-7-1 .ë *!'-1 . 0 * !!'À, !'+m2'!
 +m1 + '!'-1- #, 131 .0-7#!2-1 7 !0'2#0e-1,, 198: @ *7...
 * '+.-02 ,!' , - 1-*"- "# .0-2#%#0,, 1',- 2 + '•, "#
 +#(-0 0 * 1 !-, "'!'-,#1 1-!' *#1 7 +#"'- +.#"#,2'z##11.2# 0 8-, +'#,2- #, #* !-,2#62- "# *-1
 -+- 1#++#,'!-,À ,2#0'-0+#,2#,, * + 7-00-7#!2-1 "# ! 0 -,- 83* . 0 * 1 0#%'-,#1 +#"2#CE
 *-1 #12m," 0#1 "# 1 *4 %3 0" #6%'!'- 00m23 *1+7,230-.# 1,, #, #12 1#!!!À, 1# -\$0#!# 3, !
 .-0 *-1 +#! ,!'+-1 4-*3,2 0'-1 #+.*# , #3#2#,'2# 1.0',!'.'-1 %#,•0!'-1 . 0 * 1 *4 %3 0" "#
 2 ,2- 1312 ,2'4-1 ce.0',!'.'-1 7 , -0+ 1 !#,'!4,CE 1-!' *#1 7 +#"'- + '#,2 *#1,, +-- "- "#
 %3 0" • !-+- .0-!#"'+#,'2 *#1... ' ' #, *-10'##,2-!'À, %#,#0 * . 0 "#1 00-**-0#1 "# .0-7#!2
 "# '+.*#++#,'2 !'À, 1-, 4 0' *#1,, +3!&-1##1,2m,2'0#11 7 #12m," 0#1 "# %' , ,!' +'#,2- !'+m2'
 "-.2 , 3, #,\$-/3# "# ç.0',!'.'-1,, !CE2#0ce17 #'-4, "#, 1 !'À,•... 1 1 *4 %3 0" 1CE0-.3#12 1 "#0
 ! "-0#1£,, #, #* /3# * 1 . 02#1 #12 *#14,, 3,#!;3(3#Q-1 1 !-,13*2 1 !-, . 02#1 '+.*!' " 1 #,
 "# .0',!'.'-1 7 , -0+ 1 %#,#0 *#1 ce... #\$.3.2 3!0,2 0.'037#À 2-1 "# !-+.#,1 !'À, "# ! 0 -,- 83*
 * 3#, %- #0, ,8 • ‡ .-12#0'-0+#,2#,, "#2#*** 0#3%'-, *, !-, * . 02'!'.'!À, "# !-,13*2-0" 1
 '12 "# !0'2#0'-1 /3# 1# "# #, !3+.'0 1-00%'0%0',2!'8 +0#,'2- !'+m2'!-, "#1 00-**-0#1 "#
 #* !3+.*'+#,'2- "# * +m6'+ %#,#0CE ce..0-.7#(12-.11\$#-0#%2' *#1 "# !-+.#,1 !'À,, -0% ,!+-1
 ,# , !* 0 +#,2# * 1 #1203!230 1 "# %- #!0',+;62,!!-1, , !'-, *#1 7 0#%'-, *#1,, , !#,'2'%'!'-1
 20 ,1. 0#,'! 7 0#1.-,1 '!' "•‡ %' , *+##,2#,,!\$*18*"21, #, ! 0 -,- 83* 7 %#12-0#1 "# m0# 1
 3, *'12 "# ',!' "-0#1 /3# 1# "# #, + ,!\$#21#2%0'.1Q 1" !-+- %#12-0#1 7 #/3'-.1 2•,'!'-1 "#
 "#+-120 0 #* !3+.*'+#,'2- !-, *-1 !0'2#0'4#0'1"41 ce#..! 1 # ',12'23!'-,#1 +#"'- + '#,2 *#1
 #(...,, .3 *!'! !'À, "# ', \$-0+ !'À, 1- 0# * 10#%'!'-1,26#230#4#,
 + 2#0' "# %- #0, ,8 •... , ! + '-,, *-1 .22#2#1'+#,'CE
 2-1 "#'+'+2 , * 1 2 0# 1 "# '+.*#++#CE !'À,, 13.#04'
 1'À, 7 #(!3! !'À, "# * 1 1 *4 %3 0" 1... #

6,6

CE

-, 3, #,\$-/3# 1'+* 0,, #* 12m," 0 *- #3#0# *
 . 0 1-*3!'-,#1 1 " 1 #, * 230 *2#3#1.
 ce • ,!*37# 3, !-, (3,2- "# !0'2#0'-1 7 .0',!'.'-1 "#
 1 *4 %3 0" ,, !-, ,'"! "-0#1 . 0 ç!#02'%'! 0£ /3# * 1
 !!'-,#1 7 *-1 .0-7#!2-1 ç.0-2#%#0m,, 10#12 30 0m, 7
 %#12'-, 0m, 1-12#,' *#++#,'2# #!'-1'12#-1 , 230 *#1
 - +-'%'!'-1,, -0" 0m, *-1 0#2-1 1-!' 0#1 #, -0'%,
 "# \$-0+ #\$\$!2'4 7 " .2 2'4 7,, 1'+3* #11, # +#,2#,,
 .-02 0m, #, #%'!'-1 #, + 2#0' "# '--'4#01" " 7
 '#,#12 0 . 0 * 1 .#01-, 1£ ce ,, ;9;92... , %#,#0 *,,

6

0 ! 0 !2#0'8 0 3, #!-1'12#+ "# ! 0 -, - +83*0"1"# * -1 .0-7#!2-1 "# ! 0 -, - 83* 2#,"0m,
 #12'+ , "-1 . 0m+#20-1 .0',!'. *#1† * 1' res#0as1de#, \$-+#,2 0 * !. !'" "# #*'+, !'À, "#
 carbono 7 * tasa de captura de carbono, 2 + '•, ! 0 -, - "#* #!-1'12#+ „ #1 "#!0„ 13 #%'!#,'! ... -0
 !-, -!' " !-+- f3(- "# ! 0 -, - & !' #* 13#*#*„-1#0m ,#!#1 0'- "#+-120 0 /3# * 2 1 "# ! .23
 ç0#1#04 1 "# ! 0 -, -£ 1# & !# 0#\$#0#,'#! ! 0 -, -& " "3+#,2 "- 20 1 * ',2#04#,'!À, "#*
 "# ! 0 -, - *+ !# , "- #, 3, 13.#0%'!# !-0-7#!2-... -0 -20 . 02#„ #* .0-7#!2- .3#\"# 2#,#0
 2 1 "# ! .230 "# ! 0 -, - & !# 0#\$#0#0#+'1 * .0#4#,'!À, "# * .0\"# \"# * 1 0#1#04 1
 ! ,2\"# \"# ! 0 -, - 20 . \" .-0 3, 13.#0%6'1'2# ,2#1† #, #12# ! 1-„ \"# #0m +#\"0 \"!& 1 0#1
 \"30 ,2# 3, 2'#+.- \"#2#0+', \"-... 1 0#1#0#12'† ,0'! * ,1 .0\"# \" 1 #4'2 \" 1... 12-1 \"-1 \$!2-0#
 !3m,2- ! 0 -, - & 7 0#2#,'\"- .-0 3, #!-1'12#+# ,#0'01# #, 2m,\"#+„ #12'+ ,\"- * 1 2 1 1 \"#
 +-+#,2- \" \"-„ +'#,20 1 /3# * 2 1 \"# ! !2.303 0', \"! 02'0 \"# * 1 0#1#04 1 7 \"# * 2 1 +#\"#\"
 !3m,2- ! 0 -, - 0#2'0 \"# * 2+À1\$#0 - !@#!!À„ ,-, -, '+ 0%-„ 1' 1-* - 1# 2'#,# ',2#0•1 #, :
 *- /3# #1 *- +1+-„ 13 #%'!#,'! !-+- 0#1#04-0'„-3#\"# #1#0 #!-,À+! +#,2# 0#,2 *# #12'+
 ! 0 -, -... 1-* - #* \$!2-0 #, !3#12'À,...

6'12# 3, 0#* !'À, 2#+.-0 * #,20# #12-11\"#1-1'0120E+ 1 \"# ! 0 -, - 83* 1-, #1. !' *+#,2#
 +#20-1† !-, -!#0 * 1 0#1#04 1 \"# ! 0 -, -& #2 #0-%•, #-1† 131 0#1#04 1 7 2 1 1 \"# ! .230 \"#
 #!-1'12#+ 7 #* +-+#,2- 2#+.-0 * #, /3#-#12#0'1# \"# 3, #!-1'12#+ -20- # ',!*31- #,20#
 #12 *#!'À .#0+'2# * !*3* 0 * 2 1 +#\"m0# 1 .230',2 1 \"#* +1+- #!-1'12#+ ... \"#+m1„ *
 \"# ! 0 -, -... 3,/3# * 1'23 !'À, 1# \" !-,!0,##,204 !'À, \"# ! 0 -, - #, #* 13#*- !+ ' 2 + '•,
 \$0#13#,'! „ 3, 1 0#1#04 1 3,\" ,2#1 \"##! @3-,!'À, \"# * .0-\$3,\"# \"# ' \"- * \"#%0 \" !'À,
 '+.*! , #!#1 0' +#,2# 3, #*#4 \" 2 1 7# !' .2340 0' !-,#1 2#+.-0 *#1 \"# 13 !3+3* !'À, ...
 \"# ! 0 -, - œ4• 1# #* ! .23*- @ . 0 * +#2*-2-?2-„ #1 #1.#0 *# #, !-,20 01# !-, !-, \"!'-œ
 \"# !m*!3*-•„ 7 4'!#4#01 ... , -20 1 . * , 0114 ,œ#1'20- 1#%ë, #* #1. !'- 7 * .0-\$3,\"# \"# ... 0
 #!-1'12#+ .3#\"# & #0 !3+3* \"- ! 0 -, ! .200,2#4 0' '!'\" \"#1. !' * #, #* 13#*-„ #1 .0#!'1
 +*#1 \"# ç-1 7 \"'1.-, #0 \"# %0 ,\"#1 0# 2#0 40 1+3.##102 0 1' \"3.*! \" 1 \"# ,è!#*-1† . 0 ! .2 0
 * ! ,2\"# \"# ! 0 -, - /3# ! .230 * ç- #1 #10' 1'!\" \"# .0-\$3,\"# \"# * -1 œ!#*-1 1# \"'4'
 13 2 1 \"# ! .230 #1 (7„ .-0 2 ,2-„ 2#+ #,4*0' #1 +3#120 1 œ4• 1# #* ! .23*- ? . 0 +
 13 #%'!#,'! !-+- 13+'#0- \"# ! 0 -, -... \"#2#\"# #10.1#

2 + '•, * 1'23 !'À, -.3#12 „ #1 \"#!'0„ /3# #* #!-1'1œ
 2#+ 1# 3, #%'!#,'2# 13+'#0- \"# ! 0 -, -3,\"'10-7#12- \"# ! 0 -, - 1# !# ,20 ë,'! +#,2# #,
 \"# 0#1#04 1 (1 .-0/3# **#4 .-!-1 ç-11 0#1#04 1 \"#* 13#*- - #, * 2 1 +#\"#\"# \"# ! .230
 * ,\"- #12# #*#+#,2-... , - 1#0m .0#!'1- ! .2 0 * 4 0' '!'\" \"# .0-\$3,\"# \"# \"
 1#+.0# /3# * -1 ,è!#*-1 #620 \"-1 2#,% , * +1+
 -1 .0-7#!2-1 \"# #, 0#1.-,\"#0 2 + '•, .-002\$3,1\"# \" , /3# 1# +3#120## 2-\" * .0-\$3,\"# \"#
 * 1 \$3#,2#1 - 13+'#0-1 1'%,%'! 2'4-1\"# #0# gases * &-0 \"# #12'+ 0 * 1 0#1#04 1 - /3#
 de efecto invernadero, como el CH₄ y el N₂O, /3# ,è!#*-1 0/3# , #* +1+- + 0!- 2#+.-0 * * &-0
 1# , 0 8-, *#+#,2# 20' 3' *#1 * 1 !2#4#1'2#4.0 * 1 2 1 1 \"# ! .230 † #12- , -1 .#0+'2'0
 -0 #(+*.-„ #* #12 *#!# #* 3+ 0 * delinimis!#0 3, !-+. 0 !'À, #,20# ,è!#*-1...

7
 32
 33
 2
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 33
 33
 33

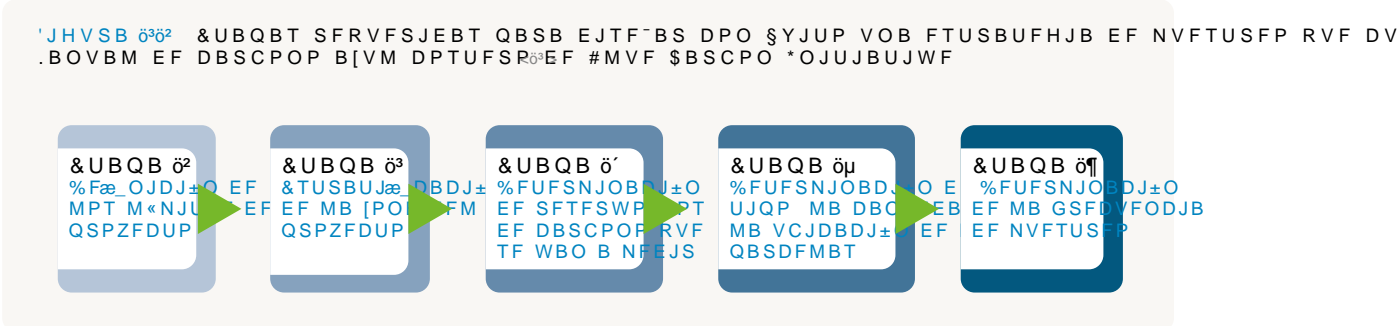
- & 7 3, \"'1# ç- #1.#!'%!'- \"# +3#120#- , ' 3,
 .0-2-!-* - \"# * -0 2-0'- #12 *#!'\"- . 0 \"#1 00-** 0
 2-\"-1 *-1 .0-7#!2-1 \"# ! 0 -, - 83*... , #!-1'12#+
 \"# ! 0 -, - 83* .3#\"# 1#0 \"# #1.#!' * ',2#0•1 . 0 #
 \"#1 00-* - \"# .0-7#!2-1 !-,20 * #0-1'À, !. !#1 \"#
 %0 ,2'8 0 * #12 '!'\" \"# * 1 0#1#04 1„ +'# ,20 1
 -20-1 #!-1'12#+ 1 .3#\"# , 2# , #0 3, %0 , .-2#,'! *
 . 0 \$-+#,2 0 * #%'!#,'! \"# ! .230 \"# ! 0 -, -...
 - (#2'4-1 \"\$#0#,2#1„ *-1 . 0m+#20-1 #12'+ \"-1 7

* % & / 5 * ' * \$ " \$ * ' / % & - " - \$ " / \$ & % & -
1 3 0 : & \$ 5 0 : 1 - " / % & . 6 & 4 5 3 & 0

"#%','!À,!* 0 "# *-1 - (#2'4-1 "#* .0-7#!2- OJDJ±O EFM BMD BODF Z
!-,12'237# 3, \$ 1# '+.-02 ,2# "#* MPT M«NJU EF MB [PO EF FM MPT PCKFUJWPT EFM QSPZFDUP
%o'!'!À,... -1 .0-.À1'2-1,, *-1 - (#2'4-1 7 *-1 0#!301-1
"1.-,'*#1 "#* .0-7#!2- "#2#0+', 0m, *-1 "#0m+Q, "# *-1 - (#2'4-1 "#* .0-7#!2- #1 '+.-0
20-1 #12'+ "-1,, *-1 0#1#04-0'-1 "# ! 02-,2#3#01##* "#1 00-**- "# * #120 2#%' "# +3#12
"# #, +#"0,, #* *!,!# %#-%0m%o'!- 7 2#0.#0*-"#1* .0#!'1- #12 *#!#0 !* 0 +#,2# #12-1
+3#120 1 7 * #6& 312'4'" "#* +3#120#2'430 72#-1 .0-.À1'2-1 ,2#1 "# #+.#8 0 "1#0
.* ,'%o'!'!À,, #1 .0#!'1- 0#1.#2 0 3, 1#02#+"#2+3#120 1... %o'%30 ;: +3#120 * 1 #2
*À%!'! 1,, /3# ',!*37#,† 0#/3#0" 1 . 0 "1#0 !- ,•6'2- 3, #120 2#%' "#
+3#120#- /3# !3+.* !-, *-1 - (#2'4-1 "#* .0-7#!2-...

- *-1 - (#2'4-1 7 #* *!,!# "#* .0-7#!2-†
- * #120 2#%' "# 2-+ "# +3#120 1 1- 0# #* 2#00#,-†

! #* ,m*'1'1 "# * 1 +3#120 1 #, #* * -0 2-0'-†
" #* ,m*'1'1 #12 "12'!- 7 * ',2#0.0#2 !'À, "# 0#13*2 OE
"-1 . 0 2-" * 8-, "#* .0-7#!2-...



&UBQB ö² -«NJUFT EFM QSPZFDUP

!- #0230 #1. !' * "#* .0-7#!2- 1# "#%o',#* # 1 020 02#0"12'! 1 %o'1'!-/3"+! 1 7 "# 1 *3"
"# *-1 - (#2'4-1 "# #12# 7 *-1 0#!301-13#13# "# #1, #3'0 #, #** ... -1 "+2#1, - "# #0",
.3# "# #1#0 "# #1! * 4 0' *#... , #!-1'12#+"% "# d1QCE3, 4#8 ! 02-%0 %o' "-1† , - - 12 ,2#,, 1
-, - 83* .3# "# #12 0 "'120' 3'" - "# \$-0.#0#,-2'03 0# *'8 0 ! + '-1,, #12-1 "# #0m, "-!3+#,0
\$ 0 %+#,2 " .-0 3, 8-, "# % 0 , 13.#0%0'0'##..%o'1#*Q#CE# . 0 /3# * 1 #12'+ !'-, #1 "# 0#1#
!'1- ! 02-%0 %o' 0 7 "#%o',0 !* 0 +#,2# "#-1 0"†,2#12 !†,1 "# ! .230 .3#", (312 01# * 1
, \$-0+ !'À, 0#* 2'4 * *!,!# ",2#0E0- "#.#%o'!-'!-',#1 "# * 8-, ...
!'-,#1 (- * 1 !3 *#1 1# "#1 00-** #* #!-1'12#+ ... -1
+ . 1 "# #, 0#!-%#0 2-" * ', \$-0+ !'À, "'1.-,'*#
!#0! "# 13 "'120' 3!'À, œ!-,2',3 - \$ 0 %+#,2 " •

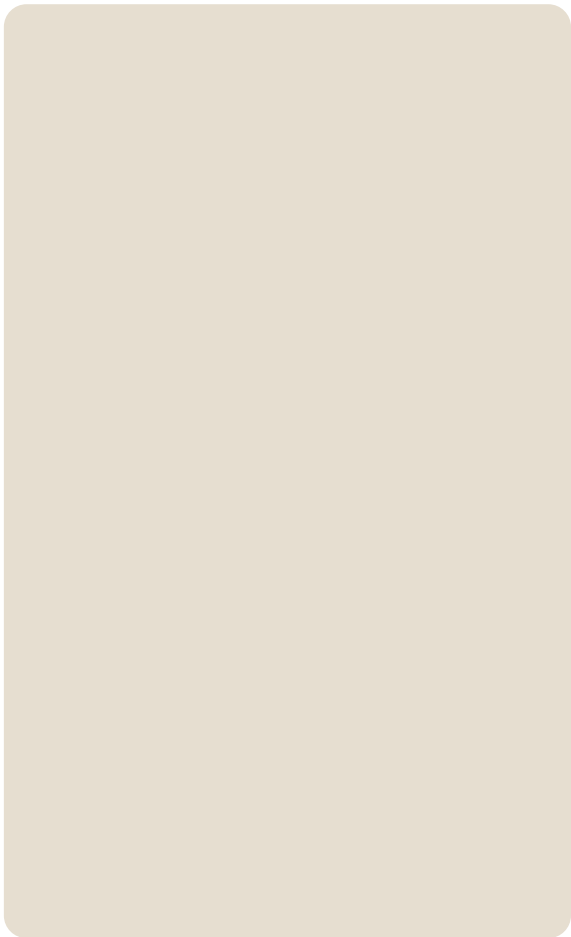


084 B0Næ DBDJ±OCK , "0À0 DEjBMÑ

&UBQB ö³ &TUSBUJæ_DBDJ±O EF MB [POB EF NVFTUŠFP

#120 2'%'! !'À, #1 * !* 1'%'! !'À, "# 3, m0# "#
+3#120#- #, 8-, 1 - #120 2-1 "# ! @E!2#0`12! 1 1'+
* 0#1... # 32'*'8 . 0 0#"3!'0 *-1 !-12#1 "# +3#120#-.,
7 /3# * 1 0#1#04 1 13 2#00m,# 1 "# ! 0 -, - 1-,
&-+-%•,# 1... , 4#8 "#%' ,'" #* m0# "# +3#120#-.,
.3#"# " 0 !-+'#,#8- * #120 2'%'! !'À,, !-,1'12#,2#
#, %03. 0 #, #120 2-1 /3#** 1 8-, 1 !-, 0#1#04 1
"# ! 0 -, - 1'+* 0#1... ' , - 1# !-, -!#, * 1 0#1#04 1
0# *#1 "# ! 0 -, - #, * 8-, ,, *-1 #120 2-1 .3#"# ,
"#%' , '01# . 02'0 "# *-1 \$!2-0#1 /3# ',f37# , #,
* 1 0#1#04 1,, # (... , * .0-\$3, "" " , * 2#+.#0 230
"#* %3 ,, * 1 ! 0 !2#0`12! 1 "#* 13120 2- œ0-!-1- -
0#,-1-•,, * #6.-1'!'À, * -*# (#, *-1 ,320'#,2#1,, *-1
, '4#*#1 "# 1#"'+# ,2 !'À, 7 * 2#+.#0 230 "#* %3
[69-71]. ', #+ 0%-,, #1 .0#!'1- *! ,8 0 3, #/3'*' 0'-
,20# #* ,ë+#0- "# #120 2-1 "#%' ,'-1 7 *-1 0#!301-1 7
#* 2'#+.- "'1.- [65].*#1

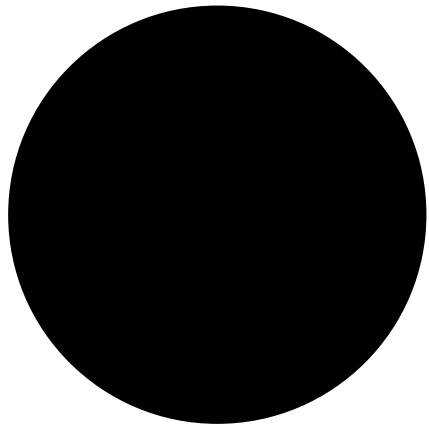
, \$!2-0 !* 0- /3# 13#*# 31 01# . 0 #120 2'%'! 0
+ 0'1+ 1 !-12#0 1 0 "'! #, * !-+3, "' " 4#%#2 * ,
7 /3# 13#*# #12 0 "#2#0+', " .-œ *%3, 1 !-, "'
!'- ,#1 +#"'- + '# ,2 *#1 /3# !-',!' "#, !-, * 1 /3#
0'%, * !3+3* !'À, "# ! 0 -, -... -0+ *+# ,2#,, #1
.-1' *# "#2#0+', 0 !-, \$!*' " 20#1 m0# 1 . 02'0 "#
13 !-+3, "' " 4#%#2 † œ:• + 0'1+ *2 ,, !-, * +#,-0
,f3# ,!' + 0# * † œ;• + 0'1+ +#" ' , /3# #1 * 8-,
,3, " " #, + 0# *2 † 7 œ<• + 0'1+ (,, #, !37
13.#0%'! '# #* 13#*- 1# + ,2'# ,# .#0+ ,# ,2#+# ,2#
1 230 "- "# %3 ... 1 .0 "#0 1 + 0', 1 1# 13#*# ,



4F OPT IB FODBSHBEP MB SFBMJ[BDJ±O EFM JO
EF SFTFSWBT EF DBSCPOP Z UBTBT EF DBQUVS
TVQFSæ_DJF %BEP RVF UFOFNPT RVF FTUJNBS
DBOUJEBEFT SFUOJEBT Z DVŸOUP TF IB DBQU
FO MBT ,MUJNBT EŞDBEBT Z OP SFTVMUB JOG
NFOUF SFMFWBOUF MB UBTB EF DBQUVSB BDUV
QVFEF OP TFS SFQSFTFOUBUJWB EF MB UBTB N
DBQUVSB EFM FDPTJTUFNB UFOESFNPT RVF F
O,DMFPT Z EBUBSMPT QBSB EFEVDJS MB UBTB
BDSFDJ±O IB DBi-ç` UBTB M QBÂP` EBUBSMp
M ð FNB ð FYUS @ BÂPBTB Rðïð`Z-ç« UFOESFNJS
æÉ½À EBUBSMPT QBªZ FYUS EBUBSMHZà i@ð0FT
O,DME* ¢Épñ° UFOESFN-±D EF UFOESFH@FK- U
O,DMEMBUFOESFN@ *ð`±/ UFOESFN@ ÿïð UFOE
UFOESF P• EBUBSM ð þý QB æO
EFð UFOESF MBþý QB æO
ð UFOESF MB UFOESFN@ O,DM@@ EF EBUBSM
0@ @çý BªÉð UFOESF MBæBUFOESF EF ò O,DMEMB

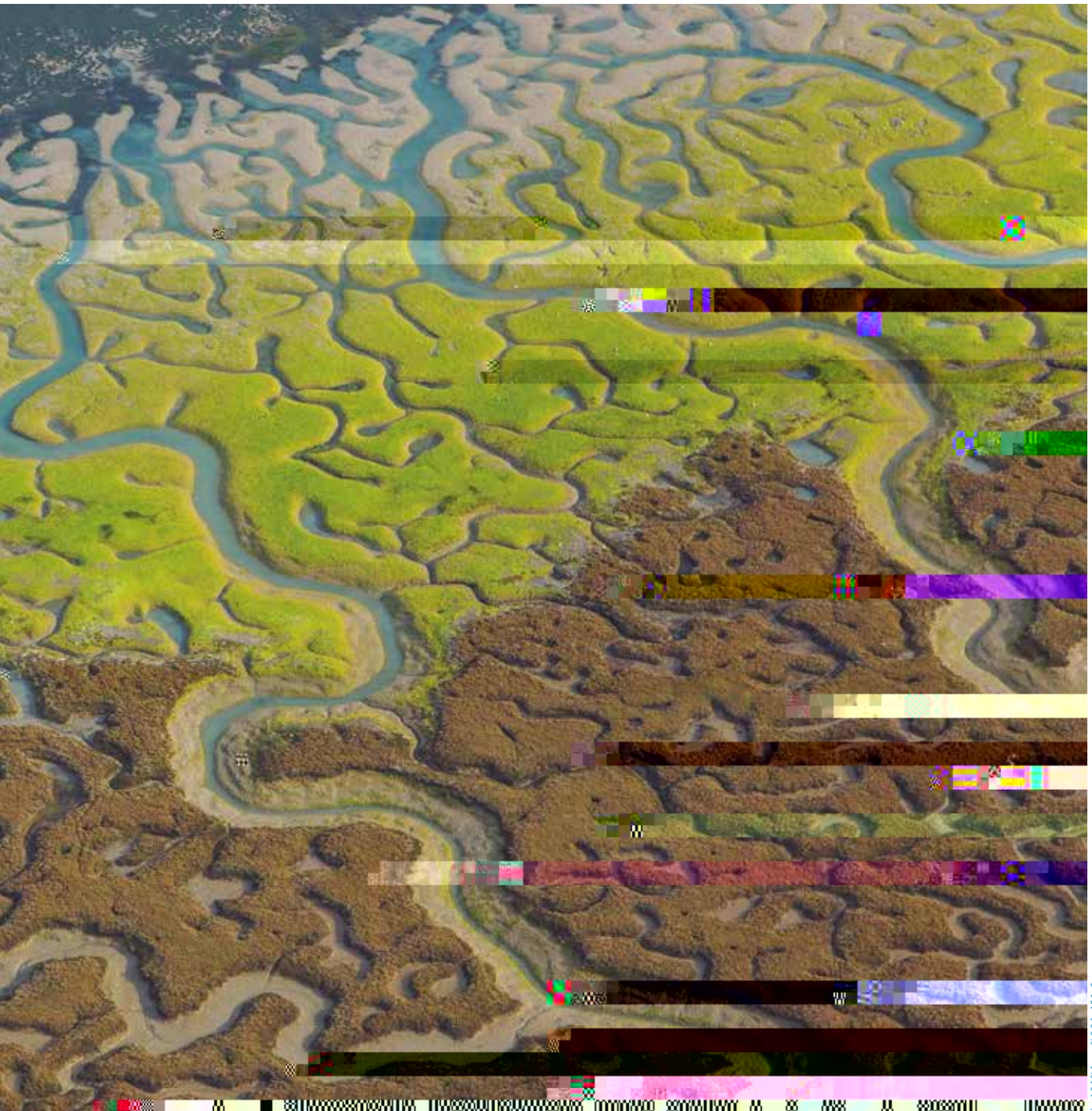
./6*- 1*3* -* \$3&*S**/ %&





CAPÍTULO 6:





./6"- 1"3" -" \$3&"S"/ %&



U\$DOJDBT EF UFMFEFUFDDJ±O

&O MB ,MUJNB E\$DBEB TF IBO EFTBSSPMMBEP U\$DOJDBT OP
EFTUSVDUJWBT BQMJD BCMFT FO EJWFSTBT FUBQBT EF MPT QSP
DFTPT EF FTUJNBDJ±O EF SFTFSWBT EF DBSCPOP B[VM RVF
DPOUSJCVZFO B EJTNJOVJS MPT DPTUFT Z B SFEVDJS FM JNQBDUP
OFHBUJWP EFM QSPZFDUP <TDCSF>FM FDPTJTUFNB

\$BSUPHSBG«B &O MPT ,MUJNPT B`PT TF FTUŸ JNQMFNFO
UBOEP DPO \$YJUP FM VTP EF ESPOFT Z TPGUXBSF -J%"3
RVF QFSNJUFO PCUFOFS NBQBT EF BMUB QSF DJTJ±O B
DPTUFT NVZ CBKPT 4F QVF EFO VUJMJ[BS EJWFSTBT U\$DOJDBT
EF UFMFEFUFDDJ±O QBSB FWBMVBS MB EJTUSJCVDJ±O EF VO
FDPTJTUFNB -B U\$DOJDB EF UFMFEFUFDDJ±O NŸT FNQMFEBE
QBSB DBSUPHSBæ_BS QSB EFSBT NBSJOB T MB HFOFSBDJ±O EF
JNŸHFOFT NVMUJFTQFDUSBMFT RVF QSPDFTBO JNŸHFOFT
EF TBU\$MJUF QBSB DPODFS MBT FTQFDJFT EPNJOB OUF T Z FM
QPSDFOUBKF EF DPCFSUVSB EF VOB [POB FO DPODSFUP -B
DBMJEBE EF MPT NBQBT HFOFSBEPT NFEJBOUF FTUB U\$DOJDB
IB NFKPSBEP DPO FM EFTBSSPMMPT EF OVFWBT U\$DOJDBT EF
QSPDFTBNJFOUP E-564 NŸHFOFT EP DPN,O
QBSB DBSUPHSBæ_BS NBSJTNT TMBEBT TPO MPT NBQBT
EF FMFWBDJ±O RVF DPNCJOB O EBUPT EF FMFWBDJ±O EFM
UFSSFOP DPO MBT BNQMJUVEFT EF MBT NBSFBT QBSB PCUFOFS
MB EJTUSJCVDJ±O QPUFODJBM EF VOB NBSJTNT TMBEB
<ô'ô>B EJTUSJCVDJ±O QPUFODJBM TF QVFEF DPUFKBS DPO
JNŸHFOFT EF TBU\$MJUF QBSB PCUFOFS MB EJTUSJCVDJ±O æ_OBM
EFM FDPTJTUFNB &TUF FOGPRVF SFTVMUB FTQFDJBMNFOUF
JOUFSFTBOUF QPSRVF QFSNJUF FTUSVDUVSBS MBT NBSJTNT
FO EJWJTJPOFT BMUBT NFEJBT Z CBKBT RVF TVFMFO DPSSFT
QPOEFSTF DPO FTUSBUPT FO QSPZFDUPT EF DBSCPOP B[VM
QBSB NBSJTNT TMBEBT

4FHVJNJFOUP -BT JNŸHFOFT EF TBU\$MJUF P JOGSBSSPKBT
QPS UFMFEFUFDDJ±O QVF EFO VUJMJ[BSTF QBSB SFBMJ[BS FM
TFHVJNJFOUP EF MB DPCFSUVSB EFM UFSSFOP P MPT DBNCJPT
FO MB DPCFSUVSB EF MBT QSB EFSBT NBSJOB T -BT WBSJBDJPOFT
FO MBT DPNVOJEBEFT WFHFUBMFT QVF EFO NPEJæ_DBDJPOFT
FO MBT DPOEJDJPOFT EFM FDPTJTUFNB P BQVOUBS B VOB SFT
QVFTUB FDPTJTU\$NJDB B MBT BDUJWJEBEFT BOUS±QJDBT

&TUJNBDJPOFT EF DBSCPOP FO FM TVFMP -B UFDOPMPH«B
T«TNJDB EF SFæ FYJ±O EF BMUB SFTPMVDJ±O Z MPT NPEFMPT
NPSGPCBUJN\$USJDPT EFM GPOEP NBSJOP IBO TVQFSBEP
QSVFCBT DPO SFTVMUBEPT QSPNFUFEPSFT EF DBSB B MB FTUJ
NBDJ±O EF EF DBSCPOT EF MPT

./6"- 1"3" -" \$3&"S"/ %&

"#2#0+', !'À, "# * "#,1'" " . 0#,2# "#* 13#*-
7 #* ð 'À, 0 00 120 0 '"#*'"2"p 0 00* "#,7 #*` ð 1A '2# 0À pã'À"%À ð
#0"0 004#+* 1"0 p 00 !'2#0 2V0À!# 0 ... ' ĐÓ Â Â #3#Đ0 ð #* ' "# 1#0"0Ó p #* ð Đ 0





' ,1#02 0 3, 23 - "# +#2 * "# :,> + œ"#Paso-8 :> ++ "#
" 'm+#20-• !-, 3, .#0,- "# ! 00- #/3'. "-23# .0#2 0
#, #* #620#+- "# 4 ,!#... * 23 - 1# !*3# "# \$-0+
. 0 *#* * ,3!*# "-0 "# & 12 /3# 1#0#2#20#
* ,4#* "# * . 02# ', \$#0'-0 "#* ,ë!*#- 10#2- ,!#1,, 1#
1 ! #* 23 - 3, -1 !# ,2"+#20-1 . 0 /3# 2#2# #*
. #0,- "# ! 00-‡ #12# 1# /3#" #, #* 13# 7 .#0+'2#
/3# #* %3 .0#1# ,2# #, * . 02# ', \$#0#0 "#* ,ë!*#-
.3#" 0-+.#0 * -*1 "# %3 μ '0#... #12# +-"-,,
0#13*2 +m1 1# ,!***- #620 #0 #* ,3!*# "-0

Paso 6

2#0
\$3#
\$2#
A
P
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E
E
o

Paso 7

, +#" ' 2 +#,2# "#1.3•1 "# #620 #0 #* ,3!*# "-0,,
"# # 2 . 01# 7 1#** 01# !-, !',2 .-0 13 . 02# ', \$#0'-0...



./6*- 1*3* -* \$3&*S**/ %&



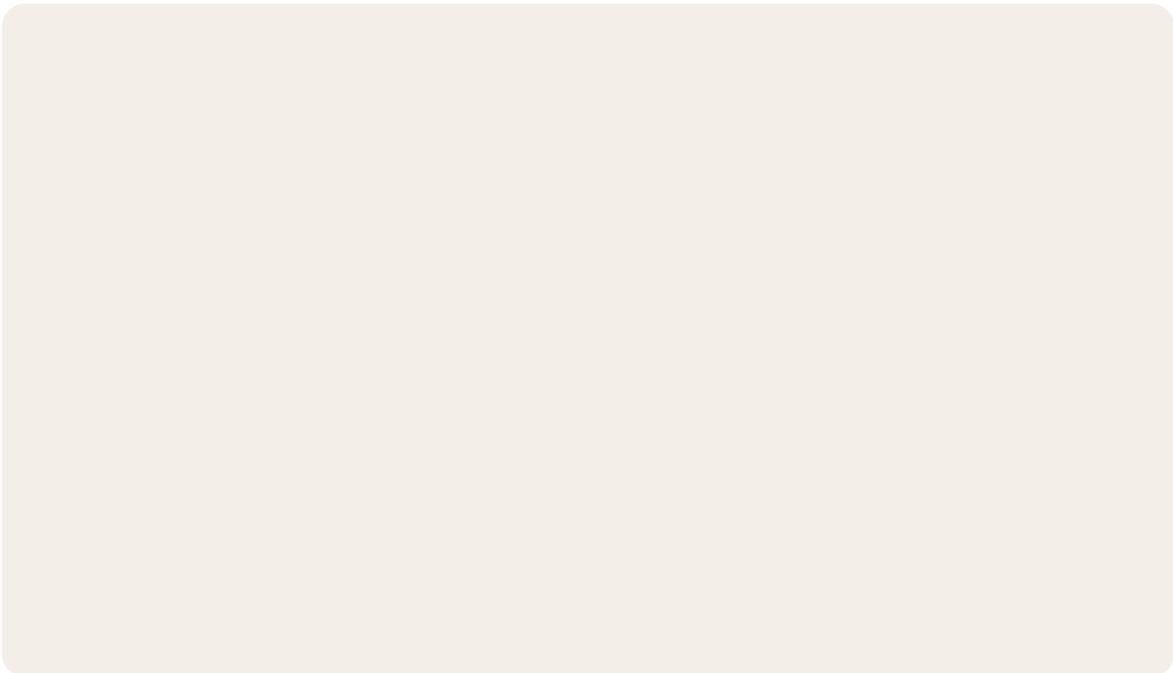
, #* * -0 2-0'-,, #* 13 +3#120#- 1# 0# *'8.0!+#0CE "'4'1'Ä,, 1# 1'%3# #* .0-!#1- 1'%3'
! ,"- *-1 ,ë!*#-1 &-0'8-,2 *+#,2# 7 !-02 ,"- #*
, "-1 +'2 "#1 '%3 *#1 !-, 73" "#03, 1'#00
!'0!3* 0 - 3, !'8 ** #*!20! ... # 32'*'8 3, %3" "#
+ "#0 - "# +#2 * . 0 1#%30 01# "# /3# * &-(
1-*-.#,#20# #, * ! 0! 1 "# œ7 , - #, #* ,ë!*#-•
7 0# *'!# 3, !-02# #, *",# 0#!2 .-0 ! " * "- "#*
,3!*# "-0 "# ... !-,2',3 !'Ä,, .3#"# 32'*'8 01#
3, !3!&'**-%' * "- 3 -1!' * ,2# . 0 !-02 0 * 1 3, '-œ
,#1 #,20# * 1 "-1 +'2 "#1 "#* ,3!*# "-0 "# . 0
1` \$-0+ 0 "-1 +'2 "#1,, /3# 1# "#,-+', , ç"'4'1'-œ
,#1£ - ç&#+',ë!*#-1£...

, "# * 1 "'4'1'-,#1 "# # "'4'"'01# #, ',2#04 *-1 "#
+3#120#-,, !-, * 0# *'8 !'Ä, "# 3, 0#%'120- \$-2-%0m%o'!-
"# * 1 "'4'1'-,#1‡ * -20 .3#"# *+ !#, 01# !-,%#œ
* " # \$#!2-1 "# 0# \$#0#,! ' - ,m*'1'1 \$3230-...

2 1 "# !0#!'À, "# 1#"'+#,2-1,,#!#1 0' . 0
 "#3!'0 * 1 2 1 1 "# !.230 "# ! 0 -,- #, #* 13#*-,,
 .3#"# #12'+ 01# . 02'0 "# *-1 +'10E-1 ,ë!*#-1 32'*'
 8 "-1 . 0 +#"0 * "#,1'" " . 0#,2# 7 #* !-,2#,'"-
 "# ! 0 -,- ‡ . 0 #**-, #1 .0#!'1- " 2 0 #* + 2#0' * "#*
 ,ë!*#- #, !3#12'À,, .-0 #(#+.*-, +#"',2# +•2--1 "#
 datación con⁹ - ≈ [22,32]... 12 1#0 * ë,'! -.!'À,
 #, ! 1- "# /3# #* .0-7#!2- "# #12'+ 0 2 1 1 ,2#0'-CE
 0#1 "# !0#!'À, #, 3, 8-, "# * /3# ,- 1# "'1.-,#
 ', \$-0+ !'À, .0#4' ... ', #+ 0%-, #12 1 +#2--*-%" 1
 "# " 2 !'À, "# 1#"'+#,2-1 13#*#, 1#0 !-12-1 1...

2#0, 2'4 +#,2#, 1# & 32''8 "- !-, •6'2- #* +•2--
 "# &-0'8-,2# "# 0#\$#0#,!' !-, 2 * 1 "# #*#4

Đ 0 0 ð 0 @ À A - 0 # 1 " 0 ° Đ 1 A - ð



12# 2•0+!',- & !# 0#\$#0#,!' * "#,1'" "#*
13120 2-,, 7 1# #12'+ . 02'0 "#* .#1- #, 1#!- "# 3,
4-*3+#, !-,-'!'"- "# 13120 2-...

1. '#, 1# *#4 ,2 ',2 !2- "#* ,ë!*#- #* ',2#04 *-
#,2#0- "# +3#120 + 0! "-,, - 1# .3#"# ',1#02 0 3,
(#0',% 0#!-02 " #, #* !#,20- "# * 1 13 +3#120 1 7
!-* -! 01# #, 3, 0#!'. '#,2# 2 0 "- 7 #2'/3#2 "-...
+3#120 .3#"# #62#, "#01# . 0 \$!*'2 0 #* .0-!#1-
"# 1#! "-...

2. 1 +3#120 1 1# "#(, 1#! 0 #, 3, &-0,- ?9 Á
& 12 /3# 1# *! ,!# 3, .#1- !-,12 ,2# œ* 1 2#+.#œ
0 2301 *2 1 .3#"# , .0-4-! 0 * .•0"" "# + 2#0'
-0%m, '! .-0 -6'" !'À,•... # 0#!-+'#," 3, .0-!#1-
"# *'-%o'*'8 !'À, . 0 * 1 +3#120 1 !-, *2- !-,2#, '-
#, 0!'** ,, /3# \$!*'2 13 .-12#0'-0 "'1%0#% !'À, ... *
.#1- %o', * "# # 0#%'120 01# !-+- #* .#1- 1#!- "# *
+3#120 ...



&RVJQBNJFOUP OFDFTBSJP

Ý#ÿTDVMB DPO EPT P USFT DJGSBT EFDJNBMFT
Q FK QBSB ö² H QSFDJTJ±O BM ö²ö± ö± ö² H
QSFDJTJ±O BM ö² ö± ö±ö² H QSFDJTJ±O BM
ö± ö² ö± ö±ö±ö² H
Ý\$SJTPMFT EF UBNB`P BQSPQJBEP QBSB MBT
NVFTUSBT OVNFSBEPT Z UBSBEPT
Ý%FTFDBEPS DPO HFM EF T«MJDF Q,SQVSB TJ FT
CMBODP NFUF SMP FO FM IPSOP EVSBOUF TFJT
IPSBT B ö²ö±ö¶ n\$ QBSB TFDBSMP æ_H ö²öµ
Ý)PSOP EF TFDBEP B ö-ö± n\$

./6*- 1*3* -* \$3&*S**/ %&

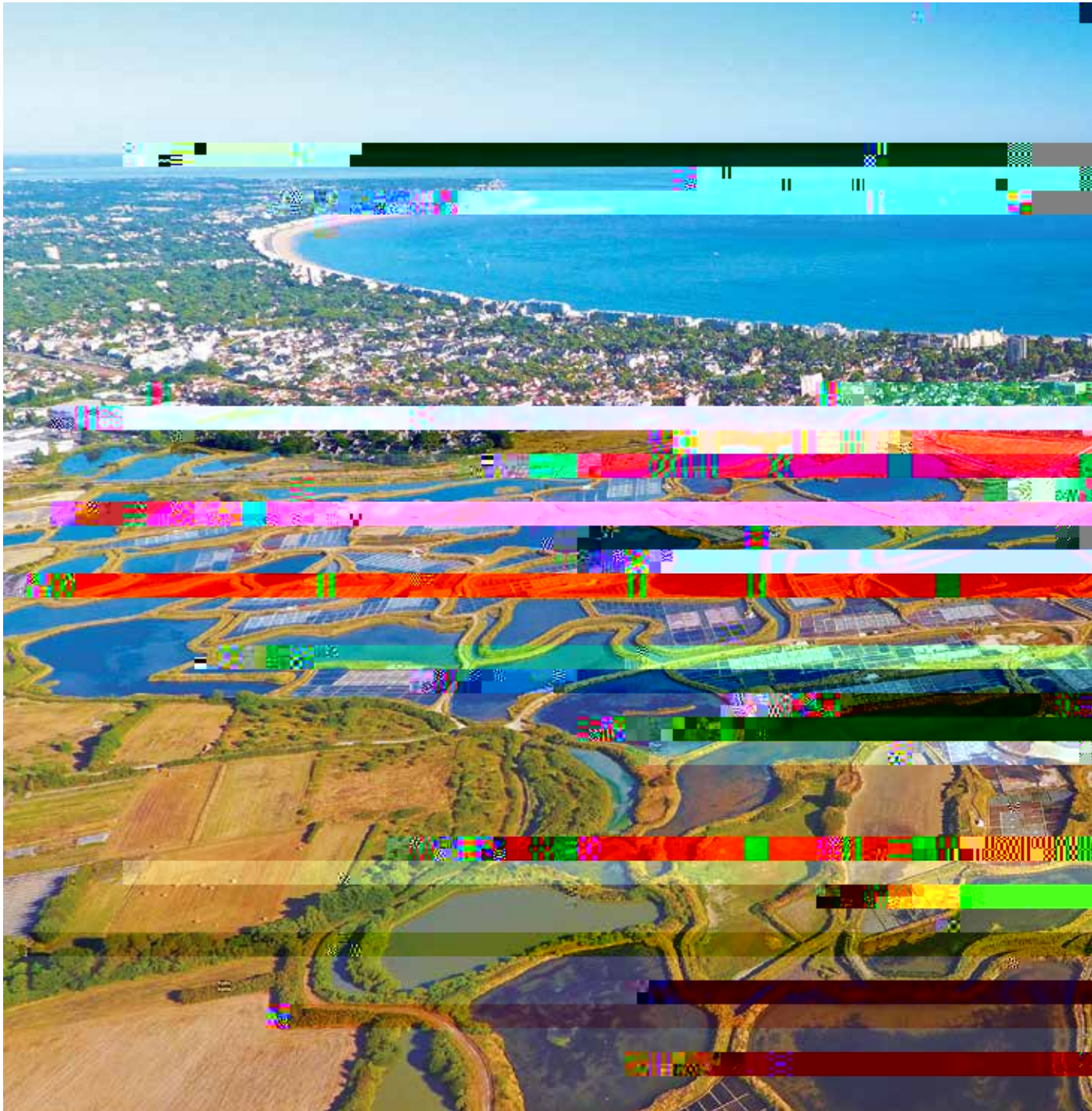


Preparación de muestras para análisis elemental

1. . 02# "# * +3#120 &-+-%#,#'8 " „ "#1! 00
-, 2 " 7 1#! " #, #* &-0,- 1# !-*! #, 3,
!m.13* "# #12 ç-.0#4' +#,2# 2 0 " ... ! ,2
#6 !2 1# "# # !-,4#,'0 !-, #* -.#0 "-0 "#* 32
, *'8 "-0,, 7 .3#"# 1#0 ,#!#1 0'- %-2 0 +3#12
.0#*'+', 0#1 . 0 "#2#0+', 0 #* !-,2#,'"- "#
! 0 -,- "# * 1 +3#120 1...
2. . 02# 13.#0'-0 "# * !m.13* "# #12 ç- /3#
2'#,# * +3#120 1# "- * "-1 4#!#1 7 1# !-+.
. 0 #4'2 0 /3# & 7 .3,2 1 %'0' " 1 /3# 1# .3
/3#" 0 #,% ,!& " 1 #, #* 32- , *'8 "-0...
3. # 43#*4# .#1 0 * !m.13* „ 1# !-*! #, 3, . * !
"# B? .-!'** -1 7 1# ',20-"3!# #, 3, "#1#! "-0 œ%0'%'... <;•...
4. # , -2 #* ,ë+#0- "#* .-!'**-, #* ' "#,2%'0!' "-0 "# *
+3#120 7 #* .#1- "# #12 œ#* .#1- 2-2 * "# * !m.13*
"# #12 ç- 7 * +3#120 +#, -1 #* .#1- "# * !m.13*
7 #* .#1- -0%' , * "# * +3#120 œ0#4'- * !'%'0'
!!'À,•...
5. 1 +3#120 1 7 #12m, *'12 1 . 0 13 20 ,1\$#0#,!'
3, * -0 2-0'- #1.#!' *'8 "- . 0 **#4 0 ! - #*
,m*'1'1 #*#+#,2 *...

&RVJQBNJFOUP OFDFTBSJP
ÿ²NJDSPCYTDVMB
Ý\$ÿQTVMBT QSFOTBEBT EF FTUB`P
ö. • öµ NN P ö¹ • ö¶ NN
ÿ±SDFQT
Ý&TQÿUVMB SFTVMUBO UJMFT MBT E
DVDIBSB DVSWB
ÿ#MPRVF QSFUBMBESBER EF 17\$ QBS
TVKFUBS MB DÿQTVMB EF FTUB`P
DPO VO PSJæ_DJP EF ö, P öº NN
ÿ1MBDB EF öö. QPDJMMP†

CAPÍTULO 7:





1 #6'12#,!' 1 2-2 *#1 "# ! 0 -, - "#* 13# Pas#2. #* m0#
"# 3, .0-7#!2- 1# "#2#0+', , . 02'0 "# * Existencias de carbono orgánico del suelo de cada
! 0 -, - .0#1#,2# #, 3, 8-, !-,!0#2 3, #10-CE
\$3,"" " "#%',' " ... 1",, 1# - 2#,"0m, # 3, #1- !-, #1 "#
* 1 0#1#04 1 "# ! 0 -, - . 0 #* #123"-2, #* "#
1# #, * 8-, "#* .0-7#!2- œ4• 1# * 1 #10#0, !-00#1 CE
.-,"#,2# * !3 ,2'%!! !'À, "# #+'1'-, #1 #10#0 #,
1'23 !'À, "# .0-7#!2-•... # !3#0"- !0#10#0 1-1 /3#
"#2 * #* Manual de carbono azul costero, 1# ,#!#3, #*
, \$-0+ !'À, 1'%3'#,2# . 0 !*!3* 0 * !, #10#0" 2-2 * "#
! 0 -, - "#* 13#*- #, #* m0# "# 3, .0-7#!2- +

- 8#
- 8#8#2#
- 8#
- 8#

- 8#
- 8#0
- 8#

3072#
9#

0%±

Paso 1.

Densidad de carbono del suelo: 1# ! *!3* . 0 ! "
1#!!'À, "# *-1 ,ë!*#-1 ', "4'"3 *#1 !-, 00#%*- *
1'%3'#,2# \$À0+3* †

EFOTJE BE EF DBSCPOP FO FM TV FEM P
EFOTJE BE BQBSFOUF TFD B DPO DPSSFDJ±O EF H DN, 02ö±ö±

SFTFSWBT EF DBSCPOP PSHÿOJDP EFM TV
FO MB TFDDJ±O EFM DN DMFP H \$

EFOTJE BE EF DBSCPOP PSHÿOJDP EFM TVFMP
H \$ DN• HSPTPS EF MB TFDDJ±O EFM O, DMFP DP
DPSSFDJ±O EF DPNQSFTJ±O DN

Paso 3.

Existencias de carbono en cada núcleo. 1 .0#!'1-
0#.#2'0 #* . 1- ; . 0 !" 1#!!'À, "# ,ë!*#- 7 13+ 0
! 1 4 -0#1... ' # ,ë!*#- , - *! ,8 * .0-\$3,"" " ,#!:
1 0' œ,-0+ *+#,2# "# : +•, 1# +.*' 0m * "#,1'" "#
! 0 -, - 2'0 4 -0 .-0 #620 .-* !'À, "# * .0-\$3,"" "
!-, 4 *-0#1 *', # *+#,2# ',2#%0 "-1 "# #6'12#,!' 1 ! 13
+3* 2'4 1 "# ! 0 -, - 0% Este proceso no es
compatible con el método de muestra única œ4• 1# #*
! . "23*- 0#* 2'4- * 20 2 +'#,2- "# ,ë!*#-1 "# 13#*-•

Paso 4.

Convertir las existencias de carbono del núcleo * 1
3,"" "#1 /3# 1# 32*'8 , #, * *'2#0 230 œ1' #1 , #
0'-•, #:(-... ,%2&&

FYJTUFODJBT EF DBSCPOP
FO DBEB O, DMFP U IB

FYJTUFODJBT EF DBSCPOP
FO FM O, DMFP, ö2ö± DN

Paso 5.

Calcular la media y la desviación estándar de las existencias de carbono para cada estrato

Paso 7.

0 ', \$-0+ 0 * ', !#02'"3+ 0# 0#* 2'4 * 1 0#1#0
! *!3* " 1 "# ! 0 -, - . 0 #* m0# "# +3#120 ,, #* .
> 1# 0#.'2# . 0 ! " #120 2- 7 1# 03*2'.*! #* 0#
2 "- .-0 #* m0# "#* #120 2- † *-1 4 *-0#1 0#13*2
#6'12#,!' 1 "# ! 0 -, - .-0 m0# 1# 13+ , . 0 - 2#0
,#0 * 1 !\$0 1 2-2 *#1 "# ! 0 -, - #, #* #-1'12#+ ..

Paso 6.

Existencias de carbono por área de muestra: * 13+
2-2 * "# *-1 .0-"3!2-1,, .-0 ! " #120 2-,, "# * +#" " #
#6'12#,!' 1 "# ! 0 -, - .-0 m0# 1# 13+ , . 0 - 2#0



&YJTUFODJBT EF DBSCPOP
QPS ŸSFB EF NVFTUSB ½ÀQPS n-Đđ0 M Utc Vi%9Öf•gÄf', •Vi 7 10 bU` %VÁf• %V p, %V 4" 7
EF
NFEJB EF FYJTUFODJBT EF DBSCPOP FO FM
E E EF
FTUSBUP ö² • ŸSFB EFM FTUSBUP ö² NFEJB
EF FYJTUFODJBT EF DBSCPOP FO FM FTUSBUP
ö³ • ŸSFB EFM FTUSBUP ö³ ö» NFEJB EF
FYJTUFODJBT EF DBSCPOP FO FM FTUSBUP O •
ŸSFB EFM FTUSBUP O

-- 1# "#1!0' 'À ,2#0'-0+#,2#,, * 1 #+'1'-,#1 #, *
1'23 !'À, "# 1# œ1', 1'23 !'À, "# œ0-7#!2-• 1# 20'
37#, *-1 ! + '-1 #, * 1 0#1#04 1 "# ! 0 -, - #,
0#1#04-0'-1 "# * '-+ 1 ,, .0-!#1-1 "#* 13#*- - 3,
!-+ ', !'À, "# + -1... , #* ! 1- "# * 1 œ "#0 1 + 0'
, 1 7 *-1 &3+#" *#1 !-12#0-1,, * 2 1 "# ! .230 "# ! 0 œ
-, - - f3(- "# ! 0 -, - 1# #6.0#1 #, 3," "#1 "# + 1
.0 3,' " " "# 13.#0%!!'# 7 2'#+. œœœ..... #(...,, : 2 &

2009
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CE

./6"- 1"3" -" \$3&"\$"/ %&

"# .0-7#!2-1 (312'%' /3#, #* 31- "ante3 */3'#0 proxy

■

■

■

■

Datos recogidos sobre el terreno

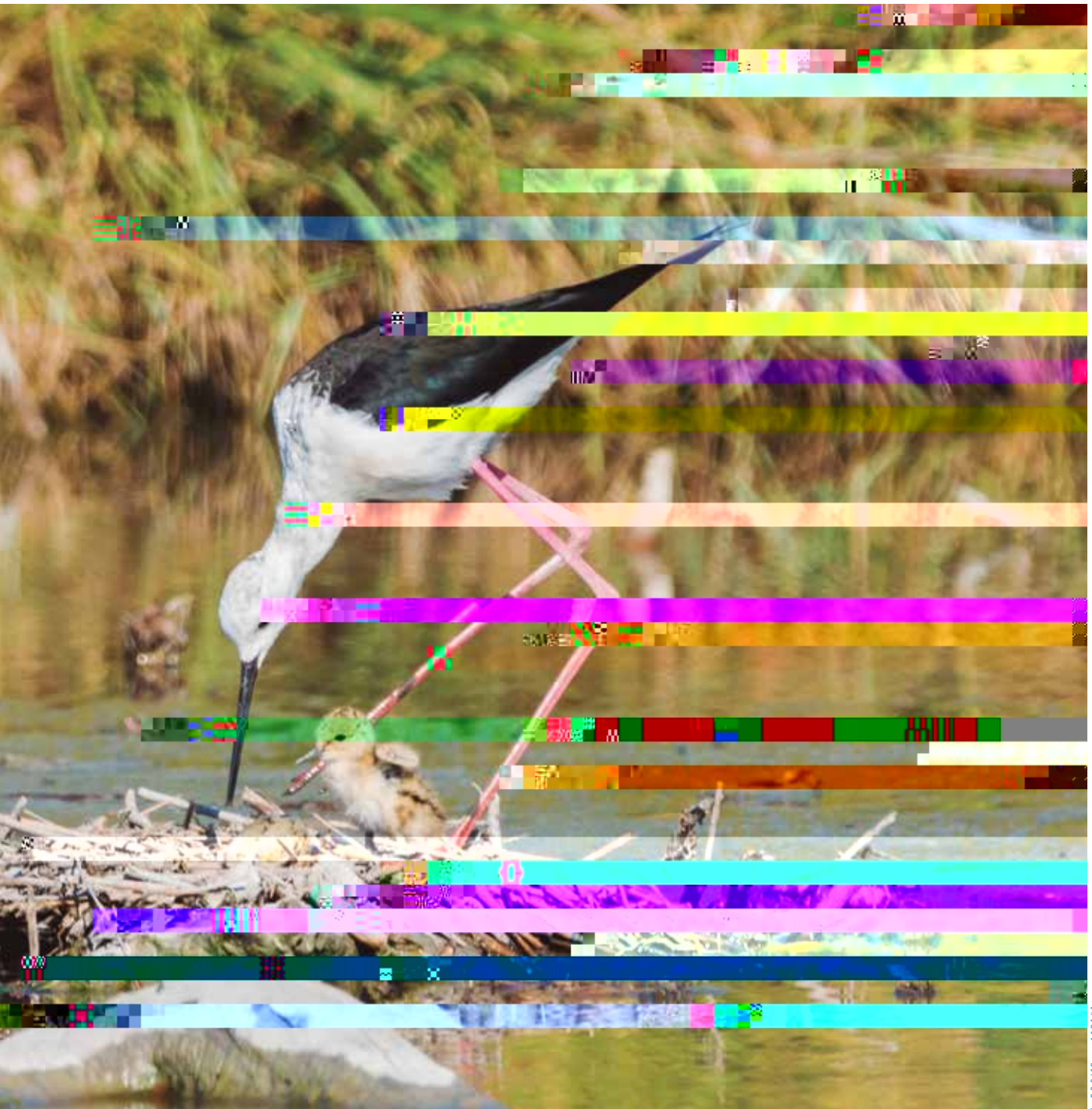
12-1 \$!2-0#1 .-0 "\$\$#!2- .3#"#, 13 #12'+ 0 - 1- 0#1 OE
2'+ 0 *-1 #,%%'!'-1 ,#2-1 "# † .-0 2 ,2-„ #1 0#!-+#, OE
" *# /3# *-1 .0-7#!2-1 #\$\$!2ë#, +#" " 1 "'0#!2 1 "#



CAPÍTULO 8:

3 & 4 5 " 6 3 " \$ * ' / % & 4 * 4 5 & . " 4
% & \$ " 3 # 0 / 0 " ; 6 -





0#12 30 !'À, #-1'12•+!' #1 3, .-"#0-1 � CE
+'#,2 . 0 0#!3.#0 0 #-1'12#+ 1 /3# 1# & , .#0""-
- /3# & , 1'"- "#1203'"-1,, (3,2- !-, *-1 1#04!'!'-1 /3#
.0#12 , * +#"'-... -1 +#0! "-1 "# ! 0 -, - -\$0#!#,
3, \$3#,2# "# ',%0#1-1 . 0 %o', ,!' 0 * 0#12 30 !'À,
"# #-1'12#+ 1 /3#,, !-+- * 1 + 0'1+ 1 1 * " 1 7 * 1
.0 "#0 1 + 0', 1,, \$-+#,2 , * #'+'₂,de'À, "#

2.0

2.

2.0.0

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0.0

0.0.0.0#

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0.0.0.0#

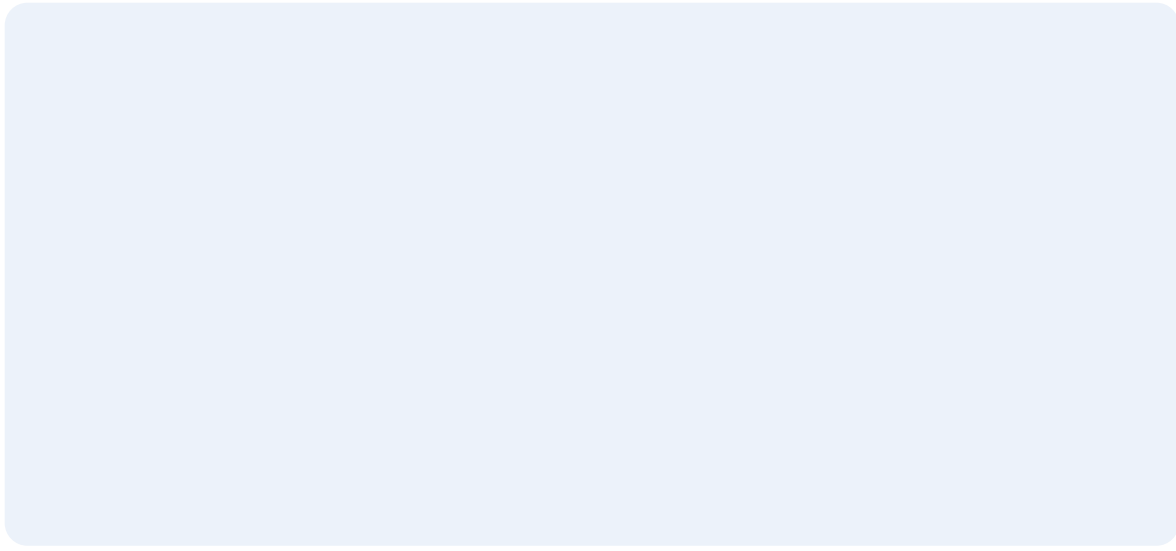
0.0



!-,2',3 !'À, 1# .0-.-,# 3, #,\$-/3# . 1- . 1-
#38
#3
#8
23#
[89, 91, 92].

#%'!'!À, "#.0-À1'2-1 7 - (#2'4-1

12 \$ 1# 0#/3'#0# * '"#,2'%!'!À, "#* - (#2'4- '-OE
*À%'!- œ#1.#!'# - !-+3,'" "• /3# 1# "#1# 0#12 30 0
7 #* !-,1'%3'#,2# .0-!#1- "# \$ +'*' 0'8 !'À, !-, 131
! 0 !2#0"12'! 1 '-*À%'! 1 7 #!-*À%'! 1 %#,#0 *#1...
+ '•, \$-0+ . 02# "# #12 #2 . * ,##1'" " "#
"#%' , '0 #* 2'.- "# ',2#04#,!'-,#1 7 #* 1#04'!'- #!-1'12•OE
+!'- #, #* /3# 1# !#,20 0m,... , #* OE 1- "# *-1 .0-7#!
2-1 "# ! 0 -, - 83*, #1 .0#!'1- "#!* 0 0 7 "%%' , '0 "#
/3• 2'.- "# .0-7#!2- 1# 20 2 œ4• 1# * 1#!!'À, ,2#OE
0'-0•,, ',!*37#,"- *-1 .0-À1'2-1,, *-1 - (#2'4-1 !-02- 7
* 0%- .* 8- 7 *-1 !0'2#0'-1 "# •6'2-...





h. 7' 83.4050 7:26&: 1.1.: 450\$. 1)050

-BT TBMJOB TPO VCJDBDJPOFT QPUFODJBMFT QBSB QSPZFDUPT EF SFTUBVSDJ±O EF IVNFEBM

***NQMFNF OUBDJ±O EF MB SFTUBVSDJ±O
Z VTP EF MB HFTUJ±O BEBQUBUJWB**

Ejecución

1 * #2 . #, * /3# 1# **#4 , ! - * 1 !!'-, #1 "#
 0#12 30 !'À, ... -" 1 * 1 +#"!'-, #1 0#* 2'4 1 !-, "
 !'-, #1 .0#4' 1 "#* #!-1'12#+ "# #, 0# '*8 01# ,2#1
 "# * #(!3!'À, ... 1 '+.-02 ,2# !-, -!#0 * 1 2 0# 1 "#
 13.#04'1'À, /3# "# #0m, **#4 01# ! - #, #* \$3230-
 . 0 1#%30 01# "# '+.*#+#, 2 0 2-" #1203!230 -
 !!'À, ,#!#1 0' "30 ,2# #12 \$ 1#...

Supervisión a largo plazo

\$ 1# "# 13.#04'1'À, .#0+'2# !-+.0- 0 #* '+. !2-
 7 #* .-2#, !' * #6'2- "#* .0-7#!2-... ' , - 1# & , *! ,œ
 8 "- *-1 - (#2'4-1 "#* .0-7#!2-, #1 .-1' *# /3# 1# ,
 ,#!#1 0' 1 *%3, 1 !-00#!!'-, #1 "#1.3•1 "# * \$ 1#
 "# #(!3!'À, , !-+- * 0#.* ,2 !'À, "# 1#+'* 1 - *
 #6! 4 !'À, "# ,3#4-1 ! , *#1... * .0-œ0 + "# 1#%3'
 +'#,2- .#0+'2# "'#,2'%!' 0 #12# 2' .- "# ,#!#1'" "#1...
 -1 .* ,#1 "# 1#%3'+ '#,2-, ... #(...Đ p 0Àâ0À°À ðP 0 "#1...
 -1 .0 " À ÆðÇ 0à 2 0Đ -1 - (#2'4 0





-BT QSB EFSBT NBSJOB T- "4 & 41 & \$ * & 4 % & - "4 & 41 & \$ * & 4 % &
 UBO VOB TFHVOEB DPM \$ 3 & \$ * . * & /50 - & /50 \$ 3 & \$ * . * & /50 - & /50
 EF FOUPS OPT NBSJOPT T P S F Q P S U B O U B N C J S O P O G P S N B O M B T Q S B E F S B T N Y T
 EF Q M B O U B T U F S S F T U S F Q P S V O R V F U B T P D P M P O B S T E F S B T O U F T T P O M B T N Y T
 U P E P T F M M P T I B O E F T B S S M M O L E B S Y Q J E B N F O Q S P E V D U J W B T Z B D V N V M B O M B T
 N F D B O J T N P T T J N J M B S F Y S F B T D V Z B T D B S B D U F S W Z P S F B T S F T F S W B T E F D B S C P O P
 B E B Q U B D J ± O B M F O U P S O P E N N B S N O P F O U B M F T T P O T U B T F T Q F D J F T D S F D F O B V O S J U N P
 N V F T U S B O V O B H S B O W B S W F S B C M F T Q B S B F M D S Z D M N O B O U P Q S F T F O U B O V O C B O D P
 F T U S B U F H J B T W J U B M F T E Z S F S B S F S B T N B S J O B T E Z T P O J M M B T N V Z S F E V D J E P P
 U J W B T % F T E F F M Q V O U P S E N F W B T U P V F B Q B S F D O V M F T Q B S F T U B V S B D J ± O Q B T J W B
 E F M B H F T U J ± O F D P T J T E S N W O B S P T F T P E F E F H S B M B T J Q S B E F S B T E F D S F D J N J F O U P
 Q P T J C M F J E F O U J æ _ D B S E S P T E M H V Q P T S B O E F T D B O U E P E F F W F E J æ _ D V M U B E B Q P S M B
 E F F T Q F D J F T M B T E F D S F D J N J M M B T F O D P N Q S B K B J O T B E F D P M P O J [B D J ± O E F
 S Y Q J E P Z M B T E F D S F D J N J M M B T F T Q F D J F T E F D S F D J N J F O U P J F T 1 P S M P H F O F S B M
 M F Q U J P M F O U P Z T P O M B T R V F N Y F M F F T F S O F D F T B S J P D P N C J O B S
 C F O F æ _ D J B O E F M B T F T U S B O F B B B T Q B F J W B T Z B D U J W B T E F
 S F T U B V S B D J ± O Q B T J W B S F P U B V S B O B K O T - P T Q S P Z F D U P T E F
 E F S F W F H F U B D J ± O D P O S C S M F H F S B D J ± O D P O F T U B T F T Q F D J F T
 N B S J O B T E F D S F D J N J F O U P V I F S Y Q J E P T B S T F F O D P O E F U B T B p y F
 T V F M F O B Q P Z B S T F F O M F L E C T Q P S T J Q E O E F p y E F B O ð Z C æ á y ð 0 -
 E F M B T T F N J M M B T & O & V S P Q B F M
 H S O F S P E F D S F D J N J F O U P S Y Q J E P
 N Y T F Y U F O E B E F F R I F
 T F E J T U S J C V Z F Q P S U P E B M B D P T U B
 E F M " U M Y O U J D P Z F M N B S # Y M U J D P M F
 T J H S E N P E P D R E B F F T N V Z
 B C V O E B O U F F O F M . F E J U F S S Y O F P

1 #6.#0'#,!' 1 "# 0#12 30 !'À, "# .0 "#0 1 + 0', 1

./6"- 1"3" -" \$3&"S"/ %&



5§DOJDBT CBTBEBT FO TFNJMMBT

- Siembra por voleo: # 1 2 # + • 2 - " - ! - , 1 ' 1 2 # # , *
" ' 1 . # 0 1 ' Ä , * ' 0 # " # 1 # + ' * * 1 + , - - . - 0 + # " ' - 1
+ # ! m , ' ! [1].
- Siembra asistida con boyas: 1 # 2 0 2 " # * 0 # ! - % ' "
7 1 3 1 . # , 1 ' Ä , ! - , 7 3 " " # - 7 1 " # 0 - 2 # 1 + " 3 Œ
0 - 1 # , \$ 1 # 0 # . 0 - " 3 ! 2 ' 4 . - 0 # , ! ' + " # * 8 - , " #
0 # 1 2 3 0 ! ' Ä , ... 1 2 # + • 2 - " - . 3 # " # . * ! 0 1 # 8 - , 1
" # % 0 , 1 3 . # 0 % ' ! ' # , , % 0 , 2 ' 8 3 , 0 à # 0 0 2 ' 3 " Ä ð 0 # . 0 / 0 ' * - / - - " 0 ' à 1

4JFNCSB BTJTUEB DPO CPZBT



4JFNCSB QPS JOZFDDJ±O



1MÿOUVMBT JEP OJB P FFB ØMDØSPZFDUP j#PTRVF NBSJOPY EF 3FE &MŞDUSJDB FO .BMMPSDB &TQB`B

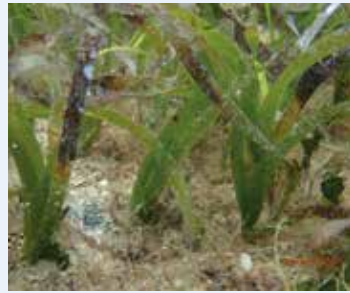
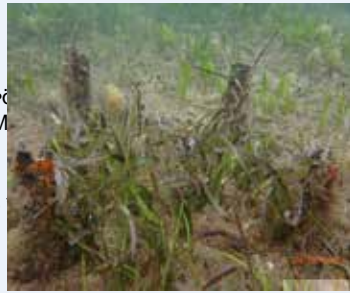
ö³ö±ö²ö¹
öµ QB SDFMBT öµö±•
ö²ö. QMÿOUVMBT
QPS QB SDFMB

5"4" % & 461&37*7&/S
ö³ö±ö²öº ö¶ö¶ o ö²öµ
ö³ö±ö³ö± ö¶ö¶ o ö²öµ



ö³ö±ö²öº Z ö³ö±ö³ö±
öº QB SDFMBT öµö±•
ö² ö'ö³ ö-öµ QMÿOUVMB
QB SDFMB

5"4" % & 461&37*7&/S
ö³ö±ö³ö± öµö³ o ö³ö´



5ŞDOJDBT EF USBTQMBOUF

& .3#12- #, .0m!2'! 3, +.*' 4 0'# bcañita +# 2206, 00-(,"- 0#13*2 "-1 #1.#0 ,8 "-0#1,,
"-1 "# ,!* (#, ',!*37#,"- #* 31- "# %0 .1#,0- 12'&0,#32'*'8 "- #, 13.#0%!!'#1 +m1 0#"3!" 1
!* 4-1 "# & '#00- - .#1-1... 12 1 #6.0E0'#1## & #p#102,0" #D' 0300,2 #4 3, .#0"- "- "# 2'#+ .€ - ,8
+#,2# * 1 0#* '!-, " 1 !-, * 1 * -0#1 "# 0#12 30 !'À,
de Posidonia oceanica, !-, 3, (.0-"3!!'À, "#
1#+!*** 1,, .3,2 , /3# *-1 \$0 %+#,2-1 "# 0'8-+ 1 .0#CE
1#,2 , 3, + 7-0 2 1 "# 13.#04'4#,!' /3# * 1 .*m,CE
23* 1... 7 +3!& 1 4 0' *#1 /3# .3#"#, "#1#+.#ç 0
3, '+.-02 ,2# . .#* #, #* .0-!#1- "# #,0 '8 +'#,2- 7
#, #* 0#,"'+# ,2- "# 3, 20 1.* ,2# œ.... #(..., #* 13120 2-, * 1
2•!,! 1,, * &'"0-"',m+'! ,, #2!...•... + '•, .3#"# ',f3'0
#* "#1.* 8 +'#,2- "# * 1 � +'#,2 1 ! 31 "# *
"',m+'! "#* %3 ,, *- !3 * .3#"# !-,20' 3'0 "#1#12 CE
'*8 0 #* .0-!#1- "# #,0938 +'#,2-

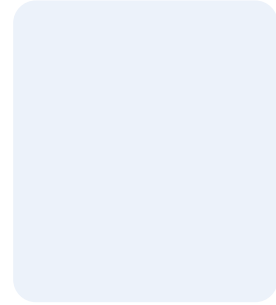
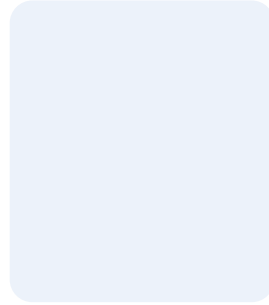
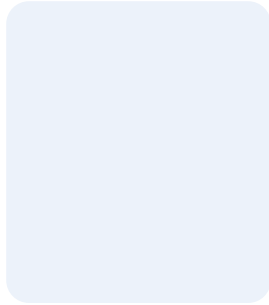
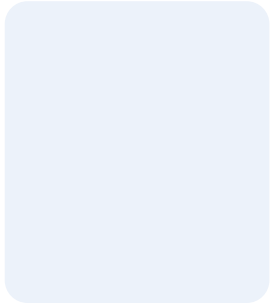
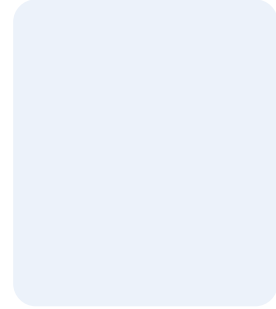
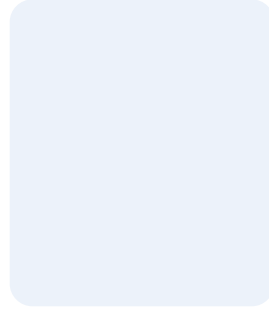
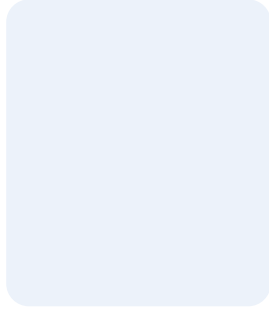
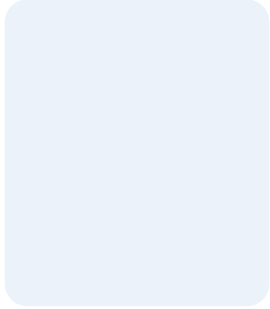
##

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[114]. 20-1 +•2-"-1 ',4#12'% "-1 #, + 2 "# Posidonia

5§DOJDBT EF USBTQMBOUF

1SPZFDUP -JGF 4&10440 4†0ÄÄ'-Ä"25



3FWFHFUBDJ±O EF VOB QSB EFSB EF
1PTJEPOJB PDBOBDV EFKB
FM UFOEJEP EF DBCMFT FM\$DUSJDPT

&M UFOEJEP EF DBCMFT FM\$DUSJDPT FOUF EPT JTMET
QSJODJQBMFT EFM BSDIJQJ\$MBHP CBMFBS EFUF\$JPS± VOB
QSB EFSB PTEFEPOJB PDBOBDV EFKB
EPT MBSHBT GSBOKBT EF MFDIP NBSJOP EFTOVEP -B
QSPNPUPSB æ_OBODJ± VO QSPZFDUF EF 3FWFHFUBDJ±O
QBSB SFTUBVSBS MB [POB BGF DUBEB

\$PNP VOJEBEFT EF USBTQMBOUF TF VUJMJ[BSPO GSBHFO
UPT EF SJ[PNBT OBUVSBMNFOUF EFTQSF OEJEPT EF MB QSB
EFSB Z GSVUPT SFDPHJEPT EFM BSSJCS[±O EF MBT QMBZBT Z
DVMUJWBEP FO UBORVFT EF BHVB TRMBEB EF FTUF NPEP
GVF EPOBOUF MB QSPQJB QSB EFSB RVF VFC<B SFTURYSBSTF
QPS MP RVF MB SFDPHJEB EF MBT VOJEBEFT EF USBTQMBOUF
OP UVWP VO FGFDUP OFHBUJWP TPCSE FM MB -BT GSBHNFO
UPT EF SJ[PNBT Z MBT QMÏOUVMBT TF BODMBSPO FO MPT
TFEJNFOUPT &TUF FOGPRVF QFSNJUJ± BMUBT UBTBT EF
TVQFSWJWFODJB FO NBOPT EF VO B P

'VFOUF 3FE &M\$DUSJDB EF &TQB`B *OTUJUVUP .FEJUFSSÏOFF EF
&TUVEJPT *WBO[BEPT \$4*\$ 6*#



6*6*

3FWFHFUBDJ±O EF EPT I@

4F SFTUBVSBSPO EPT IFDUÏSFBT EF QSB EFSB EFHS
EF1PTJEPOJB PDBOBDV EFKB EF 1PMMFOÏB
.BMMPSDB TF USBU± EFM QSNFNS JOUFOUF EF SF
VOB FYUFOTJ±O UBOTBBOQJB RBFBOJDB

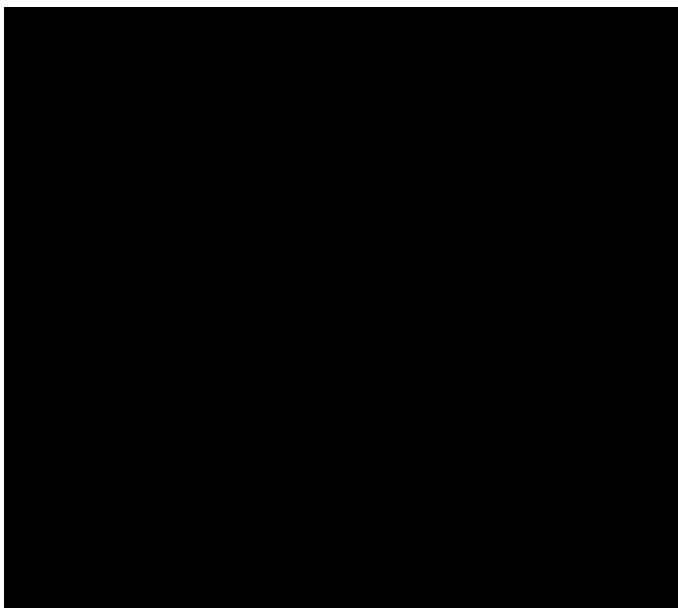
\$PNP VOJEBEFT EF USBTQMBOUF TF VUJMJ[BSPO G
NFOUPT EF SJ[PNBT OBUVSBMNFOUF EFTQSF OEJEPT
MB QSB EFSB RVF GVFSPO BODMBEPT BM TVTUSBUP
EF TVQFSWJWFODJB TVQFS± FM ø%± -BT DPOEJDP
SFTHVSEBEBT EF MB [POB QFSNJUFO RVF MB QSB E
SFTJDPGYJBMUJPSNFOWJDNCSHPEB
W<B OP TF IBO DPNQSPCBEP MPT FGFDUPT QPTJUJ
MBSHP QMB[P EF MBS SFTUBVSBDJ±O

'VFOUF 3FE &M\$DUSJDB EF &TQB`B *OTUJUVUP .FEJUFSSÏOFF
&TUVEJPT *WBO[BEPT \$POTFKFS<B EF .FEJP *NCJFOUF Z 5FSSJ
*TMBT #BMFBSFT Z *FS±ESP NP .JMUBS EF 1PMMFOÏB



, % #, #0 * ,, * 1 * -0#1 "# 0#12 30 !'À, "# *-1 &3+#œ
" *#1 !-12#0-1 !-+.0#,"#, * % #12'À, "#!3 " "# * 1
+ 0'1+ 1 #6'12#,2#1,, * ',20-"3!!'À, "# *#%'1* !'À,
#,! +', " .0-2%#0 *-1 &m '2 21 "# '+.-02 ,!'
#!-*À%!' ,, * 0#"3!!'À, "#* "#1 00-**- #6& 312'4- *-
* 0%- "# * !-12 7 * 0#12 30 !'À, .0-. ' +#,2# "'!&
"# * 1 + 0'1+ 1 " ¿ " 1... 1'+1+,-, * .0#1#04 !'À,
"# * 1 2'#00 1 (1 "7 !#,2#1 .#0+'2# * 1 + 0'1+ 1
" .2 01# 7 +'%'0 0 & !' #* ',2#0'-0 . 0 1- 0#4'4'0 *
!0#!'" "#* ',4#* "#* + 0...

, * !23 *'" " ,, * 1 2•!,! 1 "# 0#12 30 !'À, . 0
&3+#" *#1 !-12#0-1 œ',!*3'" 1 * 1 + 0'1+ 1 7 *-1 . .,œ
2 , -1 1 * "-1• 1-, +m1 4 ,8 " 1 /3# * 1 /3# #6'12#,
. 0 -20-1 2'-.1 "# &m '2 21 + 0',-1 - #123 0',-1...
-+- 1# +#,!'-,À ,2#0'-0+#,2#,, "30 ,2# * .0#. œ
0 !'À, "# 3, .0-7#!2- "# ! 0 -,- 83*,, #1 '+.-02 ,2#
!-,1'"#0 0 "#2#,' " +#,2# !'À- 0'-0'8 0, * 1#*#!'À,
"# 3 '!!'-, #1 . 0 * -0#1 "# 0#12 30 !'À, "# + 0'1œ
+ 1 1 * " 1 œ.... # (...,, .0-. '# " ,, 0#1œ0!!!'-, #1 &"0-*À%'
! 1,, .0#1#,!' "# #1.#!#1 4#%#2 *#1 ',4 1'4 1,, &'12-0' *
"# + 2#0' *#1 "# "0 % "- 7 -20-1 4#02'" -1,, 31- "# *-1
2#00#,-1 "7 !#,2#1,, ,#!#1'" "#1 "# * 1 !-+3,' " "#1
*-!ð * 810, 0100!-# ð #05 03 òp'À 4 , *23#10, 4Z #!1A-*& Òp0À" œ7 # 0% 0P p-+3" " @&-2# ,, % 00Àà

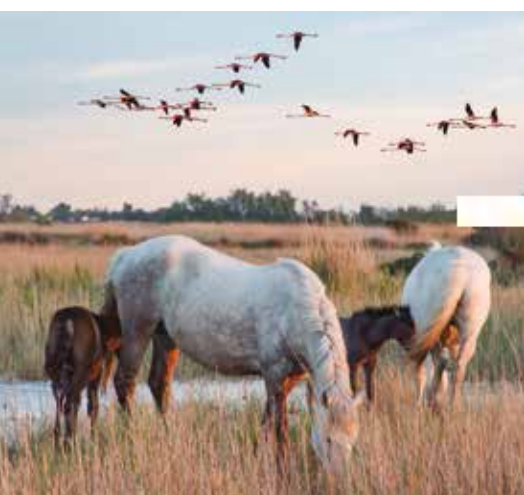


&MJNJOBBDJ±O EF NBUFSJBMFT EFB ESBHBEP FO NBSJTNBT TBMDEBT Z SFTUBVSDJ±O EF TVFMPT

* "0#, "- "# * 1 + 0'1+ 1 1 * " 1 \$ 4-0#1\$ #02'±!" "#* 13#*- 7 #0-1'À,• - "#E -7- œ... #(
2 !'À, "# 131 13#*-1± 1,, .-12#0'-0+#,2#1'À# 0#12m02, 2112#00#120#*...
'f3#,!' 1 + 0# *#1,, * 8-, .3#"# /3#" 0 ',3," " "
.3#12- /3# *-1 13#*-1 #12m, +#, -1 *#*4 "-9 /%#0, 24# 0 3, !-*, '8 !'À, 4#%#2 * #6'2-1 ,
"# "0#, 01#... -0 #12# +-2'4-, #1 ,#!œ1 0 3#"# "#1#0'0#!'1- !-,20-* 0 * #0-1'À,, ç "'0
2 +#,2# 1#"'+#,2-1 - \$-+#,2 0 13 "#.-1'!'A,20,2#0#1.. - .* ,2 0 #1.#!'#1 "# !0#!'+#,2- 0m.'
-0 -20- * "-, #1 .-1' *# /3# * !*" " "#* /3#*!2è#1#!-+- ç!3 '#02 £ +'#,20 1 * 1 #1.#!'#1
* "#!3 " . 0 1312#,2 0 * !-+3," " 4#%#2!'+#02- *#,2- 4, !-*, '8 ,"- * 8-, ... "#+m1,,
*- /3# .3#"# 1#0 ,#!#1 0'- ç "'0 ,320'#,21#1 "#+2#0' #04'1 0 *# "#1 00-**- "# * !-+3," "
-0%m,'! ... 4#%#2 * #, * 8-, 0#12 30 " . 0 eliminar las
especies invasivas,, % 0 ,2'8 0 * '-"4#01'" " "# * 1
* 3+#,2- "# * !0#!'À, "# 1#"'+#,2-1 .-0 +#0'1+#1* 1 * " 1,, 1312#,2 0 3, #!-1'12#+ 1 , - 7
#*'+', !'À, "# "'/3#1 - * *#*4 !'À, "# * 13!#020'1*#0*#* '+. !2- "# *-1 ,'+ *#1 "# . 12-0#-...
13#*- !-, + 2#0' * "# "0 % "- #, -20 1 8-, 1 1-, .-1' *#1
!2'4'" "#1 /3# .-2#,!' , * ! .230 "# ! 0 -,-1. 4 ,!#1 +m1 0#!'#,2#1 #, *-1 "'1#ç-1 "# *-1 2
.* ,2#1 1# .-7 , #, !-, -!'+'#,2-1 "# ',%#,'#0" ,
[106,107]. * 2'#+.- /3# * !-,!'#,!' !'À, 7 * 0#0#1#,œ
2 !'À, "# * 1 !-, "'!'-, #1 *-! *#1 .3#"#, 3+#,2 0 *#
•6'2- "# *-1 .0-%0 + 1 "# 0#12 30 !'À, , '4#* . 1
' 3, 0#12 30 !'À, , - 1# 20 "3!# #, 3, d#4#%#2 !'À, #(#+.*-.. 0 "#2#0+', " 1 !-, "'!'-, #1,,
, 230 *, .3#"# 1#0 ,#!#1 0'- .* ,2 0 .0-#%3*-1#7 #1203!230 1 '-"#%0 " *#1 .3#"# \$-+#,
.* ,2 1 . 0 \$ 4-0#!#0 * 0#!3.#0 !'À, 7 *# #12 *#œ+'#,2- "# . 0! "# 4#%#2 !'À, . 0
!'+'#,2- "# !-+3," "#1 4#%#2 *#1 *-! *#20 3, * 4#81, +#(-0 0 *# f3(- 7 * #,#0%" &'0-',
0#12 30 " 1 1 !-, "'!'-, #1 &'0-À%!' 1 7"#*# 13#*1.7 #12 '*8 0 7 !3+3* 0 1#"'+#,2-1,, *
'+.-02 ,2# 2#, #0 #, !3#,2 /3# * 0#4#%#2'!'À#, ,3,1-+-7-0 13.#04'4#,!' 7 œE +#(-0 !0#!'
0#!3.#0 * '-"4#01'" " , 1', - /3# 2 + '•,+'#1#37#"# .#/3#ç-1 0-2#1 #, * 1 + 0'1+ 1 1 * " 1,,
#, * 0#12 30 !'À, "# *-1 1#04!'-1 #!-1'2 2#+'!-#... * 1-1' *'" " "# - 2#, #0 3, .0-%0 + "#
. * ,2 1 %#, #0 , ! + '-1 #, * 2-.-%0 %~ ,0#12 #00,4#ÀE +m1 0m.'!-...
2 !'À,, * .0#1#,!' "# -6"%#, - - #* *+ !#, +'#,2- "#

1MBOUBDJ±O Z SFWFHFUBDJ±O

' 3, 0#12 30 !'À, , - 1# 20 "3!# #, 3, d#4#%#2 !'À, #(#+.*-.. 0 "#2#0+', " 1 !-, "'!'-, #1,,
, 230 *, .3#"# 1#0 ,#!#1 0'- .* ,2 0 .0-#%3*-1#7 #1203!230 1 '-"#%0 " *#1 .3#"# \$-+#,
.* ,2 1 . 0 \$ 4-0#!#0 * 0#!3.#0 !'À, 7 *# #12 *#œ+'#,2- "# . 0! "# 4#%#2 !'À, . 0
!'+'#,2- "# !-+3," "#1 4#%#2 *#1 *-! *#20 3, * 4#81, +#(-0 0 *# f3(- 7 * #,#0%" &'0-',
0#12 30 " 1 1 !-, "'!'-, #1 &'0-À%!' 1 7"#*# 13#*1.7 #12 '*8 0 7 !3+3* 0 1#"'+#,2-1,, *
'+.-02 ,2# 2#, #0 #, !3#,2 /3# * 0#4#%#2'!'À#, ,3,1-+-7-0 13.#04'4#,!' 7 œE +#(-0 !0#!'
0#!3.#0 * '-"4#01'" " , 1', - /3# 2 + '•,+'#1#37#"# .#/3#ç-1 0-2#1 #, * 1 + 0'1+ 1 1 * " 1,,
#, * 0#12 30 !'À, "# *-1 1#04!'-1 #!-1'2 2#+'!-#... * 1-1' *'" " "# - 2#, #0 3, .0-%0 + "#
. * ,2 1 %#, #0 , ! + '-1 #, * 2-.-%0 %~ ,0#12 #00,4#ÀE +m1 0m.'!-...
2 !'À,, * .0#1#,!' "# -6"%#, - - #* *+ !#, +'#,2- "#



"VNFOUP EF MBT SFTFSWBTE EF DBSCPOP NFEJBOUF MB DPO

-BT FTQFDJFT QBTUPSFBEPSBT QVFEFO UFOFS VO JNQBUDUP OPUBCMF
EF DBSCPOP FO VOB NBSJTNB TBMDEB 1VFEO BMUFSBS MPT OJWFMF
EF DBSCPOP B FMJNJOBDEP MB CJPNBTB TVQFSæ_DJBM C BMUFSBOE
CJPNBTB IBDJB MBT SB<DFT P D NPEJæ_DBOEP MBT DPOEJDJPOFT BC
EFTDPNQPTJDJ±O Z QPS UBOUP [B5MBDBBQWUS&O EFF DBSCPOPFSFP
EF MPT BOJNBMT QVFEF DPOUSJCVJS B BVNFOUBS MBT SFTFSWBTE EF
NBEVSBT FTQFDJBMNFOUF FO BRVFM MBT DPO TVFMPT EF HSBOP æ_OP

1BSB DPOTFSWBS MBT NBSJTNBT DPTUFSBT FO VO FTUBEP JOUFSNFEJ
FTQFDJFT QBTUPSFBEPSBT PWFKBT HBOBEP WBDVOP Z QFRVF^PT IFS
DPNP MPT HBOTPT FO FM TJTUFNB EF MB NBSJTNB 4PMP QPS FM FGF
TF MPHS± BVNFOUBS FM DPOUFOJEP EF DBSCPOP QPS NFUSP DVBSBE
FTQFDJBMNFOUF FO MBT NBSJTNBT NÏT BOUJHVBT

'VFOUF (SVQP &DPM±HJDP EF \$POTFSWBBDJ±O Z \$PNVOJEBE 6OJWFSTJEBE EF (SPOJO
*OWFTUJHBDJ±O Z (FTUJ±O EF &DPTJTUFNB 6OJWFSTJEBE EF *NCFSFT (SVQP EF &D
*OTUJUVUP EF *OWFTUJHBDJPOFT .BSJOBT EF MPT 1B<TFT #BKPT



MJOiö DPOUS` @WBMZVSDFEAD`EF VO QSPUP/ P

&TUB [POB EF ö³öö- IFDUÿSFBT CPSEFB FM 1BSRVF /BUVSBM
EF MB #BI«B EF \$ÿEJ[&M ÿSFB QSPQVFTUB QBSB FM QSPZFDUP
NVFTUSB VO QSFPDVQBOUF FTUBEP EF EFHSBEBDJ±O Z VOB
BMUFSBDJ±O EF MBT NBSFBT UPEP FMMP EFCJEP B USBCBKPT
QBTBEPT QBSB NPEJæ_DBS FM QFSæ_M EFM UFSSFOP Z DBNCJPT
FO FM VTP EF MB UJFSSB QBSB EFTBSSPMMBS DVMUJWPT BHS«DPMBT

-BT BDDJPOFT DPOUFNQMBEBT QPS FM QSPZFDUP UFO«BO
DPNP PCKFUJWP NFKPSBS FM FTUBEP NFEJPNBCJFOUBM Z
PQUJNJ[BS MBT DPOEJDJPOFT QBSB MB DBQUVSB EF DBSCPOP
Z MB SFEVDDJ±O EF FNJTJPOFT EF PUSPT (&* QBSB FMMP USB
UBSPO EF SFTUBVSBS MB IJESPMMPH«B OBUVSBM Z MB NPSGMPH«B
NBSFBM EF MB [POB %F FTUF NPEP TF CVTDBC B GPNFOUBS
MB SFTUBVSBDJ±O OBUVSBM EF MBT FTQFDJFT WFHFUBMFT Z BOJ
NBMFT QSPQJBT EF MB NBSJTNB Z GBWPSFDFS FM æ`VKP OBUVSBM
EF OVUSJFOUFT QPS TV TVQFSæ_DJF MP RVF TF USBEVDJS«B
FO VOB NBZPS DBQUVSB EF DBSCPOP 4F FWBMVBSPO MBT
FNJTJPOFT Z MB DBQUVSB EF (&\$)ZO U\$SNJOPT EF \$0
/_0 UPNBOEP UBNCJ\$O FO DPÖTJEFSBDJ±O MB CJPNBTB EF
MB TVQFSæ_DJF

&M HSÿæ_DP TJHVJFOUF NVFTUSB MB FWPMVDJ±O EF MBT FNJ
TJPOFT FTUJNBEBT BDVNVMBEBT DPO FM UJFNQP EFTEF
FM FTDFOBSJP EF CBTF FO DPOUSBQPTJDJ±O B MB TJUVBDJ±O
EFSJWBEB EF MB FKFDVDJ±O EF MBT BDDJPOFT EFM QSPZFDUP Z
MB DPSSFTQPOEJFOUF SFEVDDJ±O EF FNJTJPOFT

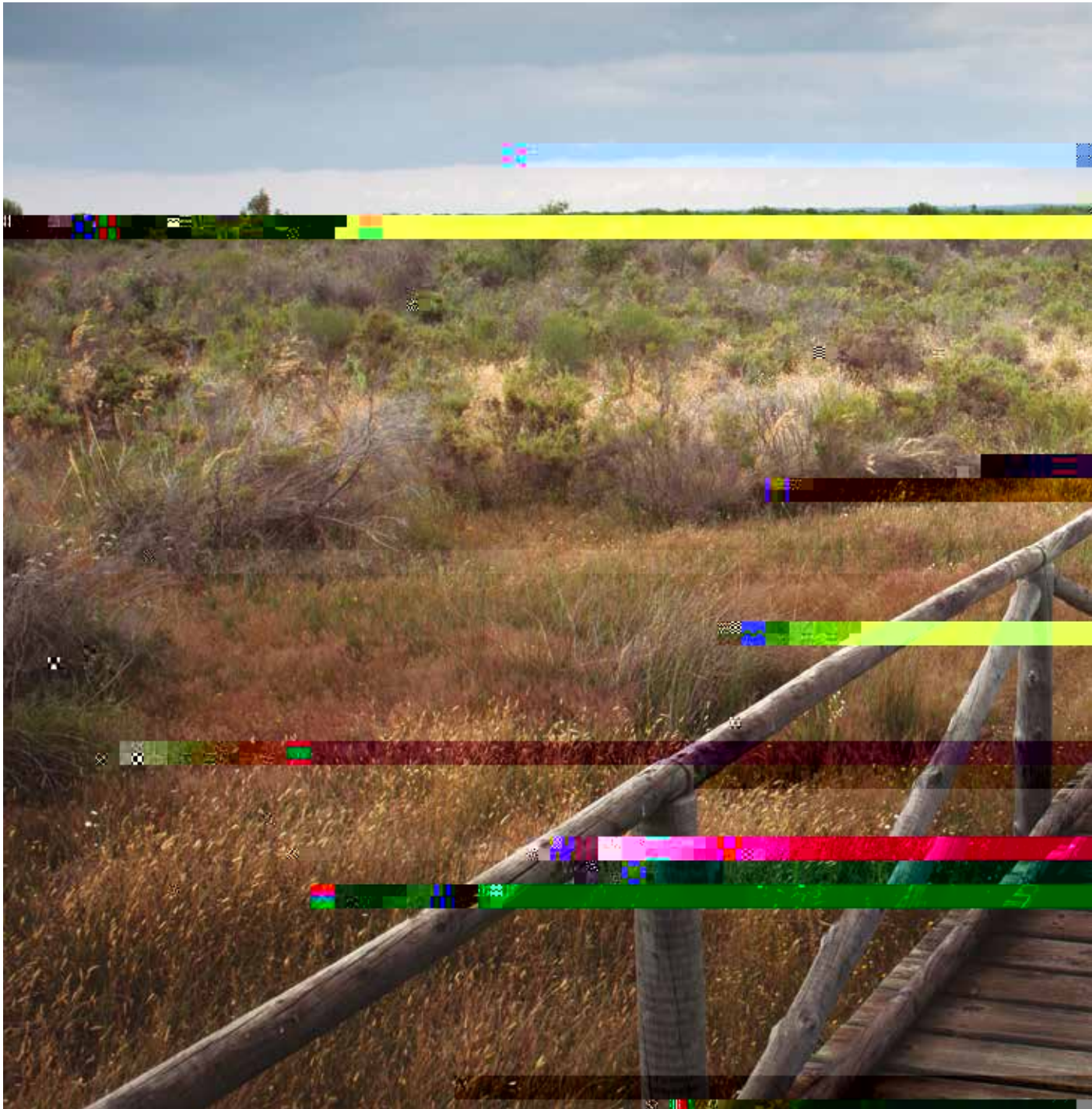
'VFOUF 6*\$/ ö³ö±ö³ö² &TUVEJP EF WJBCJMJEBE -JGF #MVF /BUVSB

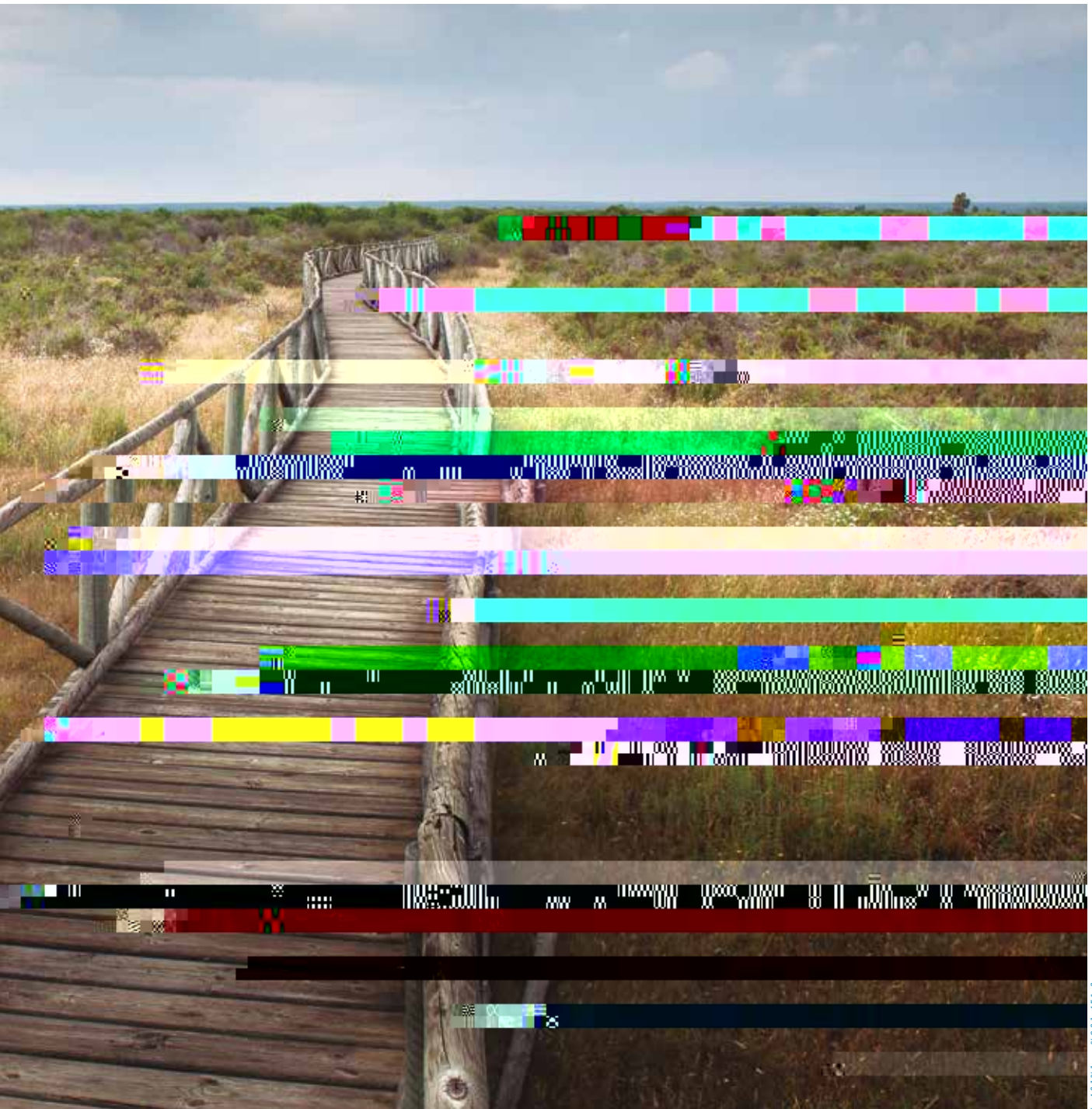


h 3 6 % . 8 3 : 8 8 3 7 & 3 % 3 8 ' . 4 5 ' . 8

-B QSPUFDDJ±O EFM IŸCJUBU EF VOB NBSJTNB QVFEF MPHSTBF DPO HSBO QMBVTJCMJEBE U\$DOJDB
FSPTJ±O &TUPT EJTQPTJUJWPT QSPUFHFO DPOUSB MB FOFSH«B EF MBT PMBT Z DBVTBO MB SFUFODJ
VOB NBZPS FSPTJ±O EF MB NBSJTNB TBMBE

CAPÍTULO 9:





-, -... 12# .3,2- #1 "# #1.#!' * ' +.-02 ,!#* #,04!1-2, .0-%0 + 1 , - !#02'%!'! "-1 - 13 1'''-1
"# *-1 !-12#1 "'!'-, *#1 1-!' "-1 * 1 .* 0-0*#1+#,'%σ'1 !'À, "# .0m!2!' 1...
#,2-0,-1 + 0',-1...
* 0#!-,-!'+'# ,2- "#* '+. !2- "# *-1 #!-1'12#+ 1 !-1
, *%3,-1 ! 1-1,, *-1 .0-7#!2-1 "# ! 0 -2#08B**# ! 0 -,- 83* 1- 0# * +'2'% !'À, "#* !+ '-
-\$0#!#0m, #,#%!'!'-1 1312 ,!' *#1 "# +!2'4/n2"À-, "#* !-+- "# 131 !- #,#%!'!'-1,, **#% #, 3
! + '- !*'+m2'!-, .-0 *- /3# 1#0m, ! ,'" +2+#!2; +37 -.-023,-‡ &-0 ,, #* "#1 %σ"- !-,1'12#
%0 ,"#1 -.!'-,#1 "# #,20 0 #, *-1 +#0! 1#1%3#0! #0œ +',- + 0! "- .-0 #12-1 •6'2-1 2#+.0 , -
-,- 4-*3,2 0'-1... ', #+ 0%-,, - 2-"-1 7-\$-+G-,2#02z1 +.*' !'À, "#* *!,!# 7 * 4#*-!' " "#
.3#"#, *-%0 0 %σ', ,!' !'À, 20 4•1 "# *4\$1+#0!-,#1 "# 0#12 30 !'À, 7 !-,1#04 !'À,...
"# ! 0 -,-‡ *%3,-1 .3#"#, 1#0 +m1 .0-.' "-1 . 0
* .*!' !'À, "# ',!#,2'4-1 "# +#0! "-1 (#,-1 *-1



"TJHOB DJPOFT

-BT BTJHOB DJPOFT TPO VOJEBEFT EF MJCSF DPNFSDJP RVF TF BTJHOB
SFHVMBEPT FO VO TJTUFNB EF DPNFSDJP EF EFSFDIPT EF FNJTJPOFT \$E
FO FM TJTUFNB EF DPNFSDJP EF EFSFDIPT EF FNJTJPOFT EFCF SFOVODJ
DJ±O QPS DBEB UPOFM₈EB FNJUJEB EF \$0

\$BSCPOP BM±DUPOP

\$BSCPOP QSPEVDJEP FO VOB VCJDBDJ±O Z USBOTQPSUBEP Z EFQPTJUBE

\$BSCPOP BVU±DUPOP

\$BSCPOP QSPEVDJEP Z EFQPTJUBEP FO EFQPTJUBEP FO \$0

S \$0

pÿ \$0EFQPTJUBEP QPS EFQ ZQPS @Eq`FNB-@pÿ EFQ ZFO Z \$0ö³V-c•t\$.ÀP` \$

\$0 \$0 \$0~pä W.ä \$0 \$0 Z \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 Z Z \$0 \$0 \$0 \$0 \$0 Z \$0 \$0

.FDBOJTNP EF BDSFEJUBDJ±O
6O NFDBOJTNP EF BDSFEJUBDJ±O QFSNJUF MB SFNVOFSBDJ±O EF MBT
FNJTJPOFT QPS NFEJP EF MB FNJTJ±O EF CPOPT DPNFSDJBCMFT EF DP
SFEVDDJPOFT EF FNJTJPOFT ZB MPHSEBET
3FEVDDJPOFT EF FNJTJPOFT CPOPT EF DBSCPOP
3FQSFTFOUBO MB QSFWFODJ±O EF MB FOUSBEB FO MB BUN±TGFSB EFM
MBEB EF EJ±YJEP EF FDBS EFCFOPUNSOBO UBNCJ§O jCPOPT EF DBSCPOP
TF VUJMJ[BO QBSB BDDJPOFT EF DPNQFOTBDJ±O EF DBSCPOP *ODMVZ
ÒMBT SFEVDDJPOFT WFSJæ_DBEBT EF FNJTJPOFT 37& QBSB MBT BDDJ
NBUFSJB DMJNŸUJDB
ÒMBT SFEVDDJPOFT EF DFEVDDJPOFTSBNRFB SIBTQBSB JBDJPOFTQDJDJPOFT

- [1] ... ;9: B† 3++ 07 \$-0 -*!7+)#01... ,† Climate Change and Land: an IPCC
 ecosystems ž ... &3)* „ ...)# „ ... *4- 3#,"' „ ... 11-,CE #*+-22# „ ... CE ...
 É02,#0 „ ... - #021 „ ... &' „ ... *# „ ... -, -01 „ ... 4 , '#+## „ ... #00 2
 ... 3% „ ... 38 „ ... #-%' „ ... 2&) „ ... #28-* „ ... -023% * #0#'0 „ ...
 3,2*#7 „ ... '11'!) „ ... #*) !#+' „ ... **#7 „ œ#\"1...•Ÿ... ,.0#11...
- [2] ',# „ ##*7 „ 03 #0 „ #7 „ ## „The ocean sink „ et al.
 for anthropogenic CO₂. !'#,!#... ;99=‡<9>† <? @•<@:... "-'†:9...:;?µ1!'#,!#...:9B@=9<
- [3] 0+'#,2- „ 03 #0 ... Sinks for anthropogenic carbon. &71 -" 7... ;99;‡
 <9•<? ...
- [4] #**#+ , „ -0!-0 „ 3 02# „ *\"1 „ # -3,% „ -,1#! „ et al.
 Blue carbon: The role of healthy oceans in binding carbon. A rapid response
 assessment. ;99B...
- [5] 0 31#CE #,1# „ 3 02# ... Substantial role of macroalgae in marine carbon
 sequestration. 2 #-1!'... ;9:‡B† @<@•@=;... "-'†:9...:9<Aµ,%#-;@B9
- [6] &3,% „ #0" ** „ #&2 „ &-- „ 2-()-4'! ... Using marine macroalgae
 for carbon sequestration: A critical appraisal. ..* &7!-*... ;9::‡;<† A @ @•AA? ...
 "-'†:9...:99@µ1:9A::CE9:9CEB?9=CEB
- [7] 3 02# ... Reviews and syntheses: Hidden forests, the role of vegetated
 coastal habitats in the ocean carbon budget. '-%#-1!'#,!#1... ;9:@‡:=† <9:•<:9...
 "-'†:9...>:B=µ %CE:=CE<9:CE;9:@
- [8] g-*#7 „ 62#0 „ #,- „ *'4#0 ... —%œ~•~(˘...f•...%œf•^œf•f-%œ%œ

[17] - „ �+ ,\"' „ -02#* „ ,% ... *- * 4 *3#1 -\$!- 12 * #!-1712#+
1#04'!#1† 1. 2' * #!-, -+! , *71'1 -\$ 1&-0#*',# .0-2#!2'-, 4 *3#1... !-1712
#04... ;9:>‡::† B>•:9>... \"-'†:9...:9:?μ (...#!-1#0...;9:=...:...9::

[18]

- , 2 # , 2 # 0 4 # 0 μ μ μ ; 9 :: μ 9 = μ 9 @ μ 9 9 9 < < < 9 < A < ; 9 :: 9 = 9 @ 9 ; = :: @ μ
, " # 0 # " μ μ ? 9 > @ A 9 : 9 - \$ 9 - 1 2 * 9 # 2 * , " 1 " \$

[32]

[64] + - - & „ 3 6 & + „ 0 ! & ' „ # , ! 3 ! ! ' , ' „ ' 0 - „ ' 0 3 ' ... Below-ground root yield and distribution in natural and replanted mangrove forests at Gazi bay, Kenya.

[109] 0#1) „ „ ! * 2„ -)' „



