



Sarah Allen/PORE/NPS
11/20/2009 09:46 AM

To Ben Becker/PORE/NPS@NPS
cc
bcc
Subject Re: image 

Something is there, so perhaps Dan can check.

Sarah

Sarah G. Allen, PhD
Senior Science Advisor
Point Reyes National Seashore
Point Reyes Station, CA 94956
415-464-5187



Sarah Allen/PORE/NPS
11/20/2009 09:14 AM

To Ben Becker/PORE/NPS@NPS
cc
bcc
Subject image

History:  This message has been replied to.

Hi:

I down loaded the highest resolution image and recommend that you look at it for any other bag arrays to add to the image. For ewxample, where the boat left from looks like some equiippment.

You could do next week, since we are waiting for Dan to go out. I might ask Dan also to look at this array.

Thanks

Sarah

Sarah G. Allen, PhD
Senior Science Advisor
Point Reyes National Seashore
Point Reyes Station, CA 94956
415-464-5187



Ray DeLeon
<rdeleon@hfw.com>
11/18/2009 05:26 PM

To "Ben_Becker@nps.gov" <Ben_Becker@nps.gov>, Devin
Kelley <kelley@hfw.com>
cc "Sarah_Allen@nps.gov" <Sarah_Allen@nps.gov>
bcc

Subject RE: Orthoimagery corrections

Thanks Ben, Sarah

I will post on our FTP site as soon as that is remedied.

~Ray

-----Original Message-----

From: Ben_Becker@nps.gov [mailto:Ben_Becker@nps.gov]
Sent: Wednesday, November 18, 2009 5:10 PM
To: Devin Kelley
Cc: Ray DeLeon; Sarah_Allen@nps.gov
Subject: Re: Orthoimagery corrections

Thanks, Devin and Ray.

We're under a bit of a deadline to process the info, so the sooner the better! It would be best for us to grab from your FTP site since it seems as though ours is not very reliable.

Thanks,

-Ben

Ben Becker, Ph.D.
Director and Marine Ecologist
Pacific Coast Science and Learning Center
Point Reyes National Seashore
1 Bear Valley Road
Point Reyes Station, CA 94956

tel: 415-464-5247
fax: 415-868-1202
ben_becker@nps.gov
<http://home.nps.gov/pore/parkmgmt/pcslc.htm>

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- Facilitating the use of parks for scientific inquiry

- Supporting science-informed decision making
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- Promoting resource stewardship through partnerships

Devin Kelley
<kelley@hjlw.com>

11/18/2009 04:43
PM

"ben_becker@nps.gov"
<ben_becker@nps.gov>

To

Ray DeLeon <rdeleon@hjlw.com>

cc

Orthoimagery corrections

Subject

Ben,

Thank you for bringing the orthophoto shifting to our attention. We will likely be able to make the necessary corrections for submission via ftp on Thursday. Ray DeLeon (cc'd) will be in touch shortly with an update.

Best regards,
Devin

Devin Kelley
Project Director, Certified Photogrammetrist (ASPRS)
HJW GeoSpatial, Inc.
Office: 510.834.2001 ext. 124

Ex 6

www.hjlw.com



00509 ✓



sarah allen
Ex 6
11/13/2009 01:25 PM

To Ben Becker <Ex 6>
ben_becker@nps.gov
cc
bcc

Subject Fwd: Drake Esteros Fall 2009 Flight

----- Forwarded message -----
From: Ray DeLeon <rdeleon@hju.com>
Date: Fri, Nov 13, 2009 at 10:56 AM
Subject: RE: Drake Esteros Fall 2009 Flight
To: sarah allen Ex 6

Sarah

We were able to fly this site digitally this round. Because we used a digital camera, the photo footprint is not 9"x9" but is rectangular. I am shooting you a small image for your review to make sure that we have captured what you are looking for, and possible more.

Digital shots will result in better color radiometry and will also give you a digital file for reproduction as needed.

Once I get the OK I will make the geo-rectified ortho. Thanks!

~Ray

-----Original Message-----
From: sarah allen [mailto:Ex 6]
Sent: Monday, November 09, 2009 10:53 AM
To: Ray DeLeon
Subject: Re: Drake Esteros Fall 2009 Flight

thanks

Sarah

On Mon, Nov 9, 2009 at 10:21 AM, Ray DeLeon <rdeleon@hju.com> wrote:
> Thanks, I will get you a revised quote with orthorectified price you're your review today.

>
> ~Ray

>
>
> -----Original Message-----
> From: sarah allen [mailto:Ex 6]
> Sent: Monday, November 09, 2009 10:20 AM
> To: Ray DeLeon
> Subject: Re: Drake Esteros Fall 2009 Flight

> I will hold off on faxing in case my request changes the quote amount.

> Sarah

>
>
>
> On Mon, Nov 9, 2009 at 10:10 AM, Ray DeLeon <rdeleon@hju.com> wrote:

>> Hi Sarah
>>
>> We can reserve those dates and times for this aerial shot, provided there
is good weather. If not, we can push to the later low tides dates you
suggested.
>>
>> If you can fax or scan this back to me, I will get that scheduled, Thanks!
>>
>> ~Ray
>>

>> -----Original Message-----

>> From: sarah allen Ex 6
>> Sent: Friday, November 06, 2009 2:01 PM
>> To: Ray DeLeon
>> Subject: Re: Drake Esteros Fall 2009 Flight
>>

>> The day would be preferably on Nov 12 at 3 PM or Nov 13 at 3:30-4PM
>>
>> The next low tide cycle is Nov 30 or Dec 1 at 2:30-3:30PM
>>
>> Thanks!
>>

>> Sarah
>>

>> On Fri, Nov 6, 2009 at 1:37 PM, Ray DeLeon <rdeleon@hjwt.com> wrote:

>>> Hi Sarah
>>>

>>> I hear it's time to fly again! What date were you thinking for this
flight,

>>> I assume it is low tide once again?
>>>

>>> Look forward to it. I can send you a quote once I hear back from you,
>>> Thanks!
>>>

>>> ~Ray
>>>
>>>
>>
>



0003b-qv.jpg

Ben Becker/PORE/NPS

11/13/2009 12:40 PM

To Sarah Allen/PORE/NPS@NPS

cc

bcc

Subject image

Sarah,

please remember to send the new flyover image.

I'm going through the seal ms again and based on Gary's comments I'm cutting out a lot, which is good.

thanks,

-Ben

Ben Becker, Ph.D.
Director and Marine Ecologist
Pacific Coast Science and Learning Center
Point Reyes National Seashore
1 Bear Valley Road
Point Reyes Station, CA 94956

tel: 415-464-5247
fax: 415-868-1202
ben_becker@nps.gov
<http://home.nps.gov/pore/parkmgmt/pcslc.htm>

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Sarah Allen/PORE/NPS
08/17/2009 02:47 PM

To: Ben Becker/PORE/NPS@NPS
cc: Ex 6 Don
Neubacher/PORE/NPS@NPS
bcc:
Subject: Re: Drakes Estero aerial photos

Aerial surveys of 500 ft is best if low tide to avoid disturbing seals resting onshore (most are middle to mouth) and lower if high tide. We should check with rangers on flight height in wilderness.

Sarah

sarah_allen@nps.gov

><(((^>`...~...~...~...><(((^>,...

Ben Becker

Ben Becker
08/17/2009 10:53 PDT

To: Ex 6
cc: Sarah Allen/PORE/NPS@NPS, Don Neubacher/PORE/NPS@NPS
Subject: Re: Drakes Estero aerial photos

Hi Ex 6

Sounds good, we can pay a 3rd party as well.

Yes, orthorectifying would be a good idea. We have not done it on the images I sent you.

SARAH, what would be flight restrictions for an eelgrass imaging flyover of Drakes Estero in late August? How high do they need to fly? Any areas/times to avoid?

Thanks,

-Ben

Ben Becker, Ph.D.
Director and Marine Ecologist
Pacific Coast Science and Learning Center
Point Reyes National Seashore
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Ex 6



Ex 6

<Ex 6

08/14/2009 02:53 PM

To Ben_Becker@nps.gov

cc sarah_allen@nps.gov

Subject Re: Drakes Estero aerial photos

Ben,

That's great! I'm working out the details on this end, and will get back to you with an estimate of the cost (but it sounds like it should be under \$500, including orthorectification, and most likely payable directly to the company). I understand it is worthwhile to have them orthorectify the image because it will have a high level of accuracy, and once that is done, we can rectify the other photos based on this one. Unless you've already gone through that process.

As for the height the plane will fly, this will depend on the resolution we specify. I need to review the photos you scanned (they are on my home computer) to determine the scale those are at. The methods I've reviewed for seagrass aerial photo analysis recommend a scale of 1:10,000 for general presence/absence, and a finer scale to monitor annual changes. I believe the lens on the camera can also affect the height they fly at.

Can you tell me what the restrictions are for the seals so I can provide this information to the flight company when getting the quote?

I'll try to get in touch with Tom Moore and Ryan Watanabe to see if I can track down any other photos on their end. I think it will be useful for me to take a look at the archives because the photos you provided are from different seasons, and for some years the month is not indicated, so it will help if I can track that down.

I'll let you know once I hear back from Jackie if we will indeed be able to tag our photos onto the BML Reserve flight.

Best,

Ex 6

At 1:29 PM -0700 8/14/09, Ben_Becker@nps.gov wrote:

>Hi Ex 6

>

>We can absolutely help with the costs to take a Drakes Estero Image. Let me know how much and how you'd like to receive payment (or who we should pay). How high does the plane fly? We need to make sure there are no issues with seal disturbance during the flight.

>

>I don't know about DFGs images or plans. I imagine Tom Moore or Ryan Watanabe would know. But, I haven't heard about any images being taken recently.

>

>Regarding the images the park has that I sent you. I spent a few days in the park archives looking through all of our aerial photos in our database and through the actual images. We sent you everything that had a reasonably good image. So, you are welcome to come over to the Archives (I could go with you), but I'm pretty sure I have found everything available.

>

>There could be other sources out there besides what we have in the park archives, I'll ask our archivist.

>

>Thanks,

>

>-Ben

>

>

>

>Ben Becker, Ph.D.
>Director and Marine Ecologist
>Pacific Coast Science and Learning Center
>Point Reyes National Seashore
>1 Bear Valley Road
>Point Reyes Station, CA 94956
>
>tel: 415-464-5247
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- >· Promoting resource stewardship through partnerships

>

>

>

>

>

>
>[cc: Susan Williams, slwilliams@ucdavis.edu]
>
>--
>
>Ex 6
>Ecology Graduate Group, UC Davis
>Bodega Marine Laboratory
>PO Box 247
>Bodega Bay, CA 94923-0247
>office Ex 6
><http://www-bml.ucdavis.edu/facresearch/>Ex 6

--
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Don Neubacher/PORE/NPS
11/30/2009 04:41 PM

To "Cassidy Teufel" <cteufel@coastal.ca.gov>
cc
bcc
Subject Photo date and site visit date□

Aerial photo was taken on 11.12.09 at 3:00 pm by HJW Geospatial. Site visit on 11/29/09.

Don

Don Neubacher
Superintendent
Point Reyes National Seashore
Point Reyes Station, CA 94956

415-464-5101 (office)
415-663-8132 (fax)

The National Park Service cares for special places saved by the American people so that all may experience our heritage.

"Cassidy Teufel" <cteufel@coastal.ca.gov>



"Cassidy Teufel"
<cteufel@coastal.ca.gov>
11/30/2009 01:34 PM

To <Don_Neubacher@nps.gov>
cc
Subject RE: new maps at three scales

Hi Don,
Around 3pm is fine, I'm back from lunch so feel free to call when you have a chance. I gave Alison an update on the situation and can pass along her thoughts as well.
-Cassidy

-----Original Message-----

From: Don_Neubacher@nps.gov [mailto:Don_Neubacher@nps.gov]
Sent: Monday, November 30, 2009 1:22 PM
To: Cassidy Teufel
Subject: RE: new maps at three scales

Cassidy, can we talk about 3:00 pm? LE has confirmed 800 bags in harbor seal protection area yesterday.

Don

Don Neubacher
Superintendent
Point Reyes National Seashore

Point Reyes Station, CA 94956

415-464-5101 (office)
415-663-8132 (fax)

The National Park Service cares for special places saved by the American people so that all may experience our heritage.

"Cassidy Teufel"
<cteufel@coastal.
ca.gov>
To <Don_Neubacher@nps.gov>
11/30/2009 12:22
cc PM
Subject RE: new maps at three scales

Thanks - here's a map of the DFG lease areas (M-438-01 and M-438-02). This clearly shows that the bags are not only within the seal protection area, they are also outside of both aquaculture lease areas.

-----Original Message-----

From: Don_Neubacher@nps.gov [mailto:Don_Neubacher@nps.gov]
Sent: Monday, November 30, 2009 11:19 AM
To: Cassidy Teufel
Subject: new maps at three scales

Please do not forward. LE report coming.

Don

Don Neubacher
Superintendent
Point Reyes National Seashore
Point Reyes Station, CA 94956

415-464-5101 (office)
415-663-8132 (fax)

The National Park Service cares for special places saved by the American people so that all may experience our heritage.

----- Forwarded by Don Neubacher/PORE/NPS on 11/30/2009 11:19 AM -----

Ben

Becker/PORE/NPS

To 11/23/2009 11:47 AM Sarah Allen/PORE/NPS@NPS

cc Don Neubacher/PORE/NPS@NPS

Subject new maps at three scales

(See attached file: oyster_activity_seal_november_2009-closeup2.pdf) (See attached file: oyster_activity_seal_november_2009-map.pdf) (See attached file: oyster_activity_seal_november_2009-overview.pdf)

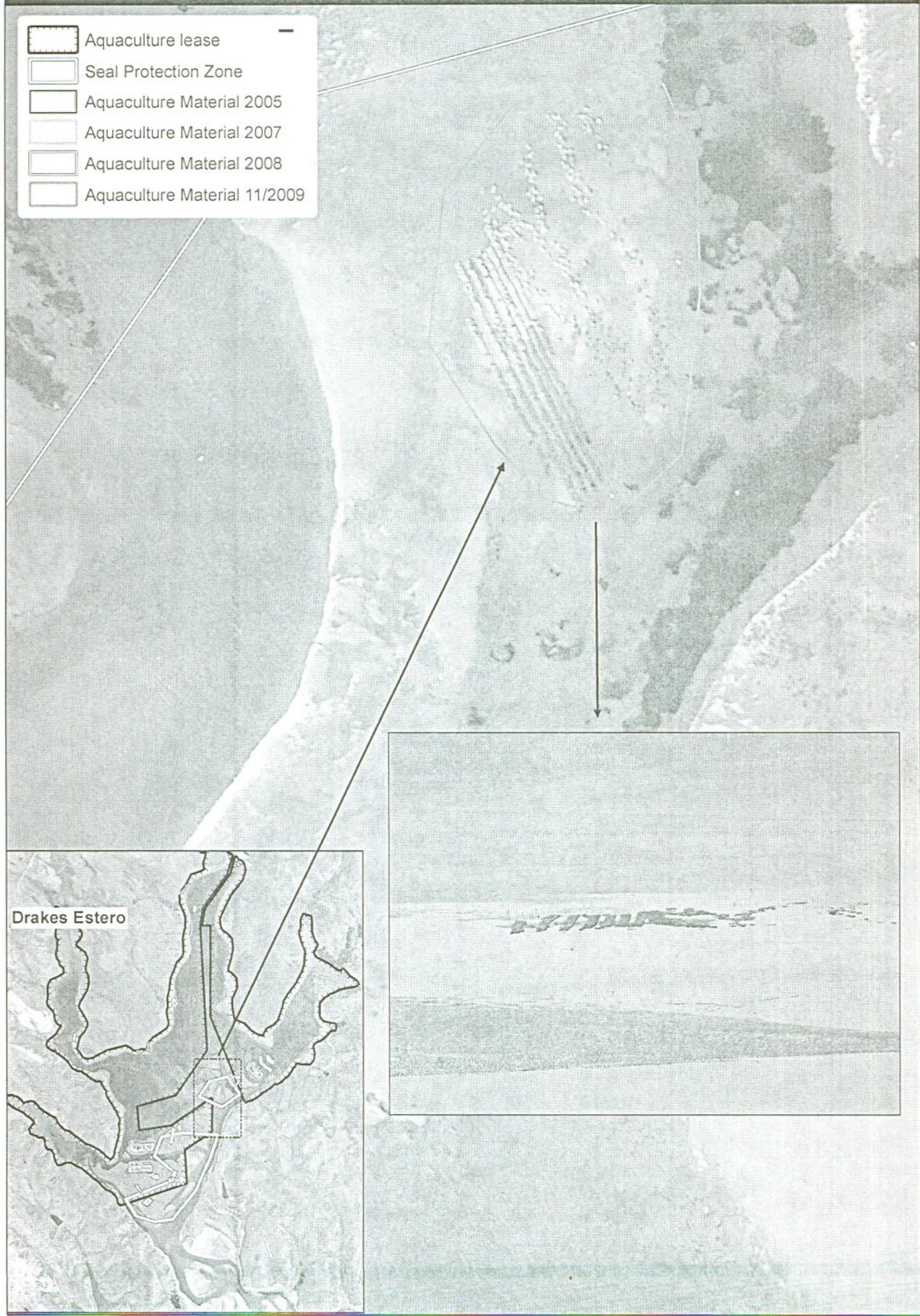
Ben Becker, Ph.D.
Director and Marine Ecologist
Pacific Coast Science and Learning Center
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Drake's Estero Aquaculture and Seal Habitat



- Aquaculture lease
- Seal Protection Zone
- Aquaculture Material 2005
- Aquaculture Material 2007
- Aquaculture Material 2008
- Aquaculture Material 11/2009

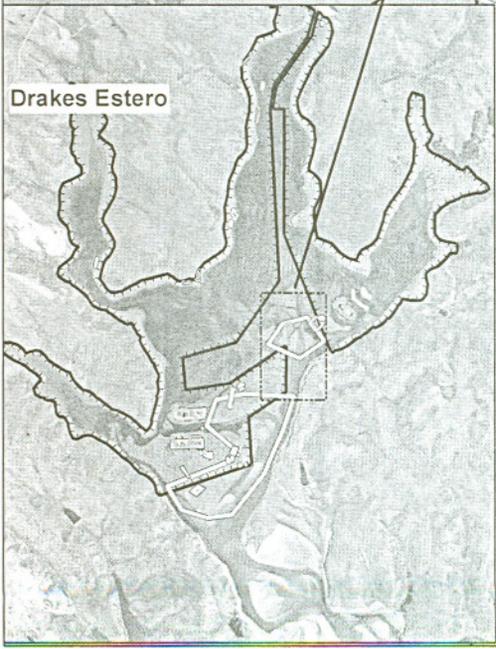
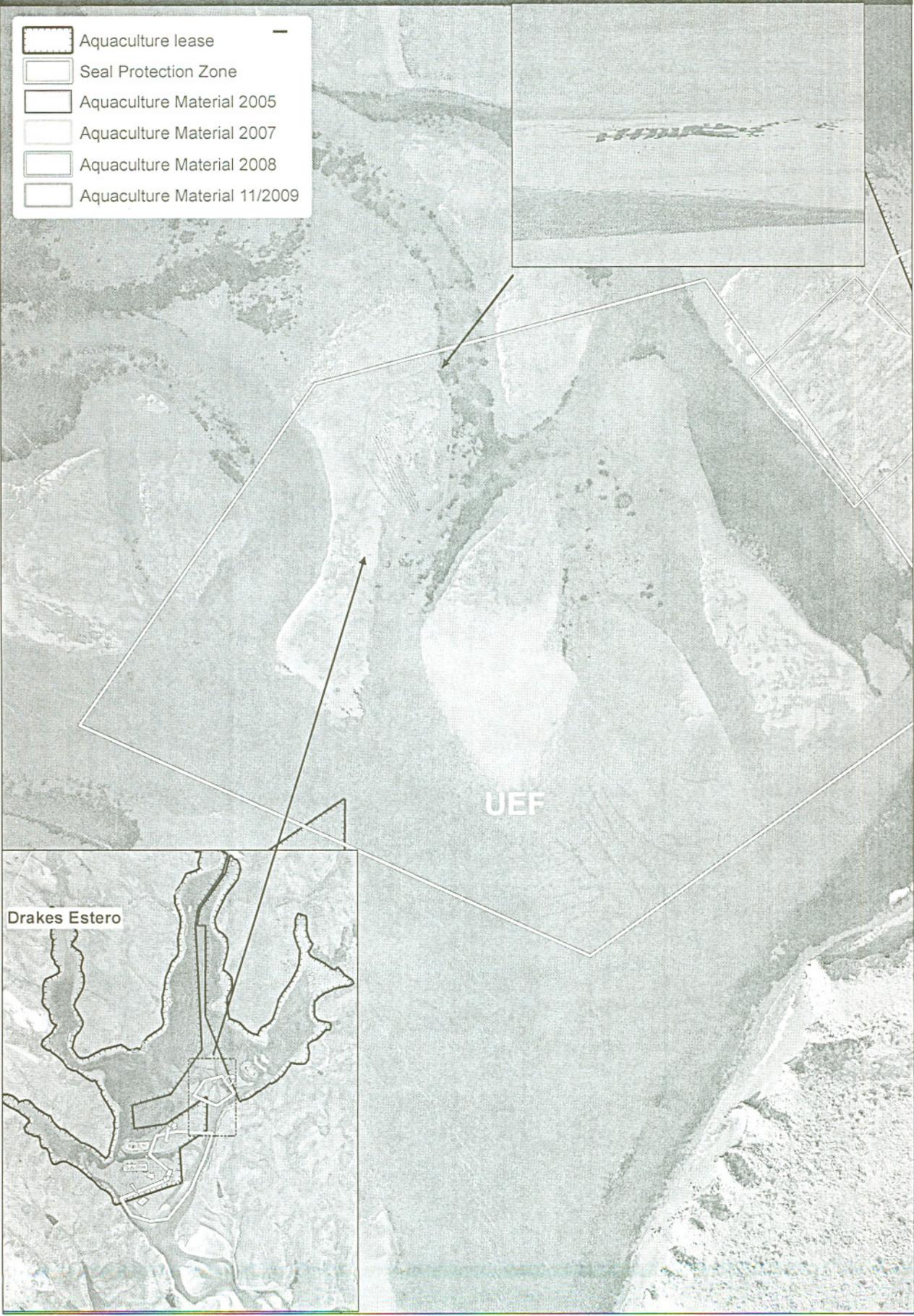
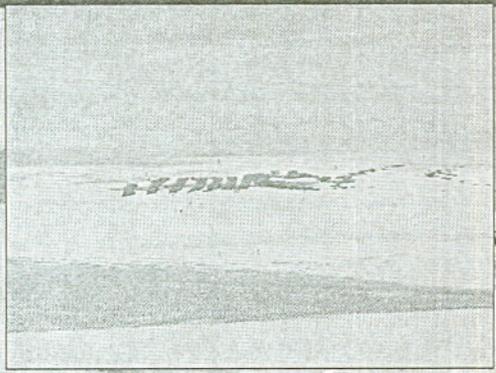


oyster activity seal november 2009. closeup 2

Drake's Estero Aquaculture and Seal Habitat



- Aquaculture lease
- Seal Protection Zone
- Aquaculture Material 2005
- Aquaculture Material 2007
- Aquaculture Material 2008
- Aquaculture Material 11/2009



Meters

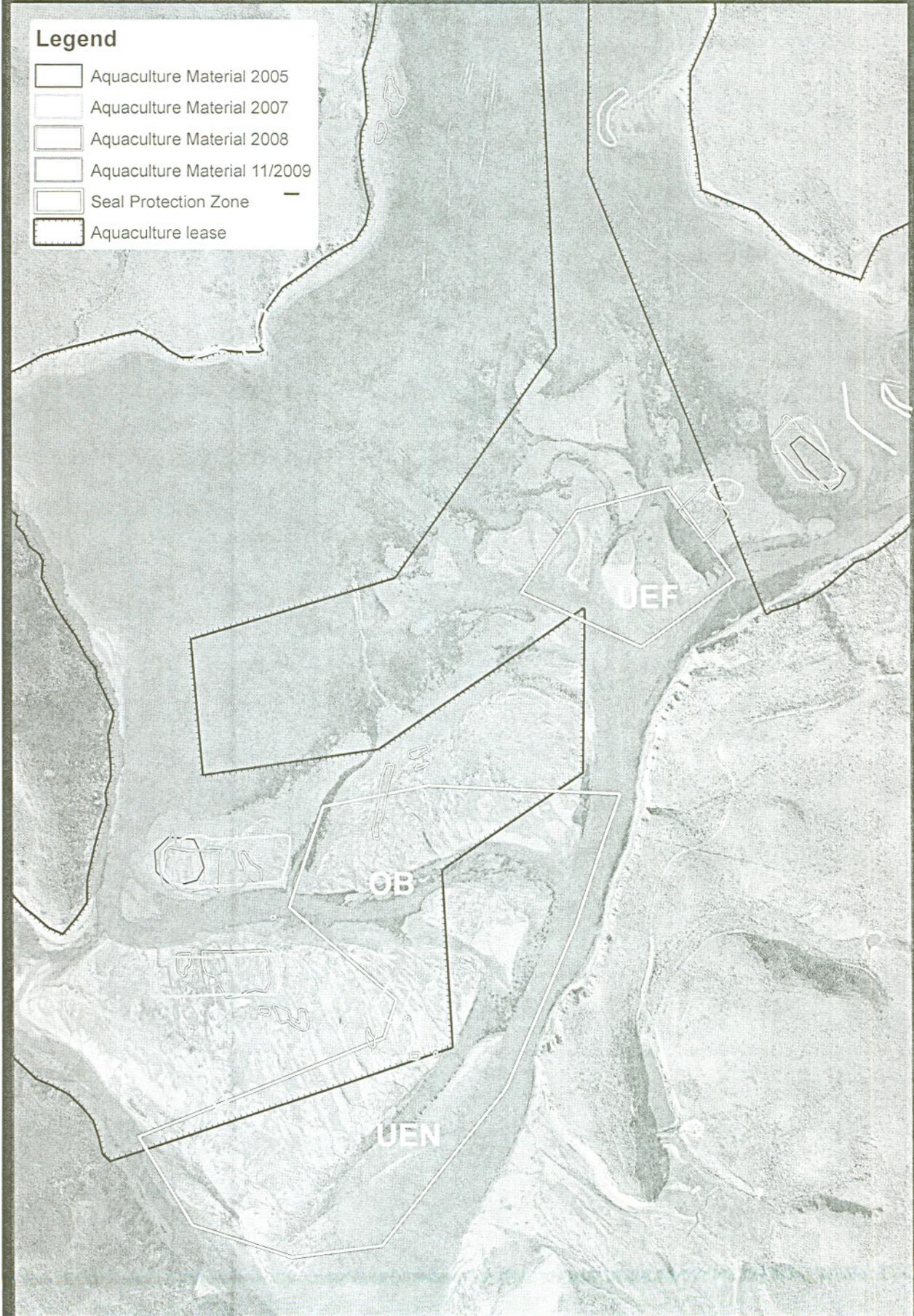
oyster activity seal November 2009 map

Drake's Estero Aquaculture and Seal Habitat



Legend

- Aquaculture Material 2005
- Aquaculture Material 2007
- Aquaculture Material 2008
- Aquaculture Material 11/2009
- Seal Protection Zone
- Aquaculture lease



0 125 250 500 750 1,000
Meters

Oyster Activity Seal November 2009 - overview

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- [attachment "DFG Lease Area Map.pdf" deleted by Don Neubacher/PORE/NPS]

Drake's Estero Aquaculture & CDFG Leases

NPS Resources and SUP Area

National Park Service
U.S. Department of the Interior



Permit Type

- ROP
- SUP

Oyster Racks

- Active
- Dilapidated

- Aquaculture Lease/SUP Area
- Potential Wilderness
- Existing Wilderness

Map Location



Aquaculture lease

Ben Becker/PORE/NPS
08/17/2009 10:53 AM

To Ex 6
cc Sarah Allen/PORE/NPS@NPS, Don
Neubacher/PORE/NPS@NPS
bcc
Subject Re: Drakes Estero aerial photos 

Hi Ex 6

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Ex 6



Ex 6
Ex 6
08/14/2009 02:53 PM

To Ben_Becker@nps.gov
cc sarah_allen@nps.gov
Subject Re: Drakes Estero aerial photos



Ben,

That's great! I'm working out the details on this end, and will get back to you with an estimate of the cost (but it sounds like it should be under \$500, including orthorectification, and most likely payable directly to the company). I understand it is worthwhile to have them orthorectify the image because it will have a high level of accuracy, and once that is done, we can rectify the other photos based on this one. Unless you've already gone through that process.

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I'll let you know once I hear back from Jackie if we will indeed be able to tag our photos onto the BML Reserve flight.

Best,

Ex 6

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>Hi Ex 6

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>I don't know about DFGs images or plans. I imagine Tom Moore or Ryan Watanabe would know. But, I haven't heard about any images being taken recently.

>

>Regarding the images the park has that I sent you. I spent a few days in the park archives looking through all of our aerial photos in our database



Devin Kelley
<kelley@hjlw.com>
11/19/2009 02:13 PM

To "Ben_Becker@nps.gov" <Ben_Becker@nps.gov>
cc Ray DeLeon <rdeleon@hjlw.com>, "Sarah_Allen@nps.gov"
<Sarah_Allen@nps.gov>
bcc

Subject RE: Orthoimagery corrections

Ben, Sarah,

I've placed the corrected imagery on our FTP site: ftp.hjlw.com in the "09-101" directory. The data is provided in three resolutions: 15cm, 30cm and 60cm, in both GeoTIF/TFW and JPG/JGW format. Please note that all data is in UTM 10, meters.

Thank you for your patience as we made the correction. Please get in touch if you have any questions.

Best regards,
Devin

Devin Kelley

Project Director, Certified Photogrammetrist (ASPRS)

HJW GeoSpatial, Inc.

Office: 510.834.2001 ext. 124

Ex 6

www.hjlw.com

-----Original Message-----

From: Ben_Becker@nps.gov [mailto:Ben_Becker@nps.gov]
Sent: Wednesday, November 18, 2009 5:10 PM
To: Devin Kelley
Cc: Ray DeLeon; Sarah_Allen@nps.gov
Subject: Re: Orthoimagery corrections

Thanks, Devin and Ray.

We're under a bit of a deadline to process the info, so the sooner the better! It would be best for us to grab from your FTP site since it seems as though ours is not very reliable.

Thanks,

-Ben

Ben Becker, Ph.D.
Director and Marine Ecologist
Pacific Coast Science and Learning Center
Point Reyes National Seashore
1 Bear Valley Road



Ex 6

RE: Drake Esteros Completed

Ray DeLeon <rdeleon@hjl.com>

Thu, Mar 26, 2009 at 1:14 PM

To: sarah allen Ex 6

Hi Sarah

That has been flown and I will have the folks here produce the scan and send to your office.

Our Best, and thanks for think of us again for this flight!

~Ray

From: sarah allen [mailto:Ex 6]
Sent: Wednesday, March 11, 2009 12:26 PM
To: Ray DeLeon
Subject: Re: Drake Esteros Quote

I will fax this today or tomorrow.

Sarah

On Wed, Mar 11, 2009 at 11:20 AM, Ray DeLeon <rdeleon@hjl.com> wrote:

Hi Sarah

I received your phone message, thank you. We can certainly fly low tide sometime during the March 17-19 days you've requested. Attached, please find the quote for services. When you have a moment can you fax your signed copy to us here at the number below.

Thanks for thinking of us, we look forward to working with you on this and many other projects.

Best regards!

Ray

Error! Filename not specified.

Ray DeLeon • Senior Project Manager

2001 Broadway, Third Floor • Oakland, CA 94612

Phone 510-834-2001 ext 148 • Fax 510-834-2101

No virus found in this incoming message.

Checked by AVG - www.avg.com

Version: 8.0.237 / Virus Database: 270.11.9/1993 - Release Date: 03/11/09 08:28:00



Ex 6

Drake Esteros Quote

Ray DeLeon <rdeleon@hfw.com>

Wed, Mar 11, 2009 at 11:20 AM

To: Ex 6

Hi Sarah

I received your phone message, thank you. We can certainly fly low tide sometime during the March 17-19 days you've requested. Attached, please find the quote for services. When you have a moment can you fax your signed copy to us here at the number below.

Thanks for thinking of us, we look forward to working with you on this and many other projects.

Best regards!

Ray



Ray DeLeon • Senior Project Manager

2001 Broadway, Third Floor • Oakland, CA 94612

Phone 510-834-2001 ext 148 • Fax 510-834-2101

2 attachments



image001.jpg
130K

drake Esteros quote 030309.pdf
29K



Ex 6

Drake Esteros Quote for low tide flight

Ray DeLeon <rdeleon@hjl.com>

Tue, Mar 3, 2009 at 4:11 PM

To: Ex 6

Hi Sarah

We can honor the same quote price as last year. Please see attached. If this is Ok for you please fax that back to me at the number below.

Thanks! I look forward to working with you on this and other projects.

Best Regards!

Ray



Ray DeLeon • Senior Project Manager

2001 Broadway, Third Floor • Oakland, CA 94612

Phone 510-834-2001 ext 148 • Fax 510-834-2101

2 attachments





HJW GeoSpatial, Inc
 2001 Broadway, 3rd Floor
 Oakland, CA 94612
 Tel: 510-834-2001
 Fax: 510-834-2101

QUOTATION

Quote No.: RD030309 Date: 03-03-09 Expiration Date: 90 Days

Contact: Sarah Allen
 Agency / Firm: Point Reyes National Seashore
 Address: 1 Bear Valley Road
Point Reyes Station, CA 94956

Tel: Ex 6 Fax:

PROJECT NAME: Drake Esteros Low Tide Quote

Description:

- Color Pinpoint Aerial photography taken at low tide, NAD 27 at 1:12,000
 38 3 18.697N 122 56 21.865W

Deliverables:

- One DVD with 2000 dpi and 600 dpi scans of PP Point Reyes Seashore

Total cost: \$1,200

This proposal to perform the described services becomes a contract subject to the attached terms and conditions when signed by HJW and client.

Agreed:
 HJW GeoSpatial, Inc.

Agreed:
 Point Reyes National Seashore

By: Ray DeLeon
03-03-09
 Date

By: Sarah Allen
 Date

TERMS AND CONDITIONS

- a) **Independent Contractor:** HJW shall operate as an independent contractor and not as an employee, agent, joint venturer, or partner of Client. Nothing in this Agreement shall be interpreted or construed to the contrary. HJW shall retain the right to perform services for others during the term of this Agreement.
- b) **Payment of Invoices:** Client shall pay HJW's invoices within 30 days of their receipt and acceptance by Client. Invoices will be deemed to have been accepted by Client upon receipt unless Client advises HJW within 10 days of any objection to the invoice. In no event shall Client use this objection to delay payment of any undisputed portions of the invoice. Client and HJW agree to endeavor to resolve any disputes over payment in a timely manner. HJW reserves the right to cease work or to refuse to provide Client with any work product until such disputes are resolved. HJW shall assess and Client shall pay a service charge of 1.5% per month on invoice balances over 30 days past due.
- c) **Cooperation:** Client and HJW agree to cooperate with each other in every way in order to complete the terms of this Agreement. Upon request, Client shall execute and deliver, or cause to be executed and delivered, such documents or instruments which are necessary to perform the terms of this Agreement.
- d) **Rights in Data:** Notes, letters, software, photographs and other work materials developed or acquired in the process of producing the products named in the "scope of services" section of this Agreement shall remain the property of HJW. HJW agrees to maintain work materials in an ordered and accessible manner and take reasonable action to safeguard work materials for future use. Client acknowledges that its right to utilize the services and work products provided pursuant to this Agreement will continue only so long as client is not in default pursuant to the terms and conditions of this Agreement and Client has performed all obligations under this Agreement.
- e) **Assignment:** Neither party to this Agreement will assign or otherwise transfer its rights or obligations hereunder without the prior written consent of the other party.
- f) **Indemnity:** HJW shall indemnify Client, its officers, directors, employees and agents from any claims, suits, loss, damage, expense, and liability resulting from HJW's negligent performance or willful misconduct related to the performance of this Agreement. Client shall indemnify HJW, its officers, directors, employees, and agents from any claims, suits, loss, damage, expense and liability resulting from Client's negligence or willful misconduct related to the performance of this Agreement. Neither party shall be responsible or held liable to the other party for any indirect or consequential damages arising out of services performed under this Agreement. HJW's liability under this Agreement shall be limited to the amount of the fees paid by the client to HJW for services performed under this Agreement or to \$15,000.00, whichever is greater.
- g) **Insurance:** HJW shall maintain general liability, automobile liability, aircraft liability, professional liability, and workers' compensation insurance coverages. Certificates of insurance will be sent to Client if requested.
- h) **Termination of Agreement:** Client may terminate this Agreement in the event HJW is unable to satisfactorily perform its work, however, HJW shall be entitled to compensation for all work satisfactorily performed up to the point that the Agreement is terminated. HJW shall be entitled to immediately, and without notice, suspend its performance of any and all of its obligations pursuant to this Agreement if Client files a voluntary petition seeking relief under the United States Bankruptcy Code or if there is an involuntary bankruptcy petition filed against Client in the United States Bankruptcy Court.
- i) **Disputes and Applicable Law:** Any controversy, claim or dispute shall be construed and enforced in accordance with the laws of the State of California. Should any legal or arbitration proceedings be brought by either party to enforce or interpret any of the terms or conditions of this agreement, the prevailing party shall be entitled to recover all reasonable attorneys' fees and costs incurred in defense of the claim from the other party. The venue for any such action shall be in the County of Alameda, California.
- j) **Force Majeure:** Neither party to this Agreement will be liable to the other party for delays in performing the services or delivery of the products, nor for the direct or indirect cost resulting from such delays, that may result from labor strikes, riots, war, acts of governmental authorities, inclement weather conditions, natural catastrophes, or any other cause beyond the reasonable control or contemplation of either party.
- k) **Severability and Waiver of Breach:** If any provision hereof or any remedy herein provided for be invalid under any applicable law, such provision shall be inapplicable and deemed omitted, but the remaining provisions hereof shall be in effect in accordance with the intent hereof. HJW's waiver of any other term or condition, or breach of any term or condition shall not constitute the waiver of any other term or condition, or the breach of any other term or condition.
- l) **Sales and Use Tax:** In the event any taxing authority determines that sales or use tax should have been charged on invoices for services or products sold to Client, then Client agrees that it will either pay such sales or use tax, along with any interest or penalties assessed, directly to the taxing authority or will promptly reimburse HJW for any sales or use tax, interest and penalties against HJW by any taxing authority that results from this Agreement.
- m) **Entire Agreement:** This Agreement constitutes the basis for Agreement between HJW and Client as regards to the work specified in the "scope of services" section of this Agreement, and supersedes all prior agreements, whether written or oral. In the event of conflict between the contents of this Agreement, any purchase order, or other form of written authorization subsequently issued for HJW's services or products, the provisions of this Agreement shall govern unless rescinded in writing.



Dave Press/GOGA/NPS
10/23/2008 04:15 PM

To "Thompson, Professor Paul M." <lighthouse@abdn.ac.uk>
cc "C. Peterson" <cpeters@email.unc.edu>,
"David_Graber@nps.gov" <David_Graber@nps.gov>,
"Thompson, Professor Paul M." <lighthouse@abdn.ac.uk>,
bcc

Subject project map 

Paul,

Attached is a new map that synthesizes many of the maps already provided to the panel. A few notes about the data layers

The data layers representing 2007 aquaculture material, eelgrass coverage, and eelgrass propeller damage were collected in the field by NPS staff in March 2007. I have attached a report describing their methods. The oyster racks were also mapped in March 2007 and are applicable to all years.

The 2005 and 2008 aquaculture data layers were digitized by a NPS GIS technician using high resolution aerial imagery from that year. Imagery from 1994, 2001, and 2004 revealed no additional mariculture material besides the actual oyster racks.

The harbor seal subsite labels (OB, UEN, UEF, etc) are placed directly over the where the majority of the seals haul-out in those respective areas.

Please let me know if I can answer any questions about the map or if there are additional data layers you had expected to see.

Best, Dave



NRC_Aquaculture_Eelgrass_Seal.pdf Drakes_Estero_Trip_Report_March_2007_d.pdf

David Press
Ecologist / Data Manager
San Francisco Area Network
Inventory and Monitoring Program
415-331-0168
415-331-5530 (FAX)

Drake's Estero Aquaculture and Seal Habitat



— Oyster Racks

□ Aquaculture Material 2005

□ Aquaculture Material 2007

□ Aquaculture Material 2008

□ Seal Protection Zone

□ Aquaculture lease

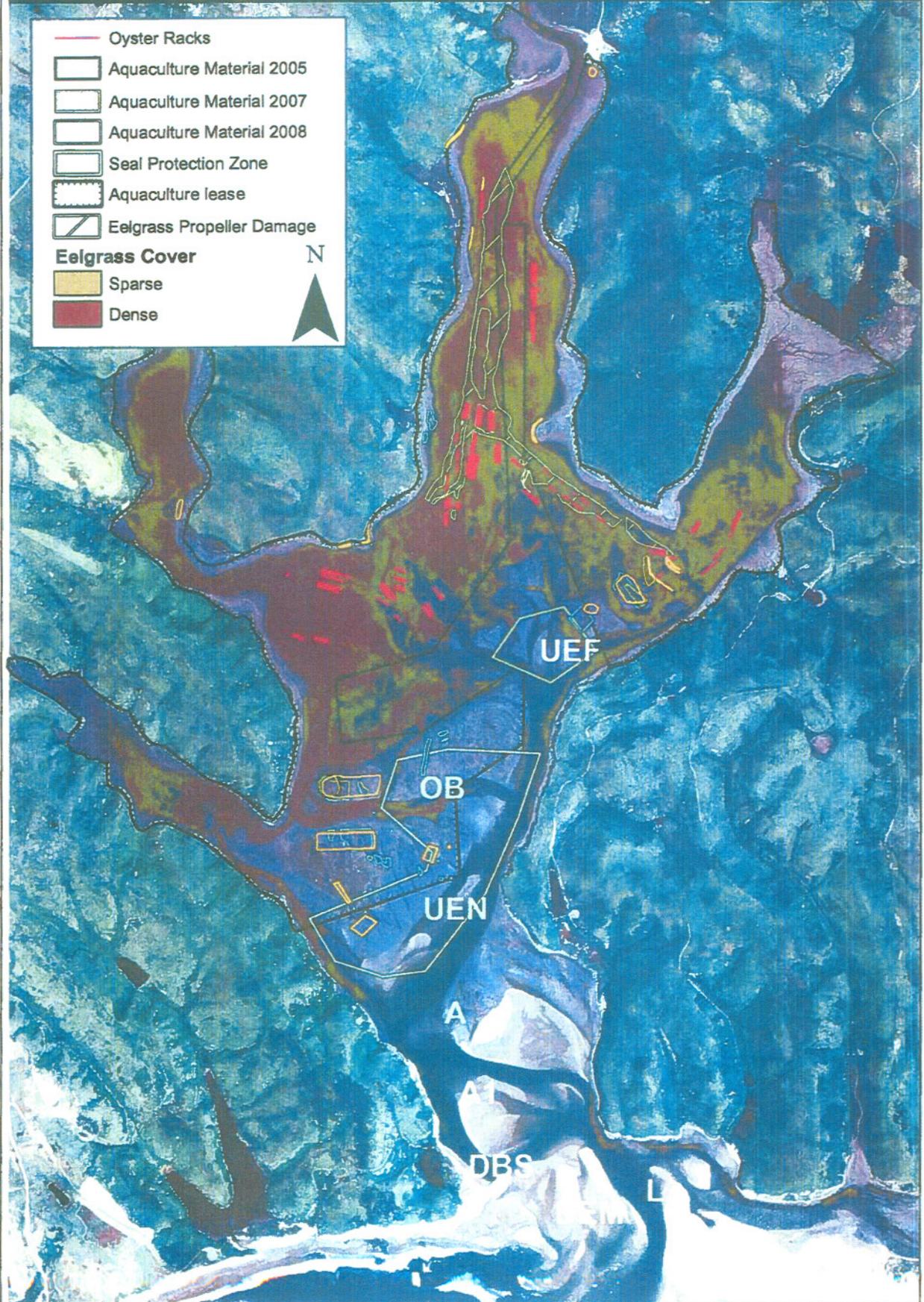
□ Eelgrass Propeller Damage

Eelgrass Cover

■ Sparse

■ Dense

N



0 250 500 1,000 1,500 2,000 Meters

Drakes Estero eelgrass, oyster bag, and oyster rack assessment Trip Report - 3/20/2007

Crew: Don Brown, GIS Specialist, Point Reyes National Seashore
Ben Becker, Marine Ecologist, Point Reyes National Seashore

Equipment: 13 ft Alumicraft skiff with 15 hp 4-stroke outboard motor.
Trimble GeoExplorer3 GPS with real-time differential correction.

03/13/2007

Oyster rack, bag, line and eelgrass assessment

Objectives

1. Map all oyster racks in the estero and categorize as active, inactive or dilapidated. Dilapidated racks were defined as those considered too deteriorated for use.
2. Document any apparently recent repair work done to racks.
3. Map all oyster bags and line systems.
4. Report eelgrass occurrence (dense/patchy/absent) both adjacent and beneath all racks, bags and lines.

Field Methods: We launched from Drakes Bay Oyster Company (DBO) at ~11 AM and a + 3 ft tide, and traveled from North to South visiting all racks in the Estero. At each rack, we recorded whether the rack was surrounded by dense or patchy eelgrass, if eelgrass was present beneath the rack, the percentage of the rack currently occupied with oysters (= percent active), and the percent of the racks dilapidated. We mapped all visible bag systems along the intertidal and investigated all marker poles that are often used to mark where bags are kept. Survey was completed at ~2:45 PM and tide appeared to be about 0 ft.

Summary Results: There are a total of 93 oyster racks in varying states of integrity in Drakes Estero. On 03/13/2007, 63 racks were usable and had some mariculture activity (2 of which were recently repaired), 3 appeared usable but had no mariculture activity on that day, and 27 racks were so dilapidated that they are unlikely to be usable without repair. The unusable racks ranged from frames with no cross members for hanging oysters to merely a set of old posts.

A total of 89 of the 93 racks were in eelgrass beds, but no usable racks and very few dilapidated racks had eelgrass growth underneath. Seven of 27 dilapidated racks had some eelgrass regrowth, likely due to lack of mariculture on the racks. The area of racks within eelgrass beds but no eelgrass growth underneath oyster racks was 8 acres.

There were 12 areas where oyster bags are scattered in intertidal areas covering a total of approximately 10 acres (some site areas estimated from a distance). Since eelgrass does not grow in intertidal areas, these bag sites come up to the edge, but are not within eelgrass areas. There were also many anchored and floating oyster bag lines which were mapped. Two oyster bag arrays (approximately 5 acres) were within a regular harbor

seal haul out site, and one other oyster bag site was within 50 meters of a regular harbor seal haul out site, however, no hauled out seals were sighted on this survey.

In total, all oyster growing activity covers ~18 acres in the estero.

Most of the apparently older and larger oysters growing on racks had extensive non-native, highly invasive tunicates (*Didemnum* Species A) growing on them (See images). This species is an aggressive invader that has had substantial ecosystem and financial impacts in New Zealand, several west coast estuaries and the Grand Banks off Newfoundland. Other fouling organisms (native and non-native sponges, tunicates, bryozoans, and mussels) were observed on both oysters and racks throughout the estuary.

03/20/2007

Eelgrass satellite imagery ground truthing

Objectives

1. Ground truth satellite imagery classification of eelgrass beds.
 - Imagery used for classification was one-meter color digital orthophoto taken August 2005 at low tide classified using Erdas Imagine software.
2. Document any additional racks, bag or line systems not seen on day 1.

Field Methods: Beginning at ~ 10:30AM on 03/20/2007 at about a 0 ft tide, we surveyed the estero to ground truth a draft eelgrass bed map derived from satellite imagery. We traveled the perimeter of the eelgrass beds to verify changes from eelgrass to bare substrate, as well as to verify that eelgrass was dense or patchy within beds. We defined dense as close to 100% cover, patchy was considered down to 40% cover. We also verified that vegetation classified as eelgrass was not *Sargassum muticum* (as happened near the mouth of the estero) or enteromorphous algae (as occurred near some of the seal haul out sand flats in the middle of the estero). We took a total of 243 points throughout the estero noting eelgrass presence/absence/ dense/patchy to reclassify the satellite derived map to reflect actual field conditions. The survey was completed at ~1:30 PM and tide appeared to be about +3 ft.

Summary Results: In the field, the vast majority of satellite derived eelgrass classification appeared correct. Two shortcomings were that (1) channels are too deep to see eelgrass, even at low tide and (2) that during high tide in waters > 4 ft deep with windy conditions, choppy waters, and low sunlight, it was often difficult to see past 3 ft from the surface. In these instances we traveled very slowly until we came to an area shallow or calm enough to see bare bottom or eelgrass.

After analyzing ground truth data, ~ 95% of ground observations appeared to match to satellite image classification. Discrepancies mostly occurred in the southern part of the bay because of misclassification of *Sargassum muticum* and enteromorphous algae, as mentioned previously.

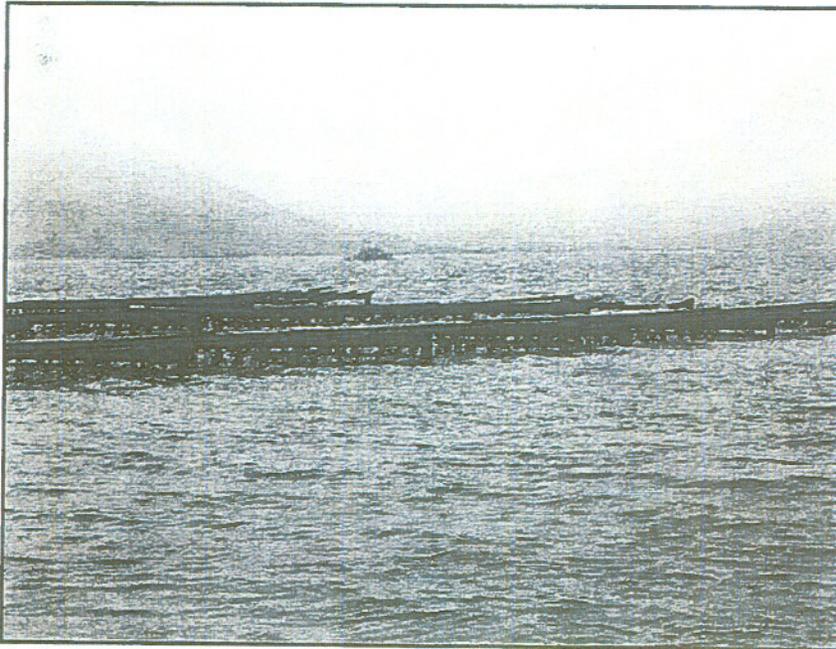
We calculated that 740 acres of the estero are covered by eelgrass, 355 acres dense, and 385 acres patchy. Oyster operations in eelgrass represent ~ 8.5 acres. We calculate that 8 acres (some dilapidated racks have patchy regrowth) of eelgrass beds are lost in Drakes Estero due to mariculture. Another factor affecting eelgrass beds which was noticed was boat propellers. It can be seen from aerial and satellite photos where regular boat paths have cut paths through eelgrass; these calculations do not reflect this factor which will necessitate further study.

We also documented three additional intertidal oyster bag systems not identified during the first survey.

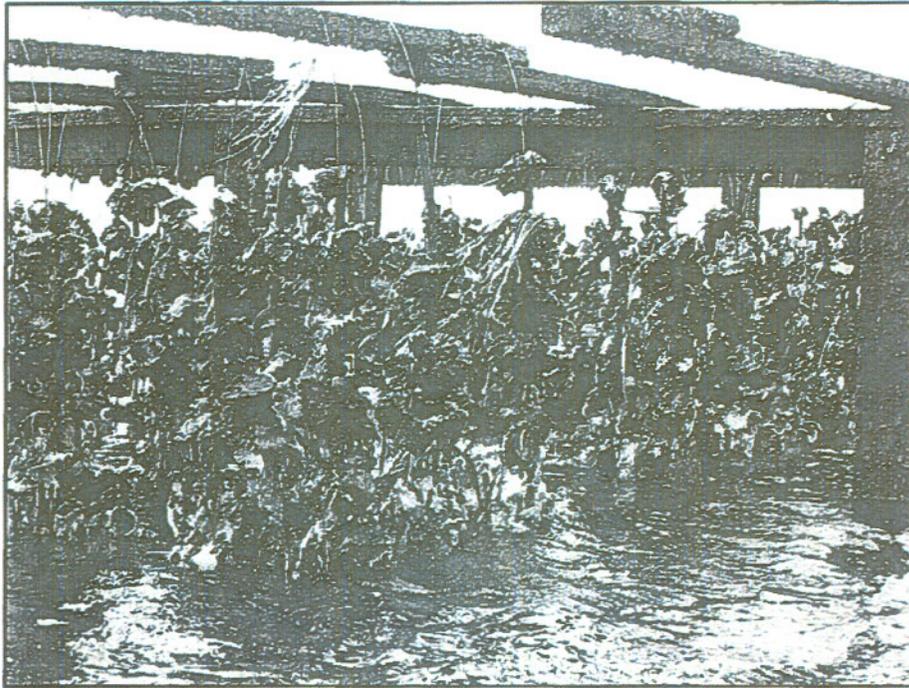
Summary Statistics

Total Oyster Racks	93
Usable Oyster Racks	66
Dilapidated racks	27
Percentage of racks in eelgrass beds	96% (89 of 93)
Percentage of usable racks with eelgrass underneath	0%
Percentage of dilapidated racks with eelgrass regrowth	26% (7 of 27)
Acres of eelgrass lost to racks	8 acres
Number of intertidal oyster bag areas	12
Acreage of intertidal oyster bag sites	10 acres
Total eelgrass acreage in the Estero	740 acres

Images



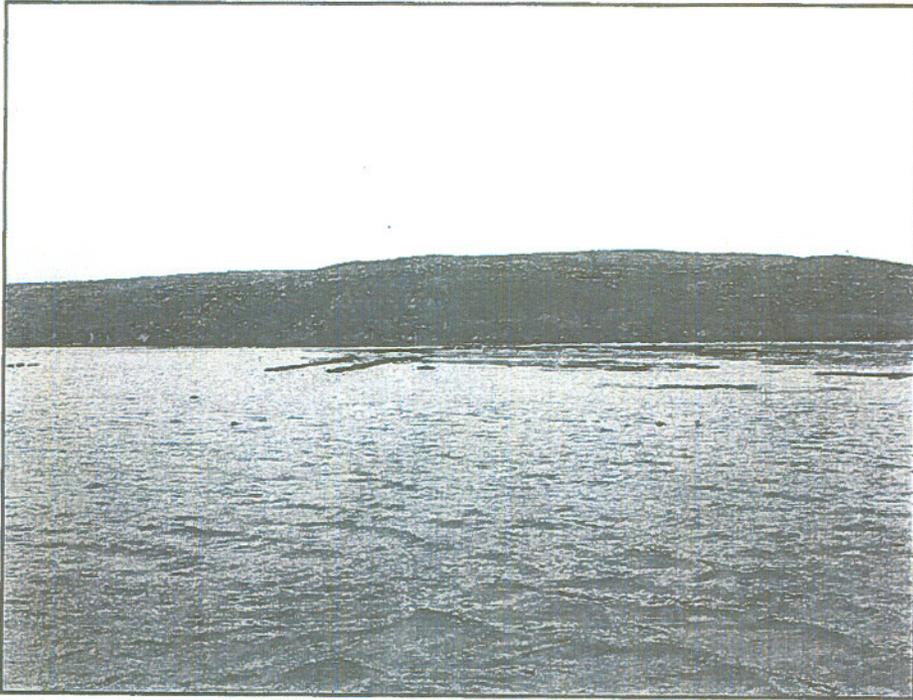
Active oyster racks in Drakes Estero.



Non-native tunicates (*Didemnum* spp. A) growing on oysters.



Floating bag system tethered by ropes.



Tethered oyster bags on intertidal sand/mudflats



Hanging bag array



Robert Campbell
 <gbaerial@sbcglobal.net>
 05/09/2007 09:38 AM

To Sarah_Allen@nps.gov
 cc
 bcc
 Subject Oyster bags

What a mess!. I chose not to outline the cages. The files are full size, so you can crop and enhance as you wish.

Bob



Point Reyes 167.jpg Point Reyes 170.jpg

Robert Campbell Photography / Chamois Moon
 707 996 8338 main
 707 935 1564 fax

Ex 6

<http://www.chamoismoon.com>
 gbaerial@sbcglobal.net

On May 9, 2007, at 8:26 AM, Sarah_Allen@nps.gov wrote:

> terrific!

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> Sarah G. Allen, Ph.D.
 > Senior Science Advisor
 > National Park Service
 > Point Reyes National Seashore
 > One Bear Valley Road
 > Point Reyes Station, CA 94956
 > Phone 415-464-5187
 > Fax 415-464-5182
 > sarah_allen@nps.gov

>> <(((°>.....~.....><(((°>,....

> Robert Campbell
 > <gbaerial@sbcglob
 > Sarah_Allen@nps.gov al.net>

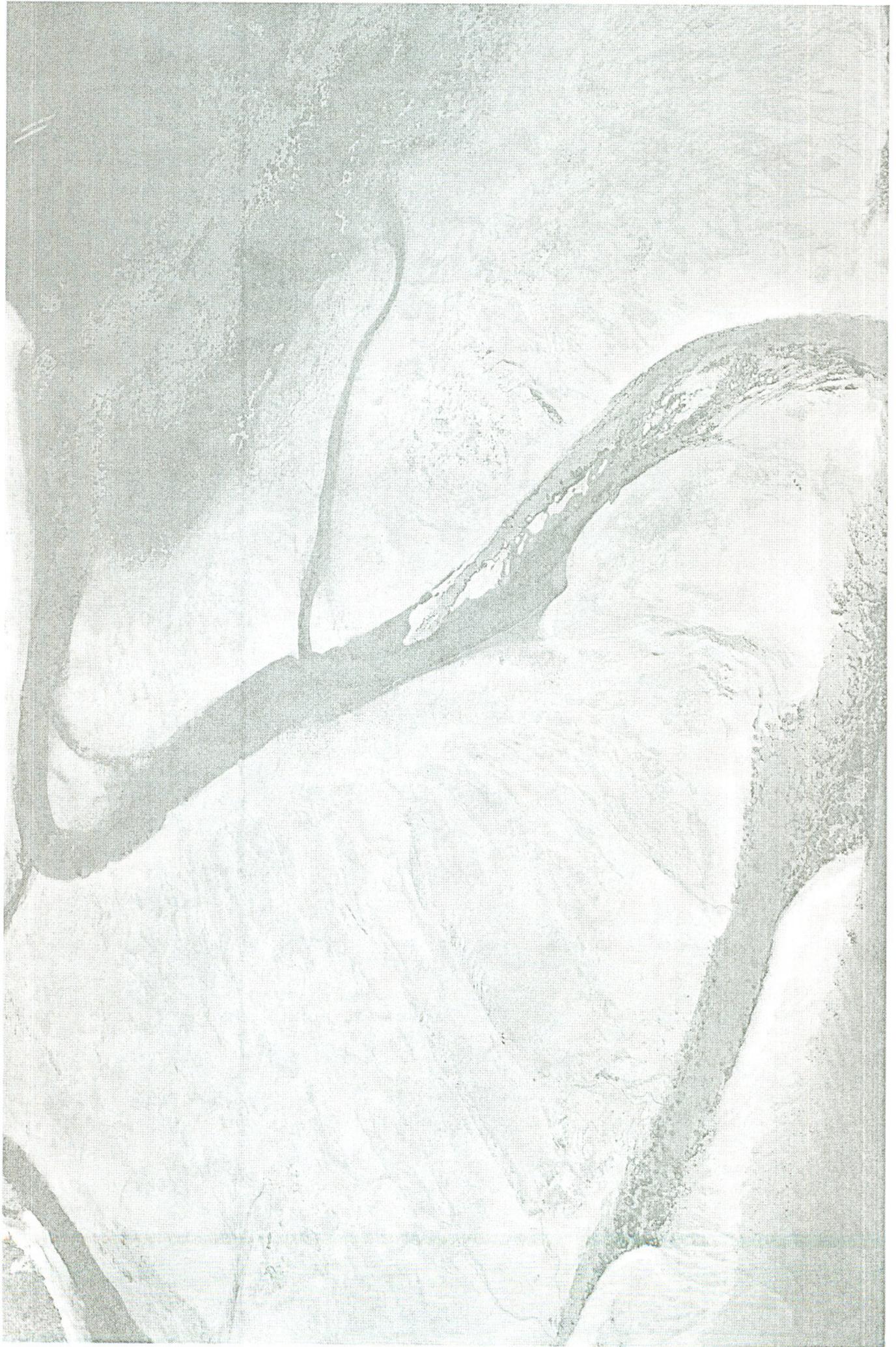
To:
 cc:
 Subject: Re: map of

> estero

05/08/2007 17:30
 MST



Point Reyes 167



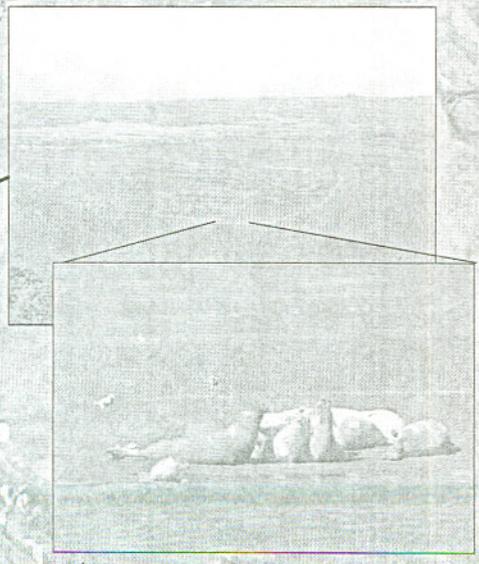
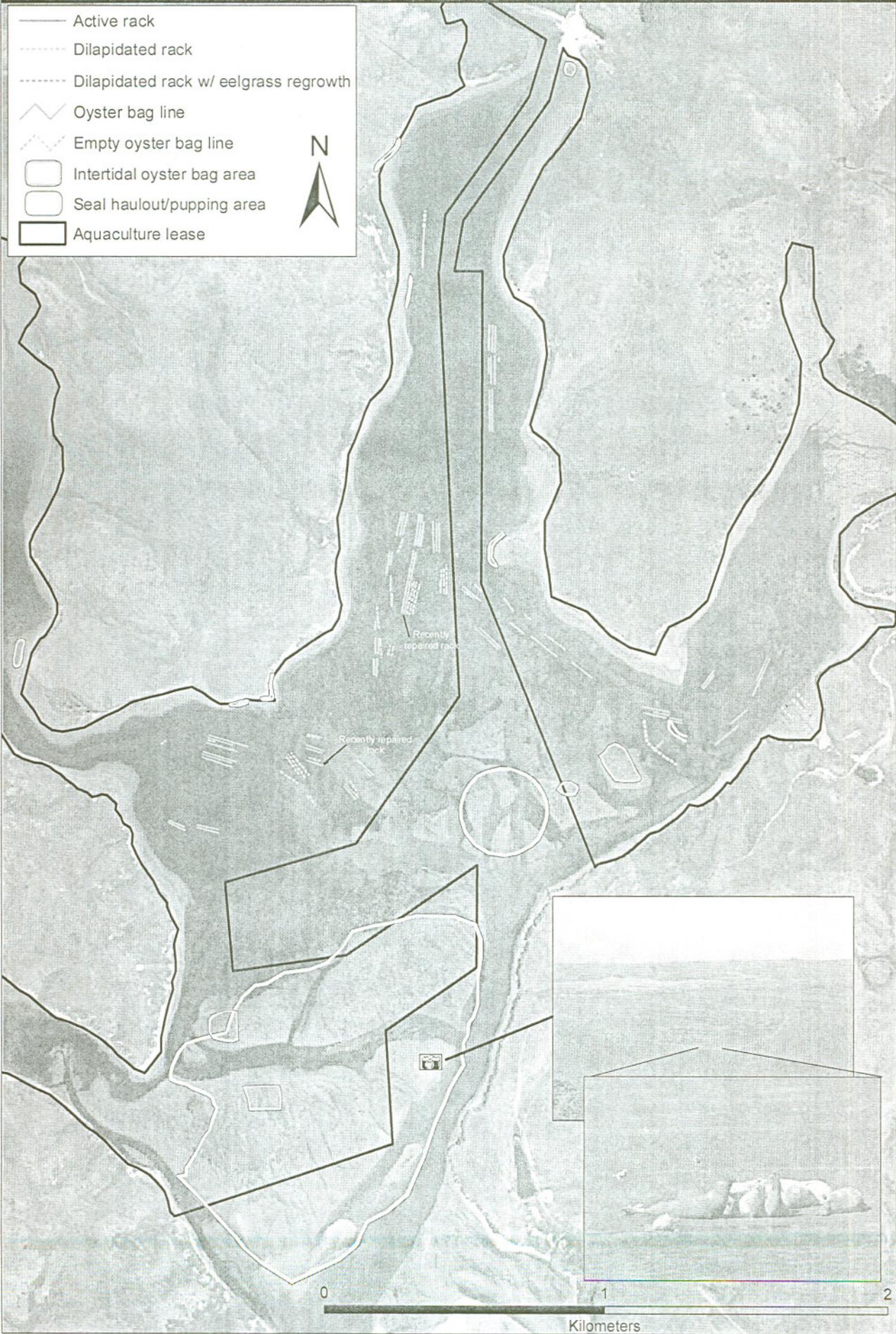
Print Keys 170

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> Sarah:
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> I found a lot of them. They look almost white. I'll send some
> tomorrow.
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> Bob
>
>
> Robert Campbell Photography / Chamois Moon
> 707 996 8338 main
> 707 935 1564 fax
> Ex 6
> <http://www.chamoismoon.com>
> gbaerial@sbcglobal.net
>
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>
> On May 8, 2007, at 4:45 PM, Sarah_Allen@nps.gov wrote:
>
>>
>> (See attached file: oyster_activity_seal.pdf)
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>> _____
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>> Sarah G. Allen, Ph.D.
>> Senior Science Advisor
>> National Park Service
>> Point Reyes National Seashore
>> One Bear Valley Road
>> Point Reyes Station, CA 94956
>> Phone 415-464-5187
>> Fax 415-464-5182
>> sarah_allen@nps.gov
>>
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>>> <oyster_activity_seal.pdf>
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>

Drake's Estero Aquaculture and Seal Habitat



- Active rack
- - - Dilapidated rack
- · - · - Dilapidated rack w/ eelgrass regrowth
- ∩ Oyster bag line
- ∩ Empty oyster bag line
- Intertidal oyster bag area
- Seal haulout/pupping area
- Aquaculture lease



04542 activity seal



Robert Campbell
<gbaerial@sbcglobal.net>
05/08/2007 04:38 PM

To Sarah_Allen@nps.gov
cc
bcc
Subject Re: Aerials



Point Reyes 266.jpg

Robert Campbell Photography / Chamois Moon
707 996 8338 main
707 935 1564 fax

Ex 6

<http://www.chamoismoon.com>
gbaerial@sbcglobal.net

On May 8, 2007, at 1:41 PM, Sarah_Allen@nps.gov wrote:

> Robert - these are wonderful photos! Did you also have photos of the
> hundreds of oyster bags on the sandbars?

>

> Talk to you soon.

>

> Sarah

>

>

> Sarah G. Allen, Ph.D.
> Senior Science Advisor
> National Park Service
> Point Reyes National Seashore
> One Bear Valley Road
> Point Reyes Station, CA 94956
> Phone 415-464-5187
> Fax 415-464-5182
> sarah_allen@nps.gov

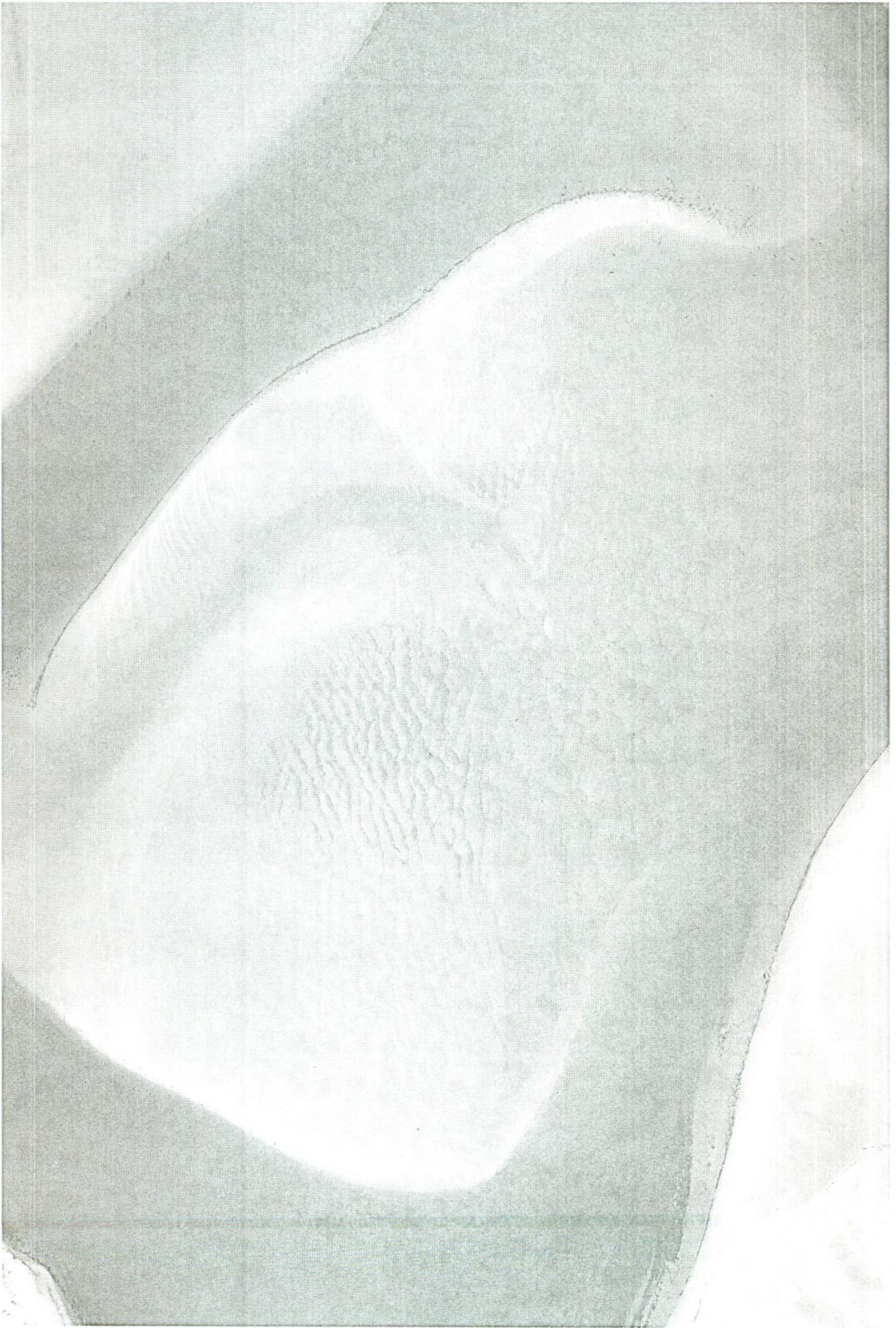
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>> <(((°>`.....-.....-.....>(((°>.....

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pos.



Point Reyes 26C



Robert Campbell
<gbaerial@sbcglobal.net>
03/15/2007 03:37 PM

To Sarah_allen@nps.gov
cc
bcc
Subject One More



Drakes Estero-Low Tide.jpg

Robert Campbell Photography / Chamois Moon
707 996 8338 main
707 935 1564 fax
Ex 6
<http://www.chamoismoon.com>
gbaerial@sbcglobal.net



Drakes Estero low tide



Robert Campbell
<gbaerial@sbcglobal.net>
03/15/2007 01:41 PM

To Sarah_allen@nps.gov
cc
bcc
Subject Estero selection



NPS - PR.zip

Robert Campbell Photography / Chamois Moon
707 996 8338 main
707 935 1564 fax

Ex 6

<http://www.chamoismoon.com>
gbaerial@sbcglobal.net



Robert Campbell
<gbaerial@sbcglobal.net>
05/08/2007 07:05 AM

To sarah_allen@nps.gov
cc
bcc
Subject 4

I got a message that these bounced because you were out of space.

