BALAZS 1998 & 2000

2 OF 2

G. BALAZS (808) 983-5733
FAX (808) 983-5902

BARBADOS 1998

8179, 8180
8207, 8208

Mead COMPOSITION

100 sheets • 200 pages
9¾" x 7½" • 24.7 x 19.0 cm
wide ruled • 09918

SCANNED

CARIBBEAN HAWKSBILL SATELLITE TRACKING

GBALAZS@HONLAB.NMFS.HAWAII.EDU

P. 111 YEAR 2000

hawks = 22126, 22134
greens = 19693 19694

TORTUGUERO
COSTA RICA
16-21 JULY 00

ZENIT
MAMO
MISS TOMASA
ESPERANZA

CARIBBEAN 1998 & 2000

(111) YEAR 2000 II INTERNATIONAL TRAINING WORKSHOP on the use of satellite transmitters and Argos system to track post-nesting migrations of hawksbill turtles in the Caribbean Region

TORTUGUERO, COSTA RICA — Local time + 6 hours = GMT

Sunday 16 JULY 2000

Depart 1245pm United FL 52 LA for Guatemala City → San Jose

BELIZE, NICARAGUA, COSTA RICA (if newly located N. Coast)

Already Trained = Carriacou Julia & Jamaica - J. Richardson

"Year II" Jamaica, Barbados, Yucatan MX, Virgin — 1999 = 4 by Mauricio

Planned: Four transmitters to JAMAICA (4) N. shore by Jim Richardson — 9h on, 3 off

07665, 07677, 07681, 07687

Carriacou (Grenada) - 25666 (1) + 2nd one contributed by BAS — 9h on, 3 off

Deploy Location (to Argos) costa Rica as per BAS = 10.65 N 83.55 W

Refurbish both from 1995 tamehouse — BALAZS ST14 Contributions (Program # = 9096) (2)

Duty cycle 6/6 = 22126, 22134 6/6

Anne Meylan Program (for greens at Tortuguero) (3)

Duty cycle 7, 24/12 — 19692, 19696, 19697

Program # =

Belize - 25673

BAS Program = 9/3 — 25675

Nicaragua - 25667

BAS = 9/3 — 25671 + 24/12 from CCC to be (Repaired) Replaced by me

COSTARICA, Belize, NICARAGUA ccc =

GMT = Local Time + 6 hours

Local Time = GMT − 6 hours

| 31 JULY 00 = START OF CHINESE GHOST MONTH 112

Monday ARRIVE San Jose ~ 8am – TAXI $10 TO Don Carlos Hotel
17 JULY 00 ~ 4 blocks from Gran Hotel plaza where WATS I was held.
Met Cynthia Lageaux, Kathy Campbell & William from Nicaragua. Then David Godfrey,
Dan EVANS (website CCC) & GARY APPELSON. At lunch with them, later I took a
taxi to "Fibrocentral" branch to determine types of resin available.
Friendly staff – Bought 4 quarts of #217 laminating resin
And 5 small bottle droppers of MEK catalyst.
taxi to San ___ Mall ("American Mall"). Bought plastic
containers for resin vials to contain vapors/smell. Taxi back to hotel
via Fibrocentral for photos. Out to dinner near Don Carlos hotel.
Barbara Schroeder arrived – Also Isaias Majil from Belize.
18 JULY 00 Depart in van from Hotel (video of RIDE) to Airport –
Tuesday Sansa airlines (DIVISION OF TACA) – Cessna (former Fedex plane) –
Flight to Tortuguero I sat in last seat on right
doing video. Arrive Tortuguero – paved strip now.
old CCC building gone now – only cement slab. This is
where the photo was taken (by Wayne King) 3/18/90 – A. Carr,
G. Balazs, 2 national police & pilot. Picked up by CCC boat –
Freddy (been there 15 years) and motored to
new CCC building's just north of Tortuguero
village. only one building said to be original ("Kon Tiki")

TO P. 124

~~TUES~~ 113 TORTUGUERO

~~7/18/00~~ (Green Turtle)

ON 24/12 off | 1205 PM Release 7/18/00

Continued from p. 124 ~~8~~ 830 AM

System 453671 "

ID 19693 Anne Meylan Program

NEW TAGS

RF 65545

LF 65546

55 min video by me TRV900 Sony DVC {Tape 1 of 4)

SCL 101.1 cm

CCL =

SKIN SNIP for DNA. Scapel cut by Sebastial from hind flipper (instead of net he usually does).

named "ESPERANZA" = means hope

grade School kids contest ~~four~~

WINNER = Gloria Viannn~~a~~ RUIZ-ATENCIO

Zunilda B. Hudgson
Coralina Corporacion
Via San Luis
Tel: (578) 5126853
e-mail: zoni_bal@hotmail.com
San Andres Isla
Colombia, Sur America

TRV900 #1 Digital TAPE entire attachment process.

(Go TO Page 124 Again)

TORTUGUERO — CCC Volunteers

CC Dutton

Mat Schetter San Diego Regional Chamber of Commerce
MSCHETTER@SDchamber.org

Saundra McLaughlin, WA mclaughs@cwu.edu

RACHEL SODMAN, CA RSODMAN@EXCITE.COM

Beau Robinson 23502 Eureka Warren, MI 48091
CAMPMOOSY@AOL.COM

Nicholette DeMeulemeester, MI niK2aloha@hotmail

TV → Angela Tilley angelatilley@hotmail.com Atlanta/GA
group photo at beach 7-19-00

Matthew Christian tapestry@mindspring.com

Catalina Reyes (Colombia) ~~tea~~ kica24@hotmail.com

Jeff Mangel jcmangel@gte.net

William McCoy (Laguna de Perla) Belaye Sur

LUCIANO SEGURA (Argentina) lsegura@museo.fcnym.unlp.edu.ar

MELINDA STOCKMANN, CT, USA mindykid@goplay.com

Zuwilda B. Hudgson
address: CORALINA
Via San Luis
San Andres Isla, Colombia, Sur America
zuni_bal@hotmail.com

Katy Garland (1720 W. Kilbourn, #63 Milwaukee, WI 53233) FISHERCHICK1@hotmail.com
→ even though you already have it & MY picture

WAGNER M. QUIROS (Costa Rica) 13538-1000 SAN JOSÉ/Costa Rica
wquiros@starmedia.com.

You are the best George! Mangula
Keep smiling that wonderful smile!
mtiwari@zoo.ufl.edu

NAME in Hindi

ANDRES FERNANDO ORTEGA GUIO. 97-1-2247430
@pogo@mixmail.com

(115) From p. 124 TUES. PM 7-19-00 TORTUGUERO

Hawksbill Newly applies Inconel tags 86636 FL 86637 FL

2 miles South mile 4 & 4/8 near leatherback nesting

1030 PM Hawksbill finish cover - CARRIED TO CAMP ON Blue TARP - 12 midnight

(3rd L & R lateral
"34" motofool
(Magnet off)
on 3AM Local
GMT 0900)

CCL 89.5 cm
SCL 83.5 cm TIP-TO-shoulder

"MISS TOMASA" mile 4/48

ID 22134 6/6 Sys # 209487

ST 3 REFurbish

86.5 CCL

→ "IN Memory of Archie Carr"

"808-983-5233"

1010 AM Released turtle

need to send

Susan Feeney (Mum) + Madaleine 16 mon
Anderson-Feeney
+ Clare 4 yr
coloring Book

22 Hakanoa St
Grey Lynn
Auckland
New Zealand

TAPE TWO 000

"named MISS TOMASA"
w/ COSTA RICAN FLAG

School children visited

Attachment process.

[Entire process videoed TAPE 2 of 4 including Many children]

TORTUGUERO

7/19-00 Wednesday
men schoolteachers

"Gizmo as it goes"

① Colegio de Tortugero : Limón Costa Rica
Nivel. 7°-8°-9°.
Profesores.
~~Scott~~ ② Ricardo Scott Todd - tel 250-71-56.
Jimmy - Vargas Arras Tel 763 3047

~~American~~ women were intl 12/00
Kristin Raughley - English teacher
Maestra de Inglés
Barra de Tortuguero
Limón, Costa Rica
2-3-4th grade
email
kristinraughley@yahoo.com

7/19/00 Wednesday 2:30 PM Meeting in Dining Room.
- Plan for Press
Belize → need Box plans
bacalarchico@hotmail.com
fax (501) 26-2420
phone (501) 26-2247
7:30 PM Discussions w/ Columbia Islands off Nicaragua.
8 PM "Press meeting in Museum.

(117) 7-19

85 cm CCL 2 old Tag loss sites

need / Inform others about workshop II in Tortuguero

5/8

9PM - hawksbill nesting at 4/8 mile (just north of airstrip - old building site CCC) Returned w/ turtle in rain as boat.

MAMO1

presets

22126 Date : 15.07.00 12:54:58 LC : A IQ : 00
Lat1 : 9.951N Lon1 : 84.038W Lat2 : 8.261N Lon2 : 76.472W
Nb mes : 003 Nb mes>-120dB : 000 Best level : -128 dB
Pass duration : 089s NOPC : 2
Calcul freq : 401 650024.1 Hz Altitude : 0 m
212 00 00 00
00 00

22134 Date : 15.07.00 12:55:45 LC : B IQ : 00
Lat1 : 10.069N Lon1 : 83.592W Lat2 : 8.567N Lon2 : 76.830W
Nb mes : 002 Nb mes>-120dB : 000 Best level : -127 dB
Pass duration : 153s NOPC : 2
Calcul freq : 401 649807.6 Hz Altitude : 0 m
203 00 00 00
00 00

ID 19585 is set up with 2 sensors as follows:

Sensor	01	Bits	16	Processing	A1
Sensor	02	Bits	16	Processing	A1

The rest of the IDs in your Program 1913 are set up with 6 sensors as follows:

Sensor	01	Bits	8	Processing	A1
Sensor	02	Bits	16	Processing	A1
Sensor	03	Bits	16	Processing	A1
Sensor	04	Bits	16	Processing	A1
Sensor	05	Bits	2	Processing	A1
Sensor	06	Bits	6	Processing	A1

Please let me know if you would like to make any changes in the processing.

Thanks,
Jennifer

6AM start 7-20-00 (118)

MAMOI ID ST14

22126 Ref 8-27-97

SYS 208555 C resumed 6/6

"For Balazs"

magnet off 3202 on (0900 GMT)

Fiberglass Hawaii Lam. Resin

"Zenit" (zenith) second green 7/20/00

25 for naming by high schools

(119) 7-20-00

Green Twp
in Anne Meyhan's Argos
ID 1694 24/12

System #4536880 CCC 102.1

120

Date: Thu, 1 Jun 2000 11:25:06 -1000 (HST)
From: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
To: Barbara Schroeder <Barbara.Schroeder@noaa.gov>
Subject: id and sys no.

Caribbean book

For Nicaragua- 25667 439155
25671 439158

For Belize 25673 439165
25675 439167

I can give you the phone number and the email address for CCC's station in Tortuguero.
Phone: (506) 710-0547
Email: canals@sol.racsa.co.cr

As a backup, in case the phones are down in Tort., here is our office phone number in San Jose: (506) 224-9215.

---------- Forwarded message ----------
Date: Sun, 16 Jul 2000 13:01:31 -0700
From: Roxana Silman <baulas@sol.racsa.co.cr>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Cc: david@cccturtle.org, Barbara Schroeder <Barbara.Schroeder@noaa.gov>, dlggodfrey@msn.com
Subject: Re: Resin test

Dear George:

I have run another test, mixing 2-3 ounces of resin with 1.1 cc catalyst (the conversion factor on the bottle gives 1 cc as 36 drops), mixing for three minutes and then waiting for two minutes before applying it on the cloth on top of the concrete. This time it dried more rapidly and there were no "spider webs" after approximately 23 minutes. (The mix you recommended was approximately two and a half times more catalyst than the highest concentration I used in the earlier test run.)

Please let me know if you think that further test are necessary. Looking forward to seeing you all in Tortuguero on Tuesday.

Sincerely
Sebastian Troëng

From: George H. Balazs <gbalazs@honlab.nmfs.hawaii.edu>
To: Roxana Silman <baulas@sol.racsa.co.cr>
Cc: david@cccturtle.org; Barbara Schroeder <Barbara.Schroeder@noaa.gov>; dlggodfrey@msn.com
Subject: Re: Resin test
Date: Saturday, July 15, 2000 4:10 PM

I'm here in my office packing. Somethings not quite right. We need the stuff to setup (no spider webs) in 20 min would be very good. Do you have LAMINATING resin? Polyester Laminating Resin? If not, if you have finishing or casting or anything besides Laminating, it will indeed take longer much longer to set up and that's not good desirable nor not necessary.

Please try this. pour out 2-3 ounces. Use a DROPPER for the MEK, it should come in a dropper usually. count out 40 drops. Mix for 3 full minutes. Let it set for another 2 minutes. Then brush it on some cloth on concrete. Tell me the results. I don't leave until tomorrow a.m. Hawaii time.

121

Isaias Majil

bacalarchico@ hotmail. com

phone :- 501-26- 2159 home / 501-26- 2247 work

fax :- 501 - 26- 2420

P.O. Box 60

San Pedro Town

Belize C.A.

TORTUGUERO, COSTA RICA

FROM p. 112

7-18-00 TUESDAY owned by Thor Heyerdahl(?). Lodged in brand new visiting scientist quarters - central living room kitchen - bedroom to each side.

Nesting green had been boxed by Sebastian & Jeff with Gretel and team last night - was awaiting us. Unpacked, had breakfast - gave box of Macadamia nut chocolates to head cook (of 3 working here). Set up Parawing bought by CCC. Started attachment training at 0830am

See Page 113.

From p. 124 = Walked to village in the pm. AT 8PM went out with tagging team walking to the north, group of tourists encountered led by official guides, walking to see leatherbacks nesting. Hawksbill "shuffle" tracks seen - sat by turtle watching her - a green crawled right up to us while sitting there. Tuesday

Walked to see leatherback a short distance away - turtle was returning to the water. Video would image, even though moon was out near-full. Carried hawksbill 2 miles to CCC using blue tarp. Put in box @ midnight. 2200

UP 530am light (sunrise about that time) Decided not to get a green - only hawksbill.

GO TO PAGE 115.

128

Date: Thu, 13 Jul 2000 10:58:10 -0400
From: David Godfrey <david@ccctturtle.org>
To: Barbara Schroeder <Barbara.Schroeder@noaa.gov>
Cc: gbalazs@honlab.nmfs.hawaii.edu
Subject: Re: Tort

Hi Barbara (and George),

I will be in today and tomorrow in case you want to call for more details, but I will try to respond to your last two emails.

To call our field station in Tortuguero from within the U.S., one must dial 001-506-710-0547. Since the phone lines are occasionally "down" I will give you our San Jose office number too: 001-506-224-9215. The email address for the field station is: canals@sol.racsa.co.cr.

I leave from Orlando on Monday morning and arrive in San Jose at 11:46 AM. We are all staying at the Hotel Don Carlos. When you get through immigration and customs (usually a piece of cake for gringos), proceed out the airport exit and immediately look for the official-looking taxi's to your right (they are usually orange). Simply ask to be taken to the Hotel Don Carlos. It's a little bit of a trek into town, but you should enjoy the ride. I think it will cost between $10 and $20 US. In case you need it, the number I have for the Hotel Don Carlos is 506-221-6707. We have made a reservation in your name, and another in George's. When you check in, ask for my room number or check to see if we have left you any messages. We can all go out to dinner at a very nice little restaurant around the corner from the hotel.

Regarding media, there is very strong interest within Costa Rica about this tracking study. The main newspaper La Nacion has already run a story about it. For the same reasons you state, I too have told our staff not to invite anyone until the second night. I am told that they will comply. However, I have also been negotiating with the production company that produces Jim Fowler's TV series, "Life in the Wild," which runs on the Discovery Channel I think. Anyway, they just finally confirmed two days ago that they do want to join us in Tortuguero to do a show about the project and the education program. They can only stay two days because of another filming gig in Panama, so they must travel into Tort. on the same day we arrive and do some filming on the night of the 18th and 19th. They have a lot of general wildlife shots they want to get and a lot of daytime shots to get, so I will encourage them to focus on the other shots that first day. However, it is likely that they will want to do some filming on day one. I will explain the situation to them and do my best to keep them out of our hair while we work through the kinks.

Best regards,
David

At 05:04 PM.07/12/2000 -0400, you wrote:
>Hi Again David, Cynthia mentioned in an e-mail about plans for media at
>Tort - is this correct? If so, it can't be the first night of the
>deployments, must be after we have one deployment done so any bugs that
>are unexpected are worked out. Please confirm, thanks, Barbara

~~~~~~
David Godfrey
Executive Director
Caribbean Conservation Corporation &
~~~~~~

129

mbers for ADS

Caribbean Book

Subject: I.D. Numbers for ADS
Date: Wed, 09 Aug 2000 23:17:00 -1000
From: "Aphelocoma@aol.com" <"Aphelocoma@aol.com"@swfc2.nmfs.gov>
To: "useroffice@argosinc.com" <"useroffice@argosinc.com"@swfc2.nmfs.gov>
CC: "George Balazs" <gbalazs@s360.swfc2.nmfs.gov>,
"clagueux@wcs.org" <"clagueux@wcs.org"@swfc2.nmfs.gov>

Hi, I don't think I sent this ADS add request yet, but could you double check?

I.D. numbers 25671 and 25667, under my program, should also be sent in the ADS, same format as I currently receive to:

clagueux@wcs.org

Also, I.D. number 19695, which is the I.D. transferred from Anne Meylan's program to my program, should also go ADS to clagueux@wcs.org.

These three I.D. numbers also need to go ADS to George Balazs. George, can you give Argos the e-mail address and program you want them to come in under?

Thanks, please make the adjustment as soon as possible.

Note to Cynthia Lagueux, I will send you the back-up on these next week when I am back from travel, have not been in the office.

Thank you,
Barbara Schroeder

Nicaragua

nging of the guard

Caribbean

Subject: Re: changing of the guard
Date: Sun, 06 Aug 2000 21:12:00 -1000
From: "rainforestry@earthlink.net" <"rainforestry@earthlink.net"@swfc2.nmfs.gov>
To: "chelys44@hotmail.com" <"chelys44@hotmail.com"@swfc2.nmfs.gov>
CC: "muenztk@hotmail.com" <"muenztk@hotmail.com"@swfc2.nmfs.gov>

Hi, everybody, Team I and Team II!!! I hope Billy Martin was a help at the airport. As far as measuring supracaudal thickness, why not measure at the bone margin visible by flashlight illuminating from beneath. Then, three cm or something like that, lateral from the midline. This would be a consistent point for measurement and logical. Also measure the distance from that point to the nearest lateral margin of the scute, such as you do for the drill holes, and perhaps the distance from that point to the longest tip.

Great news about the transmitter showing up on the beach on a nesting turtle! What is her tag number???? Make sure you photograph the transmitter in place before removing it. Also, describe the condition of transmitter, mounting material and turtle's carapace in detail before removal. Is the fiberglass tightly attached to the shell? Is it turning up or coming loose at the edges? Is there any distortion of the shell or other sign that the back pack has started to cause discomfort to the turtle? Wait until I talk to George and Barbara before removing. With a new transmitter, it would be fun to know if this turtle returned to her same foraging ground, what we think but have never proven, but I am pretty sure there are no additional transmitters available. When you do remove it, remember: Wait until the turtle is laying so you will have enough time to remove the transmitter without having to detain her. If you have not completed return with a dangling transmitter on her back!! Make the hacksaw cuts right at the base of the transmitter on each of the four sides. The transmitter is not glued to the turtle, only held by the fiberglass cloth attached to the shell. After the transmitter is removed, feel free to pry off any additional fiberglass if it comes easily. Otherwise, leave these pieces on the turtle. A close-up photo of the transmitter before removal and the condition/look of the carapace after removal would be very valuable for the record.

Keep me posted. JIM

>hello mama hen!

>

>Everyone arrived safe and sound and we're so glad to have them! It's so nice

>to see Kimberly- we got to be good buddies last spring...we're going to do a

>poster for the symposium for sure. we're already talking about ideas. i'm so

>excited about working with the data... i'm going to be so busy this fall

>(doing ecology homework!) but i'll make the time to do some things. i still

>owe you a couple of papers for credits! I think i can work something up with

changing of the guard

>my photographs... accompanied by a photo album of turtle butts!

>

>if you were going to take one measurement of supracaudal thickness, where on

>the scute would you do it? i don't think there's enough time to take more

>than a couple....

>

>anyway, take your time responding. i'm sure you're busy as usual.... by the

>way, thanks so much for coming here. it meant a lot to me and tara (even

>though i wasn't there so much) especially considering how much stuff you've

>got going on... and Anne was so happy to be able to thank you in person for

>giving her the opportunity to intern here. i think she left with a really

>good feeling and psyched for Bonaire!

>

><bold>Hey- A couple of days after you left a turtle with a transmitter

</bold><bold>crawled up and nested! I'll write back with her tag numbers....

</bold><bold>we'll get a saw from David...

</bold>

>anyway, just wanted to let you know that all is well. It was a rush for

>Stacie to get here so early, but i think that being here for jouvert morning

>will make it all worth while!

>

>Take care!

>

>peri

>

>PS- i had the best dream about a leatherback emergence at pasture bay-i

Subject: transmitter sea turtle
Date: Wed, 09 Aug 2000 13:04:00 -1000
From: "rainforestry@earthlink.net" <"rainforestry@earthlink.net"@swfc2.nmfs.gov>
To: "pnaforde@cwjamaica.com" <"pnaforde@cwjamaica.com"@swfc2.nmfs.gov>

Dear Peter, Thanks again so very much for your hospitality and support when I washed up on the coast of Jamaica with about as much plan and ability to care for myself as a Cuban boat person on an inner tube raft! Thought I would bring you up to date on the first ARGOS turtle. No other turtles captured yet, as I was afraid and suspected this would happen. I will carry through with the other things I promised to you shortly. Sincerely, Jim Richardson <underline>

Caribbean

Report on ARGOS satellite transmitter 7677</underline>: This turtle fell into the swimming pool of Mr. Stafford Subratie east of Ocho Rios on 17 July while searching for a nesting site. Thanks to Mr. Subratie's efforts, the turtle was detained until a transmitter could be applied to her back by NRCA. She was released on 18 July.

She was apparently seen with transmitter on her back on the beach of Jamaica Inn on 19 July, according to Mr. Charles Moody who has been watching that beach for additional turtles. Transmission hits (quality of signal) have been poor at first, but she apparently hung out in the vicinity of Ocho Rios until 24 or 25 July. This would imply that she did not nest for a few more nights after being seen at Jamaica Inn.

On 26 July, Wednesday, a solid signal placed her just off the coast of Discovery Bay heading west. This says that her meeting with Mr. Subratie was her last nesting (of perhaps five) for the season. If so, she must have started nesting some time in mid-May, if I had to guess. Anyway, she passed Montego Bay on 27 July and was off South Negril Point on or around 29 July.

At this point, she took a WSW heading and has been navigating all this week across deep blue water, straight as an arrow for the coast of Honduras. She is expected there today (9 August) in the area of Trujillo, midway along the Honduras north coast. Distance is about 400 miles, and she has been averaging about 1.8 mph. Based on the speed of the transit and the number of surfacing times per 12 hur period, I don't think this could be a returning fishing vessel; she is really swimming her way back home. I will guess that she will take up residence in some part of the southern Belize barrier coral reef, one of the largest and most beautiful in the world. This will be a fitting home for a North Coast Jamaica nesting hawksbill! I and/or Andrea Donaldson of NRCA will keep you posted on her progress and final foraging home base.

James Ingram Richardson

130

131

Date: Sat, 12 Aug 2000 20:59:37 -0400
From: James Ingram Richardson <rainforestry@earthlink.net>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Re: Message Appreciated!

Redon Caribbean Book

George, As always, your vote of confidence is so appreciated. The transmitter turtle (PPC-946) now at Jumby Bay is the Redonda turtle carrying transmitter #08456. This is her first of at least five nesting visits, so there is abundant time to remove the transmitter. In 1998, she nested six times (!), and we attached the transmitter on her sixth nesting visit, which is why she left immediately for Redonda. Now that I have heard from you, I will tell the team to proceed with removal of the transmitter on her next visit, after they have photographed the apparatus in place to note condition, wear, etc. Unless you wish the equipment sooner, I will ask my team to bring the transmitter with them on their return to Georgia in November, and I can ship it to you or Barbara at that time, as you wish.

I expect the St. Eustatius turtle (transmitter #08455) has been killed, based on the behavior of the hits in the last few days of contact. The other two turtles could be back this year or next; I cannot be sure which. We will, of course, remove all transmitters returned to us. JIM

>Jim, thanks so much for your message of 10 Aug, it seems to me you did

>the very best possible under hard circumstances. Andrea and Charles
>sound like a reasonable hope to get more out. Congratulations to you,

>these things are never easy, always difficult in some respect. That's why
>we love field research, it's in the field the natural and human cultural
>environment (as oppossed to a controlled chem lab environmen!).
>
>Barbara has been on much-desired vacation and Peter and I have just
>wrapped up a week long sat track training session here in Honolulu with
>SE Asian and Pacific islander sea turtle scientist (not unlike
>Barbardos). So sorry for the slight delay in writing back to you.
>
>Question, did you determine the returnee's id in Antigua, did the
>transmitter get retrieved? Hope that was will be possible! Aloha, George

ames Ingram Richardson

Subject: transmitter sea turtle
Date: Sun, 13 Aug 2000 12:48:00 -1000
From: "rainforestry@earthlink.net" <"rainforestry@earthlink.net"@swfc2.nmfs.gov>
To: "pnaforde@cwjamaica.com" <"pnaforde@cwjamaica.com"@swfc2.nmfs.gov>

Dear Peter and other interested people attached to this e-mail,

I hope everything goes well with you. Let me add the most recent information on transmitter turtle #7677 to the report I sent to you last Wednesday. During the last two days (Friday and Saturday), she seems to have settled on the North Coast of Honduras (16 degrees North Latitude) somewhere between Punta Patuca (84 degrees West Longitude) and Cabo Camaron (85 degrees West Longitude). That represents a stretch of coast of about 75 miles in length. The turtle is probably foraging within an area of 3mi X 3mi or smaller, but we will need more time, perhaps several months, to accumulate the very accurate positions necessary to pinpoint her location along the 75 miles of shoreline. She has traveled roughly 525 miles from Ocho Rios to this Honduran location. If something unusual happens to her position, I will let you know. Incidentally, my guess was wrong that she would continue along the Honduras coastline until she reached the Belize barrier reef system. I enjoy guessing, because turtles always seem to prove me wrong!

I keep hoping to hear that additional turtles have been detained in your vicinity, since we still have three transmitters to place on turtles. No luck so far.

Sincerely, Jim

Richardson<underline>

Report on ARGOS satellite transmitter 7677</underline>: This turtle fell into the swimming pool of Mr. Stafford Subratie east of Ocho Rios on 17 July while searching for a nesting site. Thanks to Mr. Subratie's efforts, the turtle was detained until a transmitter could be applied to her back by NRCA. She was released on 18 July.

She was apparently seen with transmitter on her back on the beach of Jamaica Inn on 19 July, according to Mr. Charles Moody who has been watching that beach for additional turtles. Transmission hits (quality of signal) have been poor at first, but she apparently hung out in the vicinity of Ocho Rios until 24 or 25 July. This would imply that she did not nest for a few more nights after being seen at Jamaica Inn.

On 26 July, Wednesday, a solid signal placed her just off the coast of Discovery Bay heading west. This says that her meeting with Mr. Subratie was her last nesting (of perhaps five) for the season. If so, she must have started nesting some time in mid-May, if I had to guess. Anyway, she passed Montego Bay on 27 July and was off South Negril Point on or around 29 July.

At this point, she took a WSW heading and has been navigating all this week across deep blue water, straight as an arrow for the coast of Honduras. She is expected there today (9 August) in the area of Trujillo, midway along the Honduras north coast. Distance is about 400 miles, and she has been averaging about 1.8 mph. Based on the speed of the transit and the number of surfacing times per 12 hour period, I don't think this could be a returning fishing vessel; she is really swimming her way back home. I will guess that she will take up residence in some part of the southern Belize barrier coral reef, one of the largest and most beautiful in the world. This will be a fitting home for a North Coast Jamaica nesting hawksbill! I and/or Andrea

132

Fwd: (Fwd) Sea turtle tracked by satellite to Belize

Subject: **Fwd: (Fwd) Sea turtle tracked by satellite to Belize**
Date: Wed, 30 Aug 2000 12:13:00 -1000
From: "david@cccturtle.org" <"david@cccturtle.org"@swfc2.nmfs.gov>
To: "Barbara Schroeder" <Barbara.Schroeder@swfc2.nmfs.gov>
"George Balazs" <gbalazs@s360.swfc2.nmfs.gov>,
"ameylan@MINDSPRING.COM" <"ameylan@MINDSPRING.COM"@swfc2.nmfs.gov>
CC: "baulas@sol.racsa.co.cr" <"baulas@sol.racsa.co.cr"@swfc2.nmfs.gov>,
"basse@hotmail.com" <"basse@hotmail.com"@swfc2.nmfs.gov>

Dear All,

I thought you all might like to see the TV press that has been generated by "Zenit's" migration to Belize. Chuck Carr has been particularly excited about the turtle's arrival in Belize, since he and WCS operate a field station very near Zenit's current location. He helped get out a press release locally and it was picked up by one of the country's major TV stations. The text below shows exactly what was said by the TV reporter.

Regards,
David

>Delivered-To: david@cccturtle.org
>From: ACARRIII@aol.com
>Date: Wed, 30 Aug 2000 11:29:16 EDT
>Subject: Fwd: (Fwd) Sea turtle tracked by satellite to Belize
>To: david@cccturtle.org
>X-Mailer: AOL 5.0 for Windows sub 120
>
>From: "Janet Gibson" <jgibson@wgsl.btl.net>
>To: ACARRIII@aol.com
>Date: Wed, 30 Aug 2000 08:17:28 +0000
>
>Dear Chuck,
>TV Channel 5 used our press release and had this on their TV news last
>night. Thought you might like to see it.
>All the best,
>Janet
>
>----------S
>Sea turtle tracked by satellite to Belize Tuesday, August 29, 2000
>
>In the past we've run stories on the electronic tracking of monkeys and
>manatees...and recently took a frightening look at a project to implant
>radio transmitters in the deadly fer de lance snake. Tonight we are told
>of the arrival of an electronically tagged sea turtle in our waters.
>"Zenit" is the name of the green turtle which was fitted with a radio
>device in July and released from the beach at Tortuguero in Costa Rica.
>Since then he has headed up the Caribbean coast with the speed of a drug
>runner and as of today was reported to be hanging out somewhere off
>Dangriga. The Tortuguero Sea Turtle Tracking Project is trying to learn
>more about the migratory patterns of these fascinating creatures and is
>sponsored by the Caribbean Conservation Corporation, Florida Marine
>Research Institute and U.S. National Marine Fisheries Service. To keep
>up with the travels of Zenit and three other tagged turtles, you can log
>on to the website www.cccturtle.org.
>Janet Gibson
>Director, CZM Institute
>GEF/UNDP CZM Project
>P.O. Box 1884, 8 St. Mark Street
>Belize City, BELIZE

133

Reduce
Give

CARIBBEAN CONSERVATION CORPORATION

Contacts: David Godfrey or Dan Evans
Headquarters E-mail: ccc@cccturtle.org
Headquarters Phone: (352) 373-6441

CCC's Tortuguero Field Station:
E-mail: canals@sol.racsa.co.cr
Phone: 001-506-710-0547

FOR IMMEDIATE RELEASE

July 18, 2000

Cyber-Age Turtles to Cruise the Caribbean

TORTUGUERO, COSTA RICA – During July 19-21, 2000, the nonprofit Caribbean Conservation Corporation (CCC) will attach satellite-transmitters to the shells of three green turtles after they nest on the beach at Tortuguero, Costa Rica. By following the movements of the transmitter-bearing turtles, CCC researchers expect to learn important details about the turtles' migratory behavior, which will help both conservationists and natural resource managers to improve protection efforts for this endangered species. CCC invites the public to follow the turtles' movements over the next year by visiting the organization's award-winning Internet website at www.cccturtle.org.

Tortuguero is home to the largest remaining green turtle nesting colony in the Western Hemisphere. Each year, thousands of green turtles (*Chelonia mydas*) from all over the Caribbean swim to Costa Rican waters to mate and lay their eggs in the black, volcanic sand of Tortuguero National Park. Since the mid-1950s, CCC has been conducting annual research and protection efforts at Tortuguero, making the organization's program at Tortuguero one of the longest running species conservation efforts in the world. In addition to helping save sea turtles from extinction, CCC's more than four-decade-long tagging program has revealed a wealth of information about where green turtles travel throughout the Caribbean after nesting at Tortuguero. However, this year, for the first time, cutting-edge satellite technology will be used to gather live data on migratory routes and behavior.

Once the small transmitters are attached and the turtles return to the water, a signal will be sent to orbiting satellites each time the turtles surface to breathe. The data collected by the satellites and downloaded to CCC will tell researchers about the turtles' locations, dive times, and the temperature of the surrounding sea water. As soon as researchers interpret the raw data, the location information will be used to update detailed maps showing the turtles' locations. This will allow people all over the world to watch along as researchers discover where the famous turtles of Tortuguero travel after they leave their nesting beach in Costa Rica.

"This state-of-the-art technology will help us learn more about a species that has existed for at least 150 million years," said David Godfrey, CCC Executive Director. "In this century, the Caribbean green turtle has come perilously close to extinction. Information collected through this study will help us develop conservation strategies to ensure their continued survival."

(MORE)

134

Tortuguero Turtle Tracking – Add One

Through the CCC's *Sea Turtle Migration-Tracking Education Program*, anyone with Internet access can follow along right from their homes. The education program is designed to teach people about sea turtles and the threats to their survival by allowing the public to follow the movements of these giant creatures as they migrate from tropical nesting beaches to feeding grounds located hundreds or thousands of miles away. Though popular with the general public, the program is also designed for use in a classroom setting. Teachers are invited to register on-line to receive CCC's free 40-page Educator's Guide, which includes useful background information, student worksheets and classroom activities. For more information, visit the CCC website at www.cccturtle.org.

CCC is conducting this green turtle migration study in partnership with Dr. Anne Meylan of the Florida Marine Research Institute, with funding provided by the U.S. National Marine Fisheries Service and technical assistance provided by NMFS researchers Barbara Schroeder and George Balazs. Additional funding for the *Sea Turtle Migration-Tracking Education Program* has been provided by the Disney Wildlife Conservation Fund, the Geraldine R. Dodge Foundation, the Elizabeth Ordway Dunn Foundation, the Educational Foundation of America and the Kenneth A. Scott Charitable Trust (A Key Bank Trust).

The Florida-based Caribbean Conservation Corporation is the oldest sea turtle research and conservation group in the world. Founded by legendary sea turtle expert Dr. Archie Carr and others in 1959, CCC has been studying and protecting sea turtles in the Caribbean for over 40 years. CCC was instrumental in the creation of Costa Rica's Tortuguero National Park, which was created in 1975 to protect the colony of green turtles that nest there – the largest nesting aggregation in the Western Hemisphere. Today, CCC is working closely with the Tortuguero Conservation Area to conserve the region's sea turtles. Tortuguero's globally important nesting beach has become a popular destination for eco-tourists in Costa Rica, and each year tens of thousands of people come to Tortuguero to see nesting sea turtles. In 1999, more than 20,000 tourists paid local guides, trained by CCC, to go on nightly turtle walks, and tourism is now the most important economic activity in the area. In addition to studying the area's sea turtles, CCC works closely with the Costa Rican government and the people of Tortuguero to ensure that the turtles and their habitats are protected. CCC's John H. Phipps Biological Field Station at Tortuguero serves as a base of operation for CCC's ongoing sea turtle studies, volunteer programs and community outreach. The facility is also used as a training center for sea turtle biologists and conservationists from all over the world. To learn more about CCC, its conservation and hands-on volunteer programs, or to join CCC's membership call (800) 678-7853 or visit CCC's website at www.cccturtle.org.

###

Subject: Re: Satellite Telemetry Application Instructions
Date: Fri, 22 Sep 2000 17:22:30 -0400
From: David Godfrey <david@cccturtle.org>
To: "Barbara Schroeder" <Barbara.Schroeder@noaa.gov>
CC: george.balazs@noaa.gov

Caribbean Book Review

Hi Barbara,

Just a quick note to let you know that our four additional transmitters were successfully deployed on green turtles in Tort. this week. I believe all are now transmitting. The training, combined with the manual and George's tape made the application a breeze. I must say, however, it was not quite the same without you and George there to share in the excitement.

David

At 01:00 PM 09/22/2000 -0400, you wrote:
>Hello All:
>
>At our training workshops in Barbados and Tortuguero, we distributed
>Attachment Instructions for Satellite Transmitters for Caribbean
>Hawksbills which was prepared special for the workshop and for the
>particular transmitters being deployed on hawksbills. We do not
>consider this manual a stand-alone document and feel it would be
>inappropriate to distribute to others without the benefit of the
>workshop classroom and hands-on experience. It's our preference right
>now not to send it to others, that could change later, if we revise and
>strengthen so it can stand-alone. We have received requests and
>recognize that you may receive requests for this manual and we ask that
>you not distribute it for the reasons given. Note that the basics we
>use for the attachment part are derived from the following and can be
>accessed through NMFS website:
>
>Balazs et al. 1996. Procedures to attach a satellite transmitter to the
>carapace of an adult green turtle. 15th Annual Symposium Proceedings, p.
>21-26.
>
>Thanks, Barbara

135

NOAA News

A Monthly Feature Publication

Thu September 07 2000

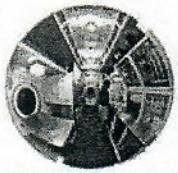
Tracking Endangered Turtles by Satellite

NOAA KEEPS HIGH-TECH WATCH ON ENDANGERED TURTLES

As part of an international effort to transfer technology and expertise to Caribbean nations, NOAA Fisheries sea turtle biologists Barbara Schroeder and George Balazs traveled to Tortuguero, Costa Rica, to train scientists from Costa Rica, Nicaragua, and Belize in tracking endangered hawksbill turtles using NOAA satellites.

Full Story Inside

Story Archive



NOAA'S AQUARIUS TO STUDY PREDATORS ON CONCH REEF

People do not usually think of corals in the same way that they think of sharks, but both are predators. While sharks chase large prey, corals wait in the watery darkness of night and prey on nearly microscopic zooplankton that drift by, or swim too close.

Full Story Inside

NOAA AND PARTNERS SPONSORING SUMMER ENRICHMENT CAMP

Twenty sixth-grade students from Accomack County on the Delmarva Peninsula are attending a summer enrichment camp at the University of Maryland, Eastern Shore, thanks to a program sponsored by NOAA and three partners.

Full Story Inside

Links

▸ Hot Topics

- Drought
- Floods
- Tornadoes
- Hurricanes
- Heat Waves
- Lightning

▸ Story Archive

- 2000 Stories
- 1999 Stories

▸ Organizations

MAJOR

- National Weather Service
- National Environmental Satellite, Data & Information Service
- National Marine Fisheries
- National Ocean Service
- Office of Oceanic & Atmospheric Research

NOAA TRACKS ENDANGERED TURTLES BY SATELLITE

September 1, 2000 — As part of an international effort to transfer technology and expertise to Caribbean nations, NOAA Fisheries sea turtle biologists Barbara Schroeder and George Balazs traveled to Tortuguero, Costa Rica, to train scientists from Costa Rica, Nicaragua, and Belize in tracking endangered hawksbill turtles using NOAA satellites. A previous capacity-building workshop, also convened by these two NOAA scientists, brought together participants from Antigua, Barbados, Jamaica, Mexico, Puerto Rico, and the U.S. Virgin Islands. Grenada is also participating in the project.

(NOAA photos: Click images for larger view.)

Satellite transmitters, about the size of a Sony walkman, are attached to the carapace of the turtles and will automatically send information about the turtle's movements for up to two years. The tags are attached in such a way that they will fall off the turtle, harmlessly, within about the same time period.

The hawksbill has been listed on the Endangered Species list since 1970 and can be found mainly in tropical and subtropical seas of the Atlantic, Pacific and Indian Oceans. Populations of hawksbills have been greatly reduced throughout the globe in recent times, as a result of directed killing for their shells, from which tortoiseshell items (jewelry, decorative items, or whole stuffed turtles) were made. The tortoiseshell trade has diminished, but illegal trade and legal domestic harvest continues in some nations. The species is also impacted through poaching and degradation of its favored habitat—coral reef communities—and from adverse development impacts along nesting beaches.

The U.S. is teaming up with Caribbean countries to gather data on the migratory habits of hawksbill turtles after they leave their nesting beaches. The hope is that a better understanding of the species will lead to improved recovery and conservation programs.

"One of the essential goals of the international research project is to clarify the extent to which adult females inhabit foraging areas away from their nesting beaches," said Schroeder. This information is crucial to a scientific assessment of the merits of any management regimes developed for the species, and will contribute to conservation, recovery, and sound management for hawksbill turtles. The project also aims to serve as an educational tool to enrich the understanding of the hawksbill as a shared resource, among many nations, including the U.S.

Relevant Web Sites
NOAA Fisheries

NOAA Fisheries Hawksbill Sea Turtles

NOAA Fisheries Sea Turtles

NOAA's Office of Protected Resources

NOAA's Coral Reef

137

return flight from Jamaica to Atlanta. Also, there was nowhere for me to stay (without Rhema around), and the per diem at commercial rates would have been around $150-$200 per day at the cheapest. Thanks to a last minute call by Rhema, she found a place for me to stay in Ocho Rios during my first few days. Without that, I would have arrived in Jamaica and not been able to get back out under $2000. By going to Antigua and charging my flight to the Jumby Bay project, I was able to stay close to my Jamaica budget while doing everything in my power to make something happen in Jamaica.

In hindsight, I have the following comments. For better or worse, the swimming pool turtle seems to have been handled correctly (in my absence), for it is now in Honduras. I am even more confident at this point in time that Andrea and Charles are skilled at application of the transmitter. Charles is a lifetime fisherman familiar with fiberglas, resin, and the proper mixing of the materials. Andrea is a by-the-book person who follows your procedure to the letter. There are very, very few nesting hawksbills left on the Jamaica North Coast, contrary to the South Coast cays we used two years ago. Only Rhema could have carried out the extensive networking and training necessary to capture four hawksbills in short order on the North Coast, with dates and locations of expected nests where I could have gone until the task was completed. Unfortunately, Rhema is not in Jamaica. The best I could do was to revitalize this networking/training system and hope/trust that the turtles will be found. The next couple of months will tell.

I have told Andrea that battery life will not be sufficient to hold these transmitters longer than this season (Yes? No?),so they know that unused transmitters will have to be returned, and Jamaica will lose a golden chance to better understand her turtles. There are some major hotels "beating the bushes" to trap a turtle this season, especially Half Moon Resort in Montego Bay which wants to use such a happening for a Jamaica web page for the schools which they support all over the country. Now, I am in Athens preparing to teach 170 kids this fall starting 17 August. As I did two years ago, I was prepared to take 10 days out of my schedule in September to go to Jamaica, but the July trip suddenly appeared to be the more potential, and I took the chance. Hindsight is cheap, and I discovered after arrival that four turtles would not be possible on my trip without Rhema. I am in daily contact with Jamaica, and I believe we will be successful before all this is over. That is the best that I can do under the circumstances. I hope you understand, and I will understand if you are discouraged with my lack of success. I look forward to hearing from you. JIM

James Ingram Richardson
Institute of Ecology
University of Georgia
Athens, GA 30602-2202
(706)542-6036 phone
(706)542-6040 facsimile

138

Subject: Jamaica trip report
Date: Thu, 10 Aug 2000 19:20:00 -1000
From: "rainforestry@earthlink.net" <"rainforestry@earthlink.net"@swfc2.nmfs.gov>
To: "Barbara Schroeder" <Barbara.Schroeder@swfc2.nmfs.gov>

Dear George and Barbara,

To be honest, I was less than satisfied with my achievements during my recent trip to Jamaica, for a number of reasons. Primarily, Rhema Kerr is no longer in residence. Without her, local organizational networking on the North coast of Jamaica has almost stopped (as I discovered on my arrival in Jamaica), and this was the major reason for my dissatisfaction with my trip. Andrea Donaldson is a dedicated public servant on behalf of sea turtles in Jamaica, but her skills are different from Rhema's skills. Andrea is not an organizer or networker of Rhema's capacity, but she is excellent as the government person.

After promising you that I would participate in a second year of ARGOS Jamaica, especially along the North Coast, I left for Jamaica on very short notice (20 July) when told that a turtle had recently nested (8 July) on a hotel beach (Couples Resort east of Ocho Rios) and that another turtle had been captured in a local swimming pool. I raced to the hotel to patrol the beach on the 13th night (21 July) after her last nest, since I have never had a 12-day hawksbill internesting interval. When I got there after a 3-hour bus ride from Montego Bay, I discovered to my disgust that a turtle had nested the previous night. What a downer! Same turtle on a 12-day interval (???) (impossible) or a second turtle (if so, truly amazing since the hotel had not seen a crawl on their beach ever before!)??? Assuming the latter, I patrolled all night for five nights without a crawl. While there, a number of hotel personnel assured me that the first nest was actually Wednesday, 7 July, and not Saturday, 10 July, which would have placed the second nest exactly 15 nights after the first nest, as expected. I still do not know the real facts, and there have been no further crawls since my departure from Couples beach!

As for the swimming pool turtle, NRCA decided that the turtle could not be held for the additional two days it would take me to get to Jamaica, so they applied the transmitter and released her on 18 July. Forty-eight hour departure notice would have shot my ticket price way over $1000. Luckily, I had trained both Andrea Donaldson and Charles Moody two year's ago in the Balazs/Schroeder method, and they followed the proceedure with absolute precision; this I know since I debriefed both of them on the technique used, step by step. This turtle was not the same as the Couples turtle, for the Couples turtle did not have a transmitter on its back; I saw a photograph! Furthermore, at Jamaica Inn beach close by, reputable observers saw a turtle nest some time around 20-21 July, and she had "a box glued on top of her shell." This information was received after I left Jamaica for Atlanta. Anyway, the swimming pool turtle, as you have observed from the ARGOS reports and my recent e-mail, departed Jamaica shortly after this for Honduras. Talk about getting lucky!

After five nights on the Couples beach, I realized that I was doing nothing of value for NMFS, for Jamaica, or for me. Thus, I used my remaining free time to prepare a protocol for hotels for observing and detaining a nesting hawksbill for the coming months. This I distributed to a number of likely sites from Ocho Rios to Montego Bay, and the system is up and ready. When a turtle is detained, it will be transported to the fellow with the swimming pool where the other turtle was trapped. He has 24-hour phone monitoring since he runs a photographic lab that developes film all night long, and he can receive a turtle at any time, day or night. This man will hold the turtle until NRCA (Andrea and Charles) can come from Kingston with the transmitter and equipment. I again went over the procedure with Andrea and Charles to confirm that precise procedure will be followed. After establishing the reporting network among the hotels, there was nothing left for me to do, so I hopped a flight on 27 July to Antigua (Jumby Bay) for a couple of days, returning on 01 August to connect with my

139

The project also has an educational component. Anyone with Internet access can follow the turtles' journeys and the CCC has designed a complementary educational program about sea turtles and threats to their survival for use in the classroom. Teachers are invited to register on-line at **www.cccturtle.org** to receive the CCC's free 40-page educator's guide, which includes background information, student worksheets and classroom activities.

"What's happening here will have an important impact on other countries in terms of what policies they set for turtles nesting on their beaches or passing through their waters," said Gary Appleson, the CCC's policy coordinator, of the project. "It will help establish what are called blue water corridors, or conservation zones, to protect turtles throughout their migration and foraging zones."

Green and hawksbill turtles are two of seven species — eight if the Pacific green is considered a separate species from the Caribbean green — of turtles known to man, all of which are listed on the World Conservation Union's Red List as endangered. Five are known to nest in Costa Rica, including the baula, or leatherback turtle, which nests in largest numbers along the Pacific Coast and the Olive Ridley, which also nests on the Pacific Coast. The loggerhead has also been reported here, but only in isolated instances.

The main threat to turtles are longline fishing boats off the coast of Chile and Peru, which catch the turtles in their nets when they head south, and poachers, who hunt turtles such as the hawksbill for their beautiful shells. All endangered animals are protected under Costa Rica's wildlife law, but only a year ago the CCC successfully petitioned the Constitutional Court (Sala IV) to revoke a presidential decree authorizing fishermen to take 1,800 green turtles per year.

In Nicaragua, meanwhile, the hunting continues unchecked. And while most other countries have legislation protecting sea turtles, it isn't well enforced. Just last April, environmentalists succeeded in defeating two proposals from Cuba that sought to downgrade the endangered species listing of the hawksbill so it can start trading stockpiled shells.

The Florida-based Caribbean Conservation Corporation is the oldest sea turtle research and conservation group in the world. Founded by legendary sea turtle expert Dr. Archie Carr in 1959, CCC has been studying and protecting turtles in the Caribbean for over 40 years. The CCC was instrumental in the creation of Costa Rica's Tortuguero National Park, the founding of which has been critical to an apparent recovery of the green turtle.

Top

Hawksbills also come to Tortuguero, but are so rare that last year, CCC researchers counted only 13 nests (TT, June 23). Researchers considered themselves extremely lucky to find two nesting last week, which, along with the green turtles, were carried back to the CCC office so the satellite transmitters could be applied.

The study, being conducted in partnership with the Florida Marine Research Institute and funded by the U.S. National Marine Fisheries Service, began two years ago, when representatives from the NMFS trained turtle researchers from Barbados, Antigua, Jamaica, Mexico and Puerto Rico in how to use satellite transmitters.

In September, CCC researchers will attach transmitters to another four green turtles, and researchers attending last week's event from Nicaragua and Belize will "electronically tag" five more hawksbills when they return home.

At $3,200 per transmitter, a yearly $2,000 satellite transmission fee and a $1,000 data processing fee, the project is costly. But the study, which complements those of turtle researchers in Florida, will go a long way towards putting together a regional picture of turtle migration patterns – of which very little is known.

"With the metal tags, it takes decades to establish a large database. With the satellite transmitters, we can find out a lot of information quickly," explained Sebastian Troëng, the CCC's research coordinator. "If a fisherman catches a turtle or it washes up dead on the beach, we know where the turtle started out and where it ended up. But we don't know how it got from one point to the other.

"We have had over 1,500 tags returned over the years from all over the Caribbean – as far north as the Florida Keys and as far east as Cuba," he continued. "But the majority of tags returned have been from Nicaragua. The coastal shelf is very wide in Nicaragua, so there are lots of shallow areas and lots of sea grass. That seems to be where a lot of green turtles go. For the hawksbills, we have even less information."

The training workshop began early Thursday morning. Under the guidance of NMFS technical consultants Barbara Schroeder and George Balazs, the small group of researchers cleaned the turtles' shells of barnacles and algae, sanded away flakes where the turtles were shedding once the shells were dry, and attached the transmitter with alternating layers of tape and resin.

Shroeder and Balazs also showed researchers how to take a genetic fingerprint of the turtles, using a human biopsy punch. Turtles have been going to the same nesting beaches for so long that this information is genetically encoded in the maternal DNA, explained Balazs, adding that the genetic fingerprint will tell researchers where the turtle was born.

141

The Tico Times
News Briefs
ONLINE EDITION

Vol. VI, No. 30 - San José, Costa Rica, July 28, 2000

Satellites Tracking Turtles

By Julie Dulude
Tico Times Staff

Costa Rica became the headquarters for a regional initiative to learn more about the migratory habits of sea turtles last week, when researchers from the nonprofit Caribbean Conservation Corporation in Tortuguero released two green turtles and two hawksbills into the ocean after outfitting them with satellite transmitters.

For the next one to two years, the box-shaped transmitters will send signals to orbiting satellites each time the turtles surface to breathe, allowing researchers to collect data about the turtles' locations, dive times and the temperature of the surrounding seawater.

"This state-of-the-art technology will help us learn more about species that have existed for at least 150 million years," said David Godfrey, the CCC's executive director.

"In this century, the Caribbean green turtle has come perilously close to extinction, and the hawksbill has declined to the point where it is critically endangered. Information collected through this study will help us develop conservation strategies to ensure their continued survival."

Tortuguero is home to the largest remaining green-turtle nesting colony in the Western Hemisphere. Every year between late June and early October, thousands of green turtles from all over the Caribbean swim to Costa Rican waters to mate and lay their eggs in the black, volcanic sand of Tortuguero National Park.

142

MIEMBRO DEL GRUPO HOLLINGER
LA REPUBLICA
San José, Costa Rica - Viernes 21 de julio de 2000 - 36 páginas ¢70

Selección ensaya variantes

Pág. 1C

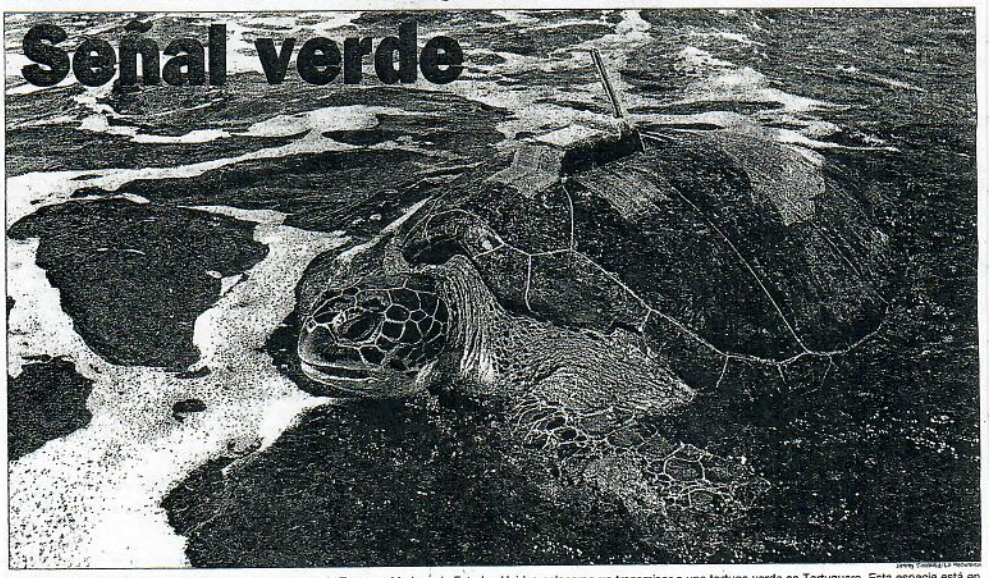
$250 millones para reducir deuda

País colocó emisión de bonos

- Gobierno escogió a Credit Suisse First Boston para colocar en el mercado internacional ¢77 mil millones

Pág. 1D

Señal verde



Caribbean Conservation Corporation (CCC) y el Programa de Tortugas Marinas de Estados Unidos colocaron un transmisor a una tortuga verde en Tortuguero. Esta especie está en peligro de extinción y se espera que con este dispositivo se obtenga información sobre las rutas migratorias de estos reptiles.

Pág. 8A

Escasez de recursos azota asilos

Pág. 4A

Discuten agenda turística

Pág. 5A

143

Darán información sobre migraciones

Tortugas revelarán rutas

Por primera vez se investiga trayectoria de la tortuga verde que anida en el país

CAROLINA MORA
Enviada de La República

Tortuguero, Limón- El secreto que rodea las migraciones de las tortugas marinas será develado por ellas mismas, ya que cuatro tortugas (dos carey y dos verdes) emitirán una señal por medio de un transmisor colocado en su caparazón.

En la Estación Biológica de Tortuguero, de la Caribbean Conservation Corporation (CCC), se les adhirió el transmisor el miércoles en la mañana y ayer, aprovechando el periodo de desove de estos quelonios. En este parque nacional desovan las tortugas verdes, baulas, cabezonas y carey.

El programa de la Tortuga Marina de Estados Unidos donó los equipos de altimetría para estudiar la tortuga verde que desova en esta región.

Este programa de investigación de las rutas tiene un costo de $49 mil (¢15 millones).

Para el mes de setiembre se colocarán cuatro transmisores más en tortugas verdes que lleguen a la costa caribeña.

El proyecto involucra a otros países como Nicaragua, Belice, Granada y Jamaica, donde se colocarán 11 dispositivos de transmisión.

Estos transmisores se han instalado en otras partes del mundo con el fin de rastrear los quelonios y conocer más sus costumbres de alimentación, reproducción y relaciones entre sí.

Cada transmisor tiene un costo de $3 mil (unos ¢927 mil al tipo de cambio actual) y se espera que emitan la señal por unos dos años.

Posteriormente la información se procesa y se dispone de una página en Internet para mostrar los nuevos resultados de la investigación.

Sin embargo, las tortugas verdes y carey, principalmente, están en peligro de extinción por las prácticas de caza (para consumo de carne y utilización del caparazón).

Según estudios de la CCC, en los últimos 75 años casi se han extinguido las tortugas marinas por las actividades del hombre.

Fue hasta hace un año que se prohibió la caza de la tortuga verde en el país, pero en Nicaragua la matanza sigue sin ningún tipo de control.

Los científicos estadounidenses George Balazs y Barbara Schroeter calificaron que es un grupo de animales muy exitoso, pues tiene 200 millones de años de existencia (son más antiguo que los dinosaurios).

Estos expertos intentan demostrar que el éxito de vida de las tortugas marinas se logra por medio de su constante migración, dado que siempre son poblaciones distintas las que desovan en las playas.

Sebastián Troëng, de la CCC, expresó que "los datos de 1999 nos dan una tendencia alentadora, pues parece que hay más nidos que hace 30 años".

Para los investigadores de la CCC este proyecto es de gran utilidad para conocer más sobre las tortugas marinas, pues este reptil ha logrado sobrevivir más de 200 millones de años, y gran parte de sus costumbres permanecen aún en el misterio.

Colocación del transmisor

Los científicos cuando capturan las tortugas realizan una serie de pasos para colocar el transmisor en su caparazón

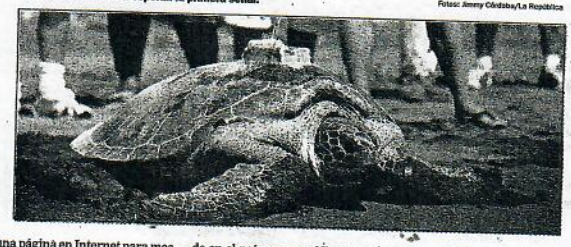
1: Limpian y pulen el caparazón.

2: Se coloca el transmisor, que pesa 1,6 kilogramos

3: El transmisor se protege con fibra de vidrio y resina.

4: Tras la liberación esperan la primera señal.

Fotos: Jimmy Córdoba/La República



Nuevos resultados

Las investigaciones sobre las tortugas por medio de satélite han dado valiosos frutos.

- Se ha determinado que las tortugas depositan sus huevos en un lugar diferente al que frecuentan para comer. Las que desovan en Tortuguero recorren todo el Caribe, pero se desconocen sus rutas precisas.
- Las migraciones de especies como la baula recorren miles de kilómetros a una velocidad promedio de 2 kilómetros por hora.
- Las baulas del Pacífico costarricense llegan hasta Chile o al sur de Hawai y las del Caribe hasta Marruecos y España.
- El transmisor no les molesta para su apareamiento o movilización.
- Cada vez que la tortuga emerge a la superficie el satélite puede captar la señal para ubicarla, determinar la temperatura y otros datos.
- Las información es procesada y dispuesta para el público en la dirección de Internet: www.cccturtle.org

Fuente: Caribbean Conservation Corporation (CCC)

Gobierno girará ¢415 millones el 5 de agosto

Acuerdo con agricultores de Limón

MARCELA CANTERO
La República

Luego de más de cuatro horas de negociación en el despacho del ministro de Agricultura y Ganadería, Alberto Dent, los agricultores de Limón que protagonizaron este miércoles una protesta en Guácimo llegaron a un arreglo con el Gobierno que puso fin al movimiento.

El grupo representado por la Federación de Productores de la Región Caribe (FROPORCA) obtuvo de parte de Dent el compromiso de recibir este 5 de agosto ¢415 millones, prometidos el pasado 29 de junio.

El monto corresponde a una ayuda económica asignada para cubrir las pérdidas que a causa del invierno tuvieron 677 agricultores limonenses en sus cultivos el año pasado.

La indemnización cubrirá a 538 productores que calificaron para recibir la ayuda, cuya lista fue aportada ayer por la organización, luego de que el Ministerio alegara la falta de estos datos para realizar el giro correspondiente.

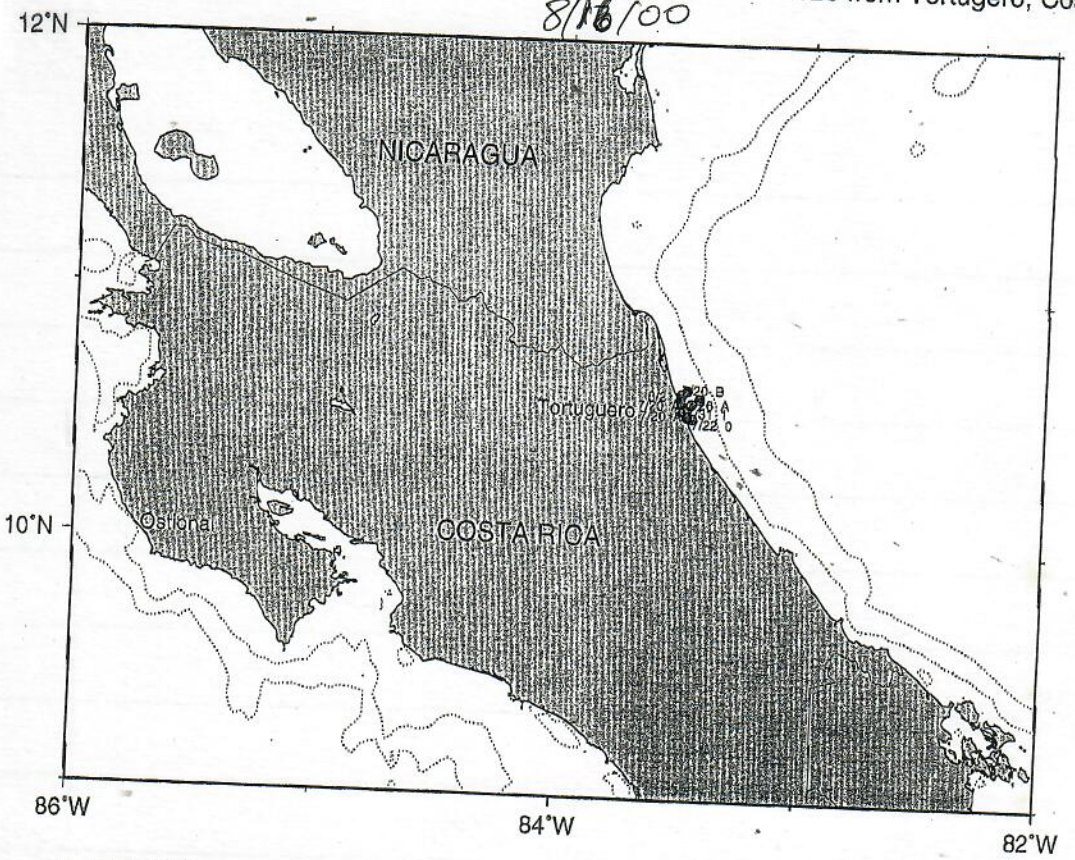
"El Gobierno ha ratificado su compromiso de ayudarles a los agricultores (...) estamos terminando los requisitos legales para la entrega de los fondos", dijo Dent al concluir el encuentro.

Sobre la petición de FROPORCA de recibir un 5% del dinero asignado, Dent indicó que los recursos serán entregados mediante cheques personales a cada uno de los beneficiarios y no a la asociación. El Ministro detalló que el próximo miércoles sostendrá una segunda reunión con los dirigentes a fin de analizar otras peticiones de los productores.

El representante de FROPORCA, Enrique Boniche, manifestó que el grupo no realizará ningún nuevo bloqueo sobre la ruta a Limón (como ocurrió este miércoles) hasta esperar el cumplimiento del Gobierno.

Nesting satellite-tracked movements of Female hawksbill 22126 from Tortugero, Costa Rica

8/16/00



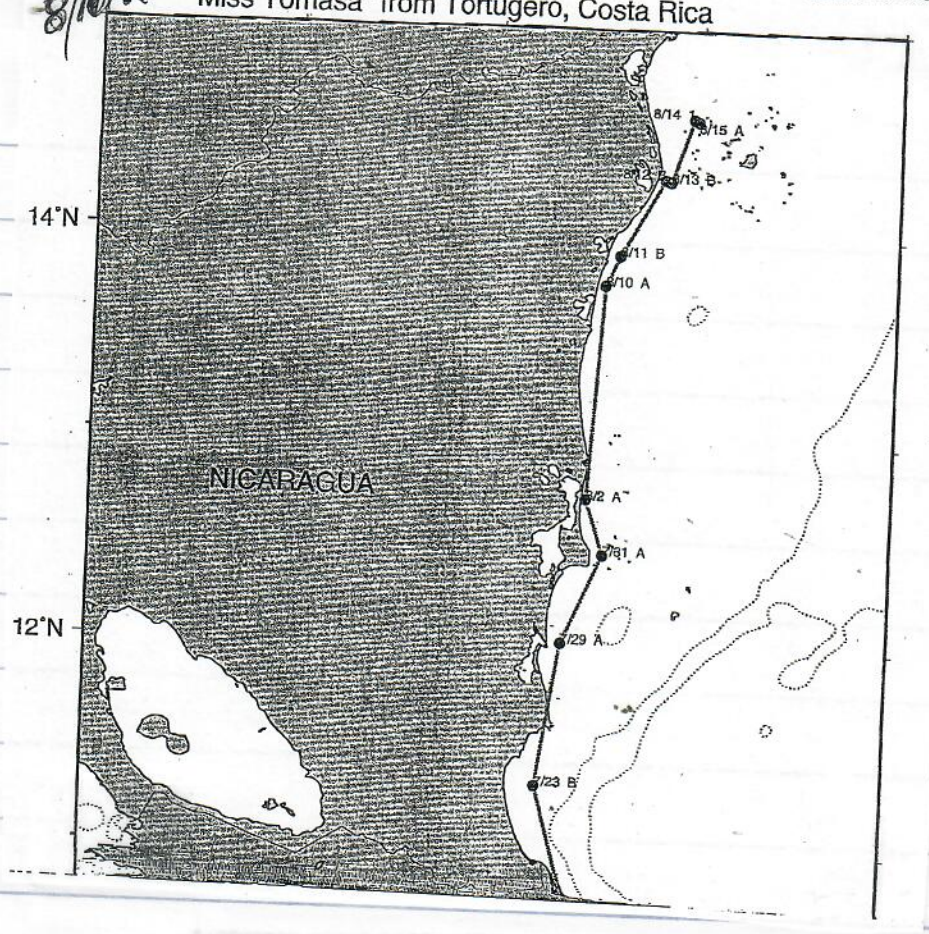
STILL TRANSMITTING

GMT Map created by Denise Parker 07/28/00
MTRP, NMFS, SWFSC Honolulu Lab

145

8/16/00

Post-nesting satellite-tracked movements of Female hawksbill 22134
"Miss Tomasa" from Tortugero, Costa Rica



PS→ as soon as my pictures are developed, I will send you copies.
Hey – did you get a copy of the TICO TIMES?? We are both on the cover picture ☺ (HA)

08/01/00

George –

Hi pal! How's work on the island?? I'm on vacation now in Northern Minnesota walleye fishing & enjoying a colder side of nature ☺!

Things went well on my small trip to Tamarindo and Playa Grande, COSTA RICA, before my trip home. I had my first olive ridley sighting (in the H_2O) and loved every minute of it.

I just wanted to tell you that it was fantastic to see you again in Tortuguero and I consider myself extremely lucky for having the opportunity to work w/ YOU on the 1st green turtle (& 1st hawksbill, also ☺) to have a satellite transmitter attached in Tortuguero. I had a ball & hopefully one day (preferably soon!) I will have the opportunity to work w/ you again... Keep in touch!

your friend –
Katy Garland

147

Date: Mon, 14 Dec 1998 11:23:39 -0500
From: James Ingram Richardson <rainforestry@earthlink.net>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Cc: Barbara Schroeder <barbara.schroeder@noaa.gov>
Subject: Re: Last transmitter put out in Antigua

Dear George, You are absolutely correct about transmitter #8553 placed on a turtle at Jumby Bay, ...unfortunately. The turtle was equipped on the morning of 12 November, having nested the previous evening. There were several good (level "2") fixes at the time, so the transmitter was working when deployed. I noticed on the next report that the transmitter still registered no dives and contacted Kirsten immediately. She said she thought the masking tape had been removed from the switch poles, but there is nothing more to be said than that. I know the season was coming to an end and that both girls had been sick for several weeks, thus postponing the fourth transmitter attachment to nearly the last day on the beach. It was also a rough season with hurricane hits, terrible weather and insects at night, lots of poaching of nests, and a bulldozer on the beach which destroyed the last of the remaining nests for the season. The girls closed the patrol on 14 November, quite depressed. The transmitter never registered dive behavior.

It is also true that the number of fixes, even bad "z" fixes, have been few and far between for #08553 compared to the other transmitters. It breaks my heart to be the only member of your team with an improperly deployed transmitter, but that seems to be the case. I have to consider that exhaustion or some other factor may have been involved with improper application and that the tape was left over the screws. The other two transmitters deployed by Kirsten have worked fine. Transmitter #08553 last talked to me on 9 December, and the last "b" fix was 7 December, at which time the location was placed approximately at Jumby Bay. On 3 December, a "1" fix placed the turtle also in the vicinity of the nesting beach. Because it was a last chance effort to get the transmitter deployed on a turtle before the kids left the beach, I believe the only candidate was a turtle early in its nesting sequence. Thus, it is logical that she remained near Jumby Bay into December. I guess the batteries have gone dead, and there is no one on the beach to intercept her and remove the transmitter on a subsequent nesting. My deepest apologies for this screw-up. In hindsight, we should have kept the transmitter for deployment at a later, more opportune time, but hindsight is never cheap.

Rhema Kerr's two turtles have gone home from their nesting beaches in the Portland Bight, Jamaica. Although I do not have any maps at the moment and am guessing, these locations appear close (less than 100km) to the nesting beach compared to the Barbados and Mona turtles. It looks like #08442 nested 21 November in the Portland Bight and was home in the Pedro Keys by 23 November. The Pedro Keys are Jamaican territory, a series of keys located south of Jamaica by about 8 hours fast boat ride. She was still there as of yesterday. Turtle #08443 nested Portland Bight on 4 December and then went home to a coastal location close to Negril by 7 December where she has stayed. Negril is a resort town on the southwest coast of Jamaica. This latter location is important in that it places the second turtle within reach of intense fishing pressure. No globe trotters for Jamaica this time around! The three Antigua turtles remain at home, Redonda Island, St. Kitts, and St. Eustatius.

The Netherlands was a hectic round of lectures followed by a 2-hour Cinderella visit to the Palace. The Prince was fascinated with the ARGOS track of the turtle going to St. Eustatius, a route map of which I left with him. He and the Dutch sea turtle group are moving to activate conservation efforts in these islands to protect foraging adults, all because of your transmitter. Is there some way to locate the transmitter from the ground, perhaps with some kind of directional, hand held antenna

148

nitter sea turtle

Sincerely, Jim

Richardson<underline>

</underline>9 August 2000<underline>

Report on ARGOS satellite transmitter 7677</underline>: This turtle fell into the swimming pool of Mr. Stafford Subratie east of Ocho Rios on 17 July while searching for a nesting site. Thanks to Mr. Subratie's efforts, the turtle was detained until a transmitter could be applied to her back by NRCA. She was released on 18 July.

She was apparently seen with transmitter on her back on the beach of Jamaica Inn on 19 July, according to Mr. Charles Moody who has been watching that beach for additional turtles. Transmission hits (quality of signal) have been poor at first, but she apparently hung out in the vicinity of Ocho Rios until 24 or 25 July. This would imply that she did not nest for a few more nights after being seen at Jamaica Inn.

On 26 July, Wednesday, a solid signal placed her just off the coast of Discovery Bay heading west. This says that her meeting with Mr. Subratie was her last nesting (of perhaps five) for the season. If so, she must have started nesting some time in mid-May, if I had to guess. Anyway, she passed Montego Bay on 27 July and was off South Negril Point on or around 29 July.

At this point, she took a WSW heading and has been navigating all this week across deep blue water, straight as an arrow for the coast of Honduras. She is expected there today (9 August) in the area of Trujillo, midway along the Honduras north coast. Distance is about 400 miles, and she has been averaging about 1.8 mph. Based on the speed of the transit and the number of surfacing times per 12 hour period, I don't think this could be a returning fishing vessel; she is really swimming her way back home. I will guess that she will take up residence in some part of the southern Belize barrier coral reef, one of the largest and most beautiful in the world. This will be a fitting home for a North Coast Jamaica nesting hawksbill! I and/or Andrea Donaldson of NRCA will keep you posted on her progress and final foraging home base.

from a high point on the north coast of St. Eustatius or from a boat? The trip to the Netherlands was great fun for Thelma and the kids, also. I will tell you all about it some time, with a photo. Sincerely, JIM

>Jim- Have you been following this one? I believe it's 8453, but right
>now am at home so don't have my record book. Anyone, I'm referring to
>the last of the four put out in Antigua. It showed for a while in the
>ADS. Then I spotted some "0" dive counts for the 12 hour total. Then,
>it didn't show up any longer, and isn't there as of continuing absence today.
>Maybe I'm mixed up, but don't believe so. What can you tell us about
>this? Aloha, and Congratulations again on your well-deserved Award. Geo.

James Ingram Richardson
Institute of Ecology
University of Georgia
Athens, GA 30602-2202
(706)542-6036 phone
(706)542-6040 facsimile

149

Date: Fri, 25 Jun 1999 14:36:05 -0400
From: James Ingram Richardson <rainforestry@earthlink.net>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Re: **Urgent**More Jamaica deployments

George, I have just received your message, having returned last night from Jumby Bay, Antigua, our 13th year of intensive coverage of the nesting beach. You remember that one of the four Jumby Bay transmitter-carrying turtles acted strangely, never leaving the vicinity of Jumby Bay (Long Island), leading me to think that the transmitter had come off the turtle and was lying on the beach, giving 00 emergences per 12 hours and never leaving the vicinity of the nesting beach. Evidently, the kids forgot to remove the tape from the salt water switch, for I began to get surfacing times about a month after deployment. However, the hits have been terrible, often a week or more with nothing. I did get enough hits of B/A quality to locate a roughly demarcated area within a boat channel adjacent to the south side of Jumby Bay, no more than a kilometer from the nesting beach. Last week in Antigua, I interviewed boat drivers frequenting the area, and they report seeing a hawksbill (one of several in the area) with a box on her back. One captain said he thought there was something wrapped around the box, like a rope, so I left plans for someone to search the area by boat and in the water for more information. We may have set a record for the shortest distance between foraging and nesting sites for a turtle!

I talked with Rhema on 13 June, after receiving the message from Barbara, and Rhema was very enthusiastic about deploying more transmitters in Jamaica, perhaps the other two we did not have last year. There are a dozen individuals down there trained in the careful application of the transmitters after last summer, and lots of incentive, so I think the possibility is a good one, even if I can't get back, given my heavy teaching load starting in August. The first two radios continue to transmit very well. Rhema is in Jamaica; I could call her, if you think it a good idea to move ahead. She may already be in contact with you or Barbara, since I told her to do so ASAP when I talked with her last. JIM

>Jim, urgent message to you from your old friend George seeking your input
>guidance recommendation on your being able to put out a few more
>transmitters at the Jamaica location. I've been in LimpusLand for a week,
>just returned, and was able to speak with Barbara by phone. We have some
>degree of urgency in getting all this straightened out to do more
>Caribbean tracking. We need your input. Would Jamaica be possible, can
>you help, what do we need to do to facilitate? Aloha, George

James Ingram Richardson
Institute of Ecology
University of Georgia
Athens, GA 30602-2202
(706)542-6036 phone
(706)542-6040 facsimile

150

Subject: transmitter sea turtle
Date: Sun, 20 Aug 2000 09:32:00 -1000
From: "rainforestry@earthlink.net" <"rainforestry@earthlink.net"@swfc2.nmfs.gov>
To: "pnaforde@cwjamaica.com" <"pnaforde@cwjamaica.com"@swfc2.nmfs.gov>

20 August 2000

Hi, Peter, Here is another update on hawksbill #7677. As of yesterday morning, she was located south of Isla Utila (16 degrees North latitude; 86 degrees 40 minutes West longitude) along the north coast of Honduras, slowly moving westward, quite close to the mainland coast. She has now traveled 630 miles in a straight line from Ocho Rios which is centrally located along the North Coast of Jamaica, and she is less than a hundred miles from Guatemala. Her behavior is rather different from the half dozen turtles we (NOAA, Jamaica, Antigua) tracked two years ago. In those cases, each turtle went directly to a foraging site and stayed there over the following year of transmissions. #7677 swam directly to the nearest point of Honduras, arriving about 8-9 August. However, she then spent the first five days wandering back and forth along the coast in that area, and for the last five days she has been moving slowly westward along the coast toward Guatemala. This indicates she has not found her home foraging ground yet, contrary to what I thought was happening on 13 August. The question is whether she is searching for her old site or seeking a new one.

The other bit of ARGOS news is that the Jumby Bay, Antigua, hawksbill tagging team of Kimberly Andrews and Stacie Knight has successfully removed the transmitter (Well done!) from a nesting turtle returning from Redonda, her foraging home. Redonda is a remote island west of Antigua, located about fifty miles from the nesting beach at Jumby Bay, and belonging to the government of Antigua and Barbuda. The turtle received her transmitter in 1998 on the Jumby Bay nesting beach, and she has now returned two years later to nest again, hopefully for six nests (900 eggs!) as she did in 1998. We appreciate the fact that she has returned the transmitter to us so that it can be supplied with a fresh battery and used again! JIM

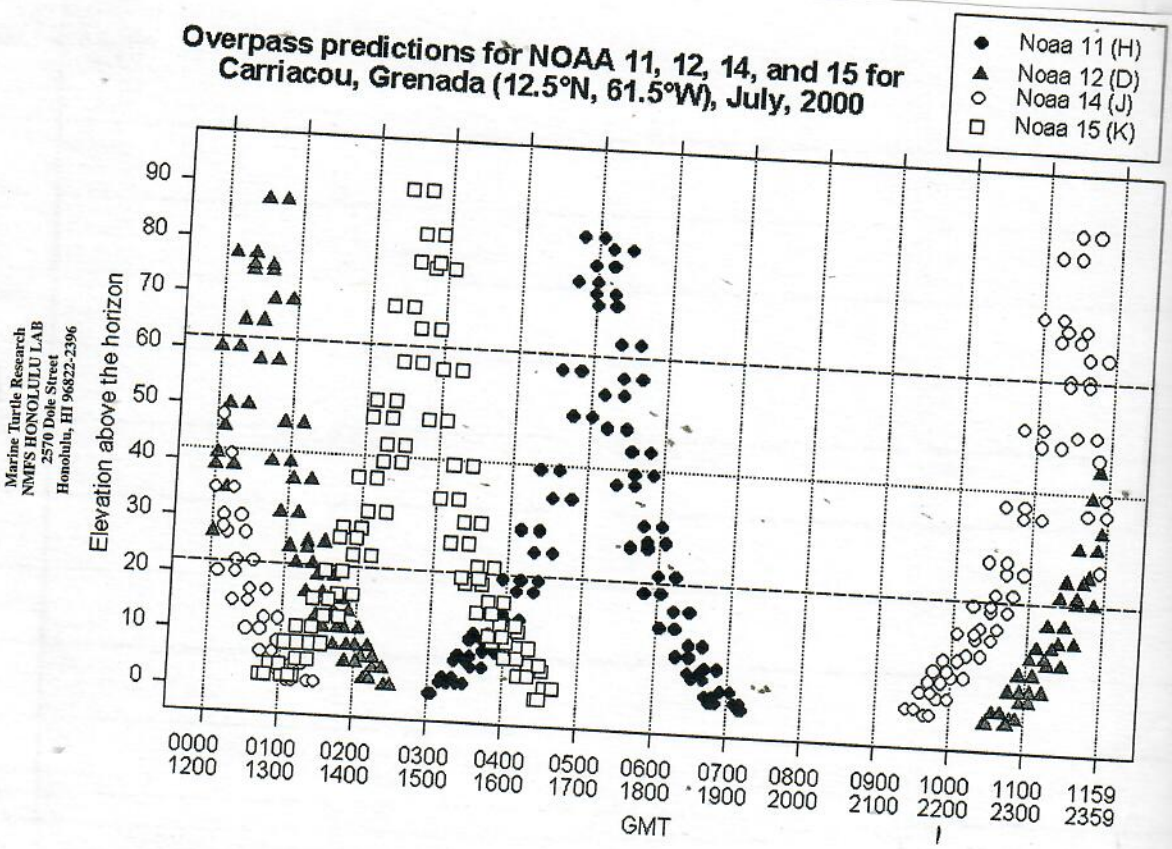
13 August 2000

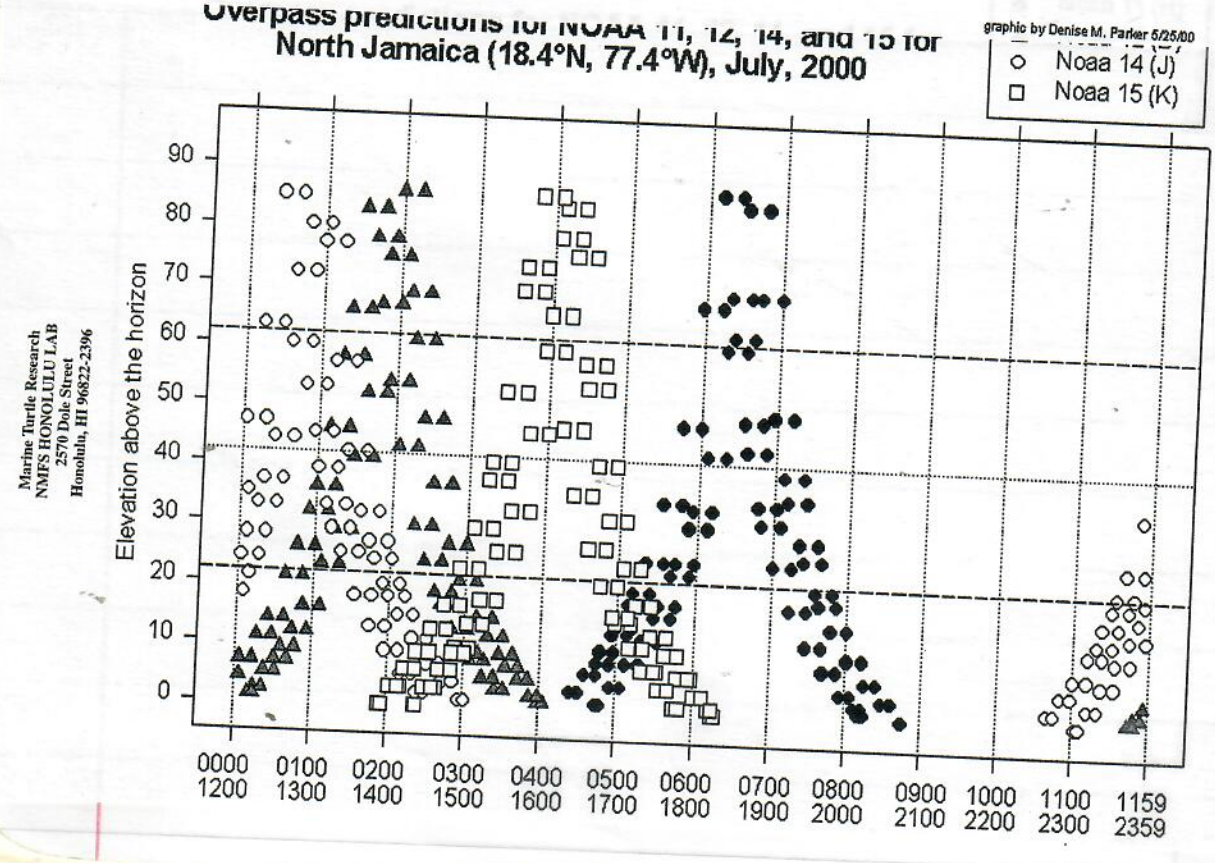
Dear Peter and other interested people attached to this e-mail,

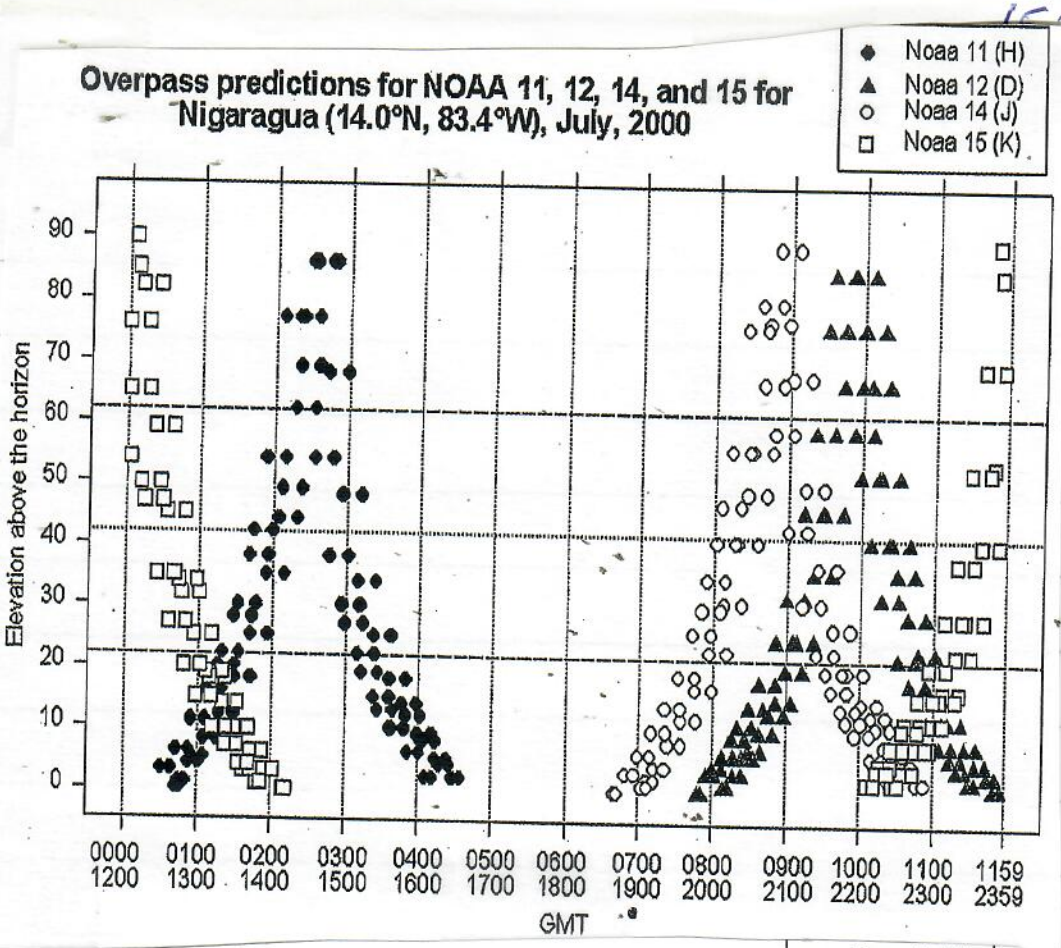
I hope everything goes well with you. Let me add the most recent information on transmitter turtle #7677 to the report I sent to you last Wednesday. During the last two days (Friday and Saturday), she seems to have settled on the North Coast of Honduras (16 degrees North Latitude) somewhere between Punta Patuca (84 degrees West Longitude) and Cabo Camaron (85 degrees West Longitude). That represents a stretch of coast of about 75 miles in length. The turtle is probably foraging within an area of 3mi X 3mi or smaller, but we will need more time, perhaps several months, to accumulate the very accurate positions necessary to pinpoint her location along the 75 miles of shoreline. She has traveled roughly 525 miles from Ocho Rios to this Honduran location. If something unusual happens to her position, I will let you know. Incidentally, my guess was wrong that she would continue along the Honduras coastline until she reached the Belize barrier reef system. I enjoy guessing, because turtles always seem to prove me wrong!

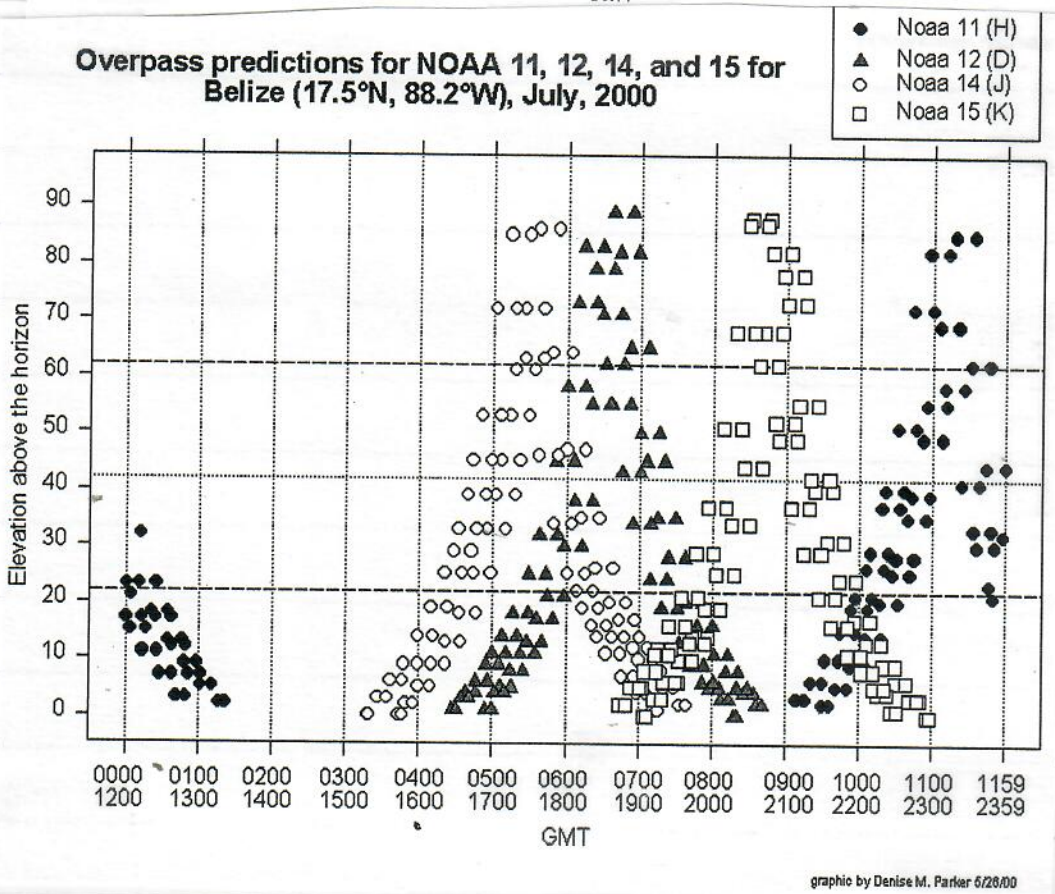
I keep hoping to hear that additional turtles have been detained in your vicinity, since we still have three transmitters to place on turtles. No luck so far.

151


Overpass predictions for NOAA 11, 12, 14, and 15 for
Carriacou, Grenada (12.5°N, 61.5°W), July, 2000
Noaa 11 (H)
Noaa 12 (D)
Noaa 14 (J)
Noaa 15 (K)
Marine Turtle Research
NMFS HONOLULU LAB
2570 Dole Street
Honolulu, HI 96822-2396
Elevation above the horizon
0
10
20
30
40
50
60
70
80
90
0000 1200
0100 1300
0200 1400
0300 1500
0400 1600
0500 1700
0600 1800
0700 1900
0800 2000
0900 2100
1000 2200
1100 2300
1159 2359
GMT

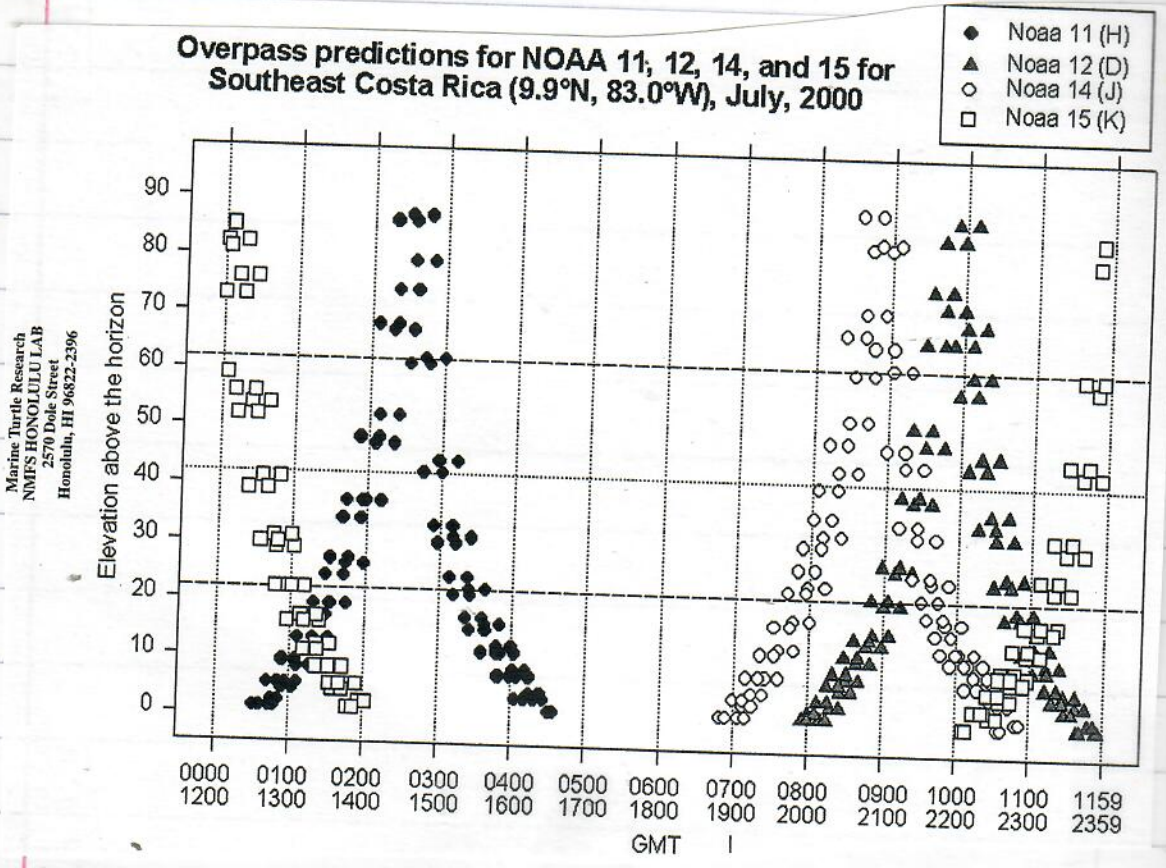

Overpass predictions for NOAA 11, 12, 14, and 15 for
North Jamaica (18.4°N, 77.4°W), July, 2000
graphic by Denise M. Parker 5/25/00
Noaa 14 (J)
Noaa 15 (K)
Marine Turtle Research
NMFS HONOLULU LAB
2570 Dole Street
Honolulu, HI 96822-2396
Elevation above the horizon
0
10
20
30
40
50
60
70
80
90
0000 1200
0100 1300
0200 1400
0300 1500
0400 1600
0500 1700
0600 1800
0700 1900
0800 2000
0900 2100
1000 2200
1100 2300
1159 2359


Overpass predictions for NOAA 11, 12, 14, and 15 for Nigaragua (14.0°N, 83.4°W), July, 2000
Noaa 11 (H)
Noaa 12 (D)
Noaa 14 (J)
Noaa 15 (K)
Elevation above the horizon
90
80
70
60
50
40
30
20
10
0
0000 1200
0100 1300
0200 1400
0300 1500
0400 1600
0500 1700
0600 1800
0700 1900
0800 2000
0900 2100
1000 2200
1100 2300
1159 2359
GMT


Overpass predictions for NOAA 11, 12, 14, and 15 for Belize (17.5°N, 88.2°W), July, 2000
Noaa 11 (H)
Noaa 12 (D)
Noaa 14 (J)
Noaa 15 (K)
Elevation above the horizon
90
80
70
60
50
40
30
20
10
0
0000 1200
0100 1300
0200 1400
0300 1500
0400 1600
0500 1700
0600 1800
0700 1900
0800 2000
0900 2100
1000 2200
1100 2300
1159 2359
GMT
graphic by Denise M. Parker 5/26/00

155


8 '98


Overpass predictions for NOAA 11, 12, 14, and 15 for
Southeast Costa Rica (9.9°N, 83.0°W), July, 2000
Noaa 11 (H)
Noaa 12 (D)
Noaa 14 (J)
Noaa 15 (K)
Elevation above the horizon
0
10
20
30
40
50
60
70
80
90
0000 1200
0100 1300
0200 1400
0300 1500
0400 1600
0500 1700
0600 1800
0700 1900
0800 2000
0900 2100
1000 2200
1100 2300
1159 2359
GMT
Marine Turtle Research
NMFS HONOLULU LAB
2570 Dole Street
Honolulu, HI 96822-2396

9 on / 3 off

~~ID~~ 8208 HILTON BEACH

8/~~1~~2/98 sunday

Release

"Chippie" GPS = 13° 04.732 N

59° 36.551 W

CCL=88 cm

23 Dorsal bone

Sys. No.

GPS Same as 8180

Same GPS under lamppost light

3rd laying

Newly tagged this season

Sys No. = ______

1020 pm start

T 0240 L1S

T 0266 R1S

"Bellairs Research Institute Barbados" ... on tag = Reward

1250 Am completion

8/~~1~~2/98 Sunday 0130 release

carried on blue tarp back to ocean. Photos

Lots of circular indentations from large Chelonibia testudinaria barnacles.

(is this the species?)

157

Date: Mon, 24 May 1999 11:12:43 -0300
From: Lotus Arrieta Vermeer <lotus@sunbeach.net>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>,
Barbara.Schroeder@noaa.gov
Cc: jahorrocks@sunbeach.net
Subject: bad news indeed

8208 1999

The last 2 good readings for Chippie were on May 5 (LC 1 11.182N 63.123W) and May 6 (LC A 11.197N 63.100); this is approximately 50km south of Isla Testigo Grande and 75km east of Isla Margarita. Her first zero dive count was on May 7. On May 10, she logged a dive count of 64, but her readings since May 8 have her at a fixed location on land. Since May 8, she has produced LC 3 readings consistently for the same location (between 11.115 to 11.119 N and 63.840 to 63.849 W) which has her on the north east coast Isla Margarita. This would indicate that she has been caught, and her transmitter is now on Isla Margarita.

"CHIPPIE" 158

08208 Date : 01.08.98 06:48:28 LC : Z IQ : 61
Lat1 : 13.078N Lon1 : 59.614W Lat2 : 12.181N Lon2 : 55.694W
171 256 00 00
00 00

08208 Date : 01.08.98 11:01:49 LC : 2 IQ : 60
Lat1 : 13.196N Lon1 : 59.643W Lat2 : 18.690N Lon2 : 84.983W
172 00 00 00
00 00

08208 Date : 01.08.98 11:40:52 LC : 2 IQ : 68
Lat1 : 13.193N Lon1 : 59.636W Lat2 : 13.685N Lon2 : 61.823W
172 00 00 00
00 00

08208 Date : 01.08.98 22:02:40 LC : 1 IQ : 68
Lat1 : 13.077N Lon1 : 59.617W Lat2 : 11.467N Lon2 : 66.981W
168 00 00 00
00 00

08208 Date : 01.08.98 22:46:02 LC : A IQ : 08
Lat1 : 13.072N Lon1 : 59.653W Lat2 : 16.542N Lon2 : 43.936W
168 00 01 00
00 00

08208 Date : 01.08.98 17:55:25 LC : B IQ : 00
Lat1 : 13.088N Lon1 : 59.540W Lat2 : 17.412N Lon2 : 40.565W
168 00 00 00
00 00

08208 Date : 05.08.98 10:59:53 LC : B IQ : 00
Lat1 : 13.107N Lon1 : 59.590W Lat2 : 1.658N Lon2 : 8.679W
174 2099 1728 12
00 00

08208 Date : 03.08.98 10:55:42 LC : A IQ : 00
Lat1 : 13.064N Lon1 : 59.578W Lat2 : 8.820N Lon2 : 40.882W
175 873 1493 14
00 00

08208 Date : 03.08.98 19:16:59 LC : B IQ : 00
Lat1 : 13.047N Lon1 : 59.625W Lat2 : 8.809N Lon2 : 78.144W
176 1113 728 28
00 00

08208 Date : 03.08.98 23:02:19 LC : B IQ : 00
Lat1 : 13.040N Lon1 : 59.619W Lat2 : 5.547N Lon2 : 94.052W
175 1203 728 28
00 00

08208 Date : 04.08.98 00:20:41 LC : Z IQ : 10
Lat1 : 14.380N Lon1 : 54.739W Lat2 : 13.178N Lon2 : 59.399W
175 1320 728 28

08208 Date : 07.08.98 07:20:29 LC : 1 IQ : 50
Lat1 : 13.072N Lon1 : 59.618W Lat2 : 15.893N Lon2 : 71.849W
176 2093 1603 13

08208 Date : 07.08.98 13:54:15 LC : B IQ : 00
Lat1 : 13.075N Lon1 : 59.613W Lat2 : 20.755N Lon2 : 93.016W
175 2023 1603 13
00 00

159

08208 Date : 07.08.98 21:29:13 LC : Z IQ : 10
Lat1 : 14.894N Lon1 : 51.535W Lat2 : 12.995N Lon2 : 59.382W
176 1907 1383 15
08208 Date : 08.08.98 10:42:33 LC : A IQ : 00
Lat1 : 13.045N Lon1 : 59.737W Lat2 : 7.919N Lon2 : 36.382W
173 1666 1743 12
08208 Date : 08.08.98 10:42:33 LC : A IQ : 00
Lat1 : 13.045N Lon1 : 59.737W Lat2 : 7.919N Lon2 : 36.382W
173 1666 1743 12
08208 Date : 08.08.98 20:03:08 LC : B IQ : 00
Lat1 : 13.098N Lon1 : 59.620W Lat2 : 3.983N Lon2 : 99.880W
172 2169 1297 16
08208 Date : 08.08.98 23:14:21 LC : A IQ : 00
Lat1 : 13.007N Lon1 : 59.619W Lat2 : 21.161N Lon2 : 23.752W
174 2161 1297 16
08208 Date : 09.08.98 10:24:20 LC : 0 IQ : 60
Lat1 : 13.066N Lon1 : 59.599W Lat2 : 5.257N Lon2 : 25.447W
176 1923 2106 10
08208 Date : 09.08.98 11:26:30 LC : 0 IQ : 60
Lat1 : 13.030N Lon1 : 59.583W Lat2 : 21.060N Lon2 : 96.734W
176 1796 15422 1923
03 00
08208 Date : 09.08.98 10:24:20 LC : 0 IQ : 60
Lat1 : 13.066N Lon1 : 59.599W Lat2 : 5.257N Lon2 : 25.447W
176 1923 2106 10
08208 Date : 09.08.98 11:26:30 LC : 0 IQ : 60
Lat1 : 13.030N Lon1 : 59.583W Lat2 : 21.060N Lon2 : 96.734W
176 1796 15422 1923
03 00
08208 Date : 09.08.98 18:16:03 LC : Z IQ : 10
Lat1 : 16.893N Lon1 : 47.119W Lat2 : 13.241N Lon2 : 59.564W
173 8529 193 138
00 10
08208 Date : 10.08.98 13:17:55 LC : 0 IQ : 50
Lat1 : 13.081N Lon1 : 59.626W Lat2 : 16.747N Lon2 : 75.387W
174 2150 1388 15
08208 Date : 11.08.98 00:29:45 LC : B IQ : 00
Lat1 : 13.093N Lon1 : 59.635W Lat2 : 5.708N Lon2 : 93.103W
176 2568 1738 12
08208 Date : 11.08.98 09:03:15 LC : 0 IQ : 60
Lat1 : 13.076N Lon1 : 59.691W Lat2 : 5.853N Lon2 : 27.173W
174 2664 1756 12
08208 Date : 11.08.98 11:28:19 LC : Z IQ : 10
Lat1 : 11.251N Lon1 : 52.410W Lat2 : 13.171N Lon2 : 59.804W
172 1967 1756 12
08208 Date : 11.08.98 21:46:31 LC : 0 IQ : 50
Lat1 : 13.069N Lon1 : 59.658W Lat2 : 13.571N Lon2 : 57.392W
176 2061 1392 15
08208 Date : 12.08.98 00:23:27 LC : Z IQ : 10
Lat1 : 13.179N Lon1 : 59.507W Lat2 : 14.689N Lon2 : 54.934W
176 2381 1392 15
08208 Date : 12.08.98 06:23:49 LC : A IQ : 00
Lat1 : 13.083N Lon1 : 59.608W Lat2 : 9.696N Lon2 : 45.075W
171 597 2098 10
08208 Date : 12.08.98 17:39:39 LC : A IQ : 00
Lat1 : 13.094N Lon1 : 59.626W Lat2 : 20.042N Lon2 : 29.776W
176 1947 869 24
00 00

160

08208 Date : 12.08.98 22:05:26 LC : A IQ : 00
Lat1 : 13.048N Lon1 : 59.617W Lat2 : 20.888N Lon2 : 23.820W
176 1665 869 24
08208 Date : 13.08.98 10:42:44 LC : A IQ : 00
Lat1 : 13.081N Lon1 : 59.668W Lat2 : 6.615N Lon2 : 30.862W
175 1969 1234 17
08208 Date : 13.08.98 22:39:08 LC : A IQ : 00
Lat1 : 13.084N Lon1 : 59.680W Lat2 : 7.613N Lon2 : 84.443W
176 17 1384 15
00 01

08208 Date : 15.08.98 05:55:18 LC : A IQ : 00
Lat1 : 13.066N Lon1 : 59.552W
174 910 509 41
08208 Date : 15.08.98 07:33:36 LC : A IQ : 00
Lat1 : 13.077N Lon1 : 59.607W
176 81 509 41
08208 Date : 15.08.98 10:51:38 LC : B IQ : 00
Lat1 : 13.076N Lon1 : 59.614W
176 710 509 41
00 01
08208 Date : 15.08.98 23:24:44 LC : 1 IQ : 60
Lat1 : 13.065N Lon1 : 59.620W
178 17 647 32
08208 Date : 16.08.98 00:20:36 LC : 2 IQ : 60
Lat1 : 13.070N Lon1 : 59.598W
177 22 647 32
08208 Date : 16.08.98 01:09:20 LC : A IQ : 08
Lat1 : 13.069N Lon1 : 59.601W
177 16 647 32
00 01
08208 Date : 16.08.98 05:41:33 LC : B IQ : 00
Lat1 : 13.086N Lon1 : 59.624W
00 1656 147 123
00 09
08208 Date : 17.08.98 00:59:36 LC : B IQ : 00
Lat1 : 13.066N Lon1 : 59.558W
176 1775 1320 16
08208 Date : 17.08.98 12:25:57 LC : A IQ : 00
Lat1 : 13.050N Lon1 : 59.500W
176 2218 1922 11
08208 Date : 17.08.98 21:13:53 LC : A IQ : 00
Lat1 : 13.073N Lon1 : 59.613W
176 05 871 24
08208 Date : 18.08.98 06:59:05 LC : B IQ : 00
Lat1 : 13.067N Lon1 : 59.549W
177 1936 996 21
08208 Date : 18.08.98 09:45:54 LC : 0 IQ : 50
Lat1 : 13.056N Lon1 : 59.619W
177 262 996 21
08208 Date : 18.08.98 12:08:21 LC : A IQ : 08
Lat1 : 13.070N Lon1 : 59.613W
176 2089 996 21
08208 Date : 18.08.98 13:21:09 LC : 2 IQ : 68
Lat1 : 13.067N Lon1 : 59.617W
176 2099 33764 21
00 00

161

08208 Date : 19.08.98 20:30:19 LC : A IQ : 00
Lat1 : 13.092N Lon1 : 59.606W
176 1911 1499 14

08208 Date : 20.08.98 17:46:39 LC : 0 IQ : 50
Lat1 : 13.041N Lon1 : 59.599W
176 2486 778 27

08208 Date : 21.08.98 17:42:56 LC : 0 IQ : 50
Lat1 : 12.998N Lon1 : 59.826W
176 2408 1104 19

08208 Date : 21.08.98 22:13:14 LC : B IQ : 00
Lat1 : 13.131N Lon1 : 59.545W
178 920 1104 19

08208 Date : 22.08.98 06:12:16 LC : B IQ : 00
Lat1 : 13.071N Lon1 : 59.629W
00 2116 1233 17
00 03

08208 Date : 22.08.98 11:37:29 LC : B IQ : 00
Lat1 : 13.057N Lon1 : 59.631W
176 2143 1233 17

08208 Date : 23.08.98 09:34:34 LC : 1 IQ : 50
Lat1 : 13.070N Lon1 : 59.609W
178 109 1631 13

08208 Date : 24.08.98 12:00:04 LC : A IQ : 00
Lat1 : 13.173N Lon1 : 59.394W
176 2777 1625 13

08208 Date : 25.08.98 00:24:14 LC : B IQ : 00
Lat1 : 13.078N Lon1 : 59.602W
177 2734 1906 11

08208 Date : 26.08.98 10:57:51 LC : A IQ : 00
Lat1 : 13.435N Lon1 : 60.068W
176 2265 4381 61452

08208 Date : 27.08.98 13:01:56 LC : B IQ : 00
Lat1 : 13.599N Lon1 : 59.895W
174 1944 1320 16

08208 Date : 28.08.98 06:48:44 LC : 2 IQ : 60
Lat1 : 13.075N Lon1 : 59.606W
176 25 259 76

08208 Date : 28.08.98 11:49:47 LC : A IQ : 08
Lat1 : 13.073N Lon1 : 59.612W
175 08 259 76
00 01

08208 Date : 28.08.98 12:59:28 LC : Z IQ : 10
Lat1 : 13.084N Lon1 : 59.791W
177 88 259 76
00 00

08208 Date : 29.08.98 01:47:42 LC : B IQ : 00
Lat1 : 13.015N Lon1 : 59.600W
177 119 440 47
00 00

08208 Date : 29.08.98 22:27:38 LC : B IQ : 00
Lat1 : 13.101N Lon1 : 59.748W
177 781 438 48
00 00

08208 Date : 29.08.98 23:55:21 LC : 2 IQ : 60
Lat1 : 13.069N Lon1 : 59.604W
177 27 438 48
00 00

08208 Date : 30.08.98 00:11:29 LC : 0 IQ : 56
Lat1 : 13.065N Lon1 : 59.577W
174 27 438 48
00 00

08208 Date : 30.08.98 11:06:08 LC : B IQ : 00
Lat1 : 13.052N Lon1 : 59.628W
176 303 177 98
00 00

08208 Date : 30.08.98 11:06:08 LC : B IQ : 00
Lat1 : 13.052N Lon1 : 59.628W
176 303 177 98
00 00

08208 Date : 30.08.98 12:30:40 LC : 1 IQ : 50
Lat1 : 13.058N Lon1 : 59.648W
179 24 177 98
00 00

08208 Date : 30.08.98 12:46:47 LC : B IQ : 00
Lat1 : 13.027N Lon1 : 59.619W
179 128 177 98
00 00

08208 Date : 30.08.98 17:39:12 LC : A IQ : 08
Lat1 : 13.017N Lon1 : 59.794W
182 108 121 173
00 00

08208 Date : 30.08.98 19:20:16 LC : A IQ : 08
Lat1 : 13.013N Lon1 : 59.812W
180 122 121 173
00 01

08208 Date : 30.08.98 21:30:24 LC : B IQ : 00
Lat1 : 12.888N Lon1 : 60.082W
178 124 121 173
00 00

08208 Date : 30.08.98 23:09:37 LC : B IQ : 00
Lat1 : 13.071N Lon1 : 59.821W
178 1040 121 173
00 00

08208 Date : 31.08.98 01:19:10 LC : 0 IQ : 68
Lat1 : 13.009N Lon1 : 59.905W
177 12 121 173
00 01

08208 Date : 31.08.98 09:58:02 LC : 0 IQ : 50
Lat1 : 12.932N Lon1 : 60.075W
177 141 84 244
00 00

08208 Date : 31.08.98 10:42:35 LC : 3 IQ : 68
Lat1 : 12.923N Lon1 : 60.077W
177 54 84 244
00 00

08208 Date : 31.08.98 12:14:26 LC : B IQ : 00
Lat1 : 12.901N Lon1 : 60.194W
178 36 84 244
00 01

08208 Date : 31.08.98 12:23:51 LC : A IQ : 08
Lat1 : 12.909N Lon1 : 60.109W
178 34 84 244
00 01

08208 Date : 31.08.98 14:00:51 LC : B IQ : 00
Lat1 : 12.858N Lon1 : 60.120W
180 104 84 244

08208 Date : 31.08.98 19:09:16 LC : 0 IQ : 58
Lat1 : 12.855N Lon1 : 60.231W
182 49 89 228
00 01

163

08208 Date : 31.08.98 21:03:53 LC : A IO : 07
Lat1 : 12.850N Lon1 : 60.291W
178 84 89 228
00 00

08208 Date : 31.08.98 21:47:58 LC : B IQ : 00
Lat1 : 12.929N Lon1 : 60.280W
178 20 89 228
00 00

08208 Date : 31.08.98 22:40:46 LC : B IQ : 00
Lat1 : 12.675N Lon1 : 60.573W
177 48 89 228
00 00

08208 Date : 31.08.98 23:29:20 LC : 0 IQ : 58
Lat1 : 12.843N Lon1 : 60.339W
177 105 89 228
00 00

08208 Date : 31.08.98 23:30:37 LC : A IQ : 08
Lat1 : 12.845N Lon1 : 60.343W
177 130 89 228
00 00

08208 Date : 01.09.98 06:07:50 LC : A IQ : 08
Lat1 : 12.860N Lon1 : 60.526W
177 35 105 191
00 00

08208 Date : 01.09.98 07:44:10 LC : B IQ : 00
Lat1 : 12.859N Lon1 : 60.582W
177 58 105 191
00 00

08208 Date : 01.09.98 09:36:32 LC : 1 IQ : 58
Lat1 : 12.854N Lon1 : 60.637W
177 113 105 191
00 00

08208 Date : 01.09.98 11:15:54 LC : 3 IQ : 68
Lat1 : 12.839N Lon1 : 60.698W
177 94 105 191
00 00

08208 Date : 01.09.98 09:36:32 LC : 1 IQ : 58
Lat1 : 12.854N Lon1 : 60.637W
177 113 105 191
00 00

08208 Date : 01.09.98 11:15:54 LC : 3 IQ : 68
Lat1 : 12.839N Lon1 : 60.698W
177 94 105 191
00 00

08208 Date : 01.09.98 12:01:01 LC : 2 IQ : 58
Lat1 : 12.828N Lon1 : 60.723W
178 86 105 191
00 00

08208 Date : 01.09.98 18:55:00 LC : B IQ : 00
Lat1 : 12.505N Lon1 : 60.127W
183 109 4797 17061
01 10

08208 Date : 01.09.98 20:43:04 LC : A IQ : 08
Lat1 : 12.809N Lon1 : 61.028W
181 59 89 231
00 00

08208 Date : 01.09.98 22:21:52 LC : 2 IQ : 58
Lat1 : 12.834N Lon1 : 61.068W
178 48 89 231
00 00

08208 Date : 01.09.98 23:09:00 LC : 1 IQ : 68
Lat1 : 12.833N Lon1 : 61.091W
177 127 89 231
00 00

08208 Date : 02.09.98 05:56:41 LC : B IQ : 00
Lat1 : 12.818N Lon1 : 61.185W
174 565 167 125
00 00

08208 Date : 02.09.98 07:30:00 LC : B IQ : 00
Lat1 : 12.949N Lon1 : 61.271W
176 105 167 125
00 00

08208 Date : 02.09.98 11:36:55 LC : B IQ : 00
Lat1 : 12.802N Lon1 : 61.064W
176 433 167 125
00 00

08208 Date : 02.09.98 13:35:01 LC : B IQ : 00
Lat1 : 12.795N Lon1 : 61.204W
176 503 167 125
00 00

08208 Date : 02.09.98 18:46:46 LC : 0 IQ : 50
Lat1 : 12.762N Lon1 : 61.473W
177 45 8360 244
00 00

08208 Date : 03.09.98 11:38:54 LC : A IQ : 00
Lat1 : 12.717N Lon1 : 61.355W
176 49 198 105
00 00

08208 Date : 03.09.98 11:38:54 LC : A IQ : 00
Lat1 : 12.717N Lon1 : 61.355W
176 49 198 105
00 00

08208 Date : 03.09.98 12:56:26 LC : 2 IQ : 68
Lat1 : 12.703N Lon1 : 61.373W
177 10 198 105
00 01

08208 Date : 03.09.98 13:23:09 LC : B IQ : 00
Lat1 : 12.701N Lon1 : 61.382W
176 15 198 105
00 00

08208 Date : 03.09.98 18:35:42 LC : A IQ : 08
Lat1 : 12.651N Lon1 : 61.415W
178 130 223 93
00 01

08208 Date : 03.09.98 22:21:21 LC : A IQ : 08
Lat1 : 12.641N Lon1 : 61.499W
176 121 223 93
00 00

08208 Date : 03.09.98 23:59:11 LC : B IQ : 00
Lat1 : 12.634N Lon1 : 61.524W
177 35 223 93
00 00

08208 Date : 04.09.98 10:55:13 LC : B IQ : 00
Lat1 : 12.493N Lon1 : 61.579W
176 179 174 119
00 00

08208 Date : 04.09.98 10:55:13 LC : B IQ : 00
Lat1 : 12.493N Lon1 : 61.579W
176 179 174 119
00 00

165

08208 Date : 04.09.98 12:30:11 LC : A IQ : 00
Lat1 : 12.409N Lon1 : 61.486W
178 47 174 119
00 00

08208 Date : 04.09.98 13:05:12 LC : B IQ : 00
Lat1 : 12.449N Lon1 : 61.539W
176 19 174 119
00 01

08208 Date : 04.09.98 20:06:42 LC : B IQ : 00
Lat1 : 12.302N Lon1 : 61.550W
174 14 132 156
00 01

08208 Date : 04.09.98 21:12:58 LC : A IQ : 00
Lat1 : 12.276N Lon1 : 61.586W
175 30 132 156
00 01

08208 Date : 05.09.98 09:49:48 LC : B IQ : 00
Lat1 : 12.167N Lon1 : 61.554W
173 10 174 121
00 00

08208 Date : 05.09.98 10:32:34 LC : 1 IQ : 60
Lat1 : 12.173N Lon1 : 61.527W
175 22 174 121
00 00

08208 Date : 05.09.98 11:26:17 LC : B IQ : 00
Lat1 : 12.161N Lon1 : 61.525W
176 114 174 121
00 00

08208 Date : 05.09.98 12:06:53 LC : B IQ : 00
Lat1 : 12.162N Lon1 : 61.521W
175 62 174 121
00 00

08208 Date : 05.09.98 18:13:56 LC : 2 IQ : 68
Lat1 : 12.022N Lon1 : 61.598W
183 113 167 125
00 00

08208 Date : 05.09.98 19:56:55 LC : B IQ : 00
Lat1 : 11.994N Lon1 : 61.574W
181 144 167 125
00 00

08208 Date : 05.09.98 20:53:55 LC : A IQ : 08
Lat1 : 11.960N Lon1 : 61.619W
180 85 167 125
00 00

08208 Date : 05.09.98 23:21:19 LC : 2 IQ : 68
Lat1 : 11.906N Lon1 : 61.644W
177 92 167 125
00 00

08208 Date : 06.09.98 00:10:25 LC : 2 IQ : 68
Lat1 : 11.886N Lon1 : 61.648W
177 113 167 125
00 00

08208 Date : 06.09.98 01:49:07 LC : B IQ : 00
Lat1 : 11.841N Lon1 : 61.669W
177 84 167 125

08208 Date : 06.09.98 06:50:50 LC : B IQ : 00
Lat1 : 11.748N Lon1 : 61.679W
177 112 117 181
00 00

08208 Date : 06.09.98 11:06:39 LC : B IQ : 00
Lat1 : 11.669N Lon1 : 61.695W
177 173 117 181
00 00

08208 Date : 06.09.98 11:52:36 LC : B IQ : 00
Lat1 : 11.732N Lon1 : 61.786W
177 271 117 181
00 00

08208 Date : 06.09.98 12:41:28 LC : A IQ : 00
Lat1 : 11.656N Lon1 : 61.729W
179 112 117 181
00 00

08208 Date : 06.09.98 17:59:30 LC : B IQ : 00
Lat1 : 11.543N Lon1 : 61.810W
181 81 123 171
00 00

08208 Date : 06.09.98 22:12:11 LC : B IQ : 00
Lat1 : 11.609N Lon1 : 61.835W
179 131 123 171
00 00

08208 Date : 06.09.98 22:53:17 LC : A IQ : 08
Lat1 : 11.616N Lon1 : 62.052W
178 277 123 171
00 00

08208 Date : 07.09.98 10:45:10 LC : B IQ : 00
Lat1 : 11.500N Lon1 : 62.242W
176 127 138 152
00 00

08208 Date : 07.09.98 10:45:10 LC : B IQ : 00
Lat1 : 11.500N Lon1 : 62.242W
176 127 138 152
00 00

08208 Date : 07.09.98 12:34:12 LC : A IQ : 00
Lat1 : 11.611N Lon1 : 62.307W
177 35 138 152
00 00

08208 Date : 07.09.98 17:46:26 LC : B IQ : 00
Lat1 : 11.609N Lon1 : 62.683W
182 32 198 108
00 00

08208 Date : 09.09.98 21:06:14 LC : B IQ : 00
Lat1 : 11.551N Lon1 : 63.507W
176 1743 2697 08
00 00

08208 Date : 14.09.98 11:34:42 LC : B IQ : 00
Lat1 : 11.010N Lon1 : 62.912W
170 1375 1128 02
00 00

08208 Date : 14.09.98 18:09:22 LC : B IQ : 00
Lat1 : 11.098N Lon1 : 63.006W
172 561 279 76
00 01

08208 Date : 14.09.98 12:42:01 LC : B IQ : 00
Lat1 : 11.043N Lon1 : 62.703W
170 878 1128 19
00 00

167

08208 Date : 14.09.98 22:34:37 LC : A IQ : 00
Lat1 : 11.118N Lon1 : 63.111W
172 215 279 76
00 01

08208 Date : 14.09.98 23:19:37 LC : B IQ : 00
Lat1 : 11.112N Lon1 : 63.100W
172 333 279 76
00 11

08208 Date : 15.09.98 06:49:35 LC : B IQ : 00
Lat1 : 11.136N Lon1 : 63.119W
171 1053 247 85
00 00

08208 Date : 15.09.98 09:32:45 LC : B IQ : 00
Lat1 : 11.132N Lon1 : 63.105W
171 1359 247 85
00 00

08208 Date : 15.09.98 10:15:36 LC : B IQ : 00
Lat1 : 11.143N Lon1 : 63.099W
171 1231 247 85
00 00

08208 Date : 15.09.98 12:28:28 LC : B IQ : 00
Lat1 : 11.169N Lon1 : 63.072W
171 669 17077 85
00 00

08208 Date : 15.09.98 22:17:48 LC : B IQ : 00
Lat1 : 11.133N Lon1 : 62.954W
170 605 465 45
00 00

08208 Date : 16.09.98 01:26:16 LC : B IQ : 00
Lat1 : 11.085N Lon1 : 62.994W
170 545 465 45
00 00

08208 Date : 16.09.98 10:42:17 LC : B IQ : 00
Lat1 : 11.156N Lon1 : 63.148W
169 582 318 65
00 00

08208 Date : 16.09.98 12:23:09 LC : B IQ : 00
Lat1 : 11.094N Lon1 : 63.071W
170 907 318 65
00 00

08208 Date : 16.09.98 13:57:48 LC : B IQ : 00
Lat1 : 11.101N Lon1 : 63.070W
171 713 318 65
00 00

08208 Date : 16.09.98 21:53:20 LC : B IQ : 00
Lat1 : 11.189N Lon1 : 63.103W
172 534 426 49
00 00

08208 Date : 17.09.98 06:32:17 LC : A IQ : 00
Lat1 : 11.226N Lon1 : 63.190W
171 1926 497 42
00 00

08208 Date : 17.09.98 12:05:08 LC : B IQ : 00
Lat1 : 11.232N Lon1 : 63.134W
171 750 497 42
00 00

08208 Date : 17.09.98 13:45:52 LC : B IQ : 00
Lat1 : 11.235N Lon1 : 63.116W
171 788 497 42
00 00

08208 Date : 17.09.98 21:29:46 LC : 3 IQ : 60
Lat1 : 11.217N Lon1 : 63.111W
171 28 434 48
00 00

08208 Date : 18.09.98 11:58:40 LC : A IQ : 00
Lat1 : 11.173N Lon1 : 63.056W
171 686 436 48
00 00

08208 Date : 18.09.98 11:58:40 LC : A IQ : 00
Lat1 : 11.173N Lon1 : 63.056W
171 686 436 48
00 00

08208 Date : 18.09.98 12:30:31 LC : A IQ : 00
Lat1 : 11.175N Lon1 : 63.065W
171 901 436 48
00 00

08208 Date : 18.09.98 13:31:09 LC : B IQ : 00
Lat1 : 11.213N Lon1 : 63.131W
171 934 436 48
00 00

08208 Date : 19.09.98 11:22:43 LC : B IQ : 00
Lat1 : 11.191N Lon1 : 63.106W
170 399 1317 16
00 00

08208 Date : 19.09.98 20:46:37 LC : B IO : 00
Lat1 : 11.168N Lon1 : 63.129W
172 673 1309 16

08208 Date : 19.09.98 22:24:13 LC : B IQ : 00
Lat1 : 11.180N Lon1 : 63.120W
172 1744 1309 16
00 00

Hereafter only LC Ø, 12 073

08208 Date : 28.09.98 07:49:38 LC : 2 IQ : 60
Lat1 : 11.179N Lon1 : 63.124W
169 2706 1050 20
00 00

08208 Date : 29.09.98 09:21:15 LC : 0 IQ : 60
Lat1 : 11.173N Lon1 : 63.132W
170 2214 1106 19
00 00

08208 Date : 06.10.98 06:20:32 LC : 1 IQ : 60
Lat1 : 5.132N Lon1 : 37.009W Lat2 : 11.194N Lon2 : 63.119W
172 1886 1097 19
00 00

08208 Date : 11.10.98 09:51:14 LC : 0 IQ : 50
Lat1 : 11.402N Lon1 : 62.265W
169 1542 948 22
00 00

08208 Date : 12.10.98 09:31:42 LC : 1 IQ : 60
Lat1 : 11.178N Lon1 : 63.121W
168 2077 870 24
00 00

TO page 105 Book II

185

Justification: George Balazs, in full partnership and collaboration with F/PR co-investigator Barbara Schroeder, successfully conceived, planned, obtained funding (in a competitive arena) and implemented an international research and capacity-building project for critically endangered hawksbills in the Caribbean Region. The purpose of the project is to obtain vital management-oriented information on the migrations of hawksbill turtles between nesting sites and resident marine habitats where foraging occurs. Satellite telemetry using the Argos System that utilizes NOAA satellites was the technology chosen to accomplish this goal. The importance of obtaining these data on a region-wide basis for the Caribbean was recently emphasized at a meeting of CITES (Convention on International Trade in Endangered Species). The United States delegation, along with other nations, argued with success that resumption of commercial trade in shell from the hawksbill turtle, proposed by Cuba with Japan, was not justified until genetic stock identification, population status, and migrations between waters of Caribbean nations were elucidated, in order to formulate a scientifically sound regional management policy.

In order to transfer the required technology, equipment, and skills to six groups of researchers chosen in the Caribbean Region, a 5-day workshop was convened during early August 1998 (entitled "International Training Workshop on the Use of Satellite Transmitters and the Argos System to Track Hawksbill Turtles in the Caribbean Region"). Participating researchers were from Mexico (Yucatan), Jamaica, Antigua, Puerto Rico, Virgin Islands and Barbados, where the workshop of centrally convened. Training consisted of classroom lectures on Argos capabilities, data analysis and interpretation, and hands-on experience in the field using nesting hawksbills at Barbados. Capacity building and team work of research techniques were the central themes of the effort. At the end of the workshop, each group returned to their respective locations in the Caribbean to deploy transmitters and track hawksbills.

Most of the 20 satellite transmitters distributed in this project have now been successfully placed on hawksbills and the acquisition of valuable tracking data by the respective groups is currently taking place (as of November 1998). At the completion of the tracking, when transmitter batteries are exhausted, each group will author reports of their findings for presentation to the international community at planned symposia and/or journal publication.

Balazs' significant role and contributions to this project as co-investigator with Schroeder were derived from his considerable expertise and knowledge of sea turtle satellite tracking, and his ability to work effectively with researchers from diverse backgrounds. Assistance to and collaboration with other researchers by Balazs involving satellite telemetry has included work in Southeast Asia, Samoa, Tahiti, Hawaii, Florida, Australia, UAE in the Arabian Gulf, and the Seychelle Islands (Indian Ocean).

186

17. 11. 98.

George,

I had already had the photos copied so decided to pass them onto yall anyway

It highlights the inappropriate "Lotus" chose on September 28th 1998 and the more successful attempts on the 29th; albeit right next to the fishing pier.

The proposed visit to Honolulu next February is still that - proposed. Although if it does occur it will probably be around the 20th of February. Will keep you informed of further developments.

You were so efficient at getting me a copy of the team photograph that 2 sets have in fact arrived!!
Thanks.

Keep up the good work

Barry Kruger

(I'll be at Bellairs until about December 15th and then be making my way back to Australia).

187

NAVASSA

Unsullied by Humans, U.S. Island Is Biological Motherlode

By JOBY WARRICK
Washington Post Staff Writer

It's no accident that Navassa Island is one of America's most isolated places. Few spots on Earth could be more hostile to human habitation than this slab of jagged, broiling-hot limestone off the coast of Haiti.

Christopher Columbus's shipmates declared the island worthless when they visited briefly in 1504. The first explorers found no food or water but an abundance of scorpions, poisonous plants and razor-sharp rocks that sliced through boots and demolished boats.

For the next five centuries, Navassa remained almost completely deserted, except for a stint in the 1800s, when it was mined for guano, or bird manure. Until last week, not even the U.S. government, the titular owner, knew the island harbored extraordinary riches—an astonishing wealth of biologically unique creatures and plants that have managed to thrive here, virtually free of human interference.

The scale of Navassa's riches came to light last week when a team of researchers announced the results of the first scientific expedition there in more than a century. Combing every inch of the tiny dot of an island, the scientists counted more than 800 species, many of which are believed to exist nowhere else in the world.

As many as 250 species are believed to be entirely new to science, expedition leaders said. They reported being equally astonished by the condition of the island's coral reefs, which are so pristine they offer a glimpse of what the Caribbean may have looked like before Columbus.

"It was like looking into an aquarium," said Nina Young, a scientist with the Washington-based Center for Marine Conservation who co-led the expedition. "Navassa may possess some of the most pristine and healthy coral reefs in the U.S.—and perhaps in the whole Caribbean."

The excitement centers on a desert island that is barely two square miles, or about nine times the size of the National Mall in Washington. The tip of a submerged mountain, Navassa is 40 miles west of Haiti and 200 miles from the mainland of the United States, which claimed Navassa in 1857 under a law that asserted U.S. sovereignty over any uninhabited island that contained guano, a valuable fertilizer.

Although it was "discovered" by Europeans before the North American mainland, Navassa was bypassed by colonists because of its lack of fresh water and its exceptionally harsh terrain. Steep rocky cliffs on all sides make Navassa a natural fortress, unassailable by wooden landing craft. The Interior Department, which is responsible for administering the island, forbids unauthorized visits because of the dangers posed by the rock-studded surf.

Navassa's inland areas are only slightly less treacherous. The 14 government, university and private scientists who conducted the two-week expedition had to slowly pick their way across a landscape of jagged, cratered limestone made blisteringly hot by the Caribbean sun.

"It was like Swiss cheese or a honeycomb, but more irregular," said Michael Smith, a senior scientist with the Center for Marine Conservation and the other expedition co-leader. "When you're walking, you're jumping rim to rim over the holes."

Besides cuts and scrapes from sharp rocks, the researchers had to watch for poisonous critters—"The island is very rich in scorpions," Smith noted dryly—and poison ivy-like plants, including the ubiquitous "poison-wood" tree that soon had most expedition members scratching.

But the island's many crevices and terraces also contained a diversity of life that scientists say is extraordinary for such a small and dry place. The 800 terrestrial plants and animals the researchers documented on Navassa exceeds by four times the number previously believed to be on the island.

Besides feral dogs and goats left behind by miners and fishermen, scientists found unique species of lizards, wingless crickets and other creatures that had evolved during eons of isolation. "We've barely begun to sort through the scientific specimens," Smith said.

But there were also prominent absences. The rock iguana, an endemic species described by 19th-century visitors, appears to have vanished, possibly eaten into extinction by the 200 guano miners who stripped most of the phosphorous-rich topsoil off the island's lower terraces a century ago.

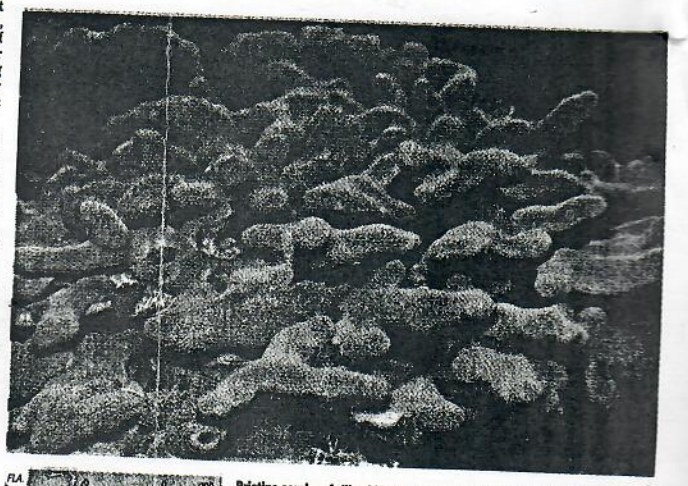
Divers who surveyed the island's reefs found a "spectacular" richness of creatures and hues, said the Center for Marine Conservation's Young. Elkhorn corals and spiny urchins that have been wiped out by disease elsewhere in the Caribbean were healthy and thriving.

"You're struck by the vibrant colors," including the deep lavenders and reds of sea sponges and fans in what is perhaps "the best diving . . . in U.S. waters," Young said.

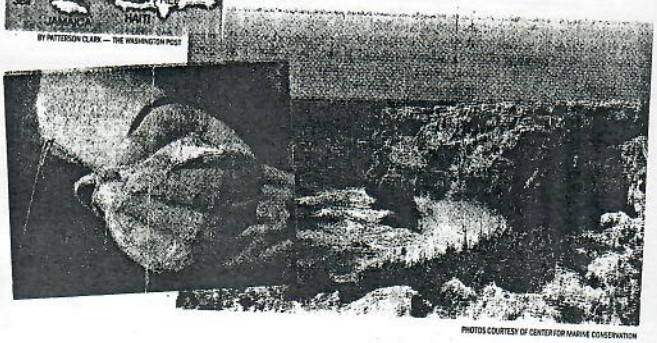
But the scientists' enthusiasm was tempered by concerns about what may happen after word spreads of Navassa's pristine richness. Elsewhere in the Caribbean, conservationists are trying to prevent further destruction of reefs that have been blighted by pollution and disease or damaged by careless divers and boaters.

The Interior Department, which co-sponsored the scientific expedition, must now decide how best to protect the island against the inevitable assault. Possible options include turning Navassa into a wildlife refuge or "special management zone," said Interior Secretary Bruce Babbitt, who vowed there would be no repeat here of the "melancholy record of the coral reef."

"I can tell you this doesn't seem to be the place for a Hilton Hotel or a resort," Babbitt said. "But we also don't want to say, 'Here's a fabulous asset—but you, the owners, aren't allowed to see it.' "



BY PATTERSON CLARK — THE WASHINGTON POST



PHOTOS COURTESY OF CENTER FOR MARINE CONSERVATION

Pristine coral reefs like this one, above, greeted the first scientific expedition to tiny Navassa Island in more than a century. Fourteen researchers who combed the U.S.-owned Caribbean island found hundreds of rare and unique species, such as the Navassa anole, below left, a lizard found nowhere else in the world. Navassa's forbidding coastline and harsh terrain may help protect the island's wildlife from human interference.

Honolulu Star-Bulletin
10-8-98 A17
UP CLOSE

Iguanas' migration amazes scientists

The lizards drift 200 miles to a Caribbean island, backing the rafting theory on Hawaii's animals

New York Times

FIFTEEN iguanas on a tangle of waterlogged trees, tossed into the Caribbean Sea by a hurricane, have apparently sailed 200 miles from Guadeloupe to Anguilla and into biological history, scientists say. Their report, being published today in the journal Nature, has amazed scientists, who have been arguing since early this century about whether such journeys were even remotely possible, let alone observable.

By documenting the 1995 voyage of the 15 large, land-loving creatures — enough to form a new population — the report provides the first clear-cut evidence in support of biologists who argue that seemingly impossible journeys like this could have been an important avenue for the dispersal of species around the world.

Some have advocated this type of rafting as a major explanation for the distribution of animals to Hawaii and other islands. Some of these advocates say the Hawaiian Islands would be devoid of nonflying animals were it not for rafting or the transportation of species by people.

Washed up by hurricanes

"It was a major invasion," said Dr. Ellen Censky, a reptile expert who has worked on Anguilla and was the lead author of the paper.

"I got a phone call saying iguanas had come onto the island," said Censky, now director of the Connecticut State Museum of Natural History at the University of Connecticut. "My first thought was that that couldn't have happened. Then somebody sent a snapshot. I thought, 'My God, that's it, that's it.' "

Dr. James Brown, ecologist and biogeographer at the University of New Mexico, said: "It's a spectacular observation. Some of the things nature can do are pretty incredible."

The journey of the iguanas began in September 1995 when two powerful hurricanes moved through the eastern Caribbean. A month later, the iguanas, fearsome-looking creatures up to 4 feet long that resemble dinosaurs, washed up on Anguilla's shores on an immense raft of trees, the Nature paper reported.

Censky said the lizards, which rest in trees, were probably blown down with them into the sea. She and her colleagues studied the tracks of the two hurricanes, Luis and Marilyn, and ocean currents and decided that the lizards probably came from Guadeloupe.

"I was completely surprised to see iguanas coming," Cleve Webster, a fisherman on Anguilla, said in a telephone interview.

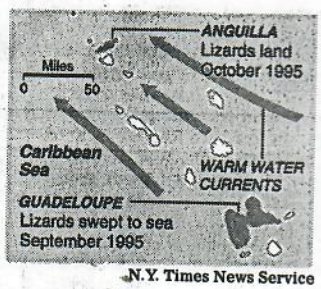
Webster witnessed the invasion with his brother while they were checking lobster traps.

A controversial hypothesis

Censky, along with Judy Dudley, a U.N. volunteer in Anguilla, and Karim Hodge, an employee with the Anguilla National Trust, interviewed eyewitnesses to the iguana landing and then tracked and monitored the iguanas as they dispersed. Censky said they were able to verify 15 animals but suspected there were more.

Identifying the lizards, known as green iguanas, as outsiders was simple, researchers said: They have a blue-green coloration and dark rings around their tails, making them easily distinguishable from the other iguana species on the island, which is brown and has a plain tail.

Though the arriving iguanas appear to have been weak, dehydrated and, in some cases, injured, a number survived. In March, researchers said they found what appeared to be a pregnant female iguana, the last element of a successful colonization of a new species, which made the observation of the rafting significant. Because the animals appear to be reproducing, the researchers said they believed the new arrivals had established themselves, though other scientists said it was still too soon to tell.



N.Y. Times News Service

While some Anguillans are concerned about the possible ecological impact of the new lizards on the island, Censky said she was not because their arrival and any changes brought by them would be entirely natural.

The new study bolsters the claims of those, like Blair Hedges, an evolutionary biologist at Pennsylvania State University, who have been advocating this type of rafting as a major explanation for the distribution of animals on islands in Hawaii, the Caribbean and elsewhere.

"In my mind it's not unexpected," Hedges said. "If we can see green iguanas land on Anguilla in 1998, just think of all the storms in all the millions of years, and there is a real probability of getting anywhere in the world."

Other researchers, like Ross MacPhee, curator of mammalogy at the American Museum of Natural History, while acknowledging that rafting clearly can occur, were not sold on its wholesale importance. MacPhee said he still thought ancient land bridges, stretches of land long since disappeared that are hypothesized to have connected islands in the Caribbean to South America, were likely to be a much more important mechanism for getting animals to islands.

MacPhee said land bridges were particularly important for mammals that did not tolerate starvation or dehydration as well as reptiles.

But rafting is just one of a number of seemingly outlandish mechanisms that researchers have had to infer to explain how different creatures have arrived where they are today. Among the harder-to-believe explanations have been geologically implausible land bridges or the suggestion that fish might have been swept up in tornadoes and moved across land to establish themselves in other bodies of water.

Rafting, for some, was equally hard to believe until now. While there have been many records of single, usually small, animals drifting about the ocean, it takes two to set up a new population (unless one is a pregnant female).

The improbable now likely

In biogeography, a field that by its very nature seems to invite wild speculation, the seemingly wild explanations are often confirmed, as in the report today.

Years ago, the suggestion that some species are where they are because the continents themselves moved was met with the most intense ridicule. Today it is dogma. Researchers' advice? Expect the unexpected.

"Over the long term," said Brown of the University of New Mexico, "improbable events become highly likely. Not everything is going to get everywhere, but things will definitely end up in surprising places."

189
See f. 191
Photos of 8180 LOTUS
8/15/98 Nesting Photos by Barry KRUEGER





Barbados tumored green turtle from Canadian Discovery Video

Date: Mon, 26 Oct 1998 11:38:20 -0400
From: Lotus Arrieta Vermeer <lotus@sunbeach.net>
To: gbalazs@honlab.nmfs.hawaii.edu
Subject: sample #1

Hi George,

We got our first FP sample yesterday. It was from a very emaciated juvenile green that washed ashore, alive, on the east coast off Barclay's Park (an area which is known to have a prevalence of tumoured turtles). It had extensive tumours which fully covered both eyes, and a number (41) of small tumours in the usual areas - neck and flippers.

I just want to run by you what I did to make sure that the samples were taken and stored correctly...

I took several biopsy punches from different tumours and placed them in separately labelled vials which were promptly frozen. In future, should I keep samples from different tumours on the same turtle separate, and label them individually (ie. tumour from neck, flipper) or place them all in one vial? I took a clean tissue sample and froze that. If memory serves me right, I was under the impression that you did not necessarily want untumoured tissue samples. Is this correct, or did I mix that up? I also took a tissue sample from the junction of unaffected and tumoured tissue, and preserved that in formalin.

I know you went through all of this a number of times, but I just wanted to make doubly sure that I was proceeding correctly.

The tumours were replete with leeches (I pickled a number of the leeches as well), which is something we often see in our tumoured turtles.

Given the moribund state of the turtle, we had it put down.

Date: Tue, 27 Oct 1998 15:43:47 -0400
From: Lotus Arrieta Vermeer <lotus@sunbeach.net>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Re: sample #1

Hi George,

Welcome back!

I will be out diving for most of the day tomorrow and Thursday. The six hour time difference therefore works in our favor. If it is convenient for you to call tomorrow, I can ensure that I will be at home from 7pm onwards tomorrow evening (1pm your time), or you can try me earlier in the day at work between 1 and 4:30pm.

My number at home is (246)422-8839, and at work is (246)422-2087.

Let me know if this is convenient for you, and if not, we can try for Thursday or Friday.

Cheers,

Lotus

191

Date: Wed, 19 Aug 1998 10:21:00 -0300
From: Lotus Arrieta Vermeer <lotus@sunbeach.net>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Re: Fleshy alga we collected at Bath Beach

Hey George,

No, I didn't actually see Lotus - but Barry did and he got photos. He checked the transmitter and it was in mint condition. Doesn't look like these girls are going anywhere in a hurry.

See p.89

I just spoke to Julie about the FP work - how exciting!! You have been extremely generous, and I really am grateful about the opportunities that you have and are providing us with!

Still on the topic of turtles, the dive shop from Sandy Lane just called and said they saw Drew (8207) on the bank reef off Sandy Lane.

How was your diving trip with Ursula and Peter?

-L.

Barrymore

At 02:53 PM 8/16/98 -1000, you wrote:
>Excellent! If you are still there, then we are "online." Did you see
>her (yourself)? Lotus I mean. The turtle Lotus? Many scratches on the
>transmitter? I should have mentioned that if anyone has the chance to
>get photos of the transmitters during renesting, that would be niffty.
>
>Julia. Fibropapillomas. Alliance between Barbados and Hawaii. It is,
>has, happened! At least the start of a small step that I want to grow.
>I had a budget emergency here, had to spend the remainder of my 1998
>budget in 2.5 hours last Thursday. Bottom line, I successfully wrote a
>contact to Bellairs for $4.8 K for tissue sampling collaboration.
>Next step? Stay tuned, I have some creative and fun ideas for fiscal
>year 1999 (which starts in early October).
>
>If you're on-line still, send me a quick message back. G
>
>On Sun, 16 Aug 1998, Lotus Arrieta Vermeer wrote:
>
>> Hi George,
>>
>> Lotus nested last night - keeping my fingers crossed that this will be her
>> last for the year. Keeping an eye out for the other 2 ladies - they're close
>> inshore, and they're due/overdue to nest.

BRIEFLY 9-21-98

Georges' 110 mph winds pummel N.E. Caribbean

ST. JOHN'S, Antigua — Hurricane Georges barreled into the northeastern Caribbean with 110 mph winds today, flooding roads, toppling trees and utility lines and forcing thousands from their homes.

More than 2,000 people sought shelter in schools and public buildings in the U.S. Virgin Islands and Puerto Rico, where the storm was expected later today. Both U.S. territories declared states of emergency and activated National Guard troops.

"This hurricane has the characteristics of being the strongest that we have confronted in Puerto Rico in decades," warned Puerto Rico Gov. Pedro Rossello.

At 8 a.m., Georges was centered 75 miles east of St. Croix in the U.S. Virgin Islands and was moving west-northwest at 17 mph. Hurricane-force winds extended up to 85 miles from the eye, mostly to the northeast.

Georges' strength diminished considerably from a monstrous 150 mph yesterday, but the U.S. National Hurricane Center warned the storm was "extremely dangerous."

192

Sandy Lane

8179 JULIA

193

BUCK ISLAND REEF Hawksbill Sea Turtle Research Program

National Park Service, Danish Customs House, Kings Wharf #100, Christiansted, St. Croix, Virgin Islands 00820-4611
(340) 773-1460 ph/ (340) 773-5995 fax/ CHRI_Interpretation@NP--SER email

Subject: Tagging data for Buck Island Reef Hawksbill tagged female, primary tag number QQD506 recaptured in Cuba, 02/09/98.

Species/Sex/Age Class:	Eretmochelys imbricata/ female/ nesting adult
Primary tagging date:	July 28, 1997
Location:	Buck Island Reef NM, St. Croix, Virgin Islands
Sector:	Northshore, Marker 14
Activity:	Confirmed lay, observed by field technicians
Tags applied:	QQD506 (L3), QQD518 (R3) QQD517 (LH/T), QQD507 (RH/T)*

*(L3 = Left front flipper, first scale out from body; R3 = right front flipper, first scale out from body; LH = Left hind flipper in tissue; RH = right hind flipper in tissue).

Data Collected -

Carapace Diagnostics	Clean carapace, highly serrated marginals
Curved Carapace Length (cm)	90.1
Curved Carapace Width (cm)	78.0
Plastron Length (cm)	67.5
Plastron Width (cm)	64.2
Tail Length (plastron – tip)(cm)	17.8
Weight (kg)	66.0
Blood collected for genetics	5 ml (pending analysis)

Nest was laid at edge of beach forest in shoreline vegetation 7 meters from high watermark. Clutch count at excavation was 86 eggs; 50 undeveloped, 1 fullterm unpipped, 35 midterm. There was no obvious reason for poor hatch success.

Lotus (Home) 422-8839
Barry Cell - 230-0142
JULIA Home 425-0108

---------- Forwarded message ----------
Date: Mon, 6 Apr 1998 21:42:53 -0400
From: CHRI Interpretation <CHRI_Interpretation@nps.gov>
To: gbalazs@honlab.nmfs.hawaii.edu
Subject: BUIS Ei captured in Cuba

George, since I have not heard from you I don't know if my previous email reached you. I have had several emails to you returned, so I try again.

I have attached the info on our BUIS Ei that was taken in Cuba in 2/9/98. Very exciting, alas sad. I have found from k bjorndal that it was taken in the turtle fisherie off the northeast side. interesting.

Attached in nesting female info. we calculated she travelled over 1400km straightline from BUIS.

Hope this reaches you and all is well.

Zandy

INSTITUTO NACIONAL DE LA PESCA
CENTRO REGIONAL DE INVESTIGACION
PESQUERA YUCALPETEN

M. en C. Mauricio Garduño Andrade
DIRECTOR

A.P. 73 PROGRESO, YUC.
C.P. 97320

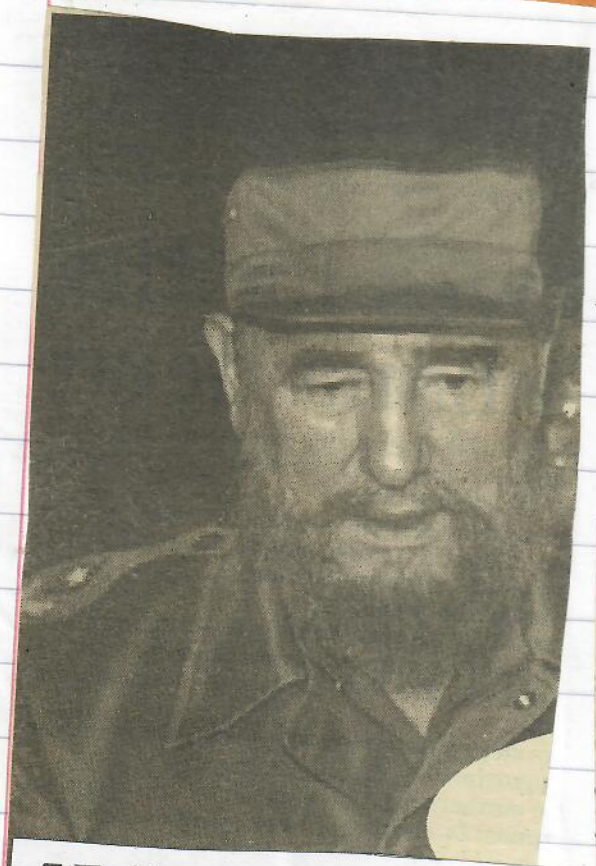
TEL. FAX 91-993-5-40-28
91-993-5-40-44

e-mail:mgarduno@minter.cieamer.conacyt.mx

195

Sun On Saturday

SATURDAY, AUGUST 1, 1998. THE NATION CARES



7 Exiles Charged With Plotting to Kill Castro

From Associated Press

SAN JUAN, Puerto Rico—The U.S. government on Tuesday announced the indictment of seven Cuban exiles, including a director of Miami's influential Cuban American National Foundation, on charges of plotting to assassinate Fidel Castro.

Although there have been numerous plots and claims of plots to kill Cuba's communist leader since he seized power in 1959, the indictment was believed to be the first such accusation in a court of law.

It alleged the defendants planned for four years to kill Castro, 72, outside the United States, in particular during his trip to a Latin American summit on Margarita island off the Venezuelan coast in November 1997.

If convicted, they face up to life in prison.

The indictment suggests that more people could be charged, saying the plotters conspired "with other persons known and unknown to the grand jury."

At least one defendant, Jose Antonio Llama, 67, is a director of the Cuban American National Foundation, which Castro has accused for years of plotting to kill him. The foundation publicly advocates political pressure to spur change in Cuba.

In Miami, the foundation called the allegations "politically motivated" and expressed confidence that Llama was innocent.

Thousands to walk for freedom today

THOUSANDS OF BARBADIANS are expected to walk for their freedom today to celebrate **Emancipation Day**.

The walkers are expected to assemble by 5:30 a.m. at the four points – Norman A. Niles Roundabout, Samuel Jackman Prescod Polytechnic, Barbados Community College and Mapp Hill, all in St. Michael.

They would then proceed to the **Emancipation Statue**.

Walkers have been asked to wear red, green or black and bring a flower.

At the **Emancipation Statue**, addresses will be made by Prime Minister Owen Arthur, Cuba's President Fidel Castro, Leader of the Opposition David Thompson, leader of the National Democratic Party Dr. Richie Haynes, president of the Clement Payne Movement David Comissiong, and chairperson of the National Youth Commission of South Africa Ms. Hlengiwe Bhengu.

Rev. Eliseus Joseph will offer prayers and Minister of Culture, Mia Mottley, will chair the event.

196

Day to honour air crash victims

CUBAN PRESIDENT Fidel Castro will dedicate a monument to the victims of a Cubana Airlines bombing this evening.

That ceremony at Paynes Bay, St. James, will also hear addresses by diplomatic representatives of Guyana and North Korea which also lost nationals in the bloody event.

The monuments will bear the names of the 73 victims – 57 Cubans, 11 Guyanese and five North Koreans – who died when two bombs, placed aboard the jet by members of anti-Castro groups, exploded shortly after the plane took off from the then Seawell Airport in October 1976.

This morning he is scheduled to participate in the **Walk For Freedom** which culminates at the Emancipation Statue (Bussa Roundabout). He is also scheduled to have lunch at **Ilaro Court** and attend a reception in his honour hosted by Governor-General and Lady Husbands at **Government House**.

A8 • Sunday, August 23, 1998

Caribbean trade pact signed at summit

The Honolulu Advertiser

Associated Press

SANTO DOMINGO, Dominican Republic — Caribbean nations signed a trade pact doubling their market yesterday at a summit marked by the overnight conversion of Fidel Castro from regional bogeyman to elder statesman.

The 16-nation summit also illustrated growing antipathy toward the United States, increasingly seen as neglecting the region on trade and aid issues since the end of the Cold War.

The free-trade accord will eventually remove most tariffs between the Caribbean Community — whose 15 nations have a population of 6 million — and the Dominican Republic, with 8 million people.

It was timed to coincide with negotiations for a free trade zone encompassing the entire Western Hemisphere by 2005.

The formerly insular Dominican Republic is trying to become a linchpin of the Americas through its Hispanic culture, Caribbean location and ties to the United States, where more than a million Dominicans live. The ambitious Dominican president, Leonel Fernandez, has seized a leading role in the unprecedented Caribbean embrace of Cuban leader Castro — a once avowed enemy of Fernandez's more conservative predecessors.

"We believe that the development of our region must include Cuba," said St. Lucia Prime Minister Kenny Anthony, who signed the trade pact with Fernandez on behalf of the Caribbean Community.

Castro, largely isolated from his neighbors since seizing power in 1959, ended a triumphant tour three weeks ago that took him to Jamaica, Barbados and Grenada.

His newfound acceptance results in part from Caribbean frustration with a U.S. policy perceived as lacking leadership, vision and generosity — reflected in a 25 percent drop in U.S. aid over five years, to $137 million last year.

Cuba, meanwhile, has increased its donations to an estimated $20 million and handed out hundreds of scholarships at Cuban universities.

A declaration from the leaders yesterday expressed "deep disappointment" that the United States failed to make good on President Clinton's promises to extend the same preferences for Caribbean textiles as those enjoyed by Mexico under the North American Free Trade Agreement.

The statement — a clear challenge to the U.S. embargo of Cuba — extended a warm hand of friendship to Cuba and underscored "the significance of (Castro's) participation at the summit." It was read as Castro smiled from the head table.

Castro argued that the small island nations of the Caribbean must oppose the unbridled capitalism he attributes to the United States.

"The Caribbean confronts the serious danger of a growing marginalization," he said Friday, calling on regional leaders to promote tourism to boost their economies. "Unity is the sole and true strength of the Caribbean."

197

Date: 10/5/98
Sender: Barbara Schroeder
To: useroffice@argosinc.com
cc: George Balazs
Priority: Normal
Receipt requested
Subject: Modification of ADS

Caribbean

See R10

Hi Debbie and Lisa,

First, thanks so much to both of you and Phillipe for spending so much time with George and me on Friday. It was great to meet all of you in person and to confirm that the two o you are in fact different people! :)

I've gone through the ADS listings printouts you gave me and request the following changes:

Current ADS to rhemaker@uga.cc.uga.edu -

delete 8444 and 8454, retain 8442 and 8443

Current ADS to rainforestry@earthlink.net -

add 8442 and 8443, retain 8455, 8456, 8552, 8553

Current ADS to rmarquez@bay.net.mx -

delete 8350, 8364, 8365, 8366 add 4804, 22132 (currently in Balazs program)

Current ADS to mgarduno@minter.cieamer.conacyt.mx

delete 8350, 8364, 8365, 8366 add 4804, 22132 (currently in Balazs program)

SET UP ADS for chri_interpretation@nps.gov -

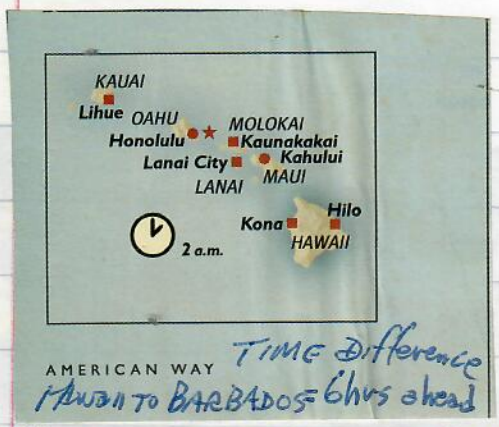
include 8444 and 8454

Also, please make the following permanent transfer from Balazs program to my program 1490:

4804
22132

I am still reviewing the ADS distribution to me from Balazs program and will get back with on that. However, the changes above are critical and I wanted to get this to you today. Please let me know if you have any questions and please confirm when changes are made so I can notify our collaborating investigators.

Thanks so much, and again, it was great to meet with all of you last week.



TIME Difference
HAWAII TO BARBADOS = 6hrs ahead

HAWAII TO GMT = 10h ahead

190

Date: 7/24/98
Sender: Barbara Schroeder
To: useroffice@argosinc.com
cc: George Balazs
Priority: Normal
Subject: Fwd:ADS List for Certain PTT's

Hi Debbie,

On 13 July I sent an e-mail requesting establising "individual" ADS accounts for certain PTT's in my program. I let you know just after that that there would be a few changes due to unforseen problems with one of the transmitters and now, some unforseen problems with one of our deployment sites. So, here is how the ADS should be set up (some are the same, others are different). I've noted in red where different/new:

X PTT Numbers: 08179, 08180, 08207, 08208 (note change)
ADS E-MAIL: lotus@sunbeach.net
Deployment Site: Barbados

PTT Numbers: 08178, 08209, 08348, 08349 (note change)
ADS E-MAIL: cediez@caribe.net
Deployment Site: Mona Island, Puerto Rico

PTT Numbers: 08350, 08364, 08365, 08366
ADS E-MAIL: mgarduno@minter.cieamer.conacyt.mx and rmarquez@bay.net.mx (note additional e-mail address)
Deployment Site: Yucatan Peninsula, Mexico

JAMAICA
PTT Numbers: 08442, 08443, 08444, 08454 ← USVI Zandy Hillis
ADS E-MAIL: rhemaker@uga.cc.uga.edu (this can be left as is for now, but the e-mail AND deployment site may change)
Deployment Site: Jamaica

PTT Numbers: 08455, 08456, 08552, 08553
ADS E-MAIL: rainforestry@earthlink.net
Deployment Site: Antigua

ALL 20 PTT Numbers listed above: george.balazs@noaa.gov (note this is an addition)

ALL PTT Numbers in Program 1490
ADS E-MAIL: barbara.schroeder@noaa.gov
Deployment Sites: Those listed above, plus southeast and southwest coasts of Florida for remaining PTT i.d. numbers

SOUVENIR POSTER

The Hawksbill is one of the most common turtles found in the waters around Barbados. Ranking high among the world's most endangered species, the Hawksbill is still hunted for its treasured shell and meat.

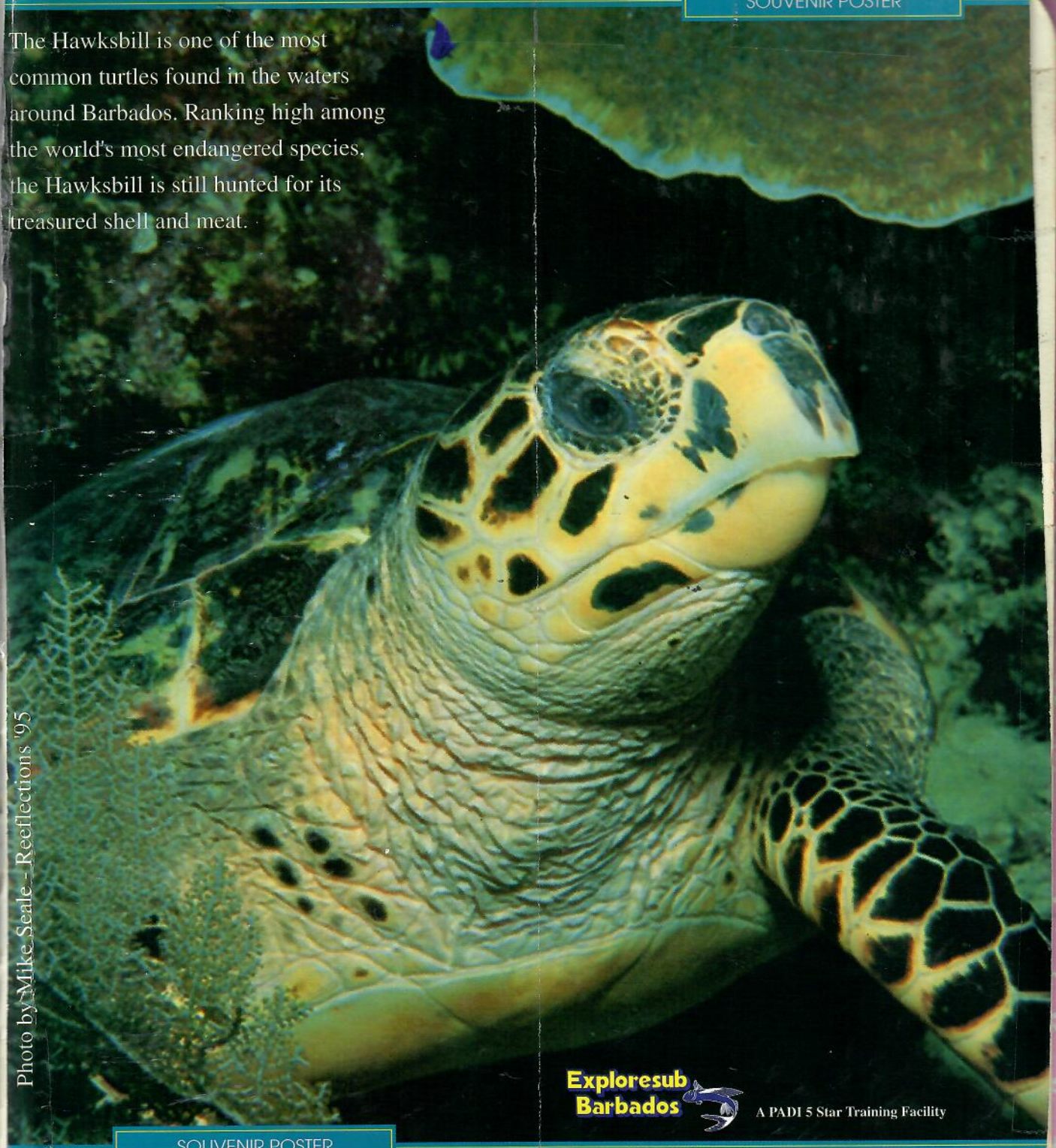


Photo by Mike Seale - Reeflections '95

Exploresub Barbados

A PADI 5 Star Training Facility

SOUVENIR POSTER

Exploresub Barbados

www.skyviews.com/x-sub
e-mail:x-sub@caribsurf.com

Rodale Caribbean Book

Nicaragua en la ruta de las tortugas carey

En Cayos Perlas instalan tres rastreadores. Los valiosos aparatos ahora están sobre las conchas de Shanna, Midsi y Miss Perla

César A. Cárdenas
CORRESPONSAL/BLUEFIELDS

Con la colocación de tres transmisores satelitales sobre la concha de igual número de tortugas carey, Nicaragua ha superado a Costa Rica y Belice en la instalación de estos aparatos que son útiles para rastrear el hábitat de estas especies, favorecer su reproducción y prevenir su extinción.

LA PRENSA/ARCHIVO.

EN LOS CAYOS PERLAS, unos 67 nidos protegidos vaticinan convertirse en un reducto para la reproducción de la Tortuga Carey.

Tanto Costa Rica como Belice han colocado dos de estos aparatos, mientras que el 3 de agosto nuestro país instaló tres en los Cayos Perlas, donde colocaron tres tortugas carey de aproximadamente 45 años de edad y en su ciclo reproductivo. Fueron capturadas para ese fin, durante la primera semana de agosto.

Estos modernos monitores son utilizados por primera vez en nuestro país y sirven para el estudio pormenorizado de estos quelonios, de ellos se obtiene datos sobre la alimentación, reproducción y rutas migratorias de estas criaturas marinas, sumándose así nuestro país al uso de esta sofisticada tecnología en la lucha por la protección de las tortugas marinas, especialmente de la tortuga verde y carey, especies que están en peligro de desaparecer.

En el mundo existen siete especies de tortugas, tres de ellas en peligro de extinción y Nicaragua de esas siete cuenta con cinco especies entre las que se señalan la tortuga verde, carey, cabezona, tora y paslama.

Según la doctora Cynthia Lagueux, directora del Programa de Conservación de las Tortugas Marinas, la bibliografía mundial cita dos lugares importantes para la anidación de las tortugas en la zona oeste del Caribe, siendo éstos Bocas del Toro, en Panamá, y la Playa del Cocal en San Juan del Norte.

A partir de este tres de agosto Nicaragua está siguiendo paso a paso el movimiento de estas tres tortugas que han sido bautizadas con los nombres de Shanna, Midsi y Miss Perla, el nombre de esta última en honor a la Comunidad de Laguna de Perlas, que han demostrado sumo interés en el cuido de estas especies.

Los comunitarios de Laguna de Perlas, junto con especialistas de la Wildlife Conservation Society, asociación fundada en 1895 en New York, cuya principal actividad es la promoción y conservación de la vida silvestre, tienen en los Cayos Perlas unos 67 nidos protegidos que vaticinan convertirse en un reducto para la reproducción de la tortuga carey.

TORTUGA DE BAHAMAS, TERMINÓ CONVERTIDA EN EXQUISITO RONDÓN

Según los especialistas en las Bahamas se trabaja con este tipo de tecnología para estudiar la vida de las tortugas. En septiembre del año pasado se le instaló en una de esas islas del Mar Caribe un rastreador a una tortuga verde, la cual, después de pasar al sur de Cuba cerca de las costas de Haití, seguir hasta Colombia y de ahí a los Cayos Miskitos, terminó su recorrido, pues fue capturada y devorada por un pescador de la zona, perdiéndose allí todo un interesante recorrido de información.

El costo de cada uno de estos radares es de tres mil dólares. La captura indiscriminada y descontrolada de estas especies constituye la preocupación de estos especialistas ya que de esto depende el fracaso o éxito de las investigaciones.

Se debe, pues, ofrecer información, educación y concientización a la población caribeña acerca de las tortugas para que la gente contribuya a la conservación y evite la extinción de estas especies.

Con la instalación de estos tres rastreadores las tres tortugas no sólo brindarán información útil a Nicaragua sino a todo el mundo, y abren muchas esperanzas sobre la sobrevivencia de esos quelonios.

LA REPUBLICA
MIEMBRO DEL GRUPO HOLLINGER
San José, Costa Rica - Viernes 21 de julio de 2000 - 36 páginas ¢70

Selección ensaya variantes

Pág. 1C

$250 millones para reducir deuda

País colocó emisión de bonos

- Gobierno escogió a Credit Suisse First Boston para colocar en el mercado internacional ¢77 mil millones

Pág. 1D

Señal verde

Jimmy Córdoba/La República

Caribbean Conservation Corporation (CCC) y el Programa de Tortugas Marinas de Estados Unidos colocaron un transmisor a una tortuga verde en Tortuguero. Esta especie está en peligro de extinción y se espera que con este dispositivo se obtenga información sobre las rutas migratorias de estos reptiles.

Pág. 8A

Darán información sobre migraciones

Tortugas revelarán

Por primera vez se investiga trayectoria de la tortuga verde que anida en el país

CAROLINA MORA
Enviada de La República

Tortuguero, Limón- El secreto que rodea las migraciones de las tortugas marinas será develado por ellas mismas, ya que cuatro tortugas (dos carey y dos verdes) emitirán una señal por medio de un transmisor colocado en su caparazón.

En la Estación Biológica de Tortuguero, de la Caribbean Conservation Corporation (CCC), se les adhirió el transmisor el miércoles en la mañana y ayer, aprovechando el periodo de desove de estos quelonios. En este parque nacional desovan las tortugas verdes, baulas, cabezonas y carey.

El programa de la Tortuga Marina de Estados Unidos donó los equipos de altimetría para estudiar la tortuga verde que desova en esta región.

Este programa de investigación de las rutas tiene un costo de $49 mil (¢15 millones).

Para el mes de setiembre se colocarán cuatro transmisores más en tortugas verdes que lleguen a la costa caribeña.

El proyecto involucra a otros países como Nicaragua, Belice, Granada y Jamaica, donde se colocarán 11 dispositivos de transmisión.

Estos transmisores se han instalado en otras partes del mundo con el fin de rastrear los quelonios y conocer más sus costumbres de alimentación, reproducción y relaciones entre sí.

Cada transmisor tiene un costo de $3 mil (unos ¢927 mil al tipo de cambio actual) y se espera que emitan la señal por unos dos años.

Posteriormente la información se procesa y se dispone de una página en Internet para mostrar los nuevos resultados de la investigación.

Sin embargo, las tortugas verdes y carey, principalmente, están en peligro de extinción por las prácticas de caza (para consumo de carne y utilización del caparazón).

Según estudios de la CCC, en los últimos 75 años casi se han extinguido las tortugas marinas por las actividades del hombre.

Fue hasta hace un año que se prohibió la caza de la tortuga verde en el país, pero en Nicaragua la matanza sigue sin ningún tipo de control.

Los científicos estadounidenses George Balazs y Barbara Schroeter calificaron que es un grupo de animales muy exitoso, pues tiene 200 millones de años de existencia (son más antiguo que los dinosaurios).

Estos expertos intentan demostrar que el éxito de vida de las tortugas marinas se logra por medio de su constante migración, dado que siempre son poblaciones distintas las que desovan en las playas.

Sebastián Troëng, de la CCC, expresó que "los datos de 1999 nos dan una tendencia alentadora, pues parece que hay más nidos que hace 30 años".

Para los investigadores de la CCC este proyecto es de gran utilidad para conocer más sobre las tortugas marinas, pues este reptil ha logrado sobrevivir más de 200 millones de años, y gran parte de sus costumbres permanecen aún en el misterio.

Colocación del transmisor

Los científicos cuando capturan las tortugas realizan una serie de pasos para colocar el transmisor en su caparazón

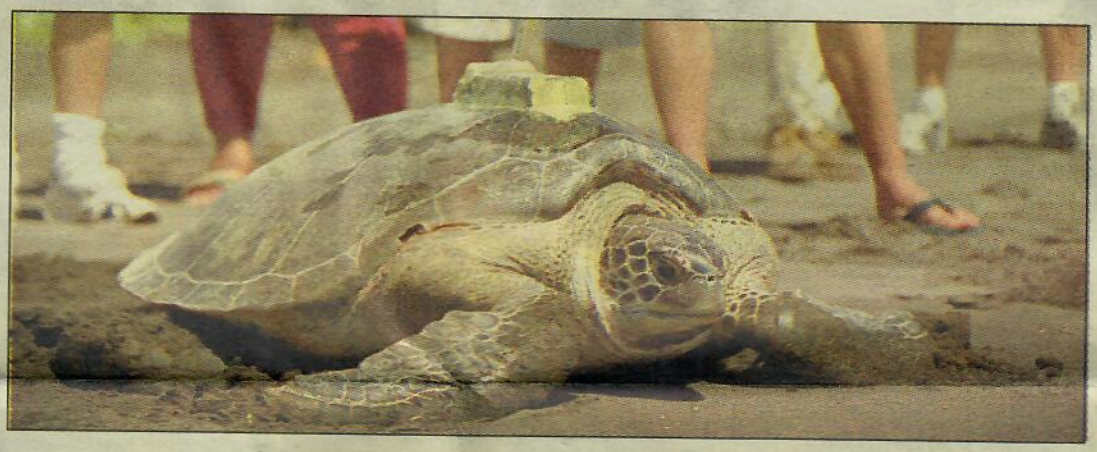
1: Limpian y pulen el caparazón.

2: Se coloca el transmisor, que pesa 1,8 kilogramos

3: El transmisor se protege con fibra de vidrio y resina.

4: Tras la liberación esperan la primera señal.

Fotos: Jimmy Córdoba/La República



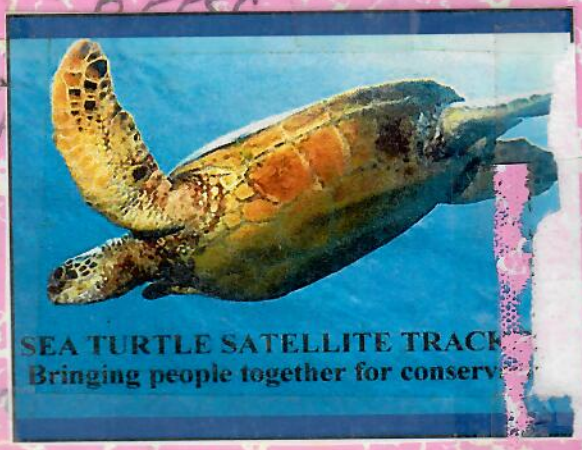
rutas

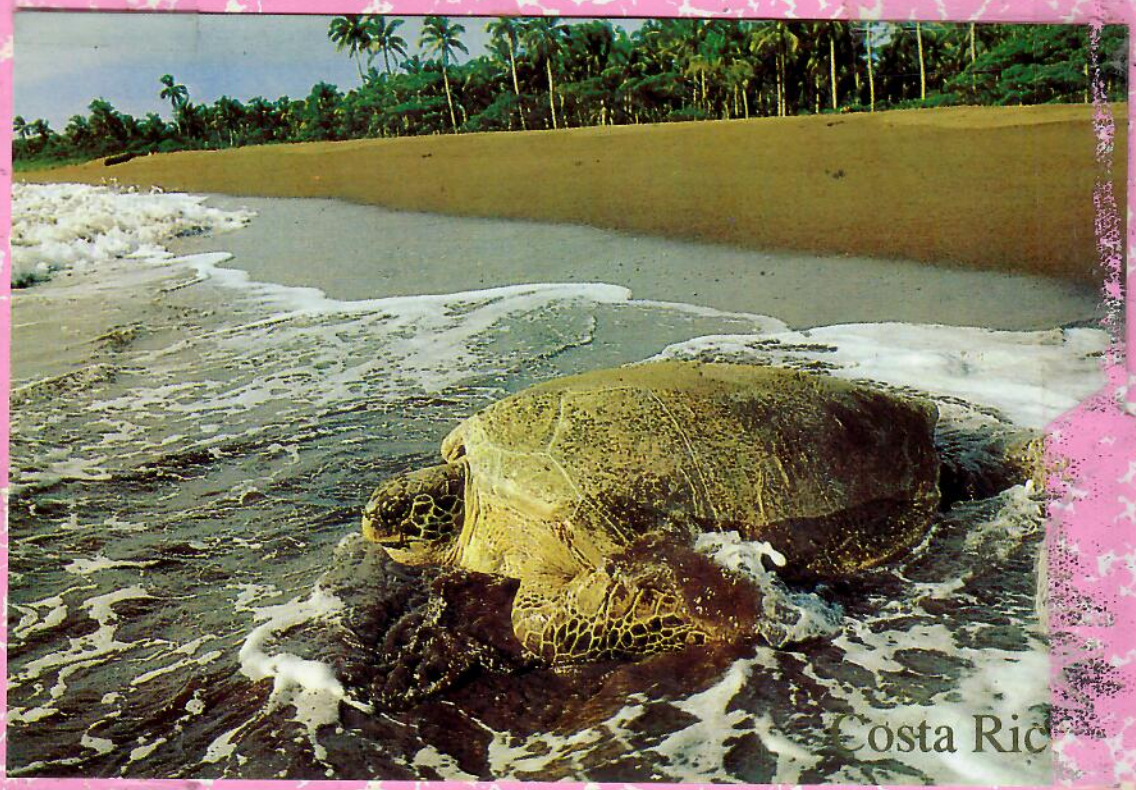
Nuevos resultados

Las investigaciones sobre las tortugas por medio de satélite han dado valiosos frutos.

- Se ha determinado que las tortugas depositan sus huevos en un lugar diferente al que frecuentan para comer. Las que desovan en Tortuguero recorren todo el Caribe, pero se desconocen sus rutas precisas.
- Las migraciones de especies como la baula recorren miles de kilómetros a una velocidad promedio de 2 kilómetros por hora.
- Las baulas del Pacífico costarricense llegan hasta Chile o al sur de Hawai y las del Caribe hasta Marruecos y España.
- El transmisor no les molesta para su apareamiento o movilización.
- Cada vez que la tortuga emerge a la superficie el satélite puede captar la señal para ubicarla, determinar la temperatura y otros datos.
- Las información es procesada y dispuesta para el público en la dirección de Internet: www.ccctur-tle.org

Fuente: Caribbean Conservation Corporation (CCC)





0 43100 09913 5