



Manta Rays

of the Flower Garden Banks National Marine Sanctuary



Kaile Tsapis

FALL 2008

We need your help! Please report Manta Ray Sightings from the Flower Garden Banks:

We continue to update the Manta Rays of the Flower Garden Banks Catalog with your assistance.

To positively identify an individual, a photograph or video would be the most accurate method of providing information to the researchers.

UNDERBELLY - Most informative images are of the underbelly, where we are able to see their unique markings.

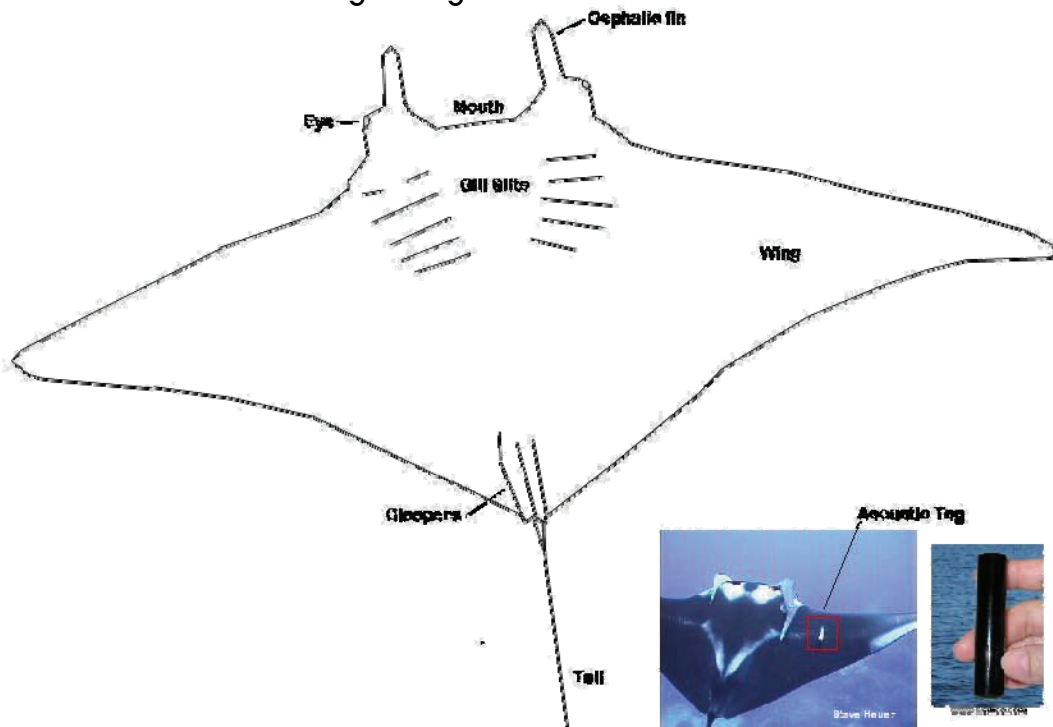
TAGS - please note if the individual has a tag located on its back.

*If you have sighted a manta ray, please report the date and location to the Sanctuary by contacting Emma Hickerson:
emma.hickerson@noaa.gov or 409-621-5151 Ext 111*

How to Use This Catalog

Identifying a Manta Ray

Manta rays, *Manta birostris*, possess an array of unique markings on their underbelly that can be used by naturalists to identify individuals – almost like a fingerprint. The whole underside coloration of the manta is used to distinguish it as an individual: the color of the cephalic fins, markings and color of the wing, markings around gill slits, and belly markings. Some mantas have been tagged by researchers with acoustic tags, located on their backs, which can also serve as a distinguishing feature.



Using The Catalog

The manta rays in this catalog have been divided into categories to aid in identifying individuals. Each manta ray is placed in a category depending on its unique underbelly markings. However, some manta rays markings can be accurately described by more than one category, so be sure to look at images in all the categories it might fit into!

Spots: the individual has spot-like markings

Squares: the individual has square-like blotches

Spots and Squares: the individual has a combination of spots and squares patterns

Mostly Black: the individual is predominantly black/gray with few other markings

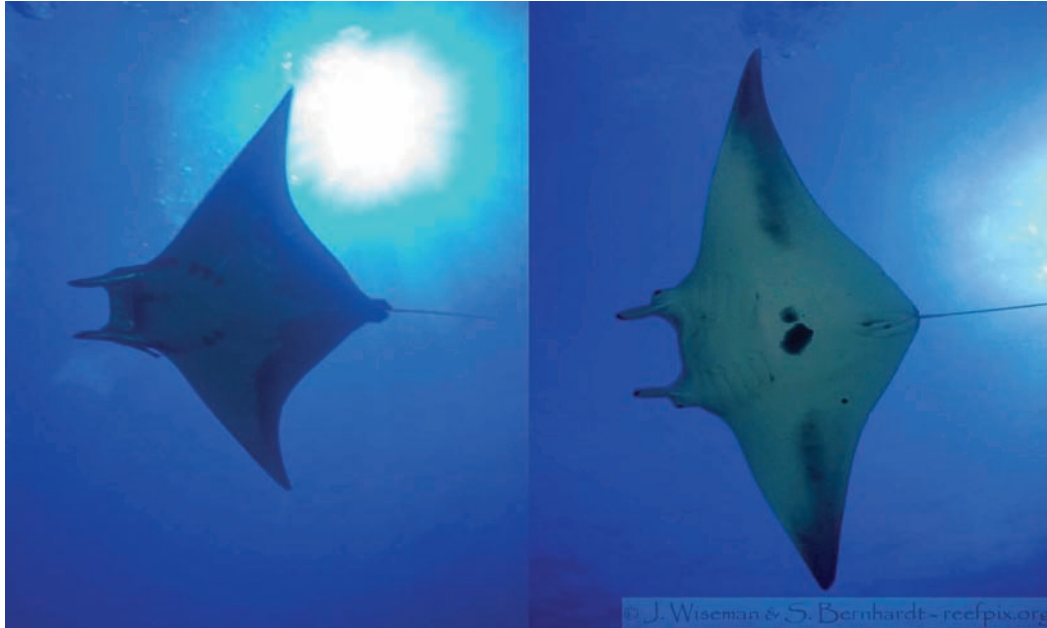
Mostly White: the individual is predominantly white with few other markings

Tagged: the individual possesses a tag on its dorsal side

As this catalog is an ongoing project, new mantas and additional sightings of current mantas are added at every opportunity. If you don't see an image of the manta you observed, it may be a new addition to our catalog. New and repetitive sightings provide researchers with valuable information about these mysterious creatures, so be sure to report back to us! Additionally, if you have historic photo's or video you'd like to send us, we'd be thrilled!

Manta Ray vs. Mobula Ray

Manta rays are not the only species of devil ray that frequent the Flower Garden Banks National Marine Sanctuary. Two species of mobulid rays, *Mobula tarapacana* and *Mobula hypostoma*, are also seen cruising around the banks. Mantas and mobulids are commonly mistaken for one another due to both rays possessing cephalic fins. However, mobulids are smaller relatives of the manta ray, and there are a few methods to tell them apart. One key distinguishing feature is the location of the mouth. Manta rays have a terminal mouth, located at the very front of their head between the cephalic fins. In comparison, mobulids have a sub-terminal mouth, located on the underside of the head in a neck-like region. Additionally, the cephalic fins of the mobulid appear much closer together than the manta.



Manta Ray Research at the Flower Garden Banks National Marine Sanctuary

There are still many unanswered questions about the manta rays of the Flower Garden Banks National Marine Sanctuary. How large is the visiting population of manta rays? Is this a functional population consisting of both sexes, adults and juveniles or is it segregated according to sex and/or size? Which species of manta ray visits the Flower Garden Banks? Do the manta rays observed in the sanctuary move between the various banks of the sanctuary? How much time do they actually spend in the sanctuary? Do changes in water temperature or lunar phases cue movements or periods of site fidelity at the different banks? To help answer these and other questions, program staff are collaborating with the Wildlife Conservation Society, in a shark and ray tagging effort.

In 2006, researchers Dr. Rachel Graham and Dan Castellanos, from the Wildlife Conservation Society, began a project to learn more about the movements of manta rays in and around the three banks that make up Flower Garden Banks National Marine Sanctuary using underwater acoustics. To date, eight individual mantas have been successfully tagged with acoustic tags, and acoustic receivers placed at East Flower Garden Bank, West Flower Garden Bank and Stetson Bank. In order to widen the receiver network, additional instruments have been placed at two sites, Bright Bank and Sonnier Bank, outside of the sanctuary boundaries. Another receiver is scheduled for deployment at Geyer Bank. Every time a tagged manta swims within approximately 500 meters of any of the three receivers, the unique pattern of sound pulses emitted by the tag is recorded along with the date, and time. The receiver maintains a log of this data until researchers download the information at a later date.

From the deployment of the receivers and tags in 2006, we have found two mantas tagged at the East Bank traveled to the West Bank, one of which returned to the East Bank and has made two more trips to the West Bank since. Another manta tagged at Stetson Bank traveled to both East and West Banks, then returned to Stetson Bank.

The Flower Garden Banks NMS acoustic array is part of a larger network of acoustic receivers, a project called Marine Megafauna Acoustic Network (Marine Meganet). This is the largest acoustic array for tracking megafauna (whale sharks, mantas, grouper and toothy sharks) that has been implemented in the Caribbean and Gulf of Mexico, with underwater receivers at the Flower Garden Banks off the coast of Texas and Louisiana, Mexico, Belize, Honduras, and hopefully soon in Cuba. Additionally, the Marine Meganet further complements other arrays established in the US' Eastern Atlantic states, Canada and soon an array of receivers deployed in Brazil.

For more information regarding this research and Meganet, contact: rgraham@wcs.org or dancastellanos@yahoo.com

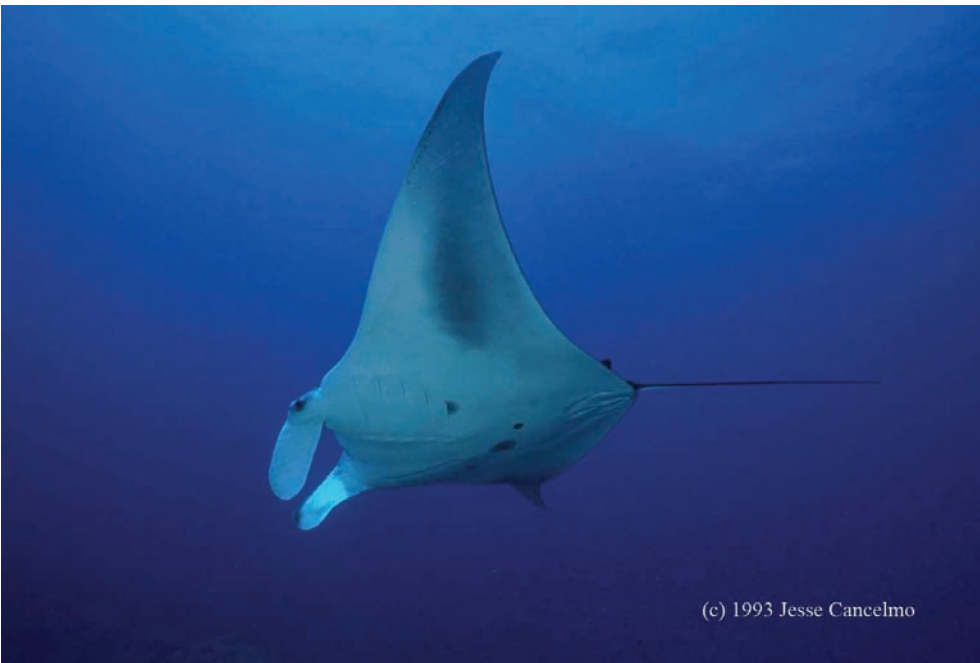
SPOTS

MANTA M1



Date	Location	Notes	Image Credit
9/30/1997	Sonnier	Missing tail	Unknown

MANTA M2



Date	Location	Notes	Image Credit
6/2/1997	EFGB	With mobula	S.R. Gittings
1993	Unknwon		Jesse Cancelmo

SPOTS

MANTA M3



(Digital Enhancement)



Date	Location	Notes	Image Credit
Unknown	Unknown		Unknown

MANTA M4



Date	Location	Notes	Image Credit
June 1995	FGB		Ferrell Cruise

SPOTS

MANTA M7

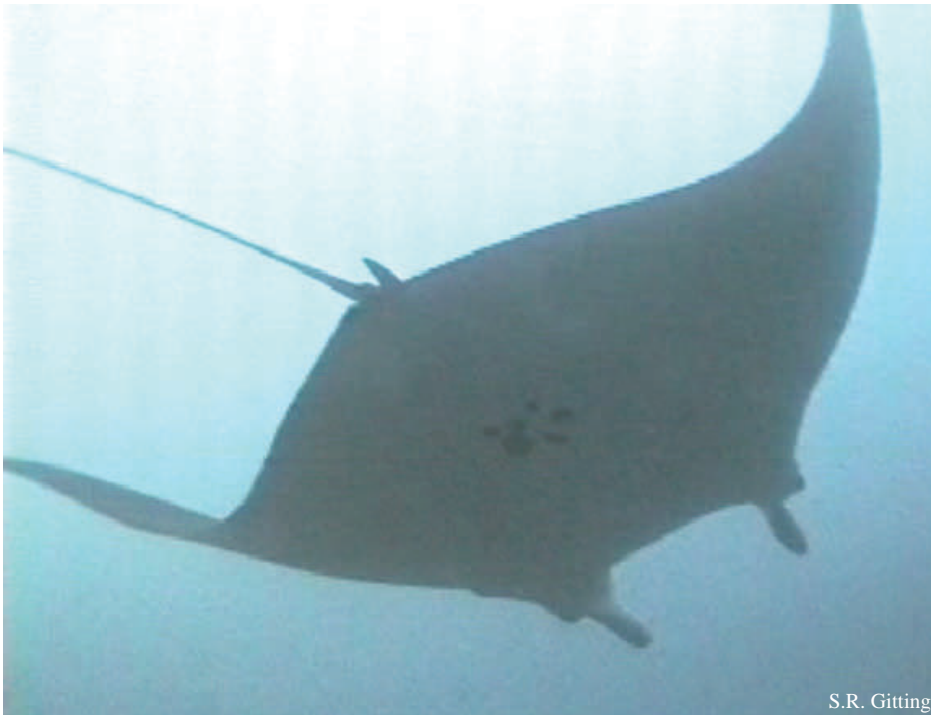


John Embesi



Date	Location	Notes	Image Credit
Aug 1993	EFGB		Unknown
1990	EFGB		TPWD John Embesi

MANTA M9



S.R. Gittings



S.R. Gittings



(Digital Enhancement)

Date	Location	Notes	Image Credit
12/9/1997	EFGB		S.R. Gittings

SPOTS

MANTA M12



Jesse Cancelmo

Date	Location	Notes	Image Credit
1988	Unknown		Jesse Cancelmo

MANTA M15



Kip Evans

Date	Location	Notes	Image Credit
2/28/2000	WFGB #1		Kip Evans

SPOTS

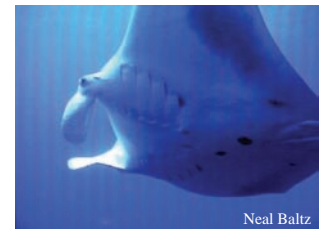
MANTA M16



(Digital Enhancement)

Date	Location	Notes	Image Credit
2/29/2000	EFGB #5		Kip Evans

MANTA M20



Date	Location	Notes	Image Credit
8/31/2006	EFGB #1	With M19	Neal Baltz

SPOTS

MANTA M22



Date	Location	Notes	Image Credit
7/2/2008	WFGB		Sarah Davies

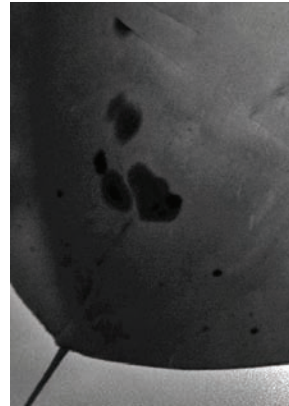
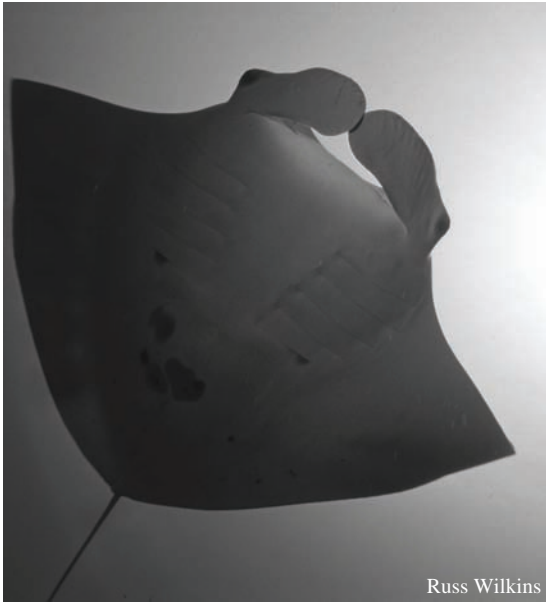
MANTA M24



Date	Location	Notes	Image Credit
10/11/2006	Unknown		Christopher Parsons

SPOTS

MANTA M29



(Digital Enhancement)

Date	Location	Notes	Image Credit
Jan 2005	FGB		Russ Wilkins

MANTA M32



Date	Location	Notes	Image Credit
8/5/2007	EFGB #1		Sarah Davies
9/1/2007	WFGB #2		Angie Walden

SPOTS

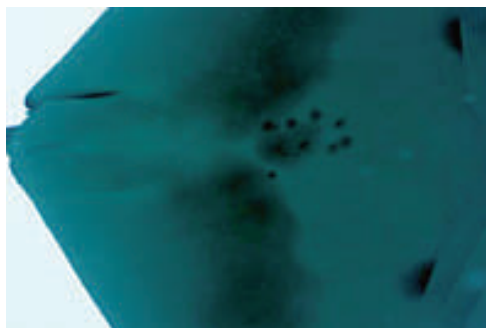
MANTA M36



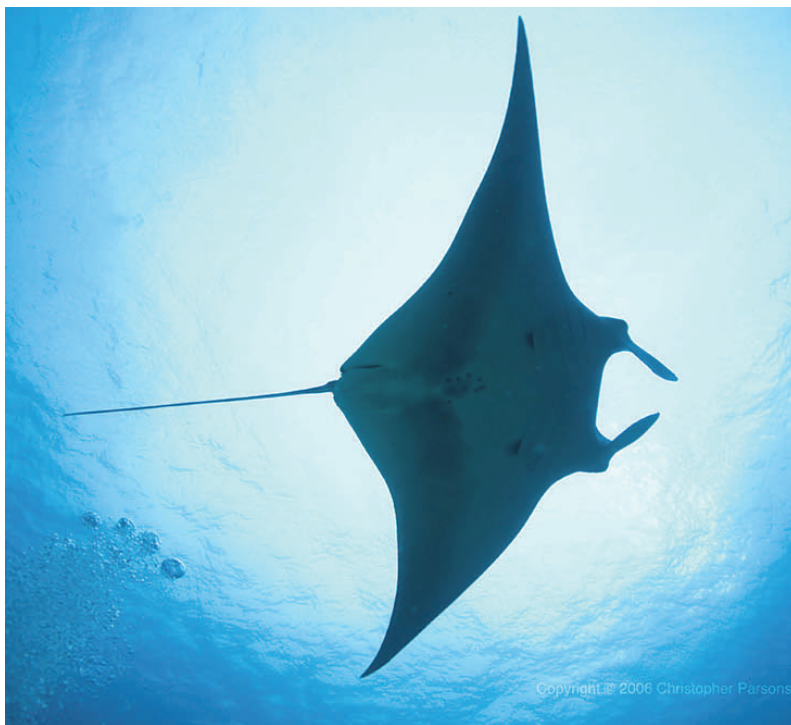
Andy Felth

Date	Location	Notes	Image Credit
8/8/2004	EFGB		Andy Felth
8/8/2004	EFGB #4	Tagged (3841)	Frank and Joyce Burek

MANTA M38



(Digital Enhancement)



Copyright © 2006 Christopher Parsons

Date	Location	Notes	Image Credit
Oct 2006	Unknown		Christopher Parsons

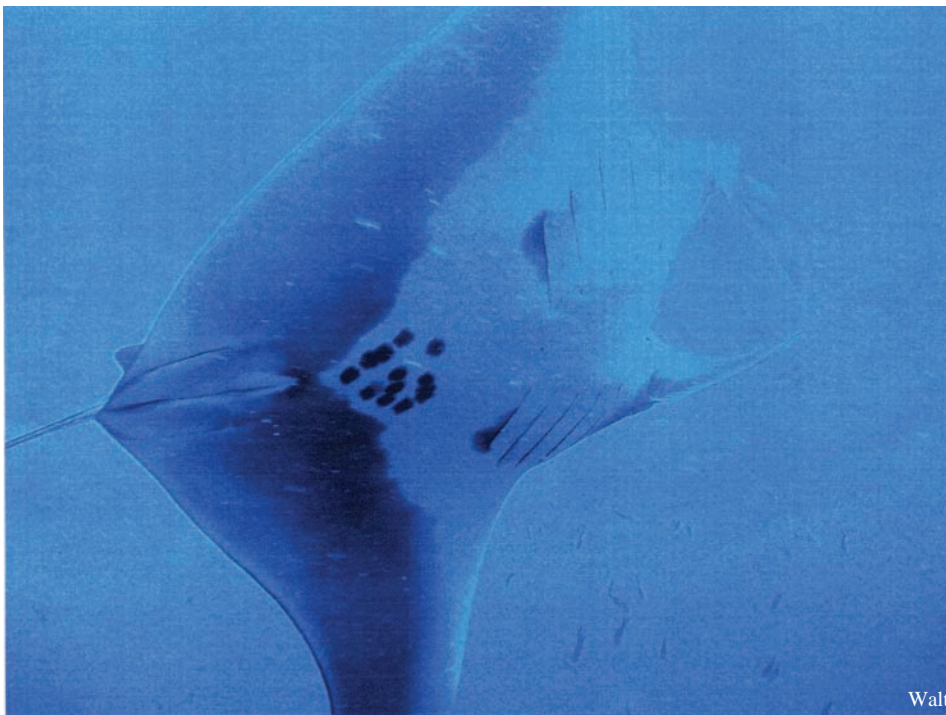
SPOTS

MANTA M44



Date	Location	Notes	Image Credit
10/30/2004	WFGB	Western edge of bank	Lance Horn

MANTA M47



Date	Location	Notes	Image Credit
10/30/2004	WFGB	Deep west end	Walt

SPOTS

MANTA M49



Date	Location	Notes	Image Credit
9/3/2007	EFGB #4		Emma Hickerson
9/10/1999	WFGB		Emma Hickerson

MANTA M53



Date	Location	Notes	Image Credit
Sept 2001	Unknown		Mark Walden

SPOTS

MANTA M56



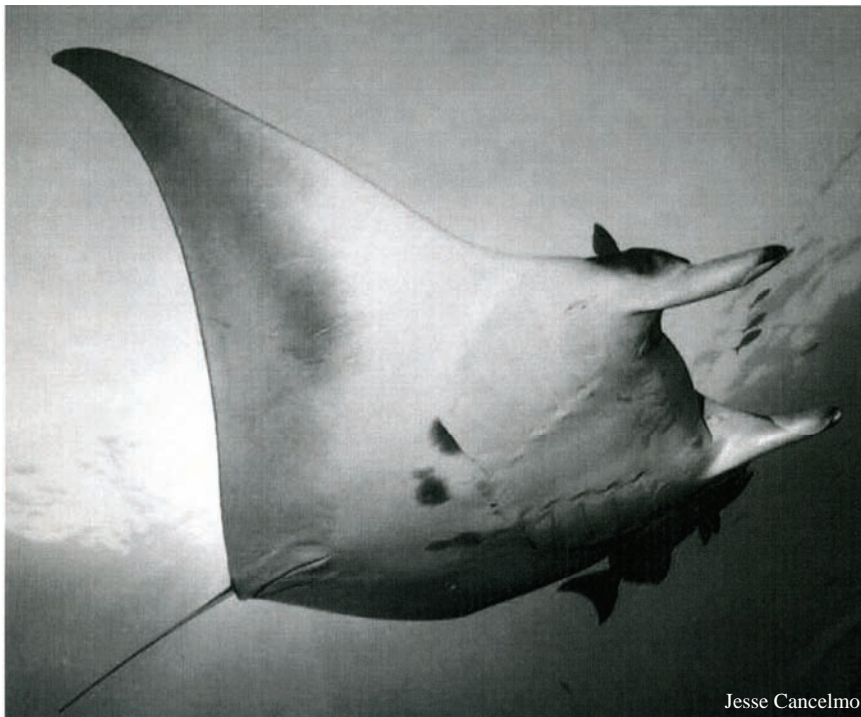
Dick Zingula



Mary Donato Currie

Date	Location	Notes	Image Credit
Unknown	Unknown		Dick Zingula
Unknown	Unknown		Mary Donato Currie

MANTA M60



Jesse Cancelmo



(c) 1990 Jesse Cancelmo

Date	Location	Notes	Image Credit
1990	Unknown		Jesse Cancelmo

SPOTS

MANTA M62



Date	Location	Notes	Image Credit
Unknown	Unknown		Russ Wilkins

SQUARES

MANTA M6



Date	Location	Notes	Image Credit
7/2/2008	WFGB		Emma Hickerson
7/2/2008	WFGB		Jamie Nobles

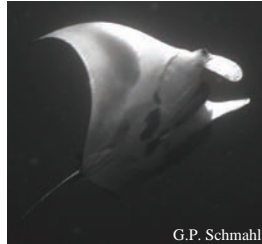
MANTA M8



Date	Location	Notes	Image Credit
1994	Unknown		Jesse Cancelmo
12/9/1997	EFGB		S.R. Gittings

SQUARES

MANTA M18



Date	Location	Notes	Image Credit
Sept 2006	EFGB #4	Tagged	Steve Heuer
8/19/2006	EFGB		Jesse Cancelmo
8/16/2006	EFGB	Grouper Valley	G.P. Schmahl

MANTA M39



Date	Location	Notes	Image Credit
Oct 2000	Unknown		Frank and Joyce Burek

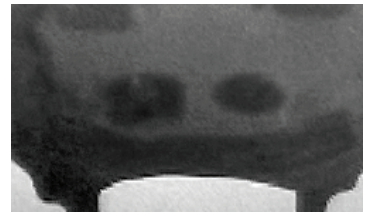
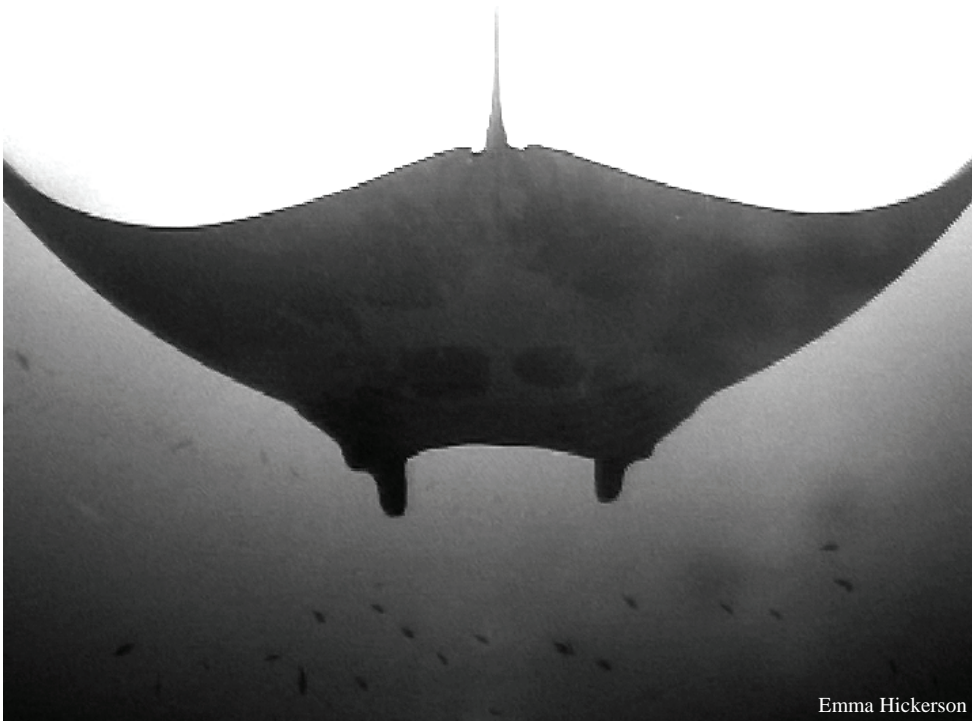
SQUARES

MANTA M43



Date	Location	Notes	Image Credit
2006	Unknown		Russ Wilkins

MANTA M51



(Digital Enhancement)

Date	Location	Notes	Image Credit
9/4/2007	EFGB #4		Emma Hickerson

SPOTS & SQUARES

MANTA M11



(Digital Enhancement)



S.R. Gittings



S.R. Gittings

Date	Location	Notes	Image Credit
12/9/1997	EFGB		S.R. Gittings

MIREME

MANTA M13



Emma Hickerson



T. Hughes



T. Hughes



Kaile Tsapis

Date	Location	Notes	Image Credit
12/9/1997	EFGB		T. Hughes
8/13/1997	386		FGBO
8/27/1997	EFGB	Female	Emma Hickerson
8/27/1997	EFGB		Emma Hickerson
1/31/2003			Kaile Tsapis
Sept 2006			Kaile Tsapis

SPOTS & SQUARES

MANTA M14



Date	Location	Notes	Image Credit
7/10/2000	WFGB		Jenn DeBose
7/10/2000	WFGB		Emma Hickerson

MANTA M19



Date	Location	Notes	Image Credit
8/31/2006	EFGB #1	With M20	Neal Baltz

SPOTS & SQUARES

MANTA M21



(Digital Enhancement)



Neal Baltz

Date	Location	Notes	Image Credit
8/31/2006	EFGB #1		Neal Baltz

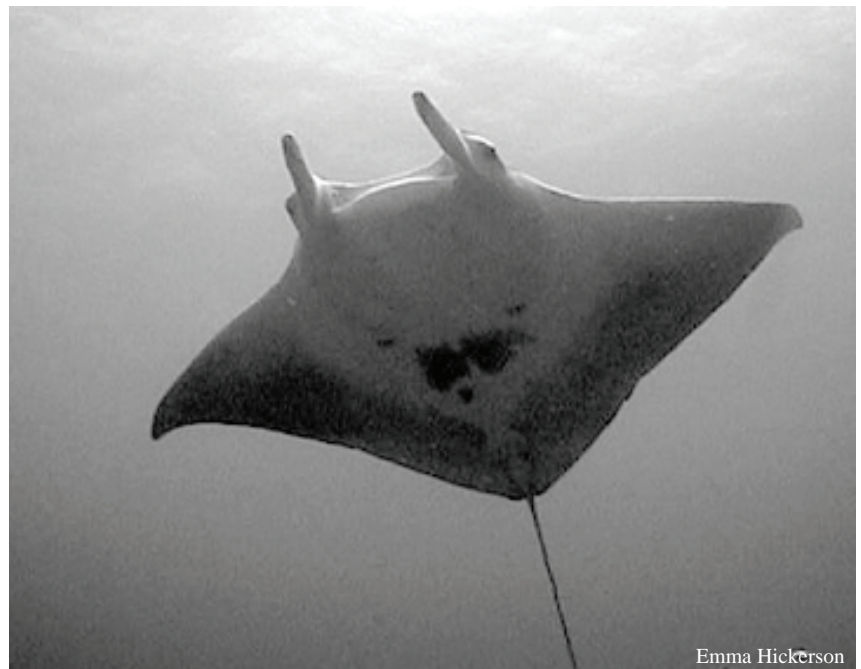
MANTA M25



Emma Hickerson



Frank and Joyce Burek

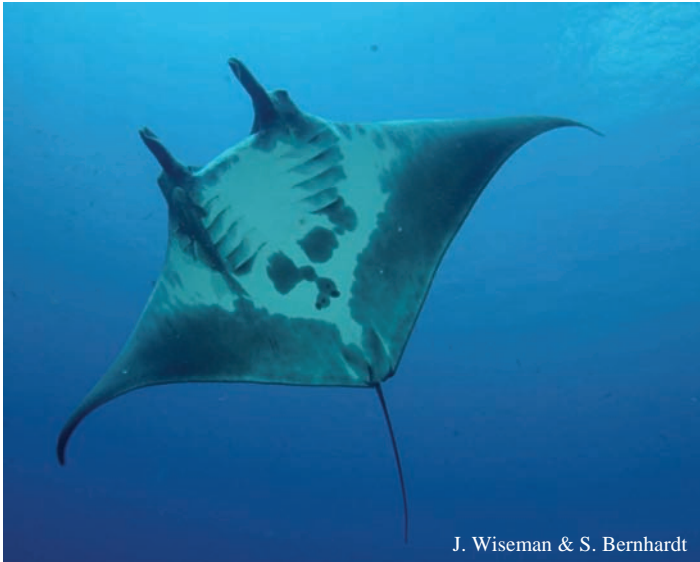


Emma Hickerson

Date	Location	Notes	Image Credit
8/8/2000	WFGB #5		Emma Hickerson
8/8/2000	WFGB		Frank and Joyce Burek

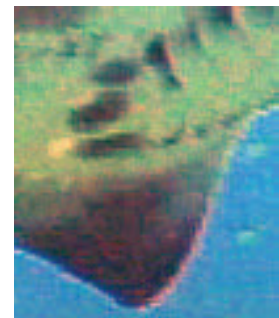
SPOTS & SQUARES

MANTA M26



Date	Location	Notes	Image Credit
7/28/2003	EFGB #4		J. Wiseman & S. Bernhardt
8/8/2004	EFGB	During coral spawning	Andy Felth

MANTA M35

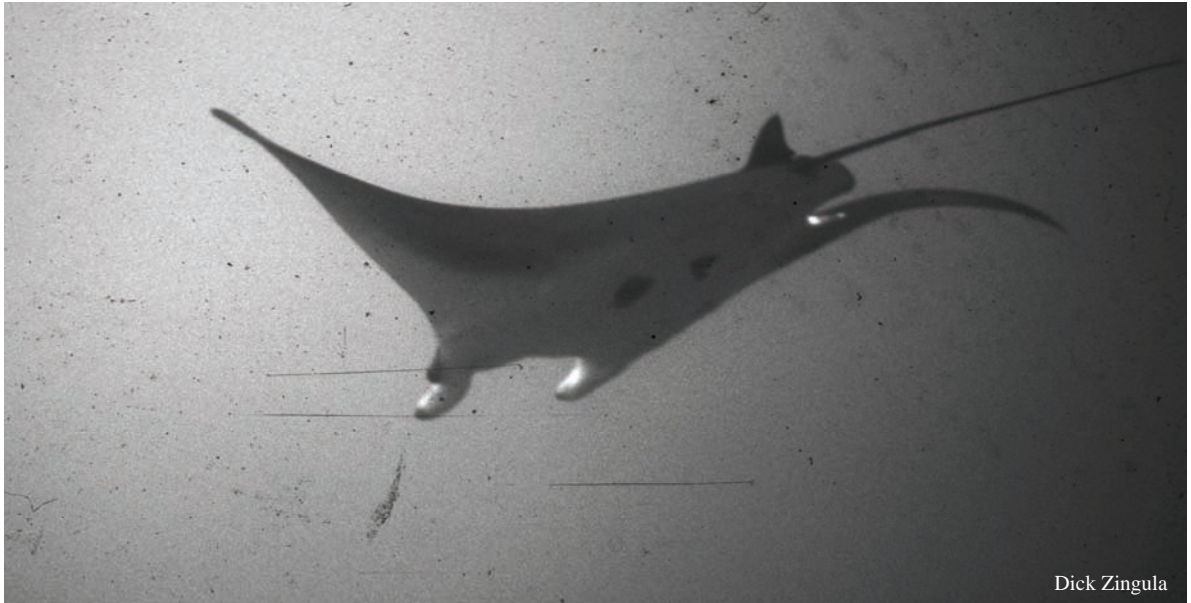


(Digital Enhancement)

Date	Location	Notes	Image Credit
6/12/2007	EFGB #2	With M28	Emma Hickerson

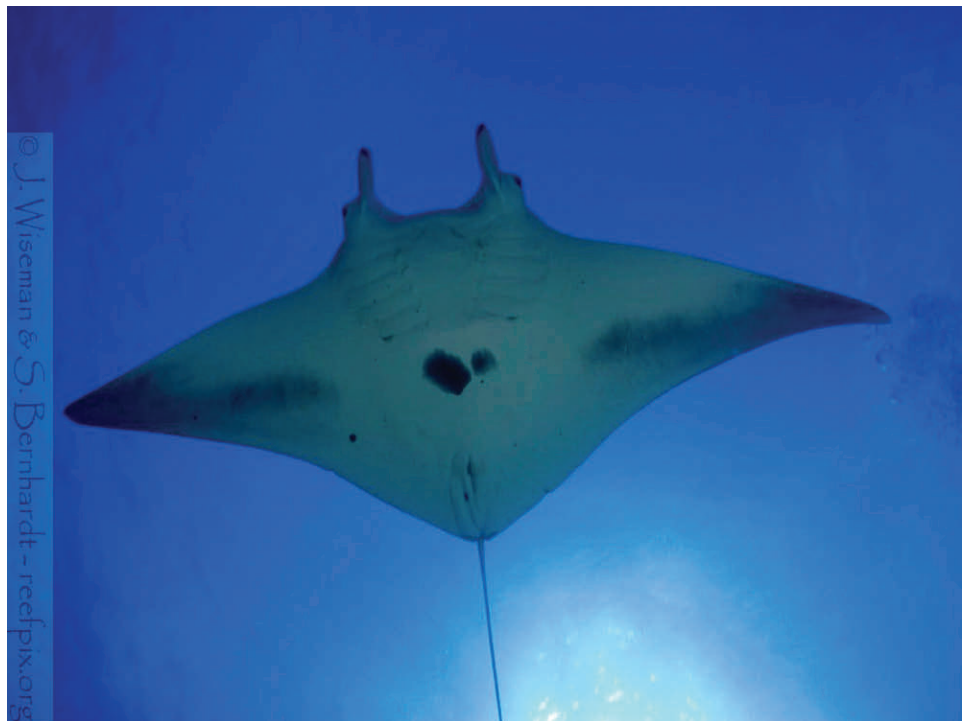
SPOTS & SQUARES

MANTA M42



Date	Location	Notes	Image Credit
1982	WFGB	Predation on right	Dick Zingula

MANTA M46



Date	Location	Notes	Image Credit
Unknown	Unknown		J. Wiseman & S. Bernhardt

SPOTS & SQUARES

MANTA M48



Date	Location	Notes	Image Credit
1992	Unknown		Jesse Cancelmo

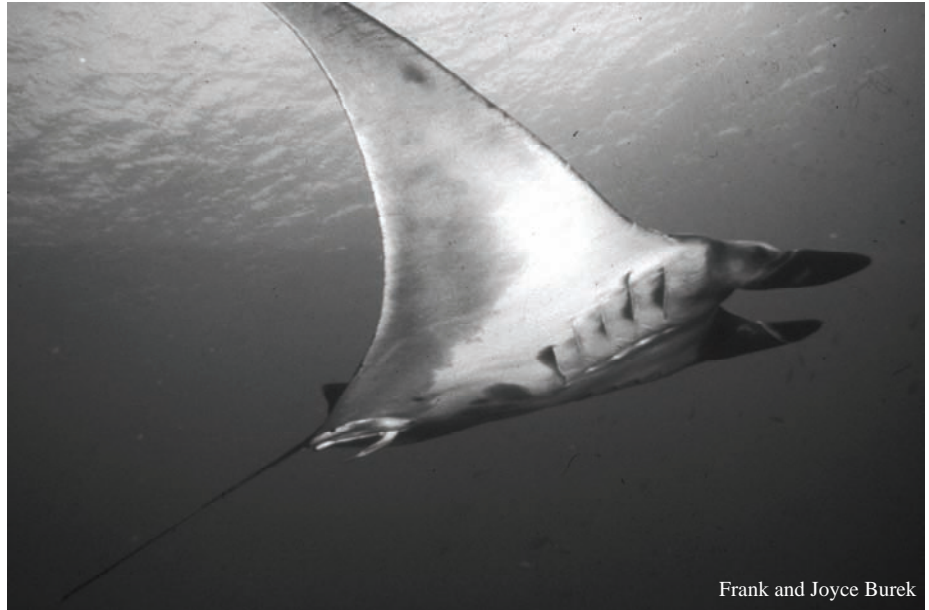
MANTA M50



Date	Location	Notes	Image Credit
9/4/2007	EFGB #4		Emma Hickerson

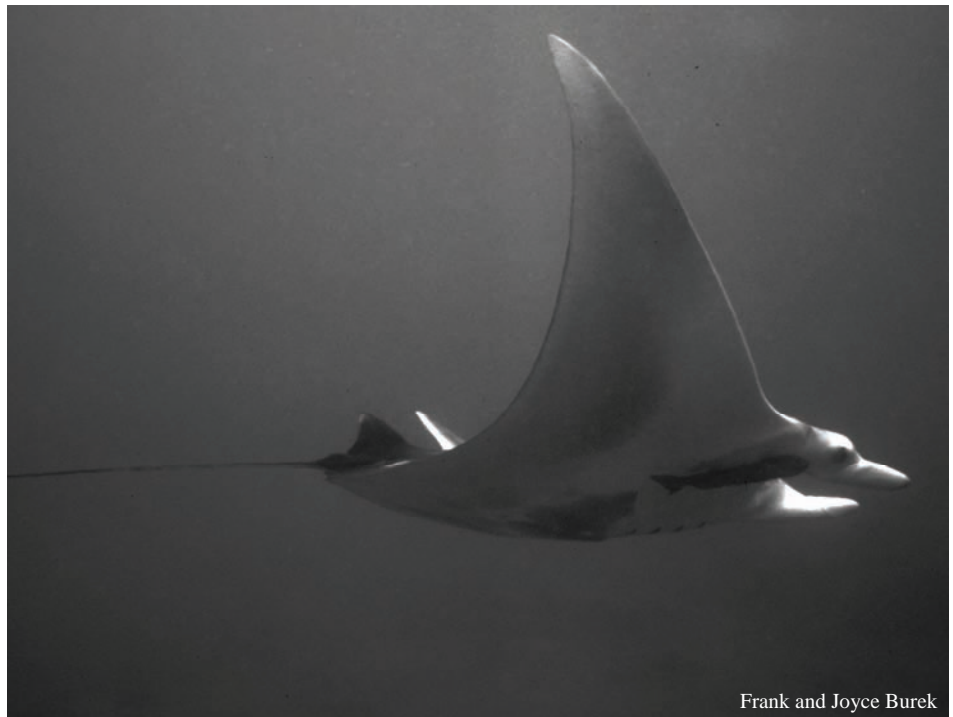
SPOTS & SQUARES

MANTA M54



Date	Location	Notes	Image Credit
Aug 1995	FGB		Frank and Joyce Burek

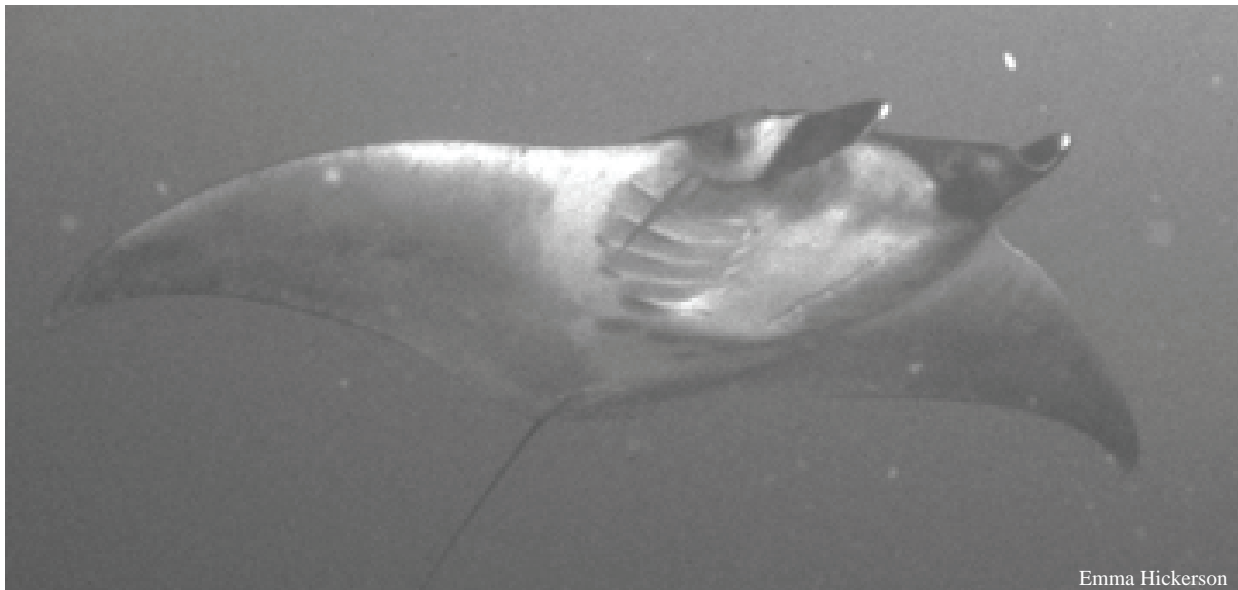
MANTA M55



Date	Location	Notes	Image Credit
2001	Stetson		Frank and Joyce Burek

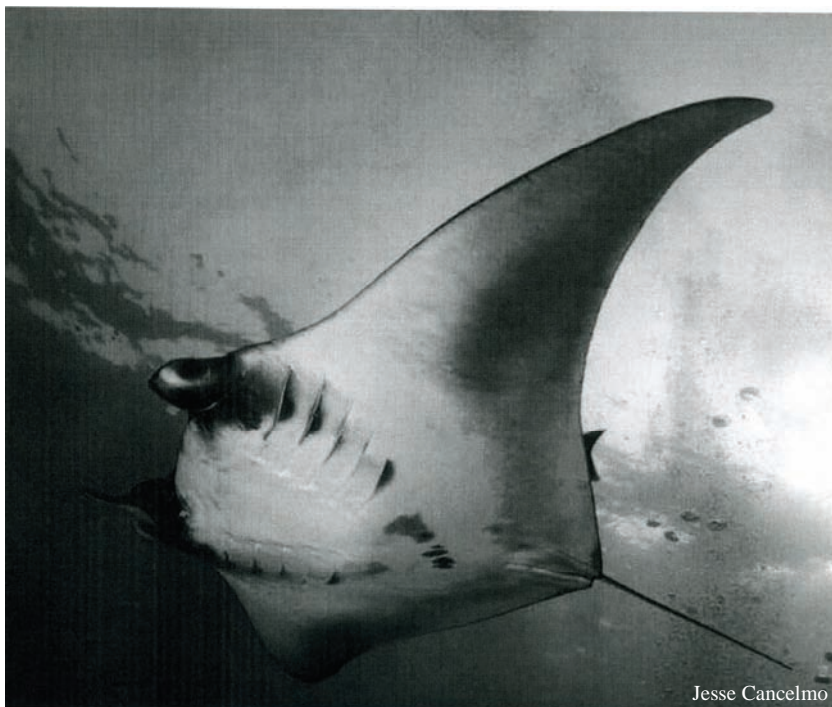
SPOTS & SQUARES

MANTA M58



Date	Location	Notes	Image Credit
Feb 1997	EFGB #2		Emma Hickerson

MANTA M59



Date	Location	Notes	Image Credit
1990	Unknown		Jesse Cancelmo

MOSTLY BLACK

MANTA M10



Date	Location	Notes	Image Credit
12/9/1997	EFGB		S.R. Gittings

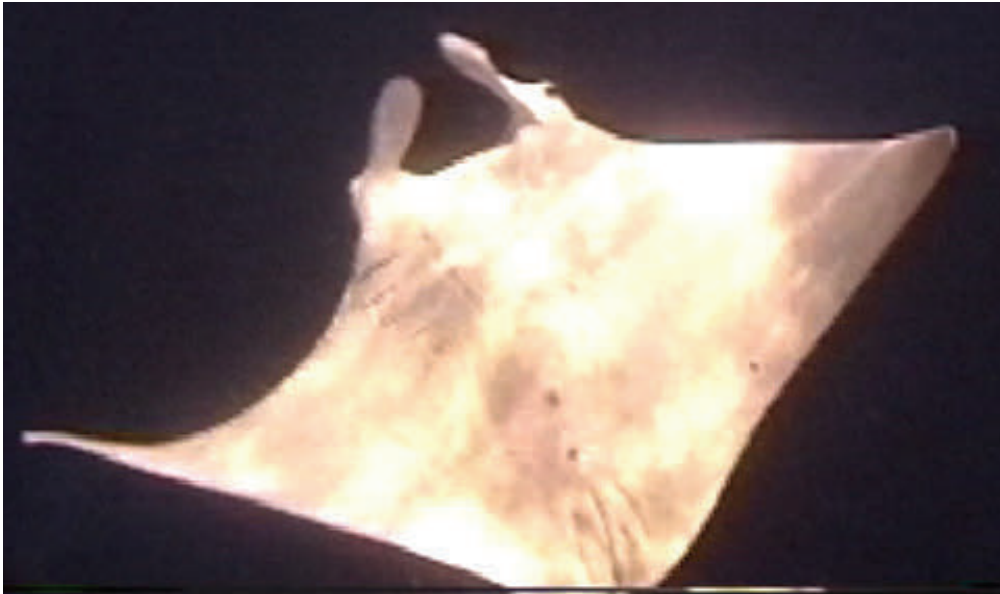
MANTA M61



Date	Location	Notes	Image Credit
1998	Unknown		Jesse Cancelmo

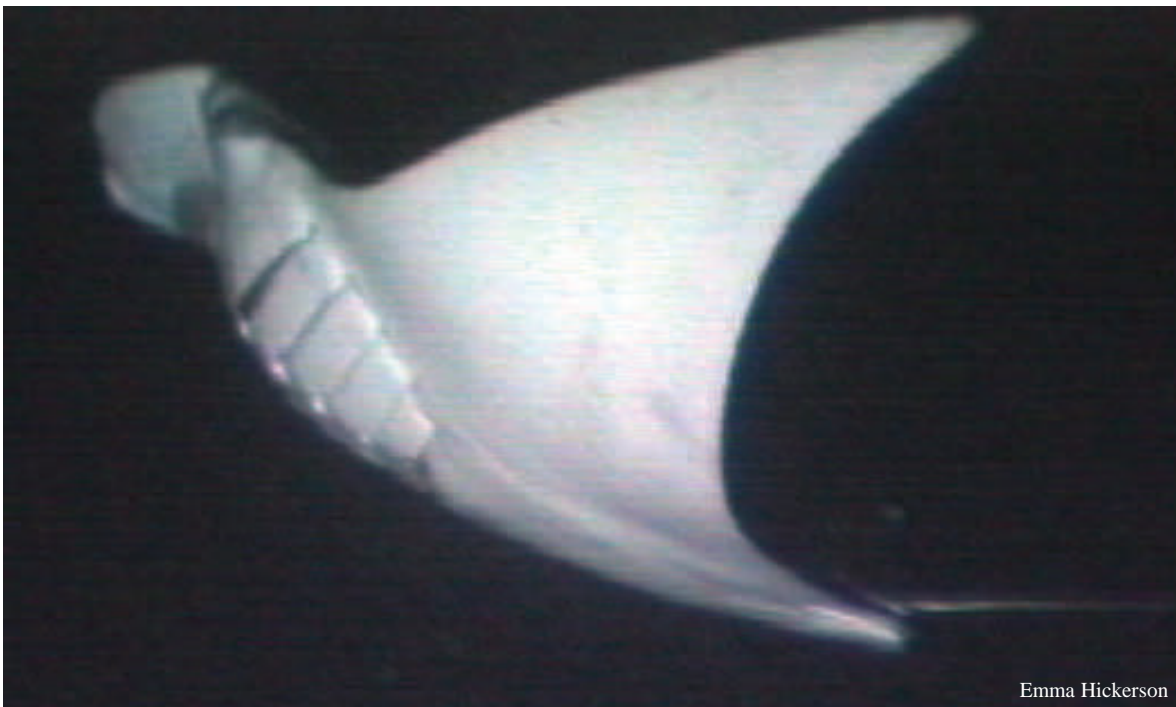
MOSTLY WHITE

MANTA M5



Date	Location	Notes	Image Credit
June 1995	FGB		Ferrell Cruise

MANTA M17



Date	Location	Notes	Image Credit
Sept 1999	WFGB		Emma Hickerson

MOSTLY WHITE

MANTA M23



Date	Location	Notes	Image Credit
9/14/2006	EFGB #1		Neal Baltz

MANTA M27



Date	Location	Notes	Image Credit
7/10/2000	WFGB #1		Emma Hickerson

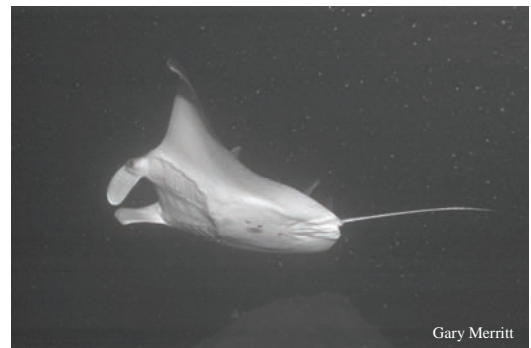
MOSTLY WHITE

MANTA M28



Date	Location	Notes	Image Credit
6/12/2007	EFGB #2	With M35	Emma Hickerson

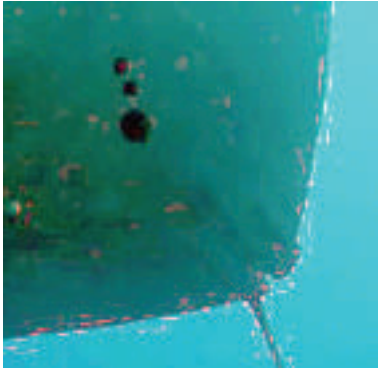
MANTA M33



Date	Location	Notes	Image Credit
8/15/2006	EFGB #4	Tagged (3484 or 3483)	Gary Merritt

MOSTLY WHITE

MANTA M34



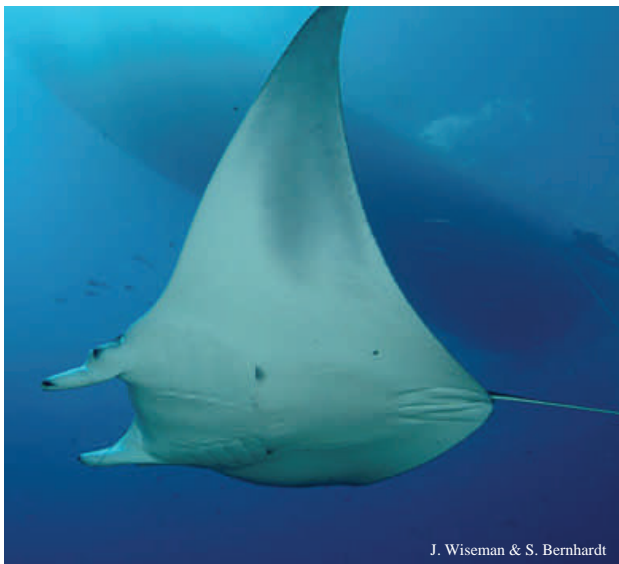
(Digital Enhancement)



Christopher Parsons

Date	Location	Notes	Image Credit
10/11/2006	Unknown		Christopher Parsons

MANTA M37



J. Wiseman & S. Bernhardt



J. Wiseman & S. Bernhardt

Date	Location	Notes	Image Credit
7/28/2003	EFGB #4		J. Wiseman & S. Bernhardt

MOSTLY WHITE

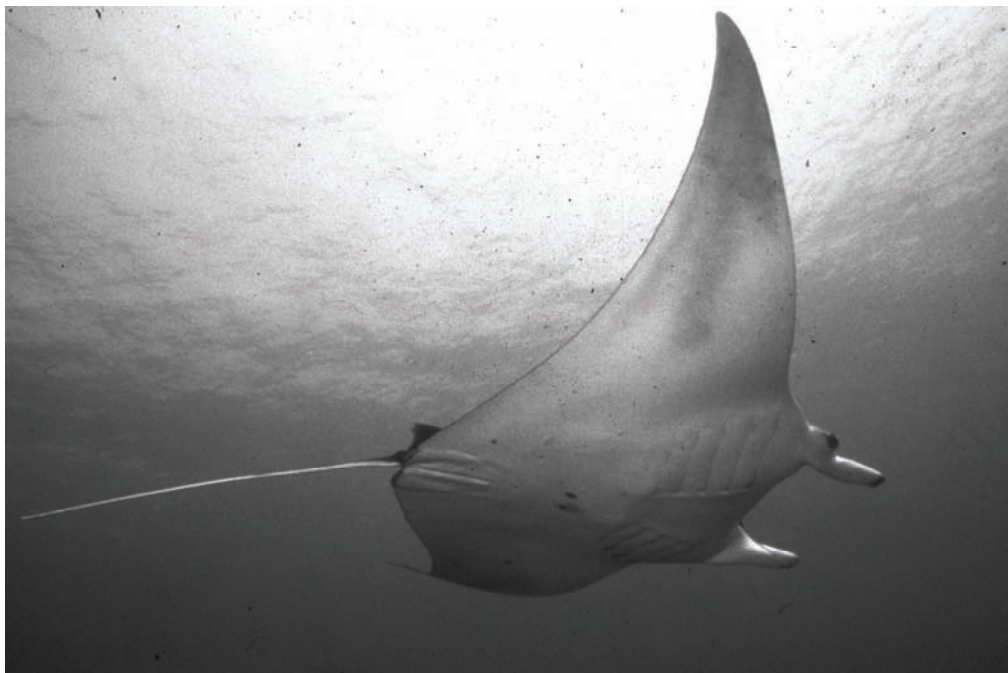
MANTA M40



Frank and Joyce Burek

Date	Location	Notes	Image Credit
2004	EFGB		Frank and Joyce Burek

MANTA M41



Russ Wilkins

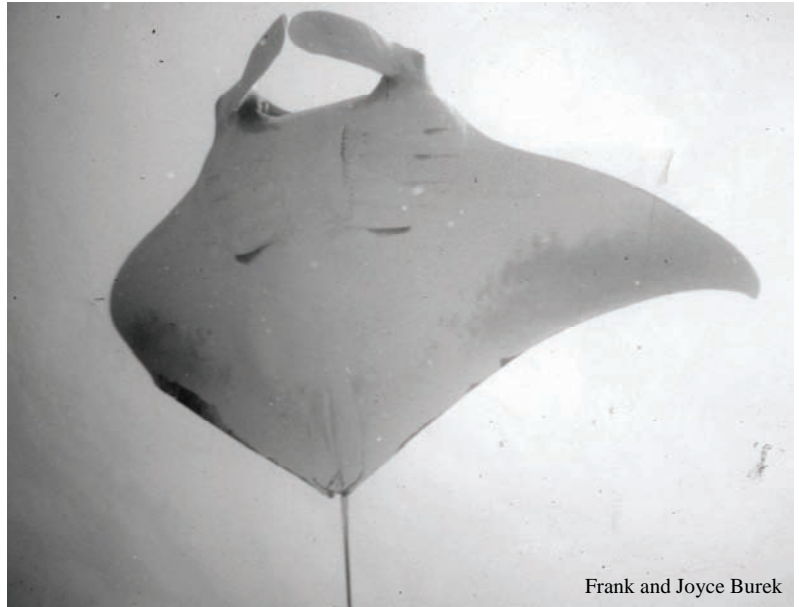


(Digital Enhancement)

Date	Location	Notes	Image Credit
2006	Unknown		Unknown
2006	Unknown		Russ Wilkins

MOSTLY WHITE

MANTA M45



Frank and Joyce Burek

Date	Location	Notes	Image Credit
2000	WFGB		Frank and Joyce Burek

MANTA M52



Gary Barnes



Gary Barnes



Gary Barnes

Date	Location	Notes	Image Credit
3/1/2003	EFGB		Gary Barnes

MOSTLY WHITE

MANTA M57



Date	Location	Notes	Image Credit
Unknown	Unknown		Mary Donato Currie

TAGGED

MANTA M18

See **'Squares'** for more information on this Manta



MANTA M33

See **'Mostly White'** for more information on this Manta



MANTA M36

See **'Spots'** for more information on this Manta



REPORT YOUR SIGHTINGS!

Please fill out a form with information about your Manta sighting. Forms can be mailed or returned to a crew member.



Manta Rays

of the Flower Garden Banks National Marine Sanctuary

FALL 2008

Emma L. Hickerson and Marissa F. Nuttall



Emma Hickerson
Research Coordinator
Flower Garden Banks NMS
4700 Ave U - Bldg 216
Galveston, TX 77551



Elasmobranch Sighting! (Sharks & Rays)

Date: _____ Vessel: _____ Time: _____

Location: (Bank, Buoy#) _____

of animals: _____ Size of animal(s): _____

Type of animal: _____

Whale Shark Tag Color & Number (if present): _____

Comments: _____

Email or phone # : _____

Thank you!

Please contact Emma Hickerson if you have any images or video you would like to share with the Sanctuary: emma.hickerson@noaa.gov, 409-621-5151, ext 111