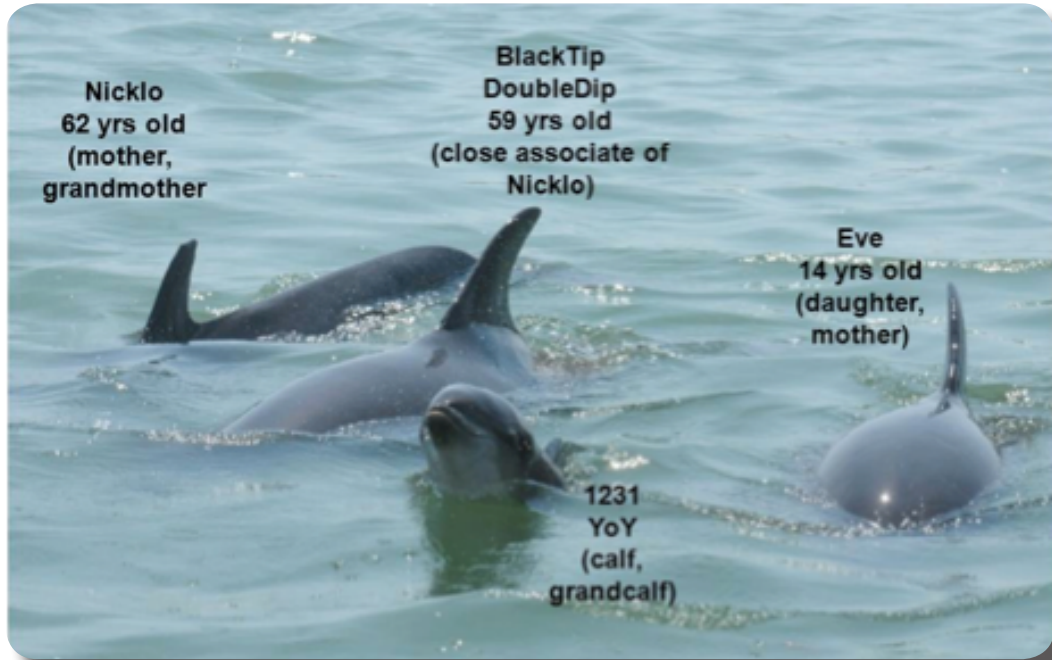


# Curriculum Guide for Sarasota County Schools

## *“Sarasota Dolphin Conservation Lessons”*



Prepared by Chip Phillips, Southside Elementary School  
In association with the Sarasota Dolphin Research Program,  
a partnership of the Chicago Zoological Society and Mote Marine Laboratory,  
sponsored by the Disney Worldwide Conservation Fund



Hello, and THANK YOU for taking the time to look at (and hopefully use with your class !!) our Sarasota Dolphin Conservation Lessons.

These activities are designed with one general purpose, and that is to PROMOTE AWARENESS AMONG ELEMENTARY AGE CHILDREN OF THE IMPORTANCE OF PROTECTING OUR NATIVE AND LOCAL MARINE MAMMALS, in particular the long-term resident dolphin community of Sarasota Bay.

*PLEASE NOTE: although these lessons are part of a large, encompassing project that actual scientists and marine biologists are currently working on, they have been written and designed by practicing elementary educators, who share a passion for our marine friends and want to help our future scientists and boaters understand the delicate interplay between our water-based activities and the effects those have on local marine life. That said.....*

These four lessons have been written so that you, the incredibly busy classroom teacher, can infuse them seamlessly with your science curriculum, in various formats that best fit your hectic schedule:

- lecture/discussion
  - video
  - hands-on
- or any combination.

The overall content is appropriate for most grade levels in elementary school, but it is up to you, who knows your students the best, to organize and present the material in the most meaningful way for your students. Again, the theme is CONSERVATION, and what can we do as animals who share the waters and coastal ecosystem with these marine creatures, to help them survive, and thrive.

The components of this resource are as follows:

### **PART ONE**

- a) This is a lesson entitled “Introduction to Dolphins”, in which you give your class an informal and VERY quick “pre-test”, to allow the children to find out just exactly what they “know” about dolphins, and then establish a dialog/discussion with your class to discuss the “real” answers.
- b) There is a dolphin “fact sheet”, which you can use with your students as you’re discussing the characteristics of dolphins and, well, what makes a dolphin a dolphin!
- c)The “post test” will show the children that they have become, no doubt, dolphin “experts”!

### **PART TWO**

- a) This lesson serves as an “Introduction to Conservation”.
- b) There is a VIDEO to show and discuss with the children.

### **PART THREE**

- a) This lesson involves some of the man-made problems our local dolphins face, with a focus on entanglement.
- b) This is reinforced by another short VIDEO, which actually introduces the children to two of our local dolphins, and problems they faced from human negligence.

### **PART FOUR**

This is a hands-on entanglement activity, which helps reinforce the crucial point that man-made junk discarded in the water can be deadly for dolphins and manatees.

And, of course, no unit could be complete without some sort of fun sheets for the children, which are gladly included.

So, please, take the opportunity to enlighten and educate your young charges with useful, timely, and important information regarding our local marine mammals, so that when our students become the custodians and stewards of our waters, they will have been exposed to the importance and necessity of conservation.

### **SOME BACKGROUND ON THE RESEARCH ON SARASOTA'S DOLPHINS**

Sarasota's local dolphin population is the longest-studied dolphin population in the world. Research by Dr. Randy Wells and others since 1970 has been based on compiling longitudinal records of individually distinctive bottlenose dolphins from the central west coast of Florida.

Identification efforts have occurred from Tampa Bay through Charlotte Harbor and Pine Island Sound and associated Gulf of Mexico waters.

The most intensive efforts have focused on the long-term resident community of dolphins in Sarasota Bay, spanning up to five concurrent generations.

During 1970-1976, individual identifications were made primarily through tagging and resighting or tracking. Since the mid-1970s, photographic identification has been the primary tool for compiling individual records.

Dolphins are identified from photos showing natural markings, tag scars, and from freeze-brands applied during capture-release activities for health assessment. Freeze-brands, applied to the dorsal fin and to the body below the dorsal fin, serve as a kind of "medical ID bracelet" and facilitate unambiguous identifications of dolphins through time, even if the identifying features on their dorsal fins change. Over 260 dolphins have been freeze-branded since the inception of the program in 1970.

More than 500,000 dolphin photographs from 1970 to the present are currently archived by the Sarasota Dolphin Research Program (SDRP). They have been collected during more than 47,000 dolphin group sightings.

The SDRP digital photographic identification catalog currently includes over 5,100 distinct individual dolphins (alive and dead) plus some of their calves (young animals are often not individually distinctive).

The sighting database results from photographic records yielding more than 127,000 sightings of these identifiable individuals, over periods of more than 43 years. Some individuals have been identified more than 1,450 times.

### **VIDEOS**

Sarasota Dolphin Conservation Lesson videos were produced by Ad Gals, with additional support from Dolphin Biology Research Institute, both based in Sarasota FL.

**RELEVANT STANDARDS CORRELATIONS,  
GRADES 1-5**

**GRADE 1**

Gr. 1 Big Idea 29: Organization and Development of Living Things

SC.1.L.14

- A. All plants and animals, including humans, are alike in some ways and different in others.
- B. All plants and animals, including humans, have internal parts and external structures that function to keep them alive and help them grow and reproduce.
- C. Humans can better understand the natural world through careful observation.

Gr. 1 Big Idea 29: Interdependence

SC.1.L.17

- A. Plants and animals, including humans, interact with and depend upon each other and their environment to satisfy their basic needs.
- B. Both human activities and natural events can have major impacts on the environment.
- C. Energy flows from the sun through producers to consumers.

SC.1.L.17.1: Through observation, recognize that all plants and animals, including humans, need the basic necessities of air, water, food, and space.

**GRADE 2**

Gr. 2 Big Idea 29: Organization and Development of Living Things

SC.2.L.14

- A. All plants and animals, including humans, are alike in some ways and different in others.
- B. All plants and animals, including humans, have internal parts and external structures that function to keep them alive and help them grow and reproduce.
- C. Humans can better understand the natural world through careful observation.

Gr. 2 Big Idea 29: Interdependence

SC.2.L.17

- A. Plants and animals, including humans, interact with and depend upon each other and their environment to satisfy their basic needs.
- B. Both human activities and natural events can have major impacts on the environment.
- C. Energy flows from the sun through producers to consumers.

SC.2.L.17.1: Compare and contrast the basic needs that all living things, including humans, have

for survival.

SC.2.L.17.2: Recognize and explain that living things are found all over Earth, but each is only able to live in habitats that meet its basic needs.

### **GRADE 3**

Gr. 3 Big Idea 29: Organization and Development of Living Things

SC.3.L.14

A. All plants and animals, including humans, are alike in some ways and different in others.

B. All plants and animals, including humans, have internal parts and external structures that function to keep them alive and help them grow and reproduce.

C. Humans can better understand the natural world through careful observation.

Gr. 3 Big Idea 29: Interdependence

SC.3.L.17

A. Plants and animals, including humans, interact with and depend upon each other and their environment to satisfy their basic needs.

B. Both human activities and natural events can have major impacts on the environment.

C. Energy flows from the sun through producers to consumers.

### **GRADE 4**

Gr. 4 Big Idea 29: Interdependence

SC.4.L.17

A. Plants and animals, including humans, interact with and depend upon each other and their environment to satisfy their basic needs.

B. Both human activities and natural events can have major impacts on the environment.

SC.4.L.17.2: Explain that animals, including humans, cannot make their own food and that when animals eat plants or other animals, the energy stored in the food source is passed to them.

SC.4.L.17.4: Recognize ways plants and animals, including humans, can impact the environment.

### **GRADE 5**

Gr. 5 Big Idea 29: Organization and Development of Living Things

SC.5.L.14

- A. All plants and animals, including humans, are alike in some ways and different in others.
- B. All plants and animals, including humans, have internal parts and external structures that function to keep them alive and help them grow and reproduce.
- C. Humans can better understand the natural world through careful observation.

Gr. 5 Big Idea 29: Diversity and Evolution of Living Organisms

SC.5.L.15

- A. Earth is home to a great diversity of living things, but changes in the environment can affect their survival.
- B. Individuals of the same kind often differ in their characteristics and sometimes the differences give individuals an advantage in surviving and reproducing.

SC.5.L.15.1: Describe how, when the environment changes, differences between individuals allow some plants and animals to survive and reproduce while others die or move to new locations.

Gr.5 Big Idea 29: Interdependence

SC.5.L.17

- A. Plants and animals, including humans, interact with and depend upon each other and their environment to satisfy their basic needs.
- B. Both human activities and natural events can have major impacts on the environment.
- C. Energy flows from the sun through producers to consumers.

SC.5.L.17.1: Compare and contrast adaptations displayed by animals and plants that enable them to survive in different environments such as life cycles variations, animal behaviors and physical characteristics.

Gr. 5 Big Idea 29: The Characteristics of Scientific Knowledge

SC.5.N.1.6 Recognize and explain the difference between personal opinion/interpretation and verified observation.

SC.5.N.2.1: Recognize and explain that science is grounded in empirical observations that are testable; explanation must always be linked with evidence.

SC. 5.N.2.2 Recognize and explain that when scientific explanations are carried out, the evidence produced by those investigations should be replicated by others



PART ONE  
INTRODUCTION TO DOLPHINS



"PRE/POST-TEST"

Since you go to school in Sarasota, you probably live here. And, if you live here, you've most likely crossed over Sarasota Bay on one of our bridges, gone fishing in the bay, or perhaps been to the beach and played in the Gulf. Well, if you have, guess what: living in our waters are some of the coolest, smartest, and most-studied animals in the world. We're talking about Sarasota Bay's dolphins. If you think you know a lot about dolphins because you've read a book about them, visited an aquarium, or perhaps watched a show on the Animal Planet, think again. Let's see what's really up with our neighbors.

Here are some questions to see just how much you know about Sarasota's dolphins. Read each one, and circle "T" if you think the sentence is true, or circle the "F" if you think the sentence is not true. Here we go, SHOW WHAT YOU KNOW !!

SARASOTA'S DOLPHINS PRE-TEST

- |  |     |
|--|-----|
| 1. Dolphins breathe air just like we do because they have lungs.   | T F |
| 2. Sarasota's dolphins live in one large group, with a "king" dolphin in charge.   | T F |
| 3. Many of Sarasota's dolphins know each other by "name".  | T F |
| 4. When necessary, dolphins can use a type of sonar, called echolocation, to navigate their way through the water or help them find food   | T F |
| 5. Sarasota's dolphins eat mainly fish.  | T F |
| 6. Because they're such fast swimmers, dolphins can easily get out of the way of a speeding boat.  | T F |
| 7. Because they're mammals, like us, it's OK to feed hungry dolphins when we see them.   | T F |
| 8. Because Sarasota Bay's dolphins live here, they know the water very well and can't really get hurt by things humans have left in the water, like fishing line, or plastic bags. | T F |

Answers: 1) T 2) F 3) T 4) T 5) T 6) F 7) F 8) F

## **DOLPHIN FACT SHEETS...**

- Compared to many other animals, dolphins are believed to be very intelligent.
- There are about 36 species of dolphins, including about 32 types of ocean dolphins and 4 remaining types of river dolphins.
- Bottlenose dolphins are the most common and well known type of dolphin in coastal waters around the world.
- Young dolphins are called calves.
- Many dolphin species are social, and spend much time with other dolphins.
- Most dolphin groups, such as those of bottlenose dolphins, are fluid, and change members frequently.
- The largest dolphins, killer whales, live in stable, long-term groups referred to as pods, because like peas in a pod, killer whales do not leave their pod.
- Bottlenose dolphins in Sarasota Bay, Florida typically live in fluid groups of 4 to 7 individuals.
- Dolphins often seem to display a playful attitude which makes them popular in human culture. The “smile” on their face is a permanent part of their anatomy and does not show their attitude.
- Dolphins use a blowhole on top of their heads to breathe.
- Dolphins have excellent eyesight and hearing as well as the ability to use echolocation (sonar) for finding the exact location of objects and learning about their composition and structure.
- Dolphins communicate with each other by whistling and making other sounds.
- Some dolphin species face the threat of extinction, often directly as a result of human behavior. The Yangtze River Dolphin is an example of a dolphin species which recently became extinct.
- Dolphins are a kind of marine mammal referred to as a cetacean.
- Dolphins live close to the coast line in all the oceans on the planet, and also in the middle of the oceans.
- They live in fresh water rivers of Asia and South America.
- Some dolphins live in the Amazon River.
- Dolphins have several stomach chambers to digest the fish they swallow whole.
- Different dolphin species have different numbers of teeth, with bottlenose having 80-100 each! Unlike humans, dolphins only get one set of teeth that must last them for their entire life.
- They are carnivores, meaning they eat meat. Dolphins mostly eat a variety of fish & some squid.
- Dolphins cannot chew with their teeth. Their teeth are designed to grab whole live fish. Dolphins eat by swallowing their food whole.
- Dolphins eat about 5% of their body weight daily.
- They have good eyesight and great hearing. Dolphins can hear better than humans!



- Dolphins are playful animals. They sometimes like to jump out of the water and ride waves.
- Some dolphins can be trained to jump as high as 30 feet out of the water!
- Sometimes dolphins will swim next to boats in an action is called bow-riding. They learn when they are a few days old to “surf” the pressure wave created by mom when she is swimming, and when they are older they transfer this ability to riding on bow waves, in stern wakes, and waves at the beach. Sometimes this may be done to conserve energy while swimming, and sometimes it may just be fun!
- Did you know an Orca or Killer Whale is actually a dolphin? All porpoises and dolphins are “toothed whales”- whales with teeth as opposed to the large baleen whales that don’t have teeth.
- Orcas are the largest species of dolphins. Orcas can be 25ft long and 19,000 pounds.
- Dolphins never fully fall asleep. Part of their brain always stays awake so they can breathe and remain aware of threats.
- Dolphins can swim 25 miles per hour for short bursts, but they rarely do this.
- They swim by moving their tails up and down.
- Dolphins cannot breathe under water.
- The fin on their back is called a dorsal fin.
- Sharks, killer whales, and humans are the primary predators of dolphins.
- Humans are a threat to dolphins. Sometimes dolphins are killed because they get caught in fishing nets, and many are hurt or die from getting tangled in fishing line or eating fishing gear including hooks.
- Dolphins do not lay eggs.
- Dolphins give birth to a single baby at a time, underwater.
- After a baby dolphin is born, it swims to the surface to breathe for the first time on its own, with mom nearby.
- Baby dolphins drink milk from their mothers.
- Bottlenose dolphin babies stay with their mothers for 3-6 years, until they have learned what it takes to survive without mom’s help.
- Some bottlenose dolphins are known to have lived to more than 60 years of age!
- Dolphins and porpoises are two different types of toothed whales. Compared to dolphins, porpoises tend to be smaller, have a more triangular dorsal fin, do not have a projecting beak, their teeth are spade-shaped, rather than cone-shaped. Porpoises do not live in Florida waters.

**PART TWO:  
INTRODUCTION TO CONSERVATION**



**OBJECTIVE:** This lesson is designed to have your students learn what the word conservation means, how it relates to their geographical location, and what can they do to help practice conservation in their local marine environment.

**MATERIALS:** Video: Sarasota Dolphin Conservation Lesson Video 1

**PLEASE NOTE:** Below is simply a suggested format for leading a class discussion. It is BY NO MEANS intended to replace what you know is best for your particular class, or to supplant the special didactic that you have with your kids on a daily basis !

**LESSON:** Today we're going to talk about the word CONSERVATION, and how it applies to dolphins. OK. Let's get started. Who can tell me what conservation means?  
Teacher will elicit responses from the students, and write those responses on the activ-board/poster paper, etc. A short discussion follows:

- why is it important to learn about conservation?
- why is it important to practice conservation ?
- etc. etc.

After a short discussion about conservation, and when the teacher is satisfied that the kids seem to understand the concept, (s)he continues:

"I can tell by our short discussion that you guys are really smart. In fact, I know how smart you are since I see you every day! And, speaking of smart animals, let's not forget what we've learned so far about dolphins" (here you could interject a quick review from your Pre-test/Introduction to Dolphins lesson).

"However, what if today we don't concentrate on what dolphins ARE, but rather WHAT IT WOULD BE LIKE TO BE A DOLPHIN? Let's try to put ourselves in the "fins" of a dolphin (not to be compared with "shoes" !)

To appreciate the world of a dolphin, it's probably most important to see first fin what their world looks like, compared to our life on land. We're going to do that in just a few minutes. But also, it's important to see what we have in common with these animals, other than we're both mammals. How many of you like to go fishing? (kids will raise their hands)  
How many of you like to go out on a boat to fish, or maybe go tubing, water-skiing, surfing or wake-boarding?

How many of you like to play, just because it's fun to get out and have some fun?  
Well, guess what. Dolphins LOVE to eat fish (and hunt them!), they love to surf sometimes on the wakes of boats, and they love to play. Wow, we really do have a lot in common!!  
Let's go now to our "dolphin cam", and take a look at the real world of a dolphin.

### **PLAY VIDEO: SARASOTA DOLPHIN CONSERVATION LESSON VIDEO 1**

Following the video, Teacher....

Pretty cool, huh? Could you imagine living in that world ? BUT, did you notice a couple of possible problems down there: what did you think about those boat propellers? What about some of the almost invisible fishing line that was down there?

#### **DISCUSSION:**

- could a boat propeller harm a dolphin?
- could that fishing line be a problem, and entangle the animal?
- etc. etc.

#### **FINALE/WRAP-UP**

So, did you learn anything today in this short lesson? Let's see if we can quickly brainstorm some ideas about how we can put what we've learned about conservation to use to help out our dolphin and marine mammal friends:

- put signs around the boating community
- collect gear that might otherwise end up in the water
- tell our friends and family

### PART THREE:

#### INTRODUCTION TO ENTANGLEMENT



Nellie

Scrappy

#### INTRODUCTION TO ENTANGLEMENT

**OBJECTIVE:** This module, or lesson, is designed to show students the dangers and risks posed to dolphins by fishing line, tackle and other man-made items.

**MATERIALS:** Video: Sarasota Dolphin Conservation Lesson Video 2

**TEACHER:**

“Hi everybody. Now we’re going to discuss a VERY REAL problem for dolphins, and that is entanglement. Engage the kids in a quick discussion about what entanglement means....( entanglement means having line or rope or some other material wrapped around your body or fins, or cutting into your body or fins)

It’s easy for me to stand up here and talk, but why don’t we meet a couple of friends of ours, who have had “first-fin” experience with entanglement. Let’s meet Scrappy ( bathing suit !! ) and Nellie:

**PLAY VIDEO:** Sarasota Dolphin Conservation Lesson Video 2

Following video,

**TEACHER:**

Wow ! Imagine getting tangled up in someone’s bathing suit, or wanting to move and not being able to because you’re restricted by something!! Obviously, entanglement is a very real, and serious, problem for our marine mammal friends. What are some things we could do to help prevent this type of thing from happening?

**CLASS DISCUSSION/BRAINSTORMING SESSION:** ways we can help prevent entanglement.

- Do not discard line into the water – stow it in appropriate receptacles on shore.
- Pick up garbage and debris in the water and stow it in appropriate receptacles on shore.
- If dolphins approach while you are fishing, reel in your line until they leave.
- etc. etc.



## ENTANGLEMENT GAME



### OBJECTIVE:

This is a hands-on activity which (hopefully !!) will drive home to the children just how hard it is to “navigate” your way through your environment when that environment is fraught with man-made dangers and obstacles that could prove to be lethal.

### MATERIALS:

- a 50 ft. ( or longer) piece of light, cotton clothesline
- a poster board with the words BASIC NEEDS written on it

### OVERVIEW:

This hands-on activity has the children trying to weave their way through a web of cotton line without touching any of it, to represent the dilemma our dolphins face on a daily basis.

### ACTIVITY:

Explain to the students what the lesson is:

Well, we saw how Scrappy and Nellie managed to get lucky, thanks to outside help. Let’s pretend to be dolphins, and see if we can make it through this deadly obstacle course !

### DIRECTIONS:

- a) choose one student to be the sign-holder. Give that student the poster that says BASIC NEEDS, and direct her/him to one side of the room. (S)he will hold this up when the activity begins.
- b) select 5 or 6 other students, and explain to them that they must take the clothesline, and station themselves in the middle of the room. They will create several layers of rope, to represent the fishing line threat that’s in the water.  
( kids will spread out and hold a different part of the clothesline)
- c) the rest of the class will line up at the opposite end of the classroom (opposite the “Basic Needs” sign), and two-by-two, walk or crawl carefully through the ropes, WITHOUT touching any of the line.
- d) depending on time, the children can all get the opportunity to “be” a dolphin

e) have students return to their desks, and gather the materials

**DISCUSSION:**

Wow, you guys did a great job of navigating your way through those ropes ! But, how do you think Nellie and Scrappy must have felt when they became entangled? That line is hard to see underwater, plus they weren't looking for it...

- could you imagine having to be that careful every time you went to grab something to eat, or went somewhere?

- HOW does the fishing line pose such a threat to our dolphins?

**FINALE/WRAP-UP**

You know, it's just not dolphins that have to worry about boats and lines in the water. Other marine mammals, such as the manatee, along with sea turtles and seabirds, share these same problems. But, it's pretty obvious to me, based on the discussion we just had, that you guys understand why monofilament line and other discarded junk can be a problem for marine mammals.

**HOW CAN WE USE WHAT WE'VE LEARNED ABOUT CONSERVATION TO  
HELP PREVENT DOLPHINS LIKE SCRAPPY, NELLIE, AND OTHERS FROM  
BECOMING ENTANGLED?**

Begin a discussion/brainstorming session with the students.





To report feeding or harassment of wild dolphins, call the NOAA Fisheries Southeast Enforcement Division at: 1-800-853-1964.

To report an injured or entangled dolphin, or other wildlife, call the Florida Fish and Wildlife Conservation Commission at: 1-888-404-FWCC (3922).

For more information on fishing line recycling and bin locations, please visit: [www.fishinglinerecycling.org](http://www.fishinglinerecycling.org)

For more information on dolphins and interactions with anglers, please visit: [www.mote.org](http://www.mote.org) or [www.sarasotadolphin.org](http://www.sarasotadolphin.org)



**Dolphins Need Your Help.** Serious and even fatal dolphin injuries from interactions with recreational fishing gear and boats are on the rise. **You can prevent injuries to dolphins and other sea life – and have a better day on the water – by following a few tips designed to protect marine animals.** These “Best Practices” were developed by marine scientists and wildlife managers working with boaters, anglers, and fishing guides:

**1) Never feed wild dolphins**

**– it’s harmful and illegal**

- Feeding teaches dolphins to beg for food and draws them dangerously close to fishing gear and boat propellers.
- Feeding is illegal under the federal Marine Mammal Protection Act.

**2) Reuse or share leftover bait**

- Freeze leftover bait for later or give it to your fishing neighbor.
- Dumping leftover bait may attract dolphins to fishing areas to beg or steal bait and catch.

**3) Reel in your line if dolphins appear**

- Reel in and wait for dolphins to pass to avoid losing your bait or catch and prevent potential harm to dolphins.
- Never cast toward dolphins.

**4) Change locations if dolphins show interest in bait or catch**

- Move away from dolphins to avoid unintentionally hooking one and prevent damage to gear or catch.

**5) Release catch quietly away from dolphins when and where it is possible to do so without violating any state or federal fishing regulations**

- Feeding or attempting to feed a marine mammal in the wild is prohibited.

**6) Check gear and terminal tackle**

- Inspect your gear often to avoid unwanted line breaks – even small amounts of gear in the water can be harmful to wildlife if entangled or ingested.

**7) Use circle and corrodible hooks**

- Circle hooks may reduce injuries to fish, dolphins, and sea turtles.
- Corrodible hooks (any hook other than stainless steel) eventually dissolve.

**8) Stay at least 50 yards away**

- Stay a safe distance from wild dolphins to avoid causing potential harm.
- Maintaining a safe distance helps keep dolphins wild.

**9) Prevent wildlife entanglements – recycle fishing line**

- Place all broken or used fishing line in a Monofilament Fishing Line Recycling Bin.
- If no recycling bins are available, place broken or used fishing line that has been cut into pieces in a lidded trash can.

**10) Stash your trash**

- Littering is illegal and can be harmful to wildlife.
- Collect any trash you’ve left behind and place it in a lidded trash can.