

VIDA DE LA TORTUGA

A Research-Based Elementary Classroom Resource
Created by: Susanna Musick



VIDA DE LA TORTUGA



ABOUT THIS ACTIVITY

Vida de la Tortuga (The Life of a Turtle) is an activity designed to teach elementary students about Pacific sea turtles. Students will learn about endangered species and how humans can threaten and help them. You can contact the author at sxmusi@vims.edu. This packet includes materials that address the following science and math standards for Mexico and the national science standards for the U.S.:

NATURAL SCIENCES

THIRD GRADE

Block I: All the things we use and throw away

Lesson 6: Where does trash come from?

Lesson 7: Where does trash go?

Block III: Foods and nutrition

Lesson 19: What do we eat?

Block V: Let's put it all together.

Plants and animals have their own characteristics.

FOURTH GRADE

Block II: Living organisms and their atmosphere

Lesson 15: The man alters the ecosystems.

FIFTH GRADE

Block I: Human beings-we are part of the ecosystems.

Lesson 2: We transformed the ecosystems.

Lesson 5: Consequences of the inadequate transformation of the ecosystems

Lesson 6: The environmental problems that affect us

Lesson 7: New relations with nature and between ourselves

Lesson 8: Children in the ecosystems

SIXTH GRADE

Block I: Where did we come from?

Lesson 7: Natural selection and adaptation

Block II: How did we live?

Lesson 14: The permanent renovation of natural resources

MATH:

FIRST GRADE

Block II:

Lesson 28: What we like to eat

Lesson 33: How many are there?

Lesson 46: How many are there now?

Lesson 50: The turtles

Block V:

Lesson 100: Where are they and how many are there?

Lesson 103: How many are there of each thing?

THIRD GRADE

Block IV:

Lesson 74: Histories and problems

Block V:

Lesson 87: Past and present

FOURTH GRADE

Block I:

Lesson 3: The fractions $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$ and $\frac{1}{16}$ in situations of measurement of length

Block III:

Lesson 56: Equivalent fractions

Block IV:

Lesson 64: Relation between tens, hundreds and millions

Lesson 67: Decimal partition, the decimal notation

Block V:

Lesson 79: The scholastic material; operations with natural numbers, fractions and decimals

FIFTH GRADE

Block I:

Lesson 8: Great distances

Block II:

Lesson 22: Points and figures

Lesson 35: More about decimals

Block III:

Lesson 42: Thinking and verifying

Block IV:

Lesson 53: How many do you get?

Block V:

Lesson 75: Proportional or non-proportional?

SIXTH GRADE

Block II:

Lesson 20: Millimeter to kilometer

Block V:

Lesson 25: How do you make a decision?

Lesson 82: Species in danger of extinction

Standards collected from:

Secretaria de Education Publica Education Basica

http://www.sep.gob.mx/wb2/sep/sep_Educacion_Basica

U.S. NATIONAL SCIENCE EDUCATION STANDARDS CORRELATIONS

Science as Inquiry

Ability to do scientific inquiry (K-4, 5-8, 9-12)

Understanding of scientific inquiry (K-4, 5-8, 9-12)

Life Science

The characteristics of organisms (K-4)

Organisms and environments (K-4)

Regulation and behavior (5-8)

The behavior of organisms (9-12)

Science in Personal and Social Perspectives

Characteristics and changes in populations (K-4)

Types of resources (K-4)

Populations, resources, and environments (5-8)

Natural resources (9-12)

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Sea Turtle Quick Facts

BIOLOGY

- Sea turtles are large, air-breathing reptiles. They are not fish.
- Sea turtle shells consist of an upper section (the carapace) and a lower section (the plastron). Hard scales (scutes) cover the shell (except for leatherbacks).
- In the Pacific Ocean, sea turtles are found from Japan to Hawaii and along the coast of North and Central America. Leatherbacks extend north to British Columbia.
- Sea turtles feed in shallow waters (except leatherbacks—they feed in the open ocean).
- Adult sea turtles migrate from feeding grounds to mating grounds. Most nest in the tropics (except loggerheads—they nest in temperate areas).
- Only mature females return to shore to lay their eggs. Males rarely return to land after hatching.

LIFE CYCLE

- A clutch of 60-170 eggs, resembling ping pong balls, incubate for 6-13 weeks in the sand.
- Hatchlings come out of the nest and head toward the brightest horizon (usually the moon).
- A “swimming frenzy” occurs as the hatchlings enter the water and head toward the open ocean.
- As small juveniles, sea turtles hide in huge mats of floating seaweed in the open ocean.
- Older juveniles join adults in coastal feeding or mating grounds, except leatherbacks which remain pelagic (in the open ocean).
- Mature females return to the beach where they hatched to breed and lay their own nest of eggs. They will nest 2-3 times in a season, but generally nest only every other year.
- Most sea turtles don't reproduce until they are 10-30 or more years old. Their life span may be more than 50 years.

REFERENCES

Lutz, P.L. & J.A. Musick, (eds.). 1997. *The Biology of Sea Turtles*. CRC Press, Boca Raton, FL. 432 pp.

Pacific Sea Turtle Species

All sea turtles are federally protected by law in Mexico.

GREEN (*Chelonia mydas*)

Tortuga Negra or Tortuga Prieta

Size: 110 cm (3.57 ft), 130 kg (286 lbs)

Diet: Primarily herbivorous

Description: Dark gray/black mottled with gray/cream plastron. Hatchlings black, white beneath. Nest in Michoacan & Islas Revillagigedo, Mexico & Galapagos Islands. Found in bays & coastal waters. Endangered (US).

HAWKSBILL (*Eretmochelys imbricata*)

Tortuga Carey

Size: 90 cm (2.92 ft), 100 kg (220 lbs)

Diet: Sponges & benthic invertebrates

Description: Overlapping scutes, curved beak. Carapace has brown and yellow speckled pattern. Plastron white, dark markings. Hatchlings dark brown. Nest in Nayarit, Mexico. Few nesting beaches remain. Endangered (US).

LEATHERBACK (*Dermochelys coriacea*)

Tortuga Laúd

Size: 165 cm (5.34 ft), 400 kg (880 lbs)

Diet: Jellyfish

Description: Seven prominent ridges, smooth skin. Black with white spots, pink blotches on head. Hatchlings black, with white undersides. Nest in Baja California Sur, Michoacan & Oaxaca, Mexico; and Costa Rica. Typically pelagic. Endangered (US).

LOGGERHEAD (*Caretta caretta*)

Tortuga Amarilla

Size: 90 cm (2.92 ft), 100 kg (220 lbs)

Diet: Pelagic red crabs, jellyfish

Description: Large head. Orange-brown with yellow plastron. Hatchlings brown. Nest in Japan & Australia, not in Eastern Pacific. Common near Baja California. Threatened (US).

OLIVE RIDLEY (*Lepidochelys olivacea*)

Tortuga Golfina

Size: 80 cm (2.59 ft), 60 kg (132 lbs)

Diet: Pelagic red crab

Description: Gray-olive with cream/white plastron. Hatchlings solid gray. Nesting in Baja California Sur to Central America. Nest in large groups called “arribadas.” Most common species in Eastern Pacific. Threatened (US).

VIDA DE LA TORTUGA

Vida de la Tortuga! Teacher's Guide

Eastern Pacific Green Turtle Activity
Created by Susanna Musick

Contributors: Wallace J. Nichols, Zoe Rappoport


BACKGROUND

Sea turtles are an important part of the marine ecosystem. Conservation of sea turtles is necessary for these animals to continue their role in the marine environment and will allow us to study and appreciate them in the future. Eastern Pacific green turtles undertake a difficult journey to maturity. From the beach, to the open ocean, to the coast, a variety of factors can affect the survival of sea turtles. Many Eastern Pacific green turtles lay their eggs on beaches at Michoacan, Mexico. The average clutch count (number of eggs laid) by Eastern Pacific green sea turtles at Michoacan is 67.8 eggs (Delgado-Trejo, 2002). Eggs will usually hatch after 6-13 weeks of incubation, depending on the temperature (Miller, 1997). Usually, the incubation period decreases as incubation temperatures increase (Ackerman, 1997). On average, 86% of hatchlings from each nest successfully hatch in Michoacan (Delgado-Trejo, 2002).

After hatching, the baby turtles crawl to the ocean and swim until they reach a current. In the open ocean, or pelagic zone, they will hide and feed among patches of floating giant kelp (Nichols et al., 2001). As the young turtles grow larger (35-40 cm long) they will move to in-shore, coastal areas (Nichols et al., 2001; Seminoff et al., 2002). They will remain in these coastal waters to feed until they mature (from 9-20 years)(Seminoff et al., 2002). Upon maturity, adult females will return to the beaches where they hatched to lay their own eggs.

From the time they leave the nest, turtles are exposed to many threats. They may get lost, or die naturally from disease, exhaustion, and predators. However, humans pose the biggest threat to sea turtles on land and in the water. On land, human threats include egg harvesting, beach lighting and development, pollution, vehicles, sea walls, beach compaction, and sand quarrying. In the water, human threats include direct turtle harvesting for food, by-catch (in nets and longlines), boat collisions, plastic entanglement and ingestion, and habitat degradation (including pollution). These human threats lower survivorship estimates even further.

The following activity is a modeling exercise that involves population estimates and mortality factors. Studies in Bahia de los Angeles (BLA) suggest that about 56 new juvenile Eastern Pacific green turtles move into BLA each year (Seminoff 2000). The annual survivorship of juvenile turtles in BLA is estimated to be 58 percent (Seminoff et al., 2003). Each student in a class will follow one or two juvenile turtles (56 total turtles) throughout their Baja California coastal life history stage. The activity will take into account natural and human-induced turtle mortality. The



turtle/student that survives the longest will be the winner. No turtles will survive to maturity. This will be discussed in the activity follow-up.

OBJECTIVES

- Identify threats to sea turtles
- Define factors limiting the development and survival of juveniles and adults
- Investigate the life history stages and habitats of threatened and endangered species
- Learn about conservation and protection of threatened and endangered marine species
- Discuss percent mortality, survival of the fittest, and management concepts

GRADE LEVEL

Upper elementary with extensions for lower grades

MATERIALS

- 56 copies of the sea turtle cutout (page 10)
- Copies of the student worksheet (pages 8,9) and Quick Facts page (page 3) for each student in the class
- Scissors (one pair per student)
- 1 chalkboard or large pad of paper and easel
- Markers, crayons, or colored pencils (enough for the class)
- 9 buckets, baskets, or bowls (1 for each threat)
- One example or picture of each threat: netting, shrimp trawl, longline, harpoon, predation, disease, boat collision, plastics, cold stunning

PROCEDURE -Total time, 65 minutes

PREPARATION - 20 minutes

Review the student worksheet (pages 8,9) and Quick Facts page (page 3). Distribute the student worksheet, Quick Facts page, and sea turtle cutout. Give at least one cutout to each student. Each student will follow more than one turtle if you have fewer than 56 students. Distribute scissors, crayons, markers, or colored pencils. Arrange the desks so students can move around the room easily.

Spread all nine threats and buckets around the room. For example, you could put a picture of a boat in the front of the room, a net in the back of the room, or if you don't have a picture of the threat you can write the word (i.e. "cold stunning") on a chalkboard, etc.

CLASS ACTIVITY - 45 minutes

1. Students read their Worksheet, study the glossary list and read the Sea Turtles Quick Facts and Species Information sheets.
2. Students use the attached Eastern Pacific green turtle cutout template to create their own turtle.
3. Students cut out the turtle, color it, and write their names on the back of their turtle. Assign students a number for each of their turtles (1-56).

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Game

1. Call out the numbers of the turtles that die in Year Two along with their cause of death. Record these numbers on a chalkboard or easel pad.
2. The students will place their turtle in the bucket in front of the threat that caused their turtle to die.
3. For each year, students calculate the number of turtles that survived and the number of turtles that did not.
4. Continue calling out the turtles and their threats through Year Nine. The student that lives the longest is the winner.

Survivorship Key

YEAR ONE

Year One begins with 56 juvenile turtles moving into the Bahia de los Angeles area.

YEAR TWO

Each year 58% of these juvenile turtles will survive.

56 (turtles from Year One) x .58 (percent that survive each year) = 33 (turtles that survive)

56 turtles

-33 turtles that survive

23 turtles die

Mortality factors (causes of death) and turtle numbers:

YEAR TWO MORTALITY

TURTLE #	THREAT
1	netting
5	longline
7	disease
9	harpoon
10	predation
11	netting
13	shrimp trawl
14	harpoon
16	netting
17	predation
24	harpoon
26	netting
29	plastics
31	netting
32	boat strike
37	netting
38	disease
40	harpoon
43	boat strike
46	longline
47	netting
51	longline
55	boat strike

YEAR THREE

33 turtles (from Year 2) x .58 (percent that survive each year) = 19.14

~ 19 (turtles that survive)

33 turtles

- 19 turtles that survive

14 turtles die

Mortality factors (causes of death) and turtle numbers:

YEAR THREE MORTALITY

TURTLE #	THREAT
3	shrimp trawl
4	harpoon
6	netting
12	disease
15	longline
18	shrimp trawl
19	boat strike
22	disease
27	cold stunning
35	cold stunning
44	shrimp trawl
48	predation
54	predation
56	longline

YEAR FOUR

19 turtles (from Year 3) x .58 (percent that survive each year) = 11.02

~ 11 (turtles that survive)

19 turtles

- 11 turtles that survive

8 turtles die

Mortality factors (causes of death) and turtle numbers:

YEAR FOUR MORTALITY

TURTLE #	THREAT
23	shrimp trawl
28	shrimp trawl
30	longline
34	harpoon
36	predation
41	longline
42	netting
50	harpoon

YEAR FIVE

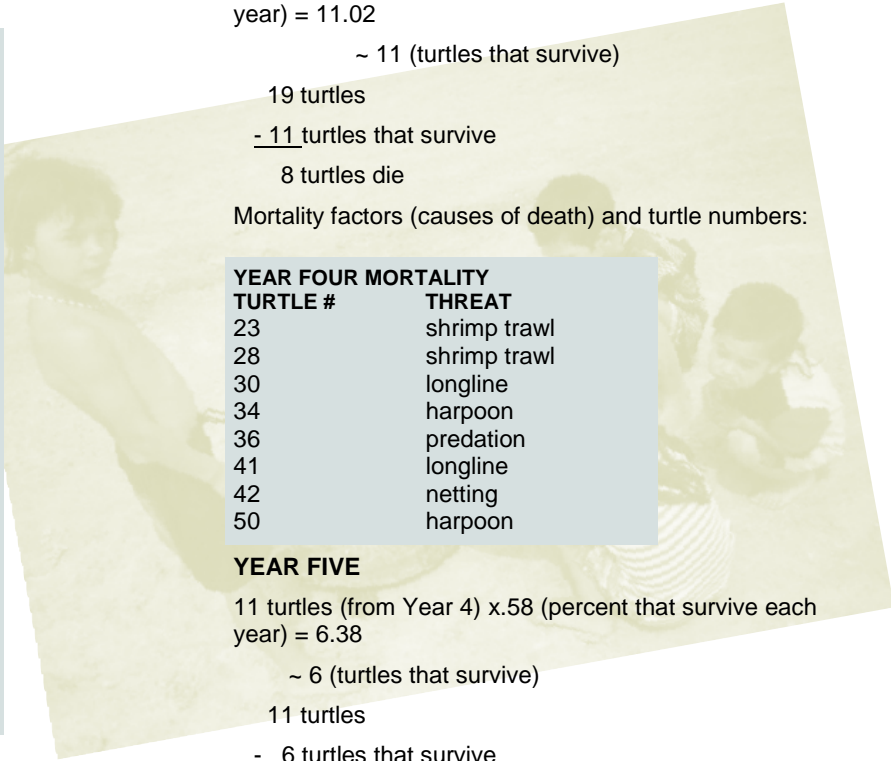
11 turtles (from Year 4) x .58 (percent that survive each year) = 6.38

~ 6 (turtles that survive)

11 turtles

- 6 turtles that survive

5 turtles die



VIDA DE LA TORTUGA



Mortality factors (causes of death) and turtle numbers:

YEAR FIVE MORTALITY

TURTLE #	THREAT
----------	--------

20	plastics
21	netting
25	longline
39	shrimp trawl
49	shrimp trawl

YEAR SIX

6 turtles (from Year 5 \times .58 (percent that survive each year) = 3.48

~ 4 (turtles that survive)

6 turtles

- 4 turtles that survive

2 turtles die

Mortality factors (causes of death) and turtle numbers:

YEAR SIX MORTALITY

TURTLE #	THREAT
----------	--------

2	predation
33	shrimp trawl

YEAR SEVEN

4 turtles (from Year 6 \times .58 (percent that survive each year) = 2.32

~ 2 (turtles that survive)

4 turtles

- 2 turtles that survive

2 turtles die

Mortality factors (causes of death) and turtle numbers:

YEAR SEVEN MORTALITY

TURTLE #	THREAT
----------	--------

8	shrimp trawl
52	netting

YEAR EIGHT

2 turtles (from Year 7 \times .58 (percent that survive each year) = 1.16

~ 1 (turtle that survives)

2 turtles

- 1 turtle that survives

1 turtle dies

Mortality factor (cause of death) and turtle number:

YEAR EIGHT MORTALITY

TURTLE #	THREAT
----------	--------

45	plastics
----	----------

YEAR NINE

The turtle that lives the longest is # 53. This turtle dies from disease at the end of Year 9.

YEAR NINE MORTALITY

TURTLE #	THREAT
----------	--------

53	disease
----	---------

QUESTIONS:

1. If all of the turtles are dead after 9 years, how many will survive to maturity?

None of the turtles will survive to maturity because the earliest estimated age that Eastern Pacific green sea turtles reach maturity is 10.

2. Rank the threats and list the most common threat (the threat that killed the most turtles). You can keep a tally of this as the game progresses through each year.

1. Netting
2. Shrimp trawl
3. Longline
4. Harpoon
5. Predation
6. Disease
7. Boat collision
8. Plastics
9. Cold stunning

3. If disease, cold stunning and predation are the only natural threats to turtles, what would happen if we removed all of the human threats?

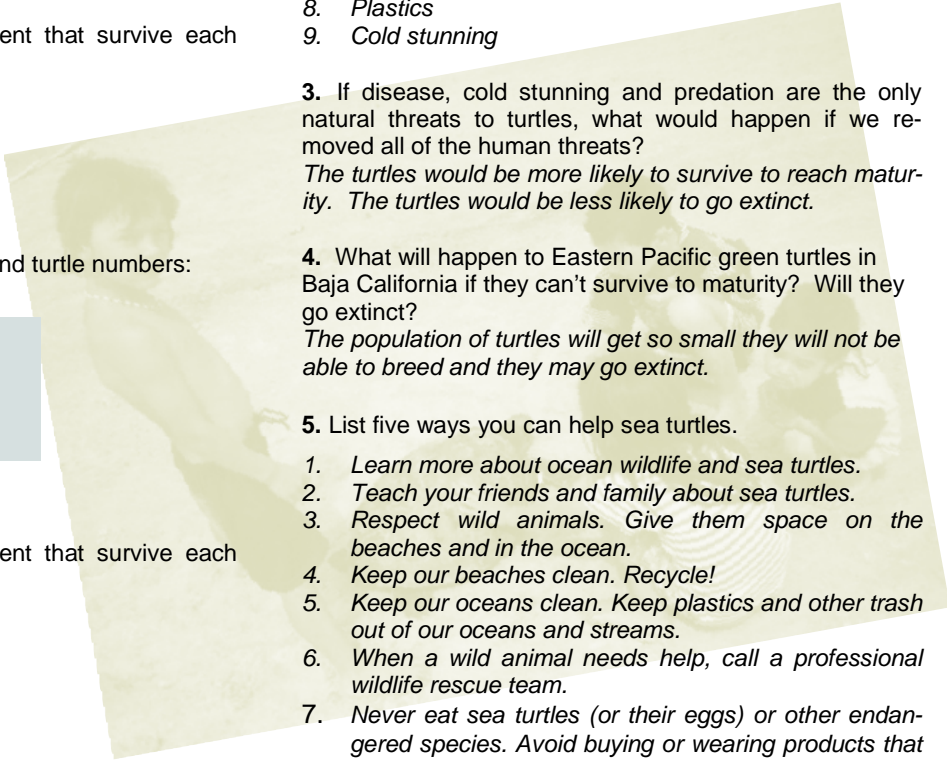
The turtles would be more likely to survive to reach maturity. The turtles would be less likely to go extinct.

4. What will happen to Eastern Pacific green turtles in Baja California if they can't survive to maturity? Will they go extinct?

The population of turtles will get so small they will not be able to breed and they may go extinct.

5. List five ways you can help sea turtles.

1. Learn more about ocean wildlife and sea turtles.
2. Teach your friends and family about sea turtles.
3. Respect wild animals. Give them space on the beaches and in the ocean.
4. Keep our beaches clean. Recycle!
5. Keep our oceans clean. Keep plastics and other trash out of our oceans and streams.
6. When a wild animal needs help, call a professional wildlife rescue team.
7. Never eat sea turtles (or their eggs) or other endangered species. Avoid buying or wearing products that contain parts from sea turtles or endangered species.
8. Avoid fishing methods that threaten sea turtles.



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DISCUSSION

More than 35,000 endangered sea turtles are killed each year in Baja California's waters by poachers and as fisheries bycatch. Through the recruitment of local community members such as fishermen for research, education and monitoring projects, Grupo Tortuguero is leading a successful campaign to ensure that the sea turtle population has a chance to recover. Grupo Tortuguero's research projects include the study of sea turtle mortality rates, juvenile and adult sea turtle distribution, and sea turtle tracking studies. In addition to these research efforts, sea turtles can be conserved by fishermen who use TEDs (turtle-excluder devices). A TED is a special attachment to a trawl net that allows sea turtles to escape from the net while keeping the fish inside. Today, the young generation of Baja California residents support turtle conservation and educate their peers and elders about the importance of sea turtles.

Keeping in mind these research and conservation efforts, wrap up the activity with a review of all the contributing factors that determine whether or not a sea turtle will survive to maturity. Discuss how humans threaten sea turtles and how humans can help sea turtles. Discuss the importance of researching, protecting and conserving threatened and endangered marine species. Discuss how poaching, bycatch, pollution, and other human activities contribute to the decline of sea turtles and how research can help us to avoid capturing sea turtles.

EXTENSIONS

1. Paint a sea turtle mural in your school or another local building.
2. Make an informational display about sea turtles using the sea turtle cutouts from the game.
3. Ask students to write a story about a day in the life of a sea turtle.
4. Write to a pen pal in Baja California, Mexico or the United States. (You can contact WILDCOAST www.wildcoast.net for help).
5. Track a sea turtle online or adopt a sea turtle (see the web resources section on page 11 for links).
6. Conduct a beach cleanup.

ADAPTATIONS

This activity is most appropriate for upper elementary level students (Grades 4-6). It can be simplified for younger grade levels by providing the number of turtles that survive each year. This would simplify the math to addition and subtraction. For example:

YEAR TWO

58% of these juvenile turtles will survive each year.

56 (turtles from Year One) x .58 (percent that survive each year) = 33 (turtles that survive)

56 turtles

-33 turtles that survive

? turtles die

You could further simplify the math for younger students by rounding off the number of turtles in the activity to 50 and the percent survivorship to 60 percent. The math would work like this:

50 turtles X .60 (%survivorship)=30

30 turtles X.60 (%survivorship)=18

18 turtles X.60 (%survivorship)=10.8 = 11

11 turtles X.60 (%survivorship)=6.6 = 7

7 turtles X.60 (%survivorship)=4.2 = 4

4 turtles X.60 (%survivorship)=2.40 = 2

2 turtles X.60 (%survivorship)=1.20 = 1

All of the turtles would be dead after 7 years.

For very young students, you could eliminate the mathematics portion of the activity and only play the game to see who survives the longest. If you follow the game with a discussion of threats to turtles, students would still understand the concept that humans can have a negative impact on sea turtles and ecosystems.

References

Ackerman, R.A., 1997. The Nest Environment and the Embryonic Development of Sea Turtles, in *The Biology of Sea Turtles*, Lutz, P. and Musick, J., Eds., CRC Press, 88.

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Seminoff, J. A., Resendiz, W.J. Nichols, and T.T. Jones. 2002. Growth rates of wild green turtles (*Chelonia mydas*) at a temperate foraging area in the Gulf of California, Mexico. *Copeia* 2002 (3):610-617.

Seminoff, J.A., T.T. Jones, A. Resendiz, W.J. Nichols, M.Y. Chaloupka. 2003. Monitoring green turtles (*Chelonia mydas*) at a coastal foraging area in Baja California, Mexico: Using multiple indices to describe population status. *Journal of the Marine Biological Association of the United Kingdom* 83: 1355-1362.

VIDA DE LA TORTUGA

Vida de la Tortuga! Student Worksheet

WHAT: How many Eastern Pacific green turtles will survive to maturity in the Baja area?

WHO: Humans and turtles

WHERE: Baja California, Mexico

WHEN: Now

HOW: How do humans threaten and help sea turtles?

1. Read the glossary terms and the Sea Turtles Quick Facts and Species Information sheets.
2. Create your Eastern Pacific green turtle. Cut out your turtle, color it, and write your name and assigned number on the back of the turtle.
3. In this game you will pretend to be a juvenile Eastern Pacific green turtle in Baja California, Mexico. The goal for the game is to see which turtle will live the longest. You will swim around the room until your teacher calls out your number. When your number is called, this means that your turtle died. Place your turtle in the bucket in front of the threat that caused your death.
4. After each year, calculate the number of turtles that survived and the number that did not. Fill in the numbers on this worksheet.

MATH WORKSHEET

YEAR ONE

Year One begins with 56 juvenile turtles moving into the Bahía de los Angeles area.

YEAR TWO

58% of these juvenile turtles will survive each year.

56 (turtles from Year One) \times .58 (percent that survive each year) = ____ (turtles that survive)

56 turtles

- ____ turtles that survive

? turtles die

YEAR THREE

33 turtles (from Year 2) \times .58 (percent that survive each year) = ____ (turtles that survive—round to the nearest whole number)

33 turtles

- ____ turtles that survive

? turtles die

GLOSSARY

benthic - occurring at the bottom of a body of water

bycatch - non-targeted organisms unintentionally caught while fishing

carapace - the top of a turtle shell, an outgrowth of bone

clutch - a nest of eggs

cold stunning - mortal shock from below-normal body temperature

endangered - in danger of extinction throughout all or a significant portion of its range

extinct - no longer existing

foraging ground - the place where an animal eats

habitat - the place or environment where a plant or animal naturally or normally grows and lives

herbivorous - feeds on plants

longline - a heavy fishing line that may be several miles long and that has baited hooks in series

maturity - the age at which an animal is fully developed and able to reproduce

mortality - the number of deaths in a given time or place

pelagic - living or occurring in the open sea

plastron - the bottom of a sea turtle shell

poaching - to take animals illegally

predation - the killing and consuming of animals

scute - an external bony plate (part of a turtle shell)

temperate - having a moderate climate

threatened - likely to become endangered in the foreseeable future

trawl - a large conical net dragged along the sea bottom in gathering fish or other marine life

tropics - a region or climate that is frost-free with high temperatures



YEAR FOUR

19 turtles (from Year 3) \times .58 (percent that survive each year) = ____ (turtles that survive—round to the nearest whole number)

19 turtles

- ____ turtles that survive

? turtles die

YEAR FIVE

11 turtles (from Year 4) \times .58 (percent that survive each year) = ____ (turtles that survive—round to the nearest whole number)

11 turtles

- ____ turtles that survive

? turtles die

YEAR SIX

6 turtles (from Year 5 \times .58 (percent that survive each year) = ____ (turtles that survive—round to the nearest whole number)

6 turtles

- ____ turtles that survive

? turtles die

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YEAR SEVEN

4 turtles (from Year 6) $\times .58$ (percent that survive each year) = ____ (turtles that survive—round to the nearest whole number)

4 turtles

- ____ turtles that survive

? turtles die

YEAR EIGHT

2 turtles (from Year 7) $\times .58$ (percent that survive each year) = ____ (turtles that survive—round to the nearest whole number)

2 turtles

- ____ turtle that survives

turtle dies

QUESTIONS:

1. If all of the turtles are dead after 9 years, how many survived to maturity?
2. Rank the threats and list the most common threat (the threat that killed the most turtles).
3. If disease, cold stunning and predation are the only natural threats to turtles, what would happen if we removed all of the human threats?
4. What will happen to Eastern Pacific green turtles in Baja California if they can't survive to maturity? Will they go extinct?
5. List at least five ways you can help sea turtles.

SEA TURTLES IN BAJA CALIFORNIA

An animal becomes extinct when the last living individual of its species dies, causing it to disappear from the earth forever. If the last Eastern Pacific green turtle on earth dies, then there won't be any more Eastern Pacific green turtles on this planet again. Why will this matter?

An ecosystem is made up of a community of organisms and their environment. As an organism in the Baja California environment, sea turtles play an important role by eating seagrass and providing food for larger animals such as sharks. If sea turtles are gone, what will eat the seagrass? What will sharks eat? If the Eastern Pacific green turtle becomes extinct, the Baja California ecosystem will change.

How can you help sea turtles?

There are many things each of us can do to help sea turtles survive. You can learn about the things that are killing sea turtles or destroying their habitat. You can teach others about sea turtles. Keep your beaches and oceans clean by keeping trash away from those areas. Avoid eating or buying sea turtle meat, eggs or products.

Elected officials and other leaders make decisions on issues that affect sea turtles almost every day. As a citizen, you can influence the outcome of these issues by letting your elected officials know that you value sea turtles and you want them to protect sea turtles and their habitat.

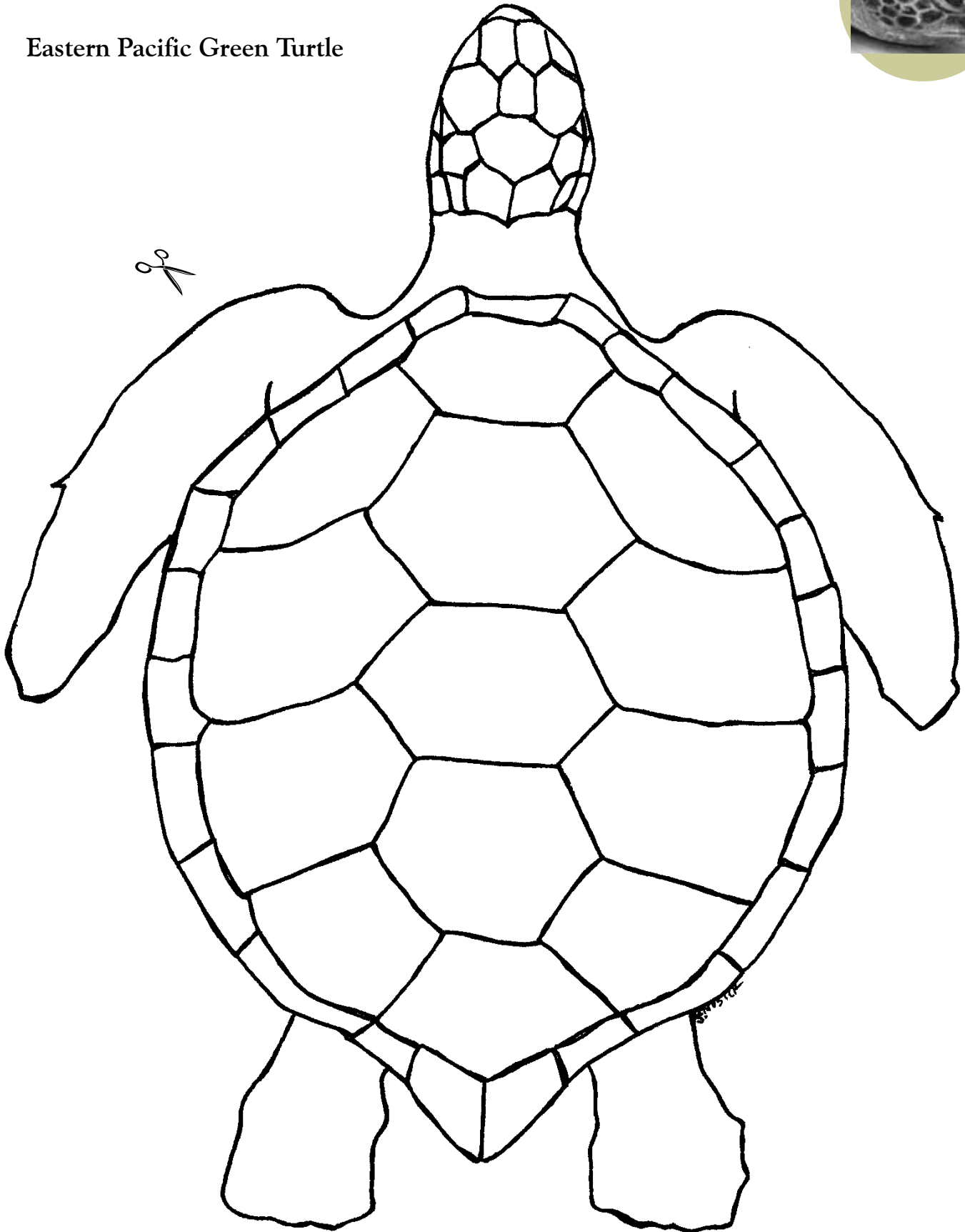
SEA TURTLE WEB RESOURCES

La Vida de La Tortuga

<http://www.marine-ed.org/bridge/wildcoastenglish1.pdf>

VIDA DE LA TORTUGA

Eastern Pacific Green Turtle



VIDA DE LA TORTUGA



La Vida de la Tortuga (online)
<http://www.vims.edu/bridge/lavidaenglish.pdf>

GENERAL BIOLOGY

EuroTurtle
<http://www.euroturtle.org/welcome.html>

Seaturtle.org
<http://www.seaturtle.org/>

NOAA Fisheries Protected Resources-Sea Turtles
http://www.nmfs.noaa.gov/prot_res/PR3/Turtles/turtles.html

All About Turtles
<http://octopus.gma.org/turtles/index.html>

Sea Turtles
<http://www.seaworld.org/infobooks/SeaTurtle/home.html>

Caribbean Conservation/Sea Turtle Survival League
<http://www.cccturtle.org>

Sea Turtles Coloring Book
<http://www.yoto98.noaa.gov/books/seaturtles/seatur1.htm>

NESTING

Spotlight on a Scientist: Kate Mansfield, Sea Turtle Biologist
http://www.vims.edu/bridge/index_mansfield.html

See Turtles Nest! See Turtles Hatch!
http://www.vims.edu/bridge/index_archive0700.html

Watamu Turtle Watch
<http://www.watamuturtles.com/>

Folly Beach Turtle Watch Program
<http://www.follyturtles.com/tracks.html>

TRACKING

Seaturtle.org Satellite Tracking
<http://www.seaturtle.org/tracking/>

Tracking Sea Turtles
<http://octopus.gma.org/space1/turtles.html>

Sea Turtle Survival League Educator's Guide
<http://www.cccturtle.org/eduform.htm>

Track a Turtle
<http://139.70.40.46/loggrhd.htm>

CONSERVATION

Sea Turtle Protection and Conservation
http://www.nmfs.noaa.gov/prot_res/PR3/Turtles/turtles.html

Biology and Conservation of Sea Turtles
http://marinediscovery.arizona.edu/lessonsF00/brittle_stars/2.html

SPECIES SPECIFIC

Teaching Guide-Saving the Sea Turtles
http://teacher.scholastic.com/activities/explorer/oceanlife/main.asp?template=field_sites&article=turtles_field1

Leatherback Turtle Hurdle Game
<http://teacher.scholastic.com/activities/explorer/oceanlife/main.asp?template=show&article=turtle>

Green Sea Turtles
<http://earthtrust.org/wlcurric/turtles.html>

Kemp's Ridley Sea Turtle
http://www.tpwd.state.tx.us/huntwild/wild/species/andang/animals/reptiles_amphibians/kempstrid.phtml

Hawksbill Sea Turtle
http://www.tpwd.state.tx.us/huntwild/wild/species/andang/animals/reptiles_amphibians/hawkturt.phtml

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OUTREACH CONTACTS:

Pro Peninsula
<http://www.propeninsula.org/>
619-574-6643

Grupo Tortuguero
<http://www.grupotortuguero.org/content/1/1/1.html>

Environmental Education Council for the Californias
<http://www.eecc.net/>

Mazatlan Aquarium
52-69-817815
Acuario@pacificpearl.com

Association for the Protection of the Environment and the Marine Turtle in Southern Baja (ASUPMATOMA)
<http://www.mexonline.com/tortuga.htm>

Ocean Revolution
<http://oceanrevolution.org/>



BRIDGE
Ocean Sciences Education
Teacher Resource Center
<http://www.marine-ed.org/>

GRUPO TORTUGUERO

www.grupotortuguero.org

PRONURA
Asociación Civil

Sea Grant

NOAA


ProPenínsula
Conserving Conservando Baja California