



## AQUATIC INVADER INVESTIGATOR

# Invasive Comic Challenge!

### Create a comic that tells the local story of the threat of an invasive species.

#### Introduction

Art and stories can be very effective in communicating new information. Several cartoonists have used comics to share science concepts including Jim Toomey with Sherman's Lagoon, Gary Larson with the Farside and Jan Eliot with Stone Soup. Comic strips are an excellent way to learn, and to share information. The goal of this activity is to *create a comic* that shows the threat of this invasive species to the local ecosystem(s).

#### Instructions

- 1) Select for your focus a locally identified invasive species. You can find information about invasive species in your state using this Invasive Species Resource map of the United States: [www.invasivespeciesinfo.gov/unitedstates/state.shtml](http://www.invasivespeciesinfo.gov/unitedstates/state.shtml) or from a local expert.
- 2) Research background information about that species so that the facts you present will be accurate.
- 3) Create an outline or a graphic organizer to sort out your ideas. The outline will describe the basic plot, setting, structure, and characters of your story.
- 4) As you sequence your comic, think of your comic strip as having four key elements to its story: (1) Setting the Stage, (2) Problem, (3) Resolving the Problem, and (4) Looking Forward.
- 5) *Develop your characters well.* Think about how that invasive species could be a funny character, and what kinds of engaging things might happen to your species as part of your comic strip story.
- 6) Include your sources and *research citations* on a separate page.

#### COMIC CREATION TIPS

Creating a good comic can be tricky. Here are some tips to help get you started.

- Draft your comics on index cards to help sort out your ideas and to make editing easier.
- You can also use the comic strip organizer attached to this handout.
- Use pencil so you can erase focusing on the outline first and filling in details with the final copy.
- You may use online comic-strip builders if you prefer not to draw by hand. (See links to comic strip builders below).
- Have your work edited before turning the final comic in; *show your work* to at least one other person for a critique and suggestions. See if they are able to understand the ideas you are trying to share.
- Try to limit the number of frames in your comic to between 6 and 12 frames.
- Have fun and be creative!

#### Artistic Format Requirements

- 1) Plan spacing carefully. The text in the cartoon has to fit into a word bubble on the top of each frame, be legible, and not touch the drawings.
- 2) The main character should be drawn consistently in each frame.
- 3) Check with your teacher regarding additional requirements they may have.
- 4) Think about your audience and what colors, textures, and lines will help to communicate your ideas.

# Invasive Comic Challenge!

---

## Invasive Species Content Requirements

Your comic should include the following information about invasive species.

- a title slide that includes the writer/artist
- both the common and the scientific name of the species
- the method of transport into the local ecosystem (vector(s))
- the location(s) where the species has been found
- the characteristics that make it successful as an invasive species
- the problems the species causes by invading the area
- identify whether anyone is involved in solving this problem, and actions they are taking to prevent or control invasives.

## Vocabulary

Here are terms you might want to include:

- Habitat
- Invasive
- Introduced
- Competition
- Biodiversity
- Adaptation
- Vectors
- Predators
- Reproduce
- Ecosystem
- Prevention
- Early Detection and Rapid Response
- Management

## Evaluation

Teachers will be considering the following factors when evaluating your comic strip:

- Did the student use art and narrative to develop imagined events using effective or highly effective technique, relevant descriptive detail, and well-

structured event sequences that evaluate the impacts of human activities on the environment and biodiversity, including all of the invasive species content requirements? (Listed above)

- Was the artistic comic format (teacher defined) completely followed, with extra design elements and/or exemplary technical skill
- Are content requirements complete
- Are panels completed?
- Does the story line make a good argument?
- Does the storyline come to a natural conclusion that includes humor?
- Are main characters well developed and all connected with story action, (as well as minor characters, if there are any)?

## ATTENTION STUDENTS:

Do you want to share your comic strip with others? You can submit your comic to Oregon Sea Grant Student Comics Gallery for others to see and enjoy. Just go to the WISE program website (<http://seagrants.oregonstate.edu/invasive-species/wise>) and look under "Stewardship" to view example comic strips from other classrooms and share your comics! Talk to your teacher if you need help.

## CARTOON GENERATORS:

1. Beliefs Comics includes tips, ideas, and additional curriculum for teachers: [www.makebeliefscomix.com/Comix/](http://www.makebeliefscomix.com/Comix/)
2. Read Write Think offers an easy platform for quick comic making: [www.readwritethink.org/files/resources/interactives/comic/](http://www.readwritethink.org/files/resources/interactives/comic/)
3. Make comic strips in seconds with this easy-to-use resource: [http://cambridgeenglishonline.com/Comic\\_Maker/](http://cambridgeenglishonline.com/Comic_Maker/)





## INVASIVE COMIC KNOWLEDGE AND SYNTHESIS

We've been learning about invasive species through the Stone Soup comic strip. Please share what you've learned by answering the questions below.

### Knowledge Questions:

- The character Alix (a young girl and "budding" scientist) in the comic strip "Stone Soup" brought home a crayfish ("crawdad"), which she named "Pinchy," from a field trip far away from her home. Pick the **most environmentally risky behavior** that describes what's happening in this comic strip:

  - She removed a wild animal from a stream, far away from its home, for a pet.
  - She needed to use her bathtub to make a new home for Pinchy.
  - She took food away from a hungry raccoon.
  - She could raise Pinchy's babies herself and return them to the wild.
- Keeping a crawdad in their bathtub created many problems, so Alix and her Grandma released Pinchy the Crawdad into a convenient creek in a park near their home. This is a **problem for that habitat** because (circle one answer):

  - the crawdad would not be able to find others of its own species to socialize with
  - predators might eat the crawdad before it can reproduce
  - the native crawdads in the stream might not be able to compete with Pinchy and her babies for food and habitat space (note: Pinchy comes from a stream that is far away)
  - the crawdad Alix found is the same as the native ones, and there will be one too many of the same species in the stream
- Procambarus clarkii* (the red swamp crayfish, native to Louisiana) is an invasive species in other parts of the United States. It displaces other crawdad populations. The underlined word here **means** (choose one answer):

  - transmits
  - takes in
  - takes the place of
  - irritates or annoys
- What is **NOT** one reason why Ms. Erma says, "Alix, the #1 rule of a biologist is never move something from one habitat to another"? (Choose one answer.)

  - Moving species from one habitat to another may kill them.
  - Organisms could become invasive if there are too many of them and they are "too successful" in a foreign environment.
  - Moving organisms around will affect the food-web relationships; they "belong" where they were born.
  - Organisms that are released back into the wild will always adapt to survive, benefiting their environment.
- Sometimes comic artists use small details in their panels to help emphasize the ideas in their stories. Why would cartoonist Jan Eliot's character Ms. Erma wear a vest with the letters **NOAA**? (Choose one.)

  - The National Oceanic & Atmospheric Administration, a federal government agency, educates the public about oceans, lakes, rivers, and everything that affects them.
  - Both NOAA and comics can be useful in educating the public about important ideas.
  - NOAA runs programs that protect fragile coastal ecosystems from harm by invasive species.
  - All of the above.

## Invasive Comic Challenge!

---

- 6 The most-effective and least-ecologically disruptive way to keep invaders like Pinchy and her species from taking over local ecosystems in which they are not native is by (*circle ONE*):
- a) reducing the number of classroom and household pets that are released into the environment
  - b) mechanically removing them (by hand) from streams, lakes, and rivers
  - c) going door-to-door and asking for owners to give up their pets
  - d) poisoning the water to kill off the invaders
- 7 When Jan Eliot shows Pinchy thinking human thoughts, what **literary device** is she using to keep the reader amused and interested? (*Choose one best answer.*)
- a) oxymoron      b) personification
  - c) alliteration      d) onomatopoeia
- 8 Science teachers sometimes use invasive species in their classrooms to teach students about biology, ecology, and related sciences. But then they have to decide what to do with them after the lesson or school year. What are some options that teachers have for live crayfish that are no longer needed in classrooms? What does the teacher Ms. Erma in “Stone Soup” decide to do with the crawdad and her babies?
- a) Give them to a responsible pet owner that won’t release them.
  - b) Consult a veterinarian on humane ways to euthanize them.
  - c) Give them to another teacher to study.
  - d) Eat the crawdads.
  - e) All of the above
- 9 The crayfish in the story was not native and was invasive in the environment where it was released, but not all alien species become invasive. What characteristics (adaptations) could allow nonnative species to successfully invade a habitat?
- a) Have many offspring each time they reproduce, be able to live in a wide range of temperatures, eat only one type of food, have many predators
  - b) Reproduce often, live in a narrow range of temperatures, eat many types of food, have no predators
  - c) Have only a few offspring at a time—and rarely, live in a wide temperature range, eat one type of food, have many predators
  - d) Have many offspring at a time—and often, be able to live in a wide range of temperatures and habitat conditions, be able to eat all types of food, have no predators
- 10 Fill in the blank: Invasive species have the ability to significantly alter the \_\_\_\_\_ of ecosystems by reducing the number of species that can live in the affected environment.

### Synthesis Questions:

- 1 a)** What are some main ideas that “Stone Soup” artist and author Jan Eliot wants you to consider in the comic series from this lesson? State two possible choices for main ideas, and explain these by coming up with at least two specific examples for each from the comic series shown here.
- b)** If Pinchy had been left to survive in the water where she was released, would that have changed either of the main ideas you chose? Why or why not?
- 2** The printed medium of a comic strip is one way to bring a message to public attention, and there are many other methods. Choose one other from the following list:
- Website
  - Audiobook
  - Children’s play
  - Blog
  - TV commercial
  - Radio commercial
- a)** State at least three advantages and three disadvantages in using these two methods (comic plus other) to bring a message about invasive species to the public. Consider type of audience, numbers of people reached over time, cost, and any other issues you think are important.
- b)** Think about how effective the message would be if you shared in different ways; if you had to spend government or private money on only one of these two methods, which one would you choose and WHY?

## Invasive Comic Challenge!

---