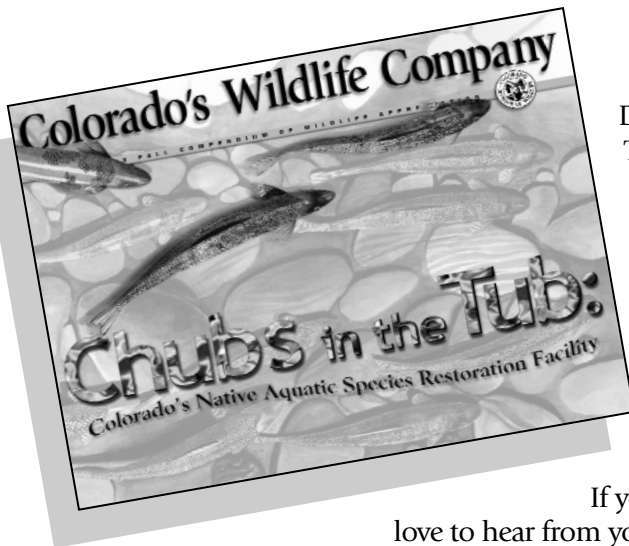


# Educator's Guide



Dear Educator:

This edition of the Educator's Guide to *Colorado's Wildlife Company* profiles the career path of the assistant hatchery manager at the Native Aquatic Species Restoration Facility (NASRF) and provides an activity to get students thinking about their futures and setting career goals. Pictures and descriptions of boreal toad metamorphosis help students understand amphibian life stages. *Colorado's Wildlife Company* and this publication are both available at our Web site: [www.wildlife.state.co.us/colo\\_wild\\_co/homepg/cwcindex.htm](http://www.wildlife.state.co.us/colo_wild_co/homepg/cwcindex.htm).

If you have comments or suggestions for this publication, I would love to hear from you. Just contact me at [wendy.hanophy@state.co.us](mailto:wendy.hanophy@state.co.us).

Have a Fantastic School Year!  
Wendy Hanophy



## Sink or Swim

### CAREER EDUCATION

People now entering the workforce will work for more than five different companies and will have more than ten different jobs before retiring. Often, students lack the information and tools to adequately choose a career path. Sadly, most will discover their talents and interests during the first ten years of their working lives, and many of them will find they are in the wrong career!

Ongoing career information and discussion helps children grow, clarify goals, and make viable plans for the future. Some children may show interest in careers that might be outside the college track. Both college bound students and those who plan to enter the workforce right after high school graduation need the same careful, long term planning and guidance to reach their career goals. Career planning may determine whether students sink or swim when they face the "real world."

The story of Jenn Logan, the assistant hatchery manager at the Native Aquatic Species Restoration Facility, demonstrates that career paths are not necessarily easy or straightforward. The activity "Fishing for Your Perfect Job" is designed to get students thinking about their future aspirations. There is also a wealth of career information available on the Internet to aid students. The U.S. Department of Labor, Bureau of Labor Statistics hosts a fun Web site that allows students to explore careers according to interests in music and the arts, science, physical activity and the outdoors, social studies, reading, and math. Information about each career includes what the worker does, what the job is like, how many opportunities exist for this type of work, how to prepare for the job, salary, similar positions, and where to learn more. [http://stats.bls.gov/k12/html/edu\\_over.htm](http://stats.bls.gov/k12/html/edu_over.htm).



# Fishing For Your Perfect Job

CAREER EDUCATION



## WHEN I THINK ABOUT MONEY AND STATUS:

- Money isn't important to me. I want to be happy in my work.
- I want to make a comfortable income.
- If I find a great job, I'd work for less rather than make more in a job I hated.
- I want to make a lot of money, even if I don't like my job.
- I want a job that will allow me to spend time with my family.
- I only want to work part time and be a full-time parent.
- If my job makes a contribution to help society, I'll be happy.
- I want to have a job with high status in my community.
- I wouldn't care if there was danger in my work if it helped others in my country or the world.
- The most important thing in my job will be security.
- The most important thing in my job will be benefits like health care, vacations, and other benefits.
- I wouldn't mind a job where I was paid by the hour.
- I want a job where I'm paid a flat salary no matter how many hours I work.
- I want to be recognized for my work.



## I'D LIKE TO WORK:

- With numbers
- With older citizens
- With wild animals
- With my hands
- With music
- With people with disabilities
- By myself or in a small group
- With people different from me
- With people who need my help
- With domestic animals
- With artist's materials
- With people just like me
- With children
- With sick people

What do you say when adults ask you "What do you want to be when you get older?" Maybe, you have dreamed about playing in the NFL, being a rock star, an airline pilot, a wildlife biologist or a doctor. Maybe you know somebody whose job looks like fun, and you've thought to yourself, "I'd like to do that." Maybe you haven't really thought about it at all.

With so many career possibilities available, how do you make a decision? Once you know what path you want to follow, how do you get there?

Thinking about your future can be fun. Planning for a career can help you set goals and paint a mental picture of where you'd like to be at a certain time in your life. Doing this doesn't mean that you can't change your goals as you change your mind or learn about new things that interest you. Rather than limiting your future, career planning may help you discover career possibilities you wouldn't have thought of otherwise.

You will be better equipped to find a career you like, or change careers during different stages of your life if you spend some time considering your interests and abilities.

**Think about your interests:** What do you like to do? What do you like best about school? What subjects interest you the most? What is the first thing you do after school? What are your favorite sports and hobbies? What kind of social activities do you enjoy? Make a list of your top 10 interests. Think about what you like most about these interests.

**Think about your skills and abilities:** What are you good at? Maybe you excel at academic subjects like math or social studies or you are artistic or skilled at working with other people. Make a list of your top 10 skills and abilities. Would you like to develop any of these further?

**Talk to people about their careers:** Most people love to talk about themselves and what they do, and this is an easy way to find out about a career first hand.

**Think about the lifestyle that you want:** The lists on the page will help you think about yourself, what you want, and how you would like to live when you grow up. Check the boxes next to the things that sound appealing to you.



## I WOULD LIKE TO:

- Attend high school
- Attend a vocational-technical high school
- Attend a technical school after high school
- Attend a four year college
- Attend a two year college
- Attend a professional school (medical, dental, law) after college graduation



## I WOULD LIKE TO:

- Work outdoors
- Travel to distant places
- Work in my hometown
- Work in a rural area
- Work in a school
- Work on cars or trucks
- Work in a factory
- Work in a place of worship
- Travel sometimes in my job
- Work on a ship or at a hotel or resort
- Work in a hospital or nursing home
- Work in a day care center
- Work in a restaurant
- Work in the entertainment field
- Work for myself in my own business or office
- Work for a large company
- Work indoors
- Work in a city
- Work in the suburbs
- Work in another country
- Work in an office
- Work near the ocean
- Work with technology

# Hatching A Career!

## CAREER EDUCATION

Jenn Logan wakes up every day excited to get to work! And why not? She goes to a workplace where she joins dedicated, cheerful co-workers in a monumental effort to save species!

Every workday presents new challenges and opportunities to learn and accomplish feats never achieved before. As the assistant hatchery manager at the Native Aquatic Species Restoration Facility (NASRF), Jenn searches for techniques to entice fish to breed at just the right time and in suitable water conditions to ensure their eggs will hatch. After that, she needs to find the right mix of food so that enough fry survive and grow to releasable size.

Growing up in an outdoorsy family in suburban Aurora, Colorado, Jenn always had an interest in wildlife. However, she never imagined she would ever work in a hatchery. Jenn's voyage to her present position meandered and altered course like many of the plains rivers she will soon stock with fish.

After graduating from high school, Jenn entered the biology/pre-med program at the University of Colorado, Denver. Later, she decided she would rather doctor animals than people and transferred to Colorado State University to major in wildlife biology. She pictured herself researching large carnivores such as bears and lions.

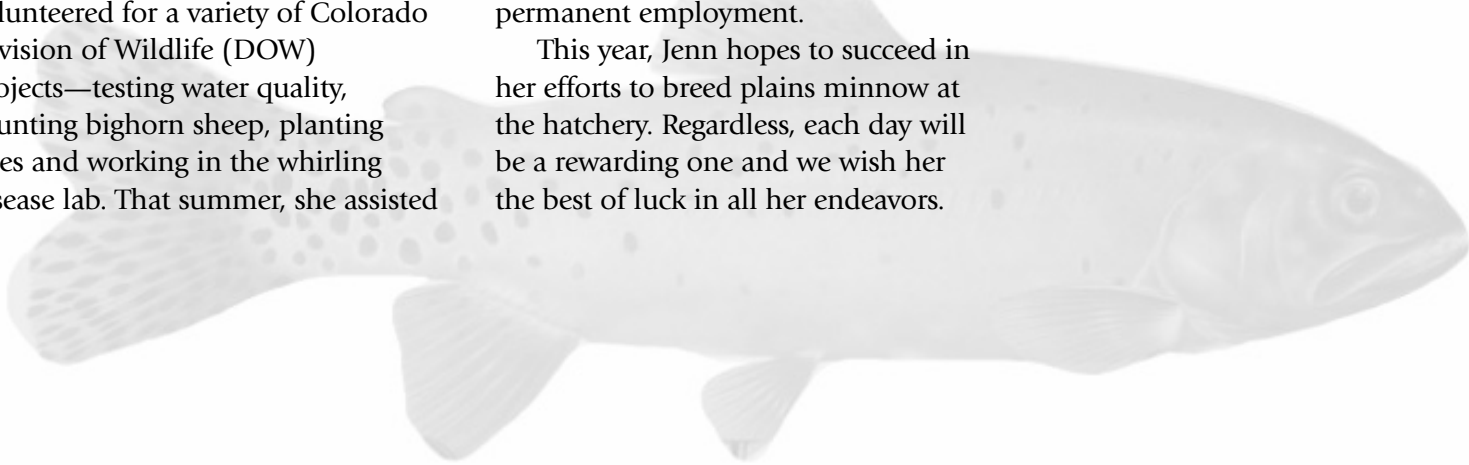
During her junior year, Jenn volunteered for a variety of Colorado Division of Wildlife (DOW) projects—testing water quality, counting bighorn sheep, planting trees and working in the whirling disease lab. That summer, she assisted

biologist Mindy Clark with boreal toad surveys. The rest is history. Jenn volunteered again during her senior year, and then began working for Mindy seasonally with toads and fisheries following graduation. For two more years, Jenn worked in temporary DOW positions on water quality and native fish research projects, then spent 18 months in Missouri researching amphibians and reptiles before moving to a year-long gig doing stream surveys for the U.S. Fish and Wildlife Service. When the position at NASRF was announced, it was clear Jenn was the woman for the job!

Like the majority of people who find permanent employment with the DOW, Jenn had volunteered and spent several years doing seasonal work. Jenn has this advice for all DOW wannabes:

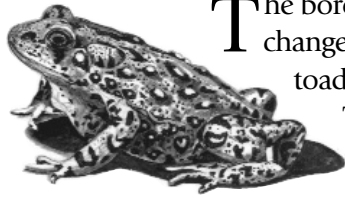
- **Try different jobs.** Jenn would have never known how satisfying a job in a hatchery would have been without her prior volunteer and paid experience.
- **Never give up! Be persistent!** Jenn says that many of her fellow graduates in wildlife biology did not want to volunteer or work as temporary employees until a permanent position was available. The reality of working in a competitive field such as wildlife management is that it helps to have work experience and to know people in the agency who recognize your potential when you are seeking permanent employment.

This year, Jenn hopes to succeed in her efforts to breed plains minnow at the hatchery. Regardless, each day will be a rewarding one and we wish her the best of luck in all her endeavors.

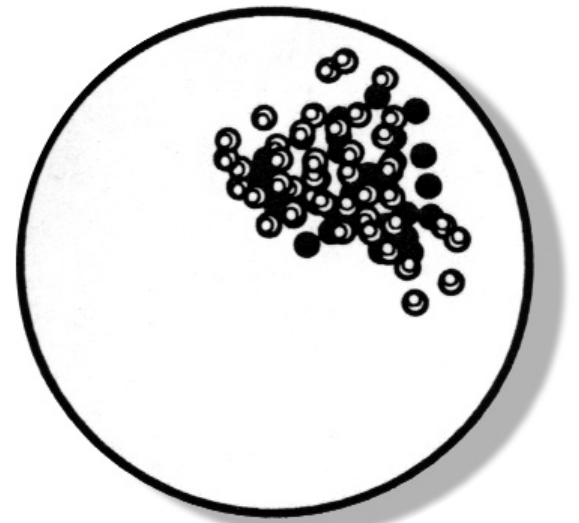


# From Eggs to Legs

SCIENCE

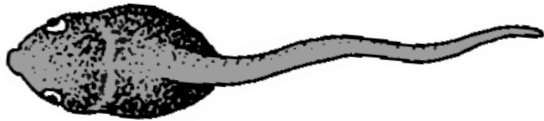


The boreal toads raised at NASRF seem to be career changers themselves! Boreal toads, like other frogs and toads, pass through three stages during their lifetime. The three stages are egg, tadpole (larva), and frog or toad (adult). At each stage, boreal toads look very different and have their own distinctive anatomy and niche (job or role in the environment). This is because boreal toads undergo metamorphosis, a change in form, from the larval to adult stage.

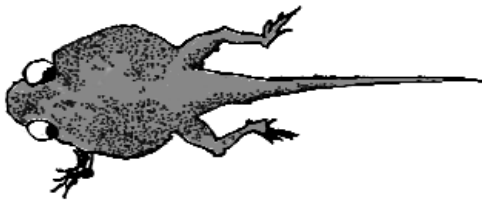


Boreal toads usually breed just after snowmelt, depositing their eggs in shallow water not more than six inches deep. When the larvae hatch, they are called tadpoles. This word comes from the Middle English word “taddepol,” meaning “toad head.”

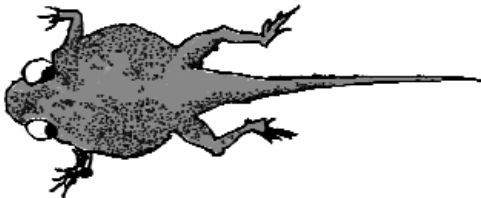
When it first hatches, the tadpole has a large head and body, a distinct neck, and a small tail. It has gills on both sides of its head and is not yet a good swimmer. The young tadpole has suckers on its underside to help it anchor itself underwater, where it feeds on vegetation.



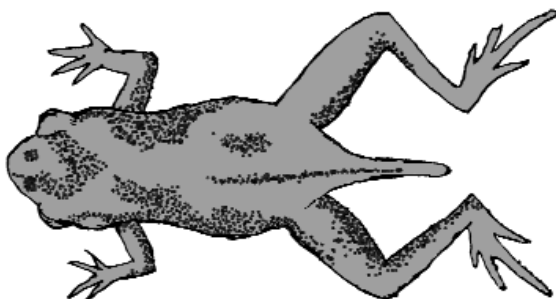
After a few days, skin grows over the gills, leaving an opening on the left side called a spiracle, and the gills become internal structures. The tadpole’s neck disappears. The tadpole takes in water through its mouth, where it passes over the gills and then leaves the body through the spiracle.



As the tadpole grows older, it grows longer and becomes a strong swimmer. Nostrils appear. The legs start to develop simultaneously, but the front legs are growing inside the gill cavity—hidden from view! The back legs appear first, then gradually lengthen and develop toes.



When the front legs appear, usually the left leg pushes out through the spiracle first. Then the right one pushes through the skin. After the front legs appear, the tadpole can no longer use its gills and must begin to breathe with its lungs, which have been developing internally all along!



After the toad absorbs its tail, metamorphosis is complete. Internally, its digestive system has changed, and the once vegetarian aquatic tadpole is a carnivorous terrestrial toad! During its lifetime, the boreal toad will continue to grow but its skin won’t! When it gets larger, the boreal toad must shed its tight skin. So it opens its mouth really wide, stretches, and rubs its old skin loose, rolling it up from its tail to its open mouth, where it becomes a nourishing meal!