



*Photographing  
Waterfalls*

*by  
John Straub*

*Simsbury Camera Club*

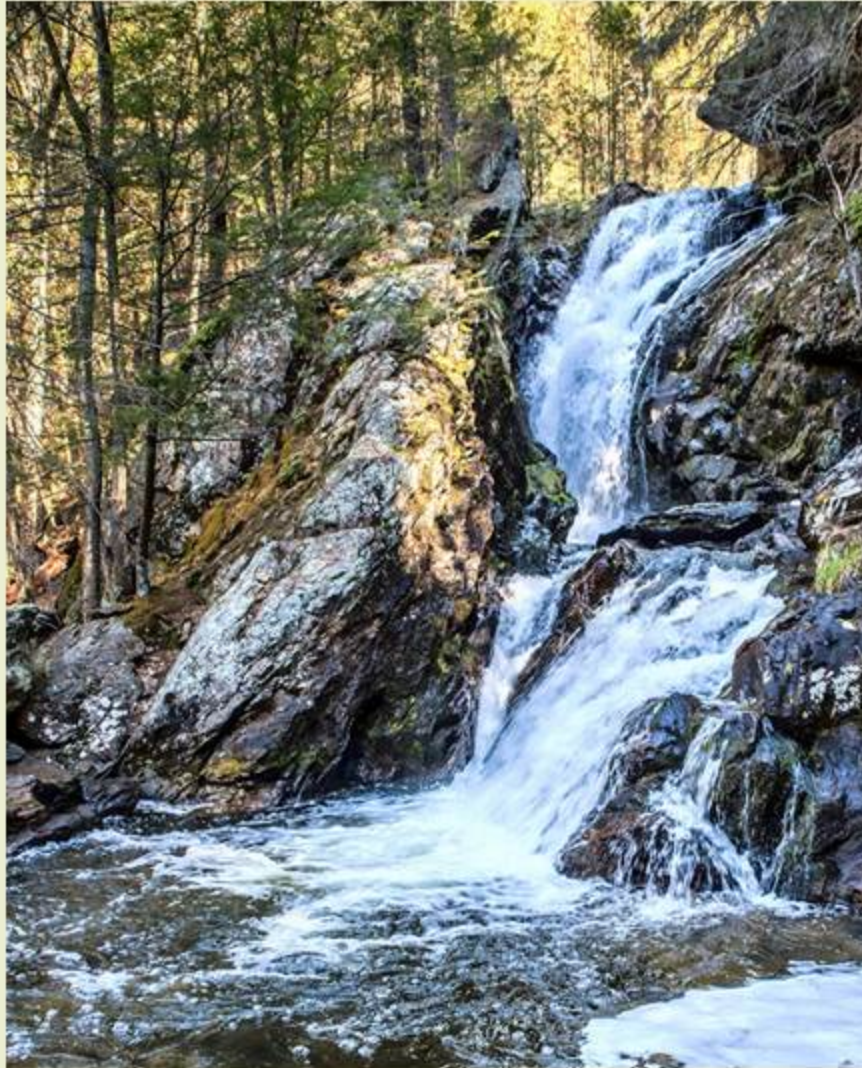
# To be discussed:

1. Why waterfalls are awesome
2. Where to find them and when to go
3. What I have learned (and continue to learn) about:
  - cameras
  - lenses
  - tripods
  - settings
4. Examples

*after the break*

Gear that seems to help

# My “Bigfoot Shot”

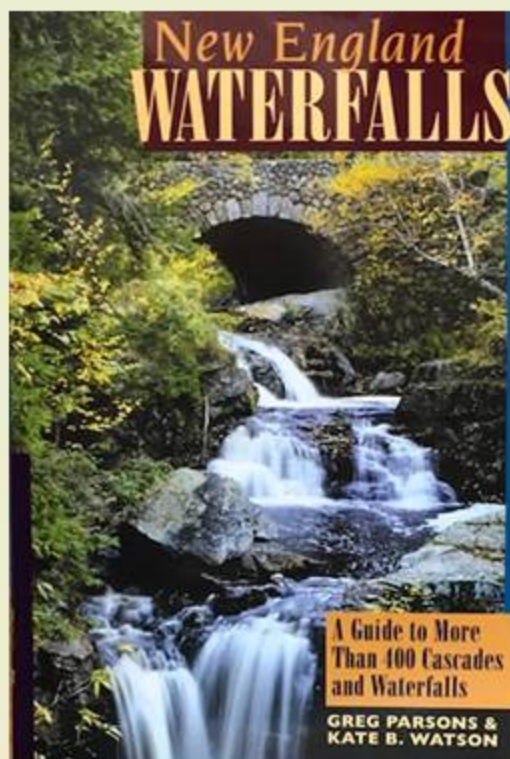


# So what is so awesome about waterfalls?

1. Nature at its quietest and most stable  
*right next to*  
Nature at its most dynamic and frenzied
2. Waterfalls are constantly changing. The same falls may present a slightly or a drastically different appearance every time you visit. Weather, the season and the time of day affect flow volumes, lighting and color.
3. There are a myriad of ways for the photographer to image waterfalls. Capturing that power and beauty in different ways is both challenging and exhilarating.
4. I have never met a jerk at a waterfall

# Where to find 'em

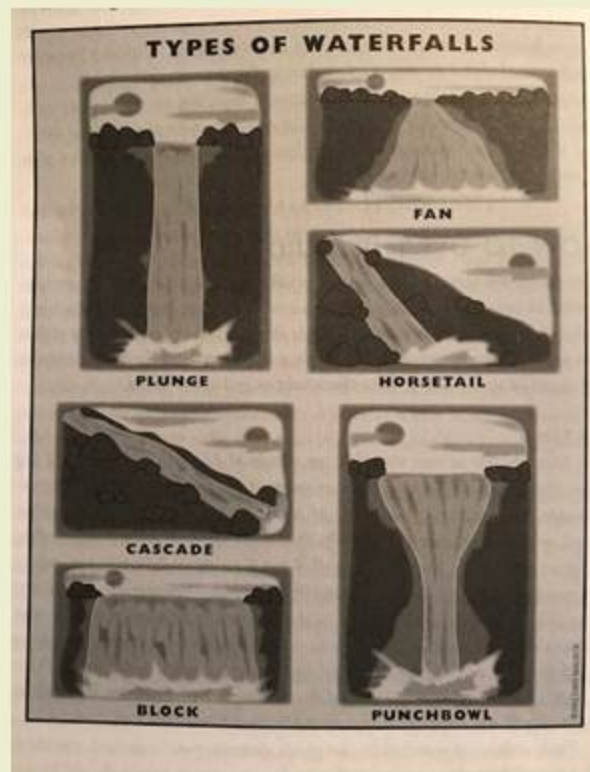
We are very fortunate in the northeast having 100's of waterfalls within driving distance.



Lists 26 waterfalls in Connecticut  
(there are many more)

For each waterfall:

- a number rating 1 to 5
- hiking time and degree of difficulty
- directions
- best times to visit
- height and type of falls



# When to go:

## 1. Time of year:

- Maximum flow volumes tend to be in May or June.
- But it is not all about the flow volume, so consider revisiting waterfalls at different times of the year

## 2. Time of day:

- Like all landscape photography, early morning or late afternoon tend to be best for light

## 3. Type of day:

- Bright but overcast conditions are ideal, preferably just after rain
- However, if you are stuck with a bright sunny day, all is not lost

## 4. Weekdays when schools and businesses are open

# Educate Yourself

- Internet
- Workshops
- Just Do It



# Camera

- Most any camera which will allow you to shoot in manual mode and which allows for interchange of lenses will do just fine
- “Live View” or similar back of camera LCD display is helpful
- Get to know your camera!  
“RTFM” (Read The Manual), *F. Zaremba*
- Hands on experimenting before you are in the field.  
(Consider presetting your camera before leaving home)
- The settings for waterfalls are different from what you regularly use, so RESET your camera before you leave for home!



# Lenses

*You do not need expensive “fast glass”*

## Wide angle

- fixed focal length super wide angle (anywhere from 10 to 20 mm)
- or a super wide angle zoom like 12 — 24mm

## Mid range

- a zoom lens in the 24-70mm range is ideal

## Long range

- a zoom from 70-200mm is particularly helpful for imaging details

Use a polarizing filter (it cuts glare and makes colors pop)

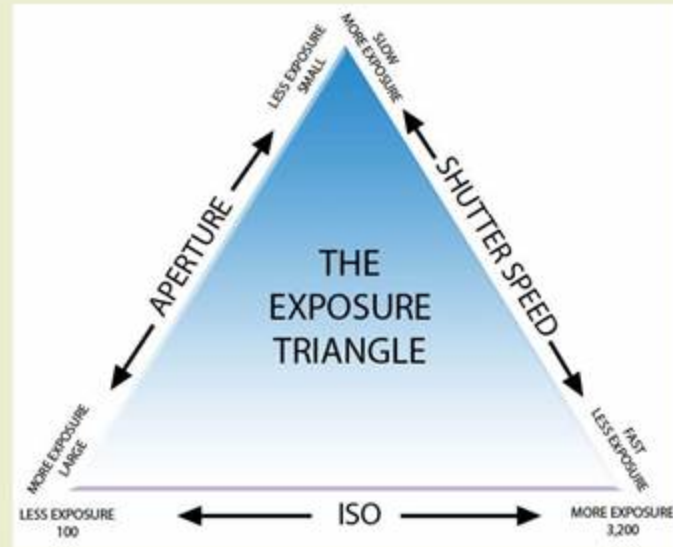
# Tripod

*absolutely indispensable*

- Sturdy but lightweight (*aluminum or, even better, carbon fiber*)
- Pan-tilt or ball head will both work
- Cable release or remote trigger
  - intended to eliminate camera shake when you press the exposure button

*(However, if your calculated shutter speed is less than 30 seconds, you can usually get by with the camera self timer setting a 2 second shutter delay)*

## The exposure triangle as it relates to photographing waterfalls



**ISO** – *goal* - best signal to noise ratio  
- *setting* – “native ISO”, usually around 100

**Aperture** – *goal* - sharp image from front to back  
- *setting* - small, usually f 16 to f 22, large depth of field  
(a modification for super sharp images will be discussed)

**Shutter Speed** – *goal* – smooth water  
- *setting* – SLOW, at least  $\frac{1}{4}$  sec, but preferably several seconds

# Settings:

Shoot RAW — do yourself a favor

ISO: 100 (lowest “native ISO” of your camera)

## Aperture:

- Generally, f 16 will give you good depth of field with reasonably sharp focus throughout.
- It also allows for longer shutter speeds.
- *However,* to be the sharpest you can be, you probably need a wider aperture (lower f stop) (A lens is generally sharpest at 2 to 3 f stops above its widest possible aperture ie: for a lens with a max aperture of f 4, sharpest would be from f 8-f 11 )
- *So, if you want optimal sharpness throughout* You may want to choose a more open aperture and take 2 or 3 images focusing differently on each (near, mid & far) Then focus stack those images in Photoshop

( see John McGarry's notes)

Focus: Manual, single point

Metering: Spot meter on the falls (check your histogram)



# Settings:

Shutter speed: determines the appearance of the water

How do you like your water?

- 1/30 sec to 1/4000 sec

**Frozen explosion** — (*think Albert Einstein*)  
streaks and drops of water bouncing  
over the rocks in seemingly random fashion



- 1/4 sec to 10 sec

**Smooth and orderly** - (*think Jimmy Johnson*)  
a softer, more orderly appearance that  
retains some features and conveys beautifully  
the power of the flow.

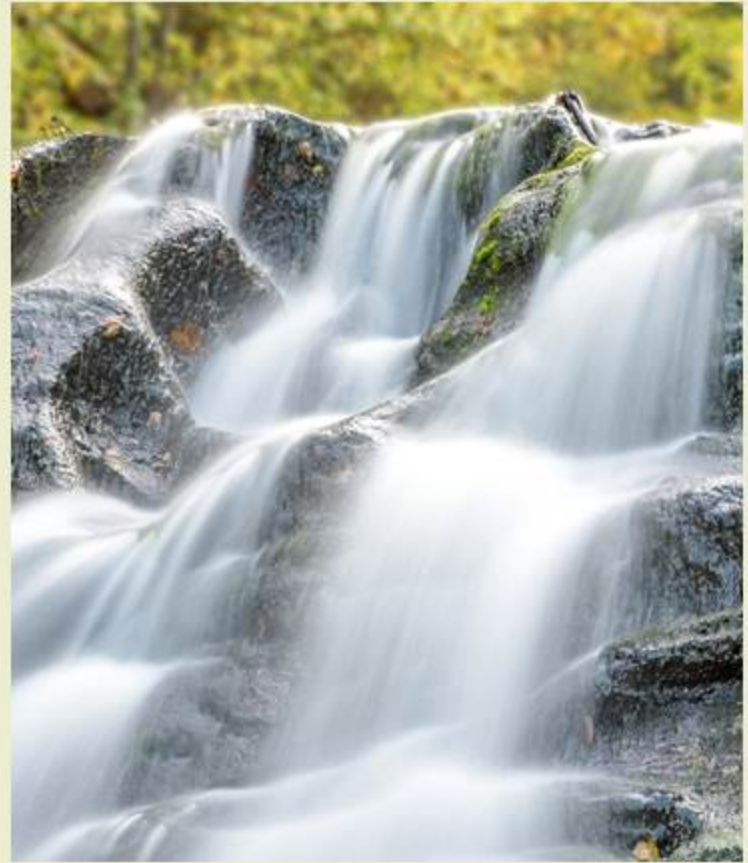


# Settings:

## Shutter speed:



f 11, 1/30 sec  
(Albert Einstein)



F5.6, 4 sec, 6 stop ND filter  
(Jimmy Johnson)

## Consider Bracketing

Take 3 exposures each time:

- 1 stop below

- 1 at "ideal"

- 1 stop above

*(if you do this with the self timer on, the camera will automatically take the 3 exposures)*

Two possible benefits:

1. You may find one exposure is better than the "ideal" .
2. You may want to combine all 3 images as an HDR in Lightroom

Before you set up the tripod, take a look around!

### Use the “Buffet Approach”

Check out the following and make a mental plan of attack:

- **vantage point** - (high, low, eye level, right, left, closer or further away and “downstream” )
- **lighting** and anticipate possible changes in that light
- **weather forecast** - know it and plan accordingly
- **lenses** — what features fit with what focal lengths
- **components** - can any of the parts of the scene stand alone as an interesting image?



# Safety

*Don't do anything stupid!*

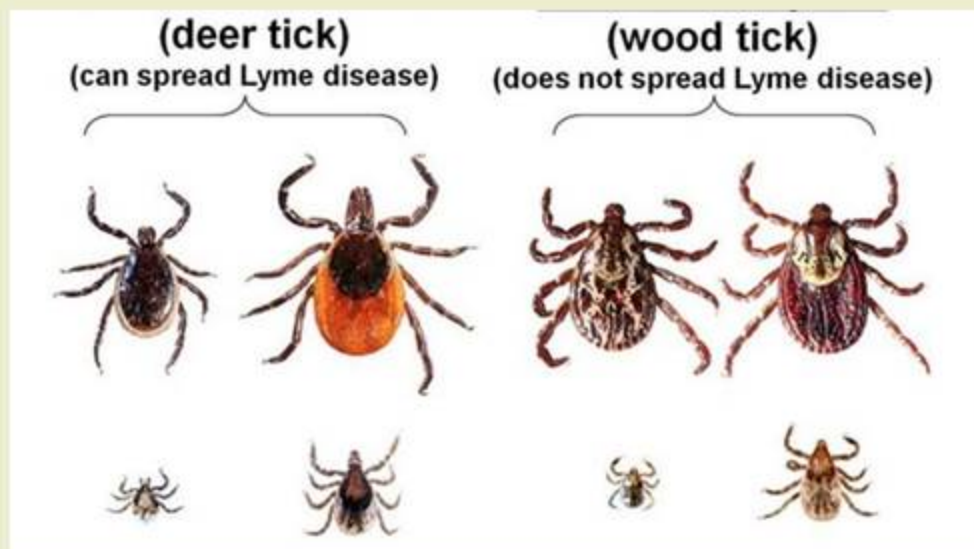
- Access to waterfalls not uncommonly requires some hiking and even climbing. Know your physical limits.
- Allow yourself enough time. Rushing leads to mistakes and unnecessary stress.
- Wet rocks are slippery!!!
- If you cannot see the bottom well, *don't step there!*
- Tell someone where you are going and when you will be back
- Bring a water bottle and a snack

## Safety

### Ticks hate geeks

- so wear long sleeves, a hat and use insect repellent.
- even consider tucking your pants into your socks

*(a pocket protector and tape on your glasses are optional)*



# My “keep it simple” set up

- Tripod
- 24 -70 zoom lens with circular polarizing filter
- “Live view”

## Settings:

- ISO: 100
- Mode: aperture priority
- Aperture: f 16 (go to f 22 if needed)
- Shutter speed: aim for 1/4 sec or longer  
*(I usually bracket my exposures, 1 stop above and 1 below)*
- Focus: on something 1/3 of the way into the scene
- Self-timer with 2 second shutter delay

# Keep it simple set up

Buttermilk Gorge, NY



Focal length 24mm, ISO 100, f 16, 1/4sec

## Lower Taughannock Falls, NY



ISO 100, f 16, 1/25 sec  
"lumpy gravy"

# Settings:

## Problem:

The shutter speed is still too fast

- despite low ISO and narrow aperture, the water has that “lumpy gravy” appearance

## Solution:

Neutral Density Filter

- simply put, it reduces the amount of light getting to the sensor allowing the shutter to remain open longer without over exposure

Add a 6 stop Neutral Density filter and get  
a shutter speed of 2.5 seconds. (f16 ISO100)

Lower Taughannock Falls, NY



# My “keep it simple” set up

*(with modifications for using a ND filter)*

- Tripod
- 24 -70 zoom lens with circular polarizing filter
- “Live view” *(light block for viewfinder)*

## Settings:

- Mode: ~~Aperture priority~~ manual
- ISO: 100
- Aperture: f 16 (go to f 22 if needed)
- Shutter speed: aim for 1/4 sec or longer
- Focus: on something 1/3 of the way into the scene
- Self-timer with 2 second shutter delay  
*(but if shutter speed will be longer than 30 seconds  
requiring a “bulb” setting, then use a cable release)*





# Lee filter conversion card

the **Little stopper**  
**Exposure Guide**

<i>Normal Shutter Speed</i>	<i>with Little Stopper</i>	<i>Normal Shutter Speed</i>	<i>with Little Stopper</i>
1/2000 sec	1/30 sec	1/15 sec	4 seconds
1/1000 sec	1/15 sec	1/8 sec	8 seconds
1/500 sec	1/8 sec	1/4 sec	15 seconds
1/250 sec	1/4 sec	1/2 sec	30 seconds
1/125 sec	1/2 sec	1 second	1 minute
1/60 sec	1 second	2 seconds	2 minutes
1/30 sec	2 seconds		

# **Examples**

**winners, warts and what-ers**

# High vantage point

Taughannock Falls, NY



(24-70 mm zoom lens) 70mm, ISO 100, F16, 1.6 sec

# Wide angle from high vantage point

Panorama (3 stitched images) focal length 70mm (24-70 mm zoom lens)

Taughannock Falls, NY



70 mm, ISO 100, f 16, 1.6 sec

# Medium focal length from closer vantage point

Taughannock Falls, NY



- from about 100 yards
- 43mm (24-70 mm zoom lens)
- aperture priority
- f 18
- 1/4sec

-would have been nice to get right out to those rocks on the shore, but the ranger was having none of it

# Detail shot

Taughannock Falls, NY



Focal length 140mm (70-200 mm zoom lens)

Settings then: ISO 100, f 18, 1/4 sec

Do over settings: f 5.6 or 7.1, ND filter to further slow the shutter speed and enhance the sharpness of the rock

# Wide angle from low vantage point -always look for that “downstream shot”

Taughannock Falls, NY



from bridge over stream

focal length 17mm (15-30 mm zoom lens)

ISO 100 f16, 1/8 sec

# Eye level vantage point

lower Kent Falls, CT

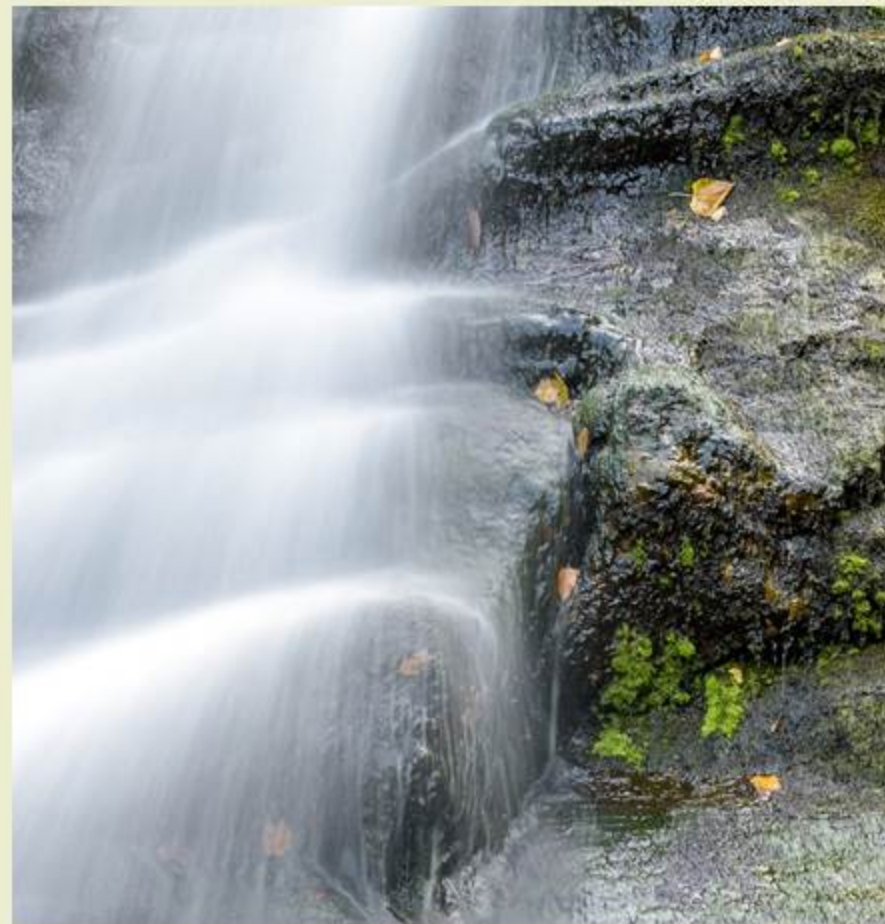


24 mm, f 7.1, 4sec with 6 stop ND filter



# Details

lower Kent Falls



100mm, f5.6, 4sec, 6 stop ND filter

# Exposure way too long

lower Kent Falls, CT



f 22, 2 min, 10 stop ND filter

# White Clipping (check your histogram!)

Kent Falls, CT



40 mm, f 11, 6 sec, 6 stop ND filter



vantage point sub optimal  
(too low)

Kent Falls, CT



Focal length 24 mm, f7.1, 6sec, 6 stop ND filter

# Wide angle lens, low vantage point

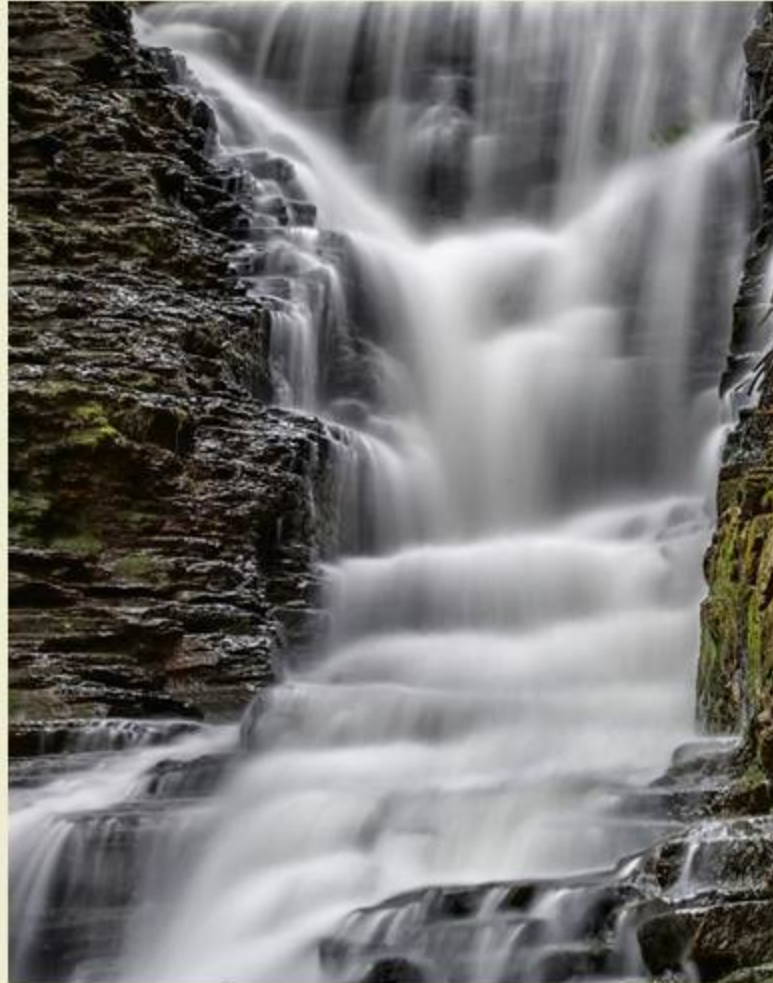
Buttermilk Falls, NY



Focal length 15mm, f 16, 2sec

# Longer lens, higher vantage point

Buttermilk Falls, NY



Focal length 86mm, f 16, 4 sec

# Explore different vantage points and focal lengths

Chapman Falls, CT (The Devil's Hopyard)



Focal length 34mm 10 sec at f 16 with 6 stop ND filter

back up and slow down...



focal length 24 mm  
shutter speed 1/8 sec  
aperture f 7.1



focal length 24 mm  
shutter speed 4 sec  
aperture f 7.1  
6 stop ND filter  
(note blue tint)



# Chapman Falls details

Focal length 190mm  
f 7.1, 4 sec  
6 stop ND filter



# “Downstream shot”

-vantage point trade-offs - the value of a little rain

A

Chapman Falls, CT (Devils Hopyard)

B



Focal length 24 mm, f 7.1  
10 sec with 6 stop ND filter



Focal length 24mm, f7.1  
13 sec with 6 stop ND filter

# Waterfalls on a sunny day, early

Cascadilla Gorge, NY



Focal length 17 mm, f16 1/4 sec

# Waterfalls on a sunny day

- sun projecting through the green leaf canopy produces a green reflection
- if the canopy is yellow/orange/red, the reflections will correspond

Filmore Glenn, NY



ISO 100, f 16, 0.8 sec

# Waterfalls on a sunny day, details

Filmore Glenn, NY



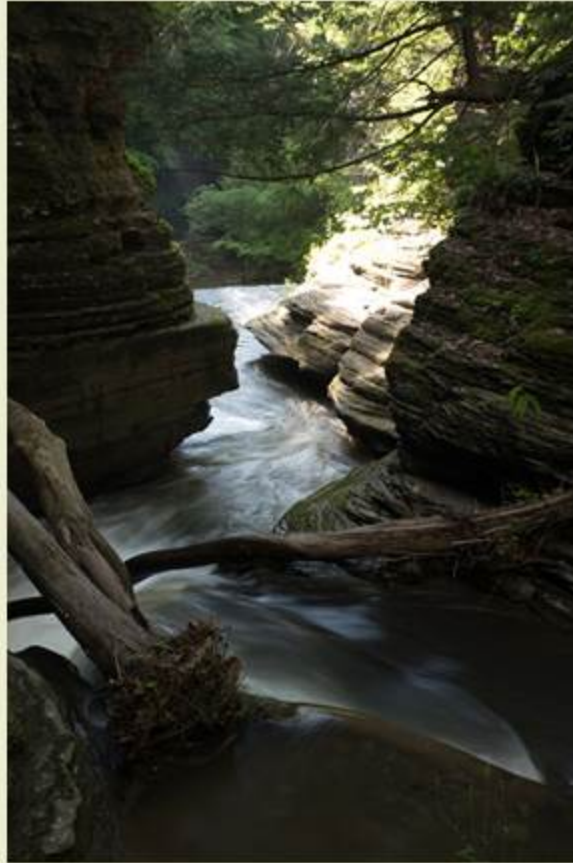
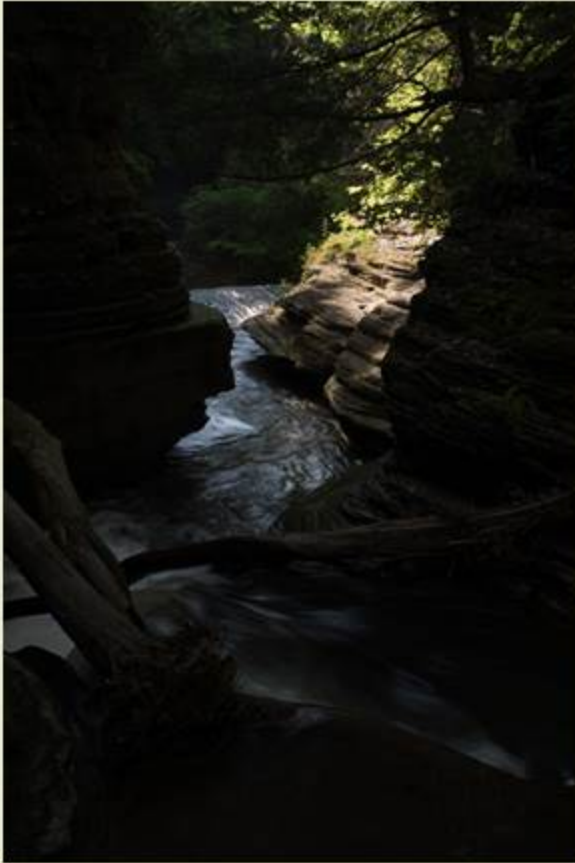
# Sunny day, partial shade



ISO 100, f11, 0.5 sec

# Sunny day salvation High Dynamic Range (HDR)

Buttermilk Gorge, NY



3 of 5 unprocessed RAW images obtained by bracketing

Final image after merging these as an HDR image in Lightroom





# Combining images for scale and motion

Buttermilk Gorge, NY



# Different Day, Season, Flow, Settings — Different Image

## Upper Kent Falls



April 22, 2016  
Sunny  
1/25 sec  
f11



October 11, 2017  
Overcast  
After dry summer  
2 sec  
f16



October 25, 2017  
Overcast  
Day after 2" of rain  
6 sec  
f7.1  
6 stop ND filter

## Different Day, Season, Flow, Settings — Different Image

10/25/15

Dividend Falls, Rocky Hill, CT

12/16/17



f 11, ½ sec, 46mm



F 7.1, 1.6 sec, 102mm, 6stop ND filter,  
2 image focus stack

Different day, different conditions, different settings = different image

*"Bigfoot shot" revisited*

Campbell Falls, CT



April 22, 2016  
sunny  
1/60 sec  
f 10  
ISO 400



December 1, 2017  
overcast  
6 sec  
f 7.1  
ISO 100,  
6 stop ND filter

# Image components can that stand alone

Campbell Falls, CT

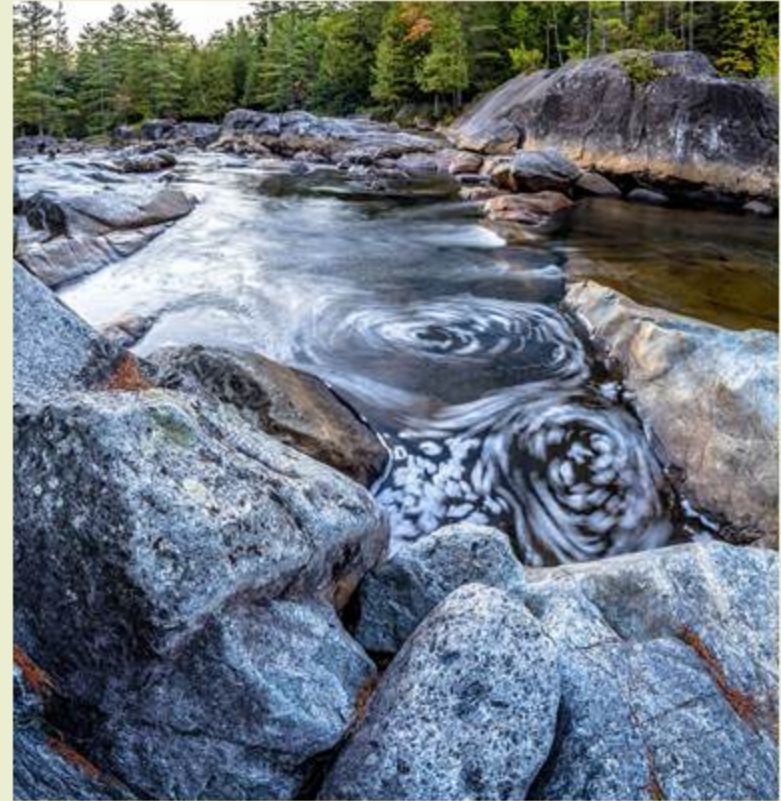


ISO 100, f 7.1, 6 sec, 6 stop ND filter

## Eddying captured as swirls

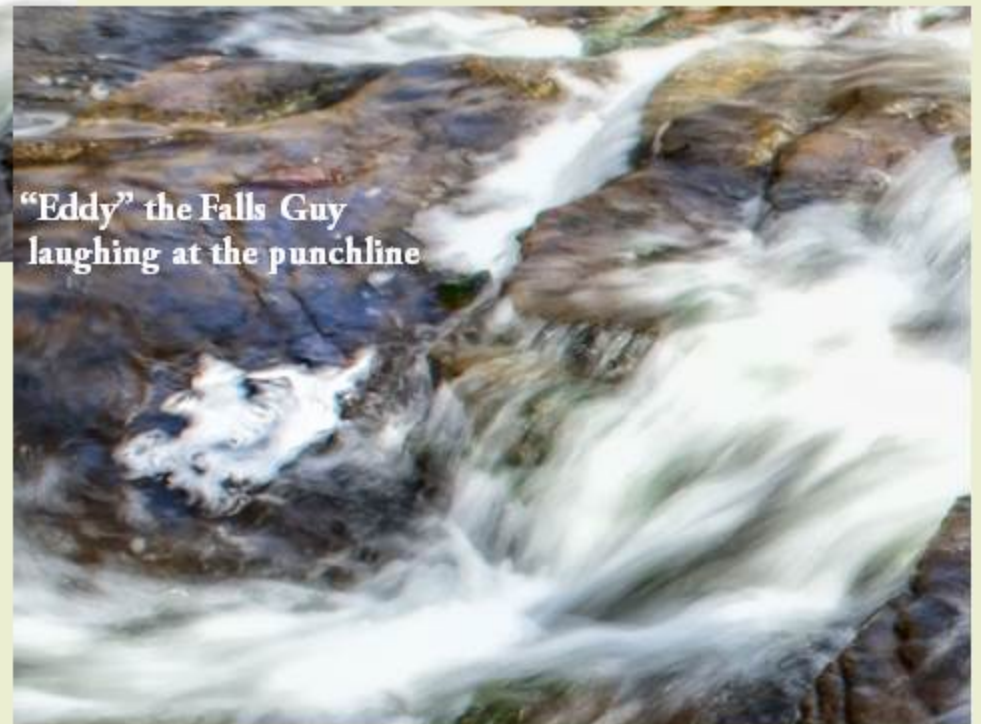


Generally requires at least a 3 sec exposure



## How do you know when it's time for a break?

-You've been at the computer too long  
when you start to see weird stuff in the water



# Helpful Gear



# Neutral Density Filter

## Lee filter components



Adapter  
\$55

Filter holder  
\$80

6 stop ND filter  
\$125

# Lee filter holder mounted



# Lee filter holder

slots



# Lee ND filter

Up



Down



Rotate possible



Graduated ND filter may also be added



## L Bracket



Kirk L bracket \$135

## Peak Design strap \$65



## Hoodman Loupe \$90





# Muck Boots



Muck boots (Arctic Sport) \$165  
(wait for LL Bean 25% off sale and pay \$124)

## Knee pads



**\$10 Lowe's**

**“OK, so I finally got a whistle” whistle**



**\$8 Dick's Sporting Goods**

## References from Photographing Waterfalls

1. The Adirondack Photography Institute - <https://www.adkpi.org/>
2. Parsons, Greg and Watson, Kate, (2010), *New England Waterfalls*, Countryman Press.
3. Lee Neutral Density filters – [www.leefilters.com](http://www.leefilters.com)
4. Peak Design camera strap- <https://www.peakdesign.com/all>
5. Muck boots- [www.muckbootcompany.com/men.htm](http://www.muckbootcompany.com/men.htm)
6. Hoodman Loupe - <https://shop.hoodmanusa.com/product-p/h32mb.htm>
7. Kirk L bracket - <https://www.kirkphoto.com/blemished-demo/l-brackets.html>
8. Camera Bar, 75 Asylum St., Hartford