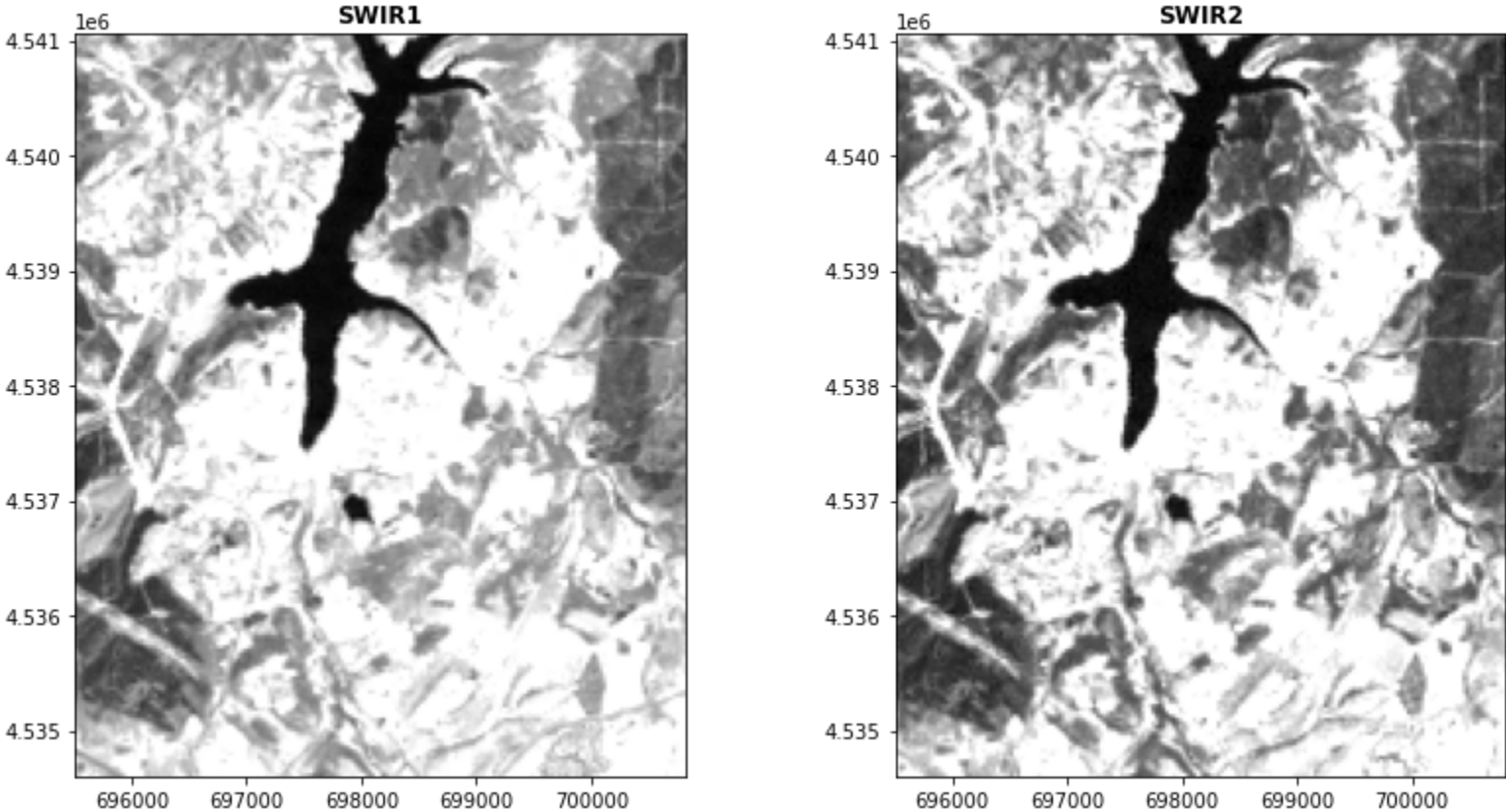


```
In [1]: import rasterio
from rasterio import plot
import matplotlib.pyplot as plt
import numpy as np
%matplotlib inline
```

```
In [2]: band4=rasterio.open("Images\B5_swir1.tif")
band5=rasterio.open("Images\B7_swir2.tif")
```

```
In [3]: fig, (ax1, ax2) = plt.subplots(1, 2, figsize=(12, 6))
plot.show(band4, ax=ax1, cmap='gray', title='SWIR1')
plot.show(band5, ax=ax2, cmap='gray', title='SWIR2')
fig.tight_layout()
```

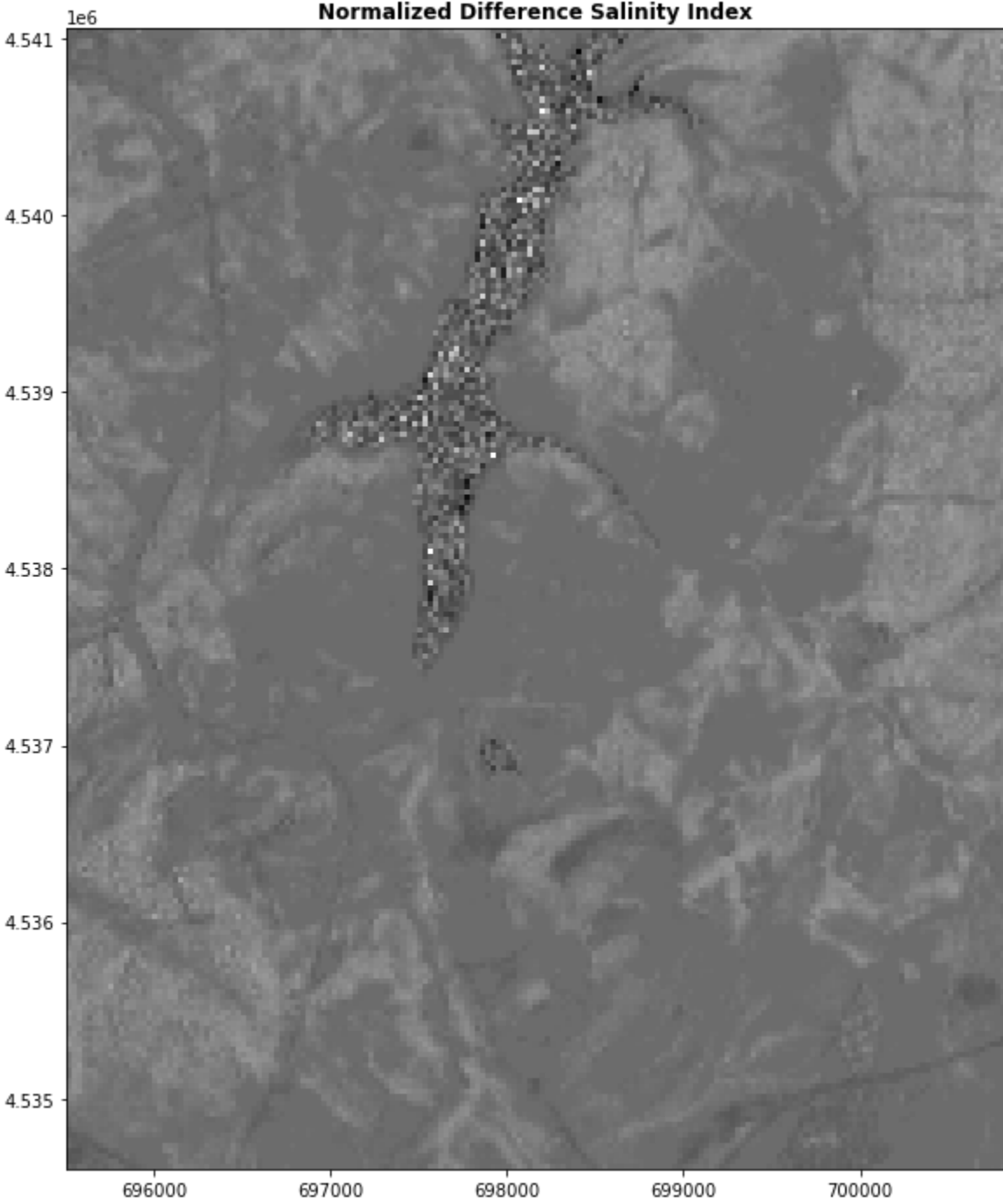


```
In [4]: swir1=band4.read(1).astype('float64')
swir2=band5.read(1).astype('float64')
```

```
In [5]: NDSI=np.where(
    (swir1+swir2)==0.,
    0,
    (swir1-swir2)/(swir1+swir2))
```

```
In [6]: NDSI_image_v2 = rasterio.open('Outputs/NDSI_image_v2_output.tif', 'w', driver='Gtiff',
    width=band4.width,
    height = band4.height,
    count=1, crs=band4.crs,
    transform=band4.transform,
    dtype='float64')
NDSI_image_v2.write(NDSI,1)
NDSI_image_v2.close()
```

```
In [7]: NDSIimg = rasterio.open('Outputs/NDSI_image_v2_output.tif')
fig = plt.figure(figsize=(18,12))
plot.show(NDSIimg, cmap='gray', title='Normalized Difference Salinity Index')
```

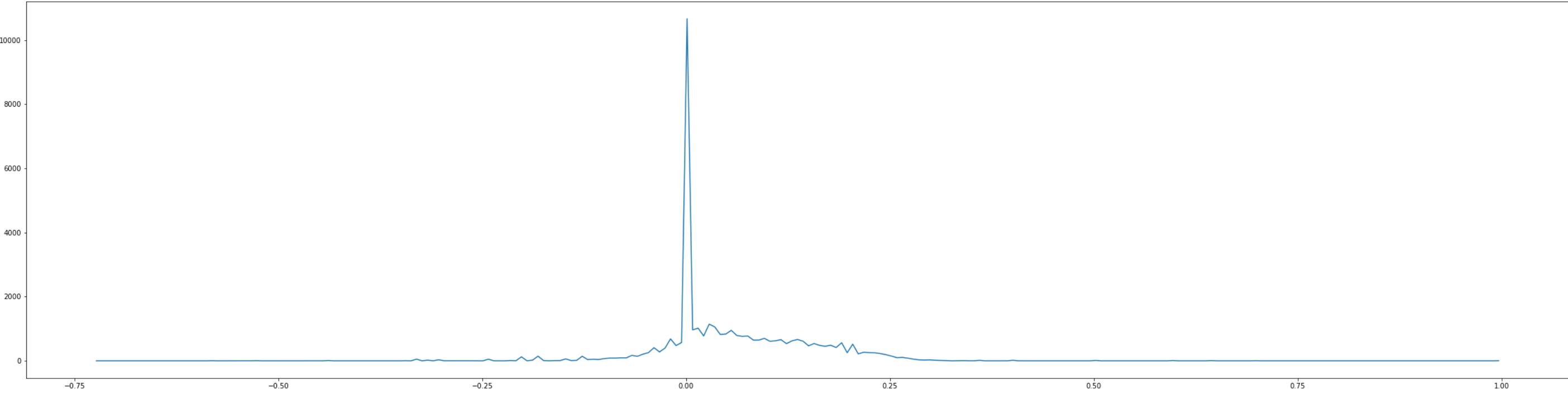


```
Out[7]: <AxesSubplot:title={'center':'Normalized Difference Salinity Index'}>
```

```
In [8]: from skimage import io, exposure
import skimage.io
```

```
In [9]: def image_histogram(img):
    co, ce = exposure.histogram(NDSI)
    fig = plt.figure(figsize=(40, 10))
    fig.set_facecolor('white')
    plt.plot(ce[1::], co[1::])
    plt.show()
```

```
In [10]: image_histogram(NDSIimg)
```



```
In [ ]:
```