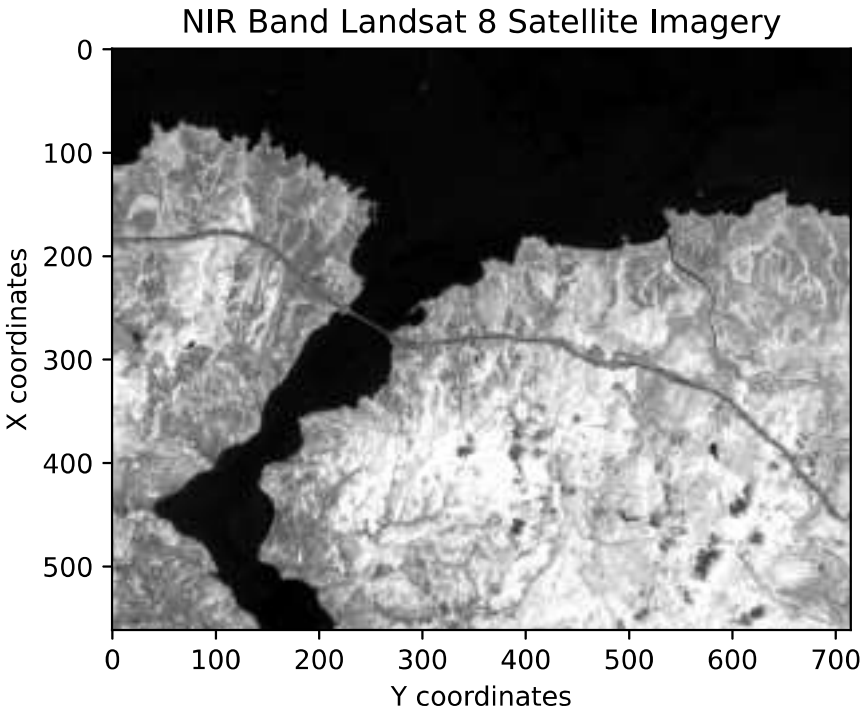
In [ ]:
```
### NDWI for Landsat 8
```

In [1]:
```
import matplotlib.pyplot as plt
from skimage import *
import numpy as np
from skimage.viewer import ImageViewer
from tifffile import *
import matplotlib.patches as mpatches
from skimage import io
```

In [2]:
```
green =io.imread('test_images_tiff/B3.tif')
nir = io.imread('test_images_tiff/B5.tif')
```

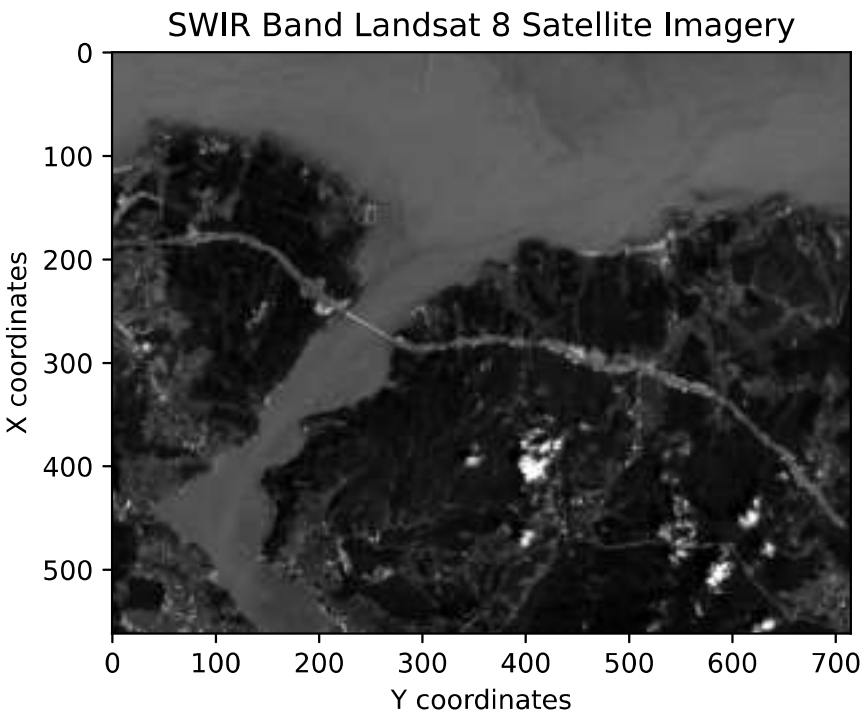
In [3]:
```
#nir
plt.title("NIR Band Landsat 8 Satellite Imagery")
plt.xlabel("Y coordinates")
plt.ylabel("X coordinates")
plt.imshow(nir)
```

Out[3]: <matplotlib.image.AxesImage at 0x1fedcd0d4f0>



In [4]:
```
#swir
plt.title("SWIR Band Landsat 8 Satellite Imagery")
plt.xlabel("Y coordinates")
plt.ylabel("X coordinates")
plt.imshow(green)
```

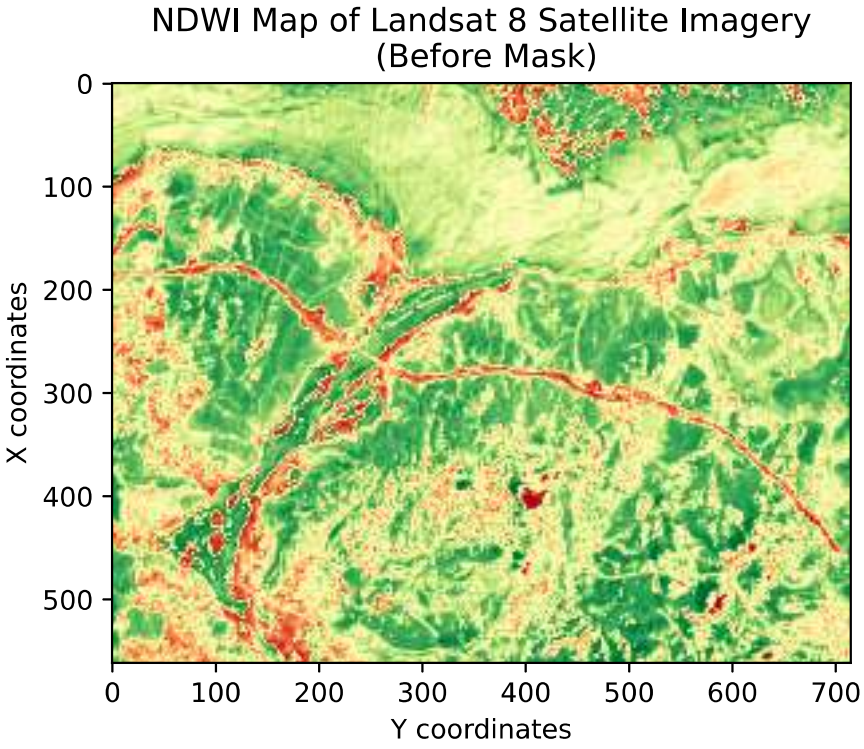
Out[4]: <matplotlib.image.AxesImage at 0x1fedce5ccd0>



In [5]:
```
#import create_ndvi function in order to calculate ndvi
from utils import create_ndwi

ndwi=create_ndwi(green_band=green,nir_band=nir)
ndwi_in_uint = (ndwi*255).astype('uint8')
ndwi_before_mask=ndwi_in_uint[:,:,1]
plt.title("NDWI Map of Landsat 8 Satellite Imagery\n (Before Mask)")
plt.xlabel("Y coordinates")
plt.ylabel("X coordinates")
plt.imshow(ndwi_before_mask,cmap='RdYlGn',vmin=0,vmax=255)
```

Out[5]: <matplotlib.image.AxesImage at 0x1fedceae310>



In [6]:
```
#import mask function in order to mask water bodies
```

```
from utils import water_mask_ndwi_for_landsat_8

img = water_mask_ndwi_for_landsat_8(ndwi_band=ndwi,nir_band=nir)
plt.title("NDWI Map of Landsat 8 Satellite Imagery\n (After Mask)")
plt.xlabel("Y coordinates")
plt.ylabel("X coordinates")
plt.imshow(img,cmap='RdYlGn',vmin=0,vmax=255)
plt.savefig('outputs/NDWI_Landsat_8.png',format="png")
plt.show()
```