In [1]:
```
import pandas as pd
import seaborn as sns
import statsmodels.formula.api as smf
import matplotlib.pyplot as plt
import numpy as np
import scipy
```

In [2]:
```
# Load the file and get rid of the multi-index style dataframe

p_cutoff = 0.7

file = pd.read_csv('Animal_20984_Light_Var1.csv')

col_name = file.columns

body_part_list = {'scorer':'coords',
                  col_name[1]:'Snoutx', col_name[2]:'Snouty', col_name[3]:'Snout_Likelihood',
                  col_name[4]:'LFLx', col_name[5]:'LFLy', col_name[6]:'LFL_Likelihood',
                 col_name[7]:'RFLx', col_name[8]:'RFLy', col_name[9]:'RFL_Likelihood',
                 col_name[10]:'LHLx', col_name[11]:'LHLy', col_name[12]:'LHL_Likelihood',
                 col_name[13]:'RHLx', col_name[14]:'RHLy', col_name[15]:'RHL_Likelihood',
                 col_name[16]:'Tailtipx', col_name[17]:'Tailtipy', col_name[18]:'Tailtip_Likelihood'}

file_new_columns = file.rename(columns = body_part_list)

file_new_columns.head() #check to make sure columns are named correctly
```

Out[2]:

	coords	Snoutx	Snouty	Snout_Likelihood	LFLx	LFLy	LFL_Likelihood	RFLx	RFLy	RFL_Likelihood	LHLx	LHLy	LHL_Likelihood	RHLx	RHL
0	bodyparts	Snout	Snout	Snout	LFL	LFL	LFL	RFL	RFL	RFL	LHL	LHL	LHL	RHL	RH
1	coords	x	y	likelihood	x	y	likelihood	x	y	likelihood	x	y	likelihood	x	
2	0	2.919310927	72.30459094	8.76E-07	732.3126793	205.4486693	1.02E-06	723.9522648	213.6769271	6.14E-07	1.095406532	73.22281551	1.68E-06	2.002629876	75.5947173
3	1	2.936819315	72.26689553	9.35E-07	732.2667162	205.4577307	1.02E-06	723.9294565	213.6842613	6.00E-07	1.107718706	73.21539474	1.79E-06	1.990225315	75.5751495
4	2	2.936819315	72.26689553	9.35E-07	732.2667162	205.4577307	1.02E-06	723.9294565	213.6842613	6.00E-07	1.107718706	73.21539474	1.79E-06	1.990225315	75.5751495

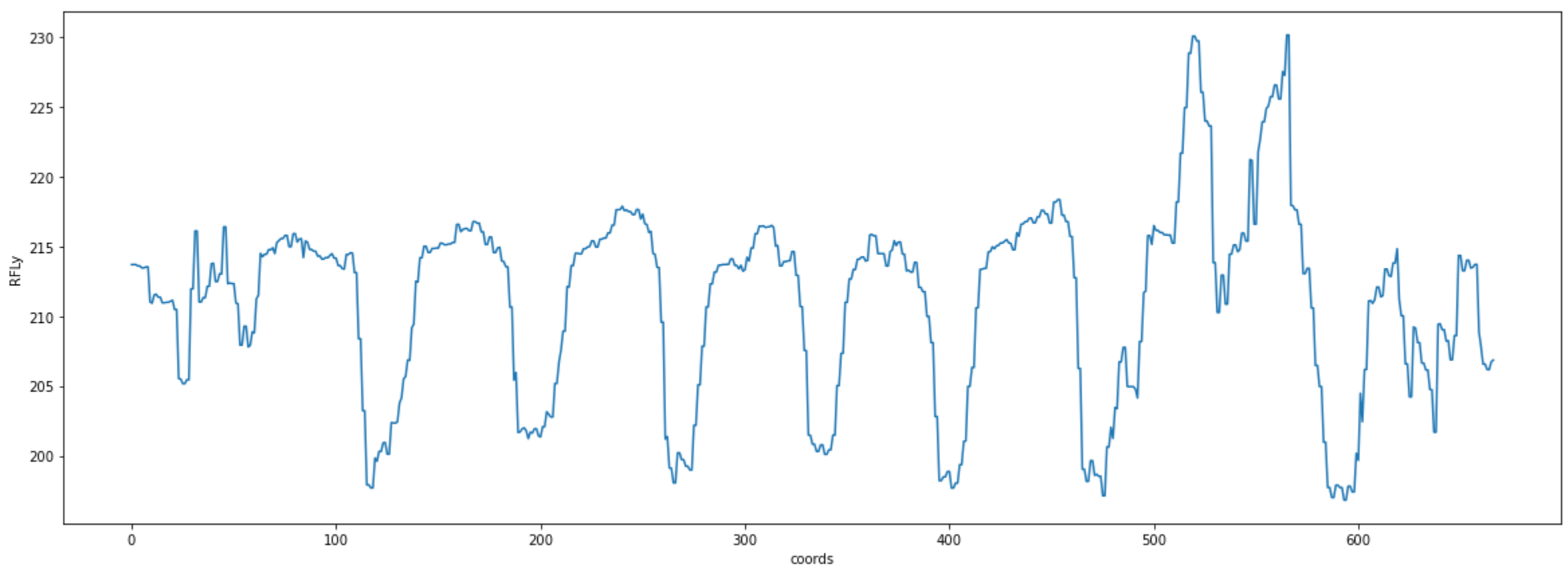
In [3]:
```
# Now drop the extraneous rows
file_preproc = file_new_columns.drop(file_new_columns.index[[0,1]])
#file_preproc.head()

#saves your pre-processed file to csv using pandas (which also adjusts formatting issues)
file_preproc.to_csv('20984_var_test.csv')

# and now re-load dataset
pre_proc_csv =  pd.read_csv('20984_var_test.csv')
```

In [4]:
```
# and plot
plt.rcParams['figure.figsize']=(20,7)
sns.lineplot(x="coords", y="RFLy", data=pre_proc_csv)
```

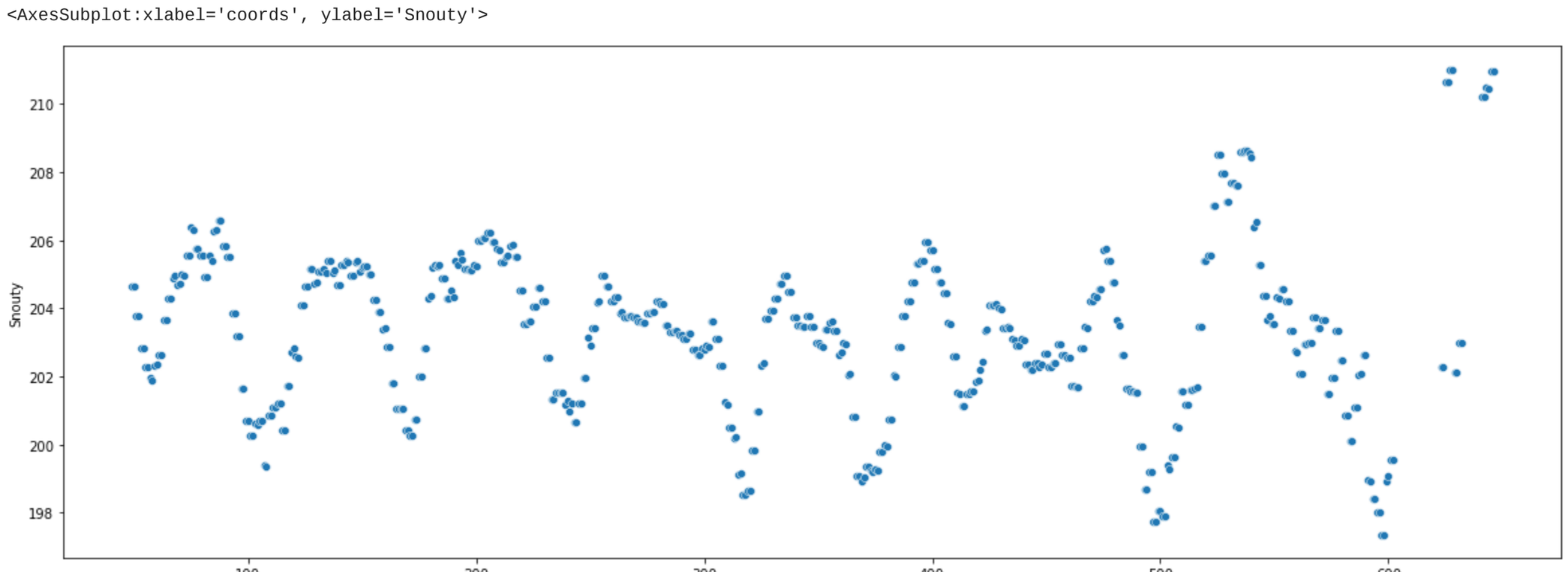
Out[4]:
```
<AxesSubplot:xlabel='coords', ylabel='RFLy'>
```



In [5]:
```
# this creates two dataframes
over_p_cutoff = pre_proc_csv.loc[pre_proc_csv.RFL_Likelihood > p_cutoff]
under_p_cutoff = pre_proc_csv.loc[pre_proc_csv.RFL_Likelihood <= p_cutoff]
```

In [6]:
```
# and plot
plt.rcParams['figure.figsize']=(20,7)
sns.scatterplot(x="coords", y="Snouty", data=over_p_cutoff)
```

Out[6]:
```
<AxesSubplot:xlabel='coords', ylabel='Snouty'>
```



In [7]:
```
# and plot
plt.rcParams['figure.figsize']=(20,7)
sns.scatterplot(x="coords", y="Snouty", data=under_p_cutoff)
```

Out[7]:
```
<AxesSubplot:xlabel='coords', ylabel='Snouty'>
```