In [21]:
```
import networkx as nx
import matplotlib.pyplot as plt
G = nx.read_gml("dolphins.gml")
```

a. How many nodes and edges does the network have? b. How many connected components does the network have? c. What is the average shortest path length in the network (or in the giant component, if the network has more than one component)? d. What is the diameter of the network? e. Which dolphin in the network has the highest local clustering coefficient? What is its clustering coefficient? f. What is the Mean Clustering Coefficient of the network? g. What is the transitivity of the network? h. Visualize the network. Looking at the visualization, does the network have any local bridges?

In [3]:
```
#a.
print ('Graph has {} nodes and {} edges'.format(G.number_of_nodes(),G.number_of_edges()))
```

```
Graph has 62 nodes and 159 edges
```

In [4]:
```
#b.
print ('Graph has {} connected components'.format(nx.number_connected_components(G)))
```

```
Graph has 1 connected components
```

In [8]:
```
#c.
print ("Graph's average shortest path length is {}".format(nx.average_shortest_path_length
(G)))
```

```
Graph's average shortest path length is 3.3569539925965097
```

In [9]:
```
#d.
print ('Network has diameter of {}'.format(nx.diameter(G)))
```

```
Network has diameter of 8
```

In [17]:
```
#e.
print ('The node is called {}'.format(sorted(nx.clustering(G),key=lambda x:x[1],reverse=1
)[0]))
```

```
The node is called Number1
```

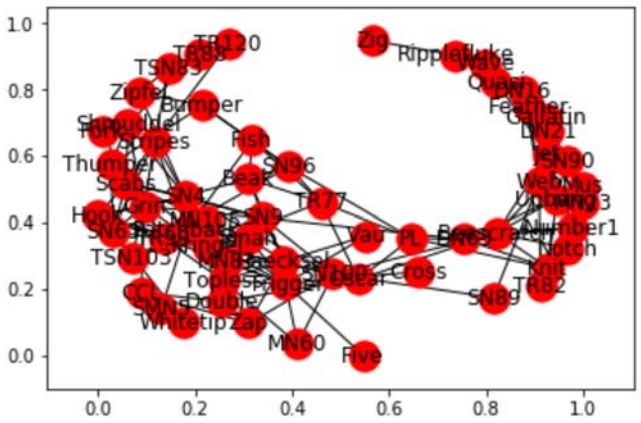
In [19]:
```
#f.
print ('Avg. clustering coefficient for the network is {}'.format(nx.average_clustering(G)
))
```

```
Avg. clustering coefficient for the network is 0.2589582460550202
```

In [20]:
```
#g.
print ('Transitivity of the graph is {}'.format(nx.transitivity(G)))
```

```
Transitivity of the graph is 0.3087757313109426
```

In [22]:
```
nx.draw_networkx(G, with_labels=True)
plt.show()
```



In [ ]:
```
```