

## SUPPLEMENTARY

**Table.S1:** The hawksbill and green turtle CART confusion matrix showing Precision and Recall indices of 10 behaviours and the global accuracy of the model (highlighted in green)

Predicted	Observed										Predicted Positive	Precision (%)
	AVTB downward	AVTS upward	Breathing	G upward	SH downward	SH hori	Interaction	RB	RR	RR downward		
AVTB downward	51	0	0	0	6	1	0	0	0	0	<b>58</b>	<b>87.93</b>
AVTS upward	0	88	9	8	0	0	7	0	0	0	<b>112</b>	<b>78.57</b>
Breathing	0	2	24	5	0	4	2	4	10	0	<b>51</b>	<b>47.06</b>
G upward	0	6	10	56	0	2	5	0	2	0	<b>81</b>	<b>69.14</b>
SH downward	6	1	1	0	35	2	5	0	0	2	<b>52</b>	<b>67.31</b>
SH hori	12	7	5	4	1	96	1	0	0	1	<b>127</b>	<b>75.59</b>
Interaction	0	0	0	0	0	0	24	17	0	0	<b>41</b>	<b>58.54</b>
RB	0	0	0	0	0	0	2	83	0	0	<b>85</b>	<b>97.65</b>
RR	0	0	0	0	0	0	0	1	102	0	<b>103</b>	<b>99.03</b>
RR downward	0	0	0	0	0	0	1	0	0	102	<b>103</b>	<b>99.03</b>
<b>Real Positive</b>	<b>69</b>	<b>104</b>	<b>49</b>	<b>73</b>	<b>42</b>	<b>105</b>	<b>47</b>	<b>105</b>	<b>114</b>	<b>105</b>		
<b>Recall (%)</b>	<b>73.91</b>	<b>84.62</b>	<b>48.98</b>	<b>76.71</b>	<b>83.33</b>	<b>91.43</b>	<b>51.06</b>	<b>79.05</b>	<b>89.47</b>	<b>97.14</b>		<b>81.30</b>

**Table.S2:** The hawksbill and green turtle Random Forest confusion matrix showing Precision and Recall indices of 10 behaviours and the global accuracy of the model (highlighted in green)

Predicted	Observed										Predicted Positive	Precision (%)
	AVTB downward	AVTS upward	Breathing	G upward	SH downward	SH hori	Interaction	RB	RR	RR downward		
AVTB downward	55	0	0	0	7	3	0	0	0	0	<b>65</b>	<b>84.62</b>
AVTS upward	0	93	5	10	0	2	1	0	0	0	<b>111</b>	<b>83.78</b>
Breathing	0	0	38	2	0	2	6	1	1	0	<b>50</b>	<b>76.00</b>
G upward	0	4	5	57	0	5	3	1	5	0	<b>80</b>	<b>71.25</b>
SH downward	3	1	0	0	33	2	1	0	0	1	<b>41</b>	<b>80.49</b>
SH hori	11	5	1	4	2	91	0	0	0	0	<b>114</b>	<b>79.82</b>
Interaction	0	0	0	0	0	0	33	7	0	0	<b>40</b>	<b>82.50</b>
RB	0	1	0	0	0	0	2	95	0	0	<b>98</b>	<b>96.94</b>
RR	0	0	0	0	0	0	0	1	108	0	<b>109</b>	<b>99.08</b>
RR downward	0	0	0	0	0	0	1	0	0	104	<b>105</b>	<b>99.05</b>
<b>Real Positive</b>	<b>69</b>	<b>104</b>	<b>49</b>	<b>73</b>	<b>42</b>	<b>105</b>	<b>47</b>	<b>105</b>	<b>114</b>	<b>105</b>		
<b>Recall (%)</b>	<b>79.71</b>	<b>89.42</b>	<b>77.55</b>	<b>78.08</b>	<b>78.57</b>	<b>86.67</b>	<b>70.21</b>	<b>90.48</b>	<b>94.74</b>	<b>99.05</b>		<b>86.96</b>

**Table.S3:** The loggerhead CART confusion matrix showing Precision and Recall indices of 12 behaviours and the global accuracy of the model (highlighted in orange)

Predicted	Observed												Predicted Positive	Precision (%)
	AVTB downward	AVTS upward	Breathing	G upward	Half immersed	SH downward	Prey	RB hori	RR hori	U-turn	VTB window	VTS window		
AVTB downward	23	0	0	0	0	3	0	0	0	1	4	0	31	74.19
AVTS upward	0	21	0	0	0	0	0	0	0	1	0	4	26	80.77
Breathing	0	1	27	2	3	1	16	0	0	4	0	0	54	50.00
G upward	0	1	0	16	1	0	0	0	2	0	0	0	20	80.00
Half immersed	0	0	6	7	24	0	2	0	0	0	0	0	39	61.54
SH downward	5	0	2	0	0	16	2	3	0	4	0	0	32	50.00
Prey	0	0	0	0	0	1	10	0	0	1	0	0	12	83.33
RB hori	0	0	0	0	3	0	0	20	0	0	0	0	23	86.96
RR hori	0	0	0	0	0	0	0	0	39	0	0	0	39	100.00
U-turn	0	1	0	1	2	3	0	1	0	18	0	1	27	66.67
VTB window	9	0	0	0	0	1	0	0	0	2	15	0	27	55.56
VTS window	0	0	0	0	0	0	0	0	0	0	0	26	26	100.00
<b>Real Positive</b>	<b>37</b>	<b>24</b>	<b>35</b>	<b>26</b>	<b>33</b>	<b>25</b>	<b>30</b>	<b>24</b>	<b>41</b>	<b>31</b>	<b>19</b>	<b>31</b>		
<b>Recall (%)</b>	<b>62.16</b>	<b>87.50</b>	<b>77.14</b>	<b>61.54</b>	<b>72.73</b>	<b>64.00</b>	<b>33.33</b>	<b>83.33</b>	<b>95.12</b>	<b>58.06</b>	<b>78.95</b>	<b>83.87</b>		<b>71.63</b>

**Table.S4:** The loggerhead Random Forest confusion matrix showing Precision and Recall indices of 12 behaviours and the global accuracy of the model (highlighted in orange).

Predicted	Observed												Predicted Positive	Precision (%)
	AVTB downward	AVTS upward	Breathing	G upward	Half immersed	SH downward	Prey	RB hori	RR hori	U-turn	VTB window	VTS window		
AVTB downward	26	0	0	0	0	3	0	0	0	2	5	0	36	72.22
AVTS upward	0	21	0	0	0	0	0	0	0	1	0	4	26	80.77
Breathing	0	1	26	1	3	1	3	0	0	2	0	0	37	70.27
G upward	0	1	2	22	2	0	0	0	2	0	0	0	29	75.86
Half immersed	0	0	3	2	21	0	1	0	0	0	0	0	27	77.78
SH downward	5	0	0	0	0	17	0	1	0	3	0	0	26	65.38
Prey	0	0	2	0	0	1	26	0	0	0	0	0	29	89.66
RB hori	0	0	0	0	3	0	0	22	0	0	0	0	25	88.00
RR hori	0	0	0	0	0	0	0	0	39	0	0	0	39	100.00
U-turn	0	0	2	1	4	3	0	1	0	23	0	1	35	65.71
VTB window	6	0	0	0	0	0	0	0	0	0	14	0	20	70.00
VTS window	0	1	0	0	0	0	0	0	0	0	0	26	27	96.30
<b>Real Positive</b>	<b>37</b>	<b>24</b>	<b>35</b>	<b>26</b>	<b>33</b>	<b>25</b>	<b>30</b>	<b>24</b>	<b>41</b>	<b>31</b>	<b>19</b>	<b>31</b>		
<b>Recall (%)</b>	<b>70.27</b>	<b>87.50</b>	<b>74.29</b>	<b>84.62</b>	<b>63.64</b>	<b>68.00</b>	<b>86.67</b>	<b>91.67</b>	<b>95.12</b>	<b>74.19</b>	<b>73.68</b>	<b>83.87</b>		<b>79.49</b>