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## **The Importance of Considering Context in the Assessment of Personality Characteristics: Evidence from Ratings of Dolphin Personality**

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One of the tenets of personality is that an individual's distinguishing behavioral characteristics are relatively stable over time and across contexts. Both humans and animals demonstrate such consistency, at least for certain personality traits. However, the relative extent to which personality is stable is rarely addressed in studies of animal personality, the focus typically being on stability rather than its absence. Here we present data on dolphin personality that suggest dolphin behavior (and hence their personality characteristics) is influenced by context, the three contexts of concern here being interactions with the physical environment, interactions with humans, and interactions with other dolphins. Individuals differed in terms of the extent to which their behavior was rated consistently across the three contexts, suggesting that an important aspect of personality concerns the role of context in moderating individual predispositions.

Although animal personality has intrigued scholars for some time (Fox, 1947; Hebb, 1949; Yerkes, 1939), the study of animal personality has gained both credibility and popularity in recent years (Blumstein & Fernandez-Juricic, 2010; Gosling, 2001; Highfill & Kuczaj, 2007, 2010; Lee & Moss, 2012; Locurto, 2007). Personality has been studied in numerous species, including birds, dolphins, fish, horses, insects, and primates (see Gosling, 2001, for review). Animal personality is typically assessed by studying an animal's behavior or by asking humans to rate an individual animal's personality characteristics (Gosling, 2001; Hebb, 1949; Highfill & Kuczaj, 2007; Vazire & Gosling, 2004). These studies have revealed a number of personality characteristics in animals (e.g., agreeableness, boldness, playfulness, neuroticism). Of these, the shy-bold continuum has garnered considerable attention from animal personality researchers (Wilson, Clark, Coleman, & Dearstyne, 1994), most likely because it is relatively easy to measure behaviors that reflect shyness and boldness. For example, shy-bold behaviors can be assessed via approach/avoidance tests by measuring things such as latency to approach food, predators, or novel objects. In one such study, Wilson et al. (1994) examined shyness and boldness in juvenile pumpkinseed sunfish (*Lepomis*

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*gibbosus*) by exposing fish to a novel object (a wire trap). “Bold” fish were defined as those that quickly entered the traps, and were later compared to fish that had not entered the traps. The two groups of fish differed in numerous ways. The timid fish needed more time to acclimate to the lab aquariums and diet changes than did the bold fish. The bold fish also engaged in riskier foraging behaviors than did the timid fish.

The pumpkinseed fish study illustrates one of the basic tenets of the burgeoning field of animal personality, namely that *personality is stable and consistent over time and across situations*. Thus, animals that are bold in one situation should be bold in other situations, animals that are socially agreeable at one time should be socially agreeable at other times, and animals that are neurotic when interacting with humans should be neurotic when interacting with members of their own species. But is this really the case? Although stability and consistency are inherent components of personality, the extent to which a particular personality characteristic is stable over time and across situations has been assessed only rarely. In this paper, we will report on some recent work with dolphins that illustrates the importance of considering context when assessing personality in animals (and in humans).

Support for the stable and consistent nature of dolphin personality was provided by Highfill and Kuczaj (2007). They assessed the personality of dolphins before and after drastic changes had occurred in the dolphins’ physical and social environments. In the initial phase of this study, individuals who knew the dolphins well rated the personalities of 16 bottlenose dolphins housed at MarineLife Oceanarium in Gulfport, Mississippi. The personality rating questionnaire consisted of a list of 30 behavioral dimensions, each of which was rated on a seven-point scale (see Table 1). This initial assessment resulted in individual personality profiles for each of the 16 dolphins (see Figures 1 and 2 for examples of these profiles). Shortly after this initial assessment, Hurricane Katrina destroyed the dolphins’ home at MarineLife Oceanarium. Eight of the dolphins had been removed and housed in safer quarters prior to the hurricane making landfall. The remaining dolphins were placed in a pool that had survived all previous hurricanes, including Hurricane Camille (the bellwether hurricane along the Mississippi coast prior to Katrina). Unfortunately, this pool did not survive Katrina, and the eight dolphins were consequently washed out into the Mississippi Sound along with the debris from the storm. Many individuals worried that the dolphins had perished in the storm, but all eight were discovered swimming together in an area not too far from where MarineLife had once stood two weeks after the hurricane had destroyed the facility. Miraculously, none of the dolphins had sustained serious injuries during this experience. They were subsequently rescued and relocated to temporary housing. Fifteen of the 16 dolphins were later moved to the Atlantis Resort in the Bahamas.

Table 1  
*Adjectives and definitions used for dolphin personality measure based on the human Five Factor Model (Adapted from Highfill & Kuczaj, 2007).*

Factor I: Openness to Experience	Factor II: Conscientiousness	Factor III: Extroversion	Factor IV: Agreeableness	Factor V: Neuroticism
(+) Creative, imaginative: Approaches situations and addresses problems in novel, creative ways (e.g., finds various ways to play with a toy).	(+) Careful, cautious: Animal exhibits care in its actions.	(+) Assertive: Self-assured, not easily intimidated.	(+) Friendly, gentle: Friendly, amicable, and congenial toward other animals and humans. Responds to others in an easy, kind manner. Not hostile. Not antagonistic.	(+) Jealous: Resentful or envious of another dolphin.
(+) Intelligent: Animal appears to learn easily. Quick to understand.	(+) Alert, vigilant: Ready, attentive, watchful; appears to pay attention to surroundings	(+) Playful: Engages in play behavior.	(+) Obedient, cooperative: Obeys; cooperates with instructions. Not defiant.	(+) Aggressive: Threatens or causes harm; high frequency of raking, biting, or hitting other animals and/or humans.
(+) Curious: Appears to be interested in new situations or objects.	(+) Diligent, attentive: Animal monitors its actions and exhibits a willingness to please.	(+) Active, energetic: Moves around a lot. Locomotion can include swimming, leaping, behaving, etc. Not lethargic.	(+) Affiliative, companionable: Agreeable and sociable. Appears to like the company of others. Seeks out social contact with another animals or person.	(+) Temperamental: Displays frequent mood swings.
(--) Not exploratory or inquisitive: Does not seek out or investigate novel situations or objects.	(--) Lazy: Resistant to work or exertion.	(--) Timid: Hesitant, apprehensive, tentative.	(--) Inflexible, in compliant: Stubborn or headstrong. Not willing to adapt or change.	(--) Relaxed, calm: Assured or at ease. Not tense or highly sensitive.

Table 1 (cont).

(--) Unoriginal, conforming: Not inventive or original; does not produce new and unusual actions.	(--) Undependable, unreliable: Not easily relied or depended on. Not a “go-to” animal.	(--) Quiet, not vocal: Does not vocalize often.	(--) Demanding: Requires much effort or attention from other dolphins and/or humans.	(--) Comfortable, complacent: Self-satisfied, content; appears free from anxiety.
(--) Simple: Engages in routine behaviors. Does not have a complex behavioral repertoire.	(--) Inconsistent, variable: Not consistent or predictable.	(--) Unexcitable: Not readily roused into action; relatively unresponsive to stimuli	(--) Selfish: Self-centered or concerned chiefly with itself and its needs.	(--) Tolerant and easy-going: Inclined to be relaxed and tolerant.

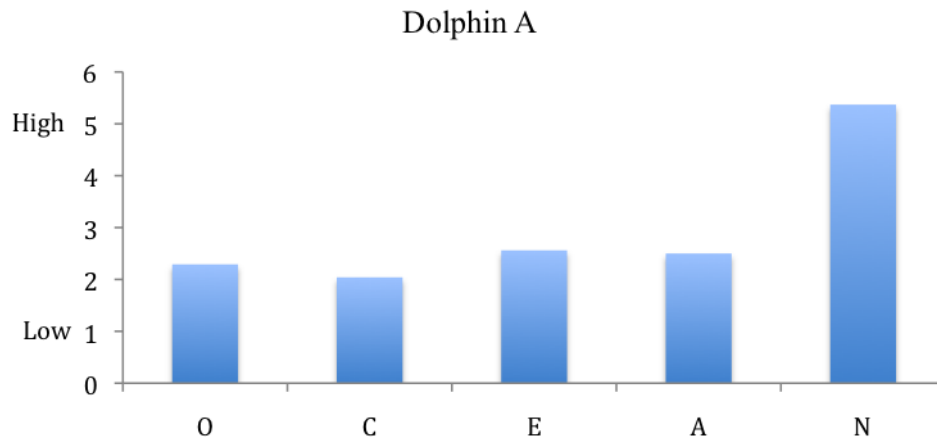
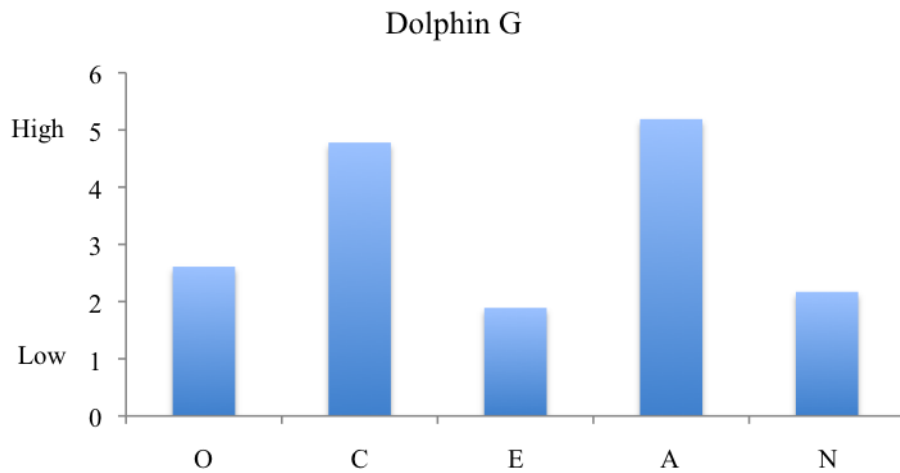


Figure 1. Example of dolphin personality profile from before Hurricane Katrina



*Figure 2.* Example of dolphin personality profile from before Hurricane Katrina

Approximately 14 months after Hurricane Katrina and nine months after the dolphins had been relocated to Atlantis, another set of personality ratings (using the same personality questionnaire that had been used earlier) was obtained for each of the 15 dolphins. These ratings were completed by the trainers who worked with the dolphins at Atlantis, none of whom had worked with these dolphins prior to the dolphins' relocation to the Atlantis facility. The trainers had no knowledge of the results of the first personality assessment. Comparison of the results of the first and second personality assessments revealed that the personality profiles of 12 of the 15 dolphins were remarkably similar (see Figure 3 for an example of a stable personality and Figure 4 for an example of an inconsistent personality). The stability of these dolphins' personality profiles over time, and in the face of the events that had occurred during the 14 month span between the two assessments, provided strong support for the notion that many dolphins possess stable personalities.

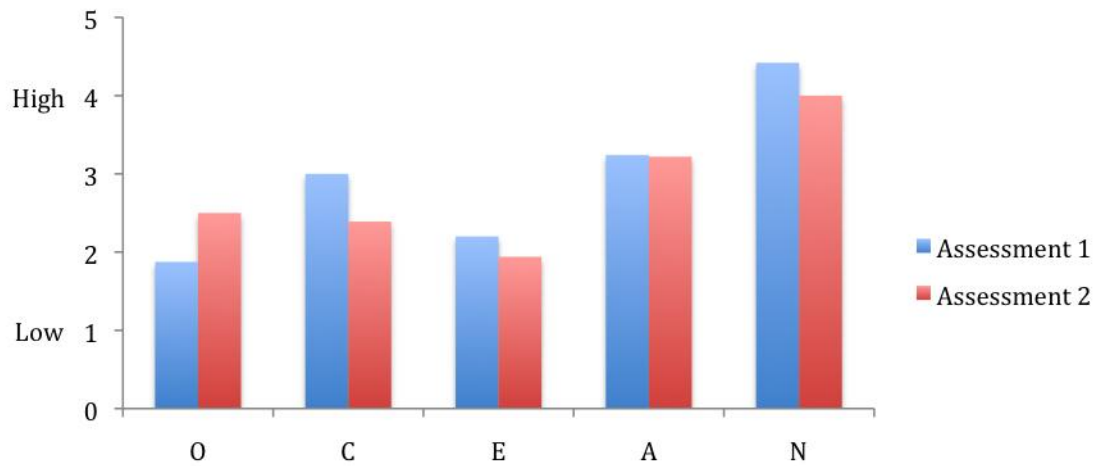


Figure 3. Dolphin B: An example of a “stable” personality profile (Adapted from Highfill & Kuczaj, 2007). Do bottlenose dolphins (*Tursiops truncatus*) have distinct and stable personalities? Aquatic Mammals, 33, p. 385).

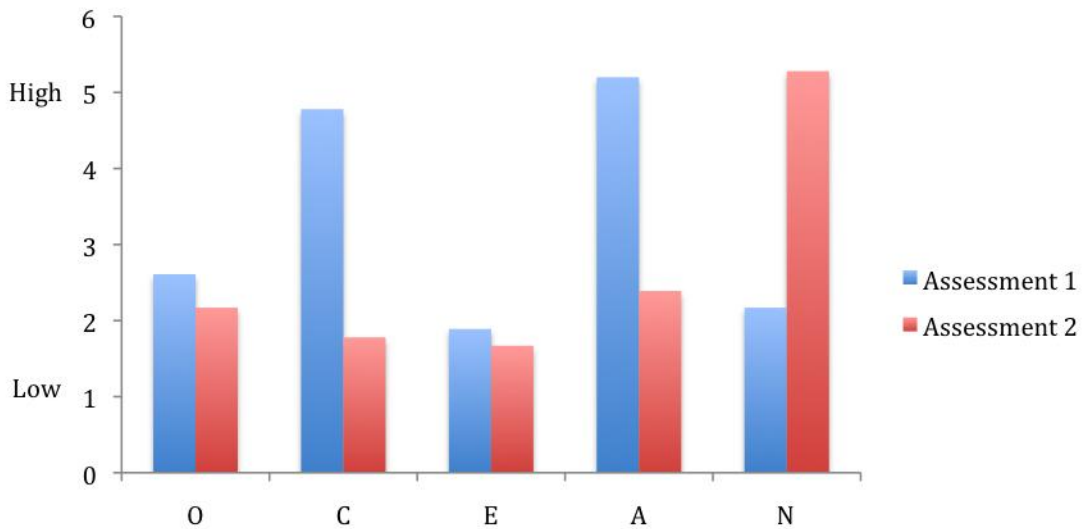


Figure 4. Dolphin G: An example of a “unstable” personality profile (Adapted from Highfill & Kuczaj, 2007). Do bottlenose dolphins (*Tursiops truncatus*) have distinct and stable personalities? Aquatic Mammals, 33, p. 385).

Although the results reported by Highfill and Kuczaj (2007) provide compelling evidence for the stability of dolphin personality, there are a number of issues remaining to be resolved in the study of dolphin personality (and in the study of animal personality in general). First, the personality questionnaire used by Highfill and Kuczaj was based on the Five Factor Model of personality, a model

that is popular in the study of both human personality (Goldberg, 1993; John, 1990; McCrae & Costa, 1982) and in the study of animal personality (Gosling & John, 1999). The five factors are (1) openness to experience, (2) conscientiousness, (3) extraversion, (4) agreeableness, and (5) neuroticism. Although a number of investigations have used the Five Factor Model to assess animal personality, the most common outcome has been that only certain factors seem potentially relevant to particular species (Gosling & John, 1999). The Five Factor Model is certainly a useful tool for initial investigations of animal personality, but the fact that all five factors are rarely relevant for non-human species suggests that a different approach to the study of animal personality is needed. Rather than attempting to fit animal personality to models of human personality (which admittedly does provide an interesting comparative approach to the study of animal personality), ascertaining behavioral dimensions along which individuals of a given species differ in some meaningful way might provide the building blocks for a comparative study of animal personality that does not assume that human personality is the norm for all species that demonstrate personality differences among their members.

Another potential problem with the personality measure used by Highfill and Kuczaj (2007) concerns its generality. Given that personality is supposed to be stable and consistent over time and across contexts, they designed a survey that queried raters concerning general characteristics – such as “appears to be interested in new situations or objects” (an indicator of curiosity). In retrospect, a less general approach may have yielded a more accurate picture of each dolphin’s personality. Captive dolphins interact with their physical world, other dolphins in their group, and with humans. In order to better assess individual dolphin personalities, we designed a personality measure that distinguished behavior in these three contexts: interactions with the physical world, social interactions with other dolphins, and interactions with humans (see Appendix for the complete questionnaire, including instructions for raters).

## **Method**

### **Subjects**

Twenty dolphins housed at Dolphins Plus and Dolphin Cove in Key Largo, Florida, were the focus of this study. This sample consisted of 8 males and 12 females, ranging in age from 2 to 33 years. More specifically, there were three calves (all female), six juveniles (two females and four males), and eleven adults (seven females and four males). These age groupings are based on the categories in Gibson and Mann (2008). Eight of the adults (seven females and one male) had been born in the wild and subsequently either captured or live-stranded. The remaining twelve animals had been born in captivity.

### **Procedure**

Trainers rated the dolphins using the questionnaire in Appendix. Trainers only rated those dolphins with which they had more than one year of interactive experiences. The average number of raters per dolphin was 2.81 (range 1-4). Trainer experience with each dolphin ranged between 1 to 17 years. Trainer ratings were summed and averaged for each dolphin, resulting in an average rating for each of the personality characteristics assessed in the survey.

For the purposes of this paper, we considered only those characteristics that could be compared across the three contexts (interactions with physical world, interactions with other



dolphins, and interactions with humans) or across the two contexts concerning other beings (interactions with other dolphins, interactions with humans). The analyzed characteristics across the three contexts were curiosity, observant, playfulness, and timidity. The analyzed characteristics across the two social contexts were gentleness, aggression, and cooperation.

If context does not matter for these characteristics, an individual dolphin's rating on each characteristic should be quite similar across the three contexts. But if context is important, then a dolphin's scores might vary from context to context. For example, a dolphin might be bold when dealing with physical objects, but timid when dealing with humans.

## **Results**

The mean, standard deviation, and range for each of the target personality characteristics for each of the interactive contexts (other dolphins, humans, physical world) that were assessed and were relevant for that context are shown in Table 2. These were curiosity, observant, playfulness, and timidity for all three contexts. The characteristics of gentleness, aggression, and cooperation were assessed for the two contexts that involved other beings.

Table 2  
*Means, standard deviations, and ranges of scores obtained from the personality survey.*

	Interactive Context		
	Dolphins	Humans	Physical World
Curiosity			
Mean	5.53	5.99	5.64
SD	(1.28)	(0.65)	(1.17)
Range	1.5-7.0	4.7-7.0	2.8-7.0
Observant			
Mean	5.62	6.08	5.86
SD	(1.31)	(0.87)	(1.05)
Range	1.0-7.0	3.8-7.0	2.2-7.0
Playful			
Mean	4.89	5.85	5.47
SD	(1.45)	(0.86)	(1.15)
Range	1.0-6.7	4.1-7.0	2.80-7.0
Timid			
Mean	2.73	2.64	2.69
SD	(1.03)	(1.08)	(1.34)
Range	1.5-4.7	1.5-4.7	1.0-4.9
Aggressive			
Mean	4.01	2.85	NA
SD	(1.10)	(1.25)	
Range	2.2-5.8	1.0-5.0	
Cooperative			
Mean	4.93	5.55	NA
SD	(1.23)	(1.07)	
Range	2.5-6.0	3.0-7.0	
Gentle			
Mean	3.80	5.22	NA
SD	(1.26)	(1.10)	
Range	2.0-6.2	3.0-6.8	

We compared the mean ratings for each of the target characteristics (curiosity, observant, playful, and timid) across the three interactive contexts. The mean ratings for curiosity were not significantly different across the interactive contexts. Nor were those for observant or timid. The mean for playful was similar for the human and physical world contexts, but the dolphins as a group were judged to be more playful with humans than with other dolphins,  $t(19) = 3.86, p < 0.01$ .

The comparisons of the mean ratings for gentle, aggression, and cooperation involved only the two social contexts (interactions with other dolphins, interactions with humans). Dolphins were rated as more aggressive when interacting with other dolphins than when interacting with humans,  $t(19) = 4.20, p < 0.001$ . Dolphins were also judged to be more gentle when interacting with humans than when interacting with other dolphins,  $t(19) = 6.22, p < 0.001$ . Although dolphins were viewed as being somewhat more cooperative with humans than with other dolphins, this difference was not statistically significant,  $t(19) = 1.92, p < 0.08$ .

The above comparisons were of the average ratings for the characteristics across the group of dolphins. However, the results from individual dolphins are

more important for personality than are average results that collapse across individual differences. As shown in Table 2, the ratings did result in a wide range of scores, suggesting that the ratings did assess individual differences in these personality characteristics. How consistent were these ratings across interaction contexts for individual dolphins?

Given that the standard deviations for most of the ratings were in the vicinity of 1.0 (ranging from 0.65 to 1.45), we elected to use a difference of 1.0 or greater as an indication that the ratings for a given characteristic differed from one context to another. The number of dolphins that were rated consistently across all three contexts for the four target personality characteristics, for three of the four characteristics, for two of the four characteristics, for one of the four characteristics, or for none of the characteristics is shown in Figure 5. Although four dolphins were rated consistently across the three contexts for each of the personality characteristics, the remaining dolphins' ratings were more variable. In fact, two dolphins were consistently rated for only one characteristic (a different characteristic for each of the two dolphins), and two others were not consistently rated for any of the characteristics.

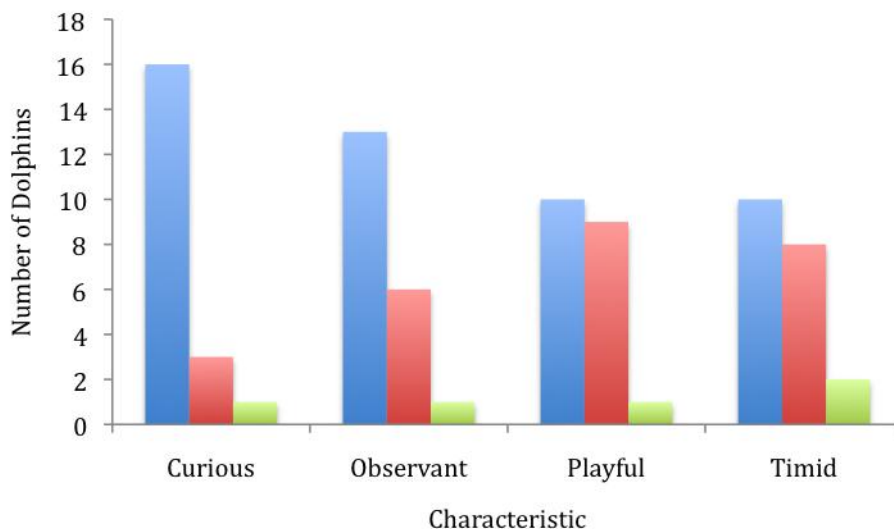


Figure 5. Number of dolphins rated consistently for each of four characteristics across all three contexts (blue), across two of the three contexts (red), or not consistent at all (green).

The above results demonstrate that ratings of personality characteristics are influenced by context. But were some characteristics more likely than others to receive consistent ratings? Although each of the four characteristics (curiosity, observant, playfulness, timidity) that were compared across the three contexts was more likely to be rated consistently in all three contexts than to be rated consistently in only two contexts or in none (see Figure 6), this difference was statistically significant for only one of the characteristics - curiosity,  $\chi^2(2) = 19.9, p < 0.001$ .

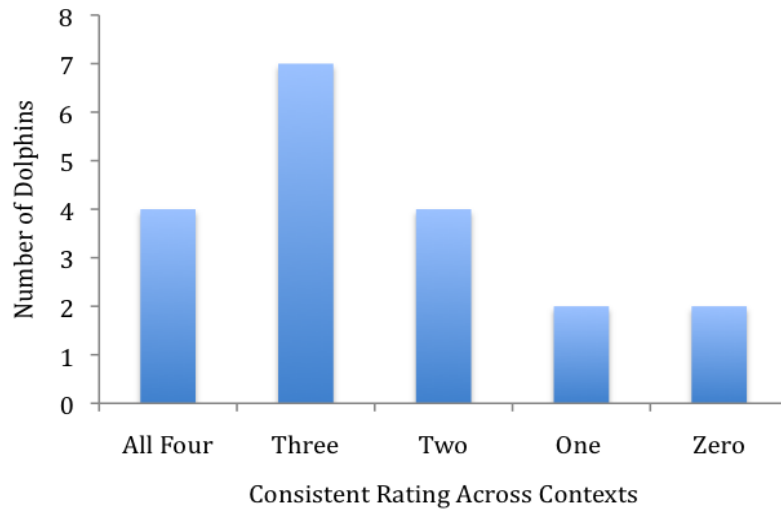


Figure 6. Total number of dolphins that were rated consistently across the three contexts for the personality characteristics of curiosity, observant, playful and timid.

We were interested in the extent to which individual contexts (physical world, dolphin, human) were likely to be the one rated differently when a dolphin was rated consistently for only two of the three contexts. As shown in Figure 7, interaction with other dolphins was the context most likely to be different when context affected ratings,  $\chi^2(2) = 7.0, p < 0.05$ . Examining individual characteristics, interaction with other dolphins was significantly more likely to be the context rated differently for playful,  $\chi^2(2) = 8.67, p < 0.05$ . Although not statistically significant, the interaction with other dolphins context was the most likely to be rated differently for the characteristic “observant.”

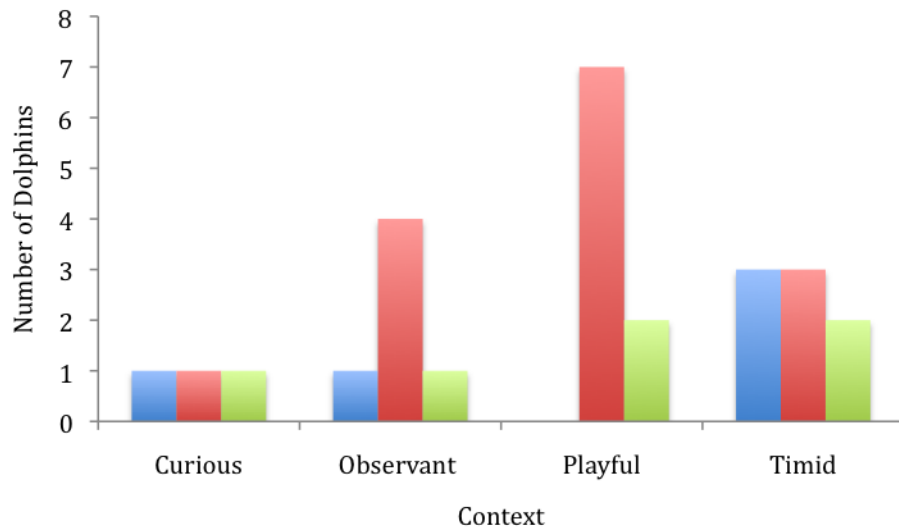


Figure 7. For cases in which only two contexts (interactions with other dolphins, interactions with humans, interactions with physical world) resulted in similar ratings, which characteristic was the “odd one” out?

The number of dolphins that were rated consistently for the three personality characteristics that were relevant in the two social domains – interactions with other dolphins and interactions with humans is shown in Figure 8. Only one dolphin was consistently rated for all three characteristics. Moreover, five of the dolphins were not consistently rated for any of the three characteristics.

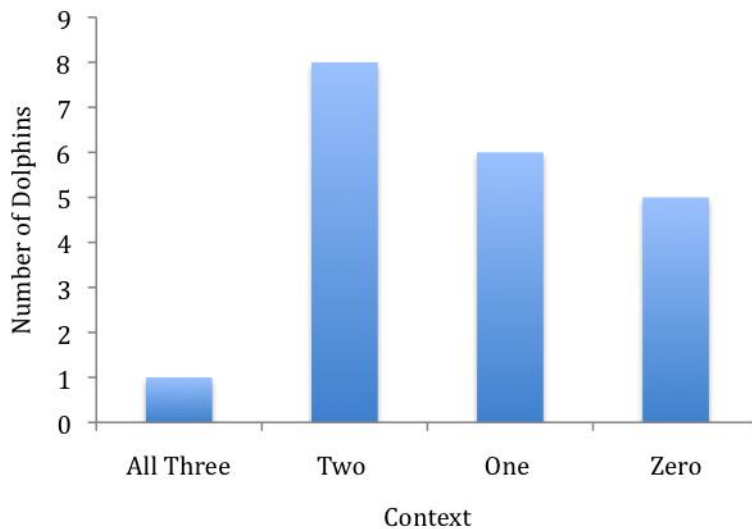


Figure 8. Consistent ratings across two social contexts (interaction with other dolphins, interaction with humans) for the personality characteristics of aggressive, cooperative, and gentle.

The extent to which each of the three personality characteristics were likely to be rated consistently across the two social contexts is shown in Figure 9. Gentleness was more likely to be rated consistently than differently, while the opposite pattern held for aggressiveness and cooperativeness. Although potentially interesting, none of these trends were statistically significant.

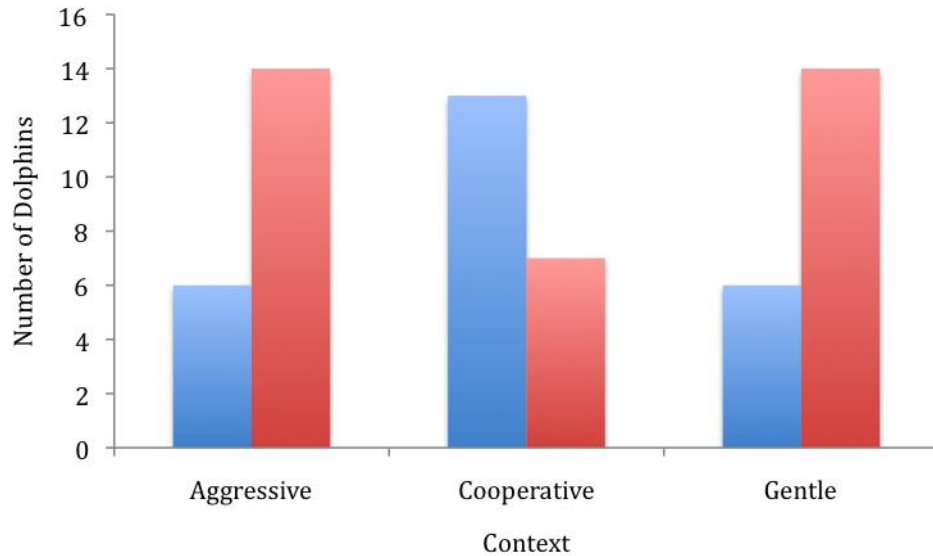


Figure 9. Number of dolphins that were rated consistently (blue) or inconsistently (red) for a characteristic across contexts (interaction with other dolphins, interactions with humans) for the personality characteristics aggressive, cooperative, and gentle.

As shown in Figure 10, when dolphins were rated as interacting differentially towards other dolphins and towards humans, they were more likely to be judged to be gentle with humans than with other dolphins,  $\chi^2(1) = 14.0, p < 0.001$ . They were also more likely to be rated to cooperate with humans than with other dolphins,  $\chi^2(1) = 4.5, p < 0.05$ . However, dolphins were more likely to be viewed as aggressive toward other dolphins than toward humans,  $\chi^2(1) = 10.3, p < 0.01$ .

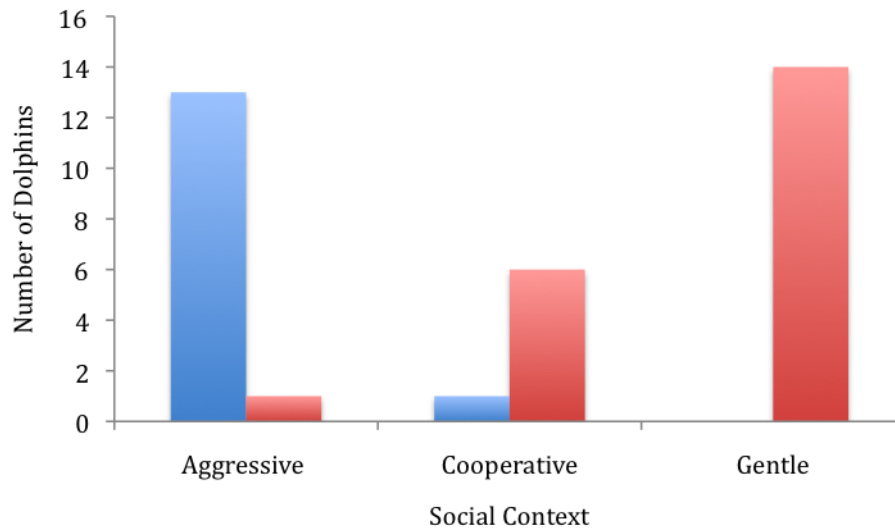


Figure 10. For dolphins that were rated differently for interactions with dolphins (blue) and interactions with humans (red), number of dolphins that were rated as more (aggressive, cooperative, or gentle) with humans or with other dolphins.

## Discussion

The results reported here demonstrate that it is important to consider context when assessing an animal’s personality. Although some dolphins were rated consistently across the three contexts assessed here (interactions with physical world, interactions with other dolphins, and interactions with humans) for the personality characteristics of curiosity, observant, playfulness, and timidity, only four of the twenty dolphins were rated consistently for all four personality characteristics across the three contexts. The four consistent dolphins were all female. Three were adults that had been born in the wild, with the fourth being a captive born calf (two-years-old at the time of this study) of one of the consistent females. Although this points to the possibility of a genetic component for personality consistency, the offspring of the other consistent females did not demonstrate such consistency. Two of the dolphins were not rated consistently across the three contexts for any of the four personality characteristics. One of these was an adult female that had been born in the wild, the other inconsistent dolphin being an adult male that had been born in captivity. Clearly, a “bold” dolphin is not necessarily bold in all contexts. Nor is a “curious” dolphin always curious, an “observant” dolphin observant in all contexts, or a “playful” dolphin one that is equally playful with objects, humans, and other dolphins.

The pattern is similar when we consider contexts concerning other beings (interactions with other dolphins, interactions with humans). The personality characteristics assessed across the two social contexts were gentleness, aggression, and cooperation. Only one dolphin (a captive born juvenile male) was consistently rated across the two social contexts for all three characteristics. Five of the dolphins were not consistently rated for any of the three characteristics when comparing interactions with dolphins with interactions with humans. One of these

was the adult male that was also inconsistent for the characteristics of curiosity, observant, playfulness, and timidity across the three contexts, demonstrating that inconsistency itself may be a characteristic of an individual animal's personality. The other four inconsistent dolphins were a female calf, two female juveniles, and an adult wild-born female. Thus, a dolphin that is "gentle" with humans may not be gentle with other dolphins, a dolphin that is aggressive toward other dolphins may not display the same sorts of behaviors toward humans, and a dolphin that is cooperative when interacting with individuals from one species may not be so when interacting with members of the other species.

Given how relatively little we know about animal personality in general, and dolphin personality in particular, it seems prudent to be conservative when interpreting the results of personality studies. It is important not to overgeneralize findings and erroneously assume consistency across contexts, which can result in unwarranted claims about context-free traits that misrepresent that nature of personality in the species that we study.

In this study, we relied on ratings provided by humans to characterize each dolphin's personality characteristics. Although ratings are widely used in the study of animal personality (Gosling, 2001; Highfill & Kuczaj, 2007), it is important to validate such ratings with assessments based on an individual animal's behavior. However, we wish to emphasize that information from multiple contexts is important if you use human ratings to assess an animal's personality or if you infer personality from an animal's behavior. In both cases, it is critical that context be taken into account when characterizing an animal's personality (see also Highfill, Hanbury, Kristiansen, Kuczaj, & Watson, 2010).

The significance of individual differences was recognized by Darwin (1859) when he observed "no one supposes that all the individuals of the same species are cast in the very same mould. These individual differences are highly important for us, as they afford materials for natural selection to accumulate" (p.102). In order to better understand the extent to which the individual differences noted by Darwin reflect personality differences and the evolutionary significance of personality differences, future work on animal personality should strive to determine the extent to which traits are stable across contexts, and the factors that influence stability (or its lack). We suspect that this work will reveal individual differences not only in personality characteristics, but also in terms of the extent to which these characteristics are stable across contexts. There were a small number of dolphins in our study that demonstrated considerable stability for the assessed personality characteristics across contexts, but many more dolphins did not do so. Determining the variables that influence individual differences in personality characteristics across contexts is essential if we wish to truly understand animal personality.

In order to build a stronger and more comprehensive field of animal personality, we need to investigate the temperament of young animals and its role in later personality, assess an individual's personality characteristics in as many contexts as possible, perform as many of these assessments for individual animals within a species as possible, and conduct personality assessments on as many species as possible. This will allow us to construct personality profiles that reflect patterns that are consistent across contexts and patterns are consistent only within



specific contexts, determine the extent to which such patterns vary across individuals within a species, and assess the extent to which these patterns vary across species. These are challenging but worthwhile tasks, and the results from such efforts will help to illuminate the significance of personality differences for both ontogeny and phylogeny.

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**SECTION I: Interactions With Physical World**

For this section, we are concerned with how dolphins interact with their physical environment, including objects. Interactions with other dolphins should NOT be considered in this section. So please rate this dolphin on each of the following adjectives based on how the dolphin deals with its physical environment.

**Curious** ←————→ **Not Curious**  
 Extremely Curious    Quite Curious    Slightly Curious    Neutral    Slightly Not Curious    Quite Not Curious    Extremely Not Curious

**Confident** ←————→ **Not Confident**  
 Extremely Confident    Quite Confident    Slightly Confident    Neutral    Slightly Not Confident    Quite Not Confident    Extremely Not Confident

**Observant** ←————→ **Not Observant**  
 Extremely Observant    Quite Observant    Slightly Observant    Neutral    Slightly Not Observant    Quite Not Observant    Extremely Not Observant

**Playful** ←————→ **Not Playful**  
 Extremely Playful    Quite Playful    Slightly Playful    Neutral    Slightly Not Playful    Quite Not Playful    Extremely Not Playful

**Creative** ←————→ **Not Creative**  
 Extremely Creative    Quite Creative    Slightly Creative    Neutral    Slightly Not Creative    Quite Not Creative    Extremely Not Creative

**Energetic** ←————→ **Lethargic**  
 Extremely Energetic    Quite Energetic    Slightly Energetic    Neutral    Slightly Lethargic    Quite Lethargic    Extremely Lethargic

**Timid** ←————→ **Bold**  
 Extremely Timid    Quite Timid    Slightly Timid    Neutral    Slightly Bold    Quite Bold    Extremely Bold

**SECTION II: Interactions With Other Dolphins**

**For this section, we are concerned with how dolphins behave towards other dolphins. Please rate this dolphin on each of the following adjectives based on how the dolphin interacts with other dolphins.**

**Playful** ←————→ **Not Playful**  
 Extremely Playful    Quite Playful    Slightly Playful    Neutral    Slightly Not Playful    Quite Not Playful    Extremely Not Playful

**Observant** ←————→ **Not Observant**  
 Extremely Observant    Quite Observant    Slightly Observant    Neutral    Slightly Not Observant    Quite Not Observant    Extremely Not Observant

**Tolerant** ←————→ **Not Tolerant**  
 Extremely Tolerant    Quite Tolerant    Slightly Tolerant    Neutral    Slightly Not Tolerant    Quite Not Tolerant    Extremely Not Tolerant

**Solitary** ←————→ **Gregarious**  
 Extremely Solitary    Quite Solitary    Slightly Solitary    Neutral    Slightly Gregarious    Quite Gregarious    Extremely Gregarious

**Gentle** ←————→ **Rough**  
 Extremely Gentle    Quite Gentle    Slightly Gentle    Neutral    Slightly Rough    Quite Rough    Extremely Rough

**Curious** ←————→ **Not Curious**  
 Extremely Curious    Quite Curious    Slightly Curious    Neutral    Slightly Not Curious    Quite Not Curious    Extremely Not Curious

**Dominant** ←————→ **Submissive**  
 Extremely Dominant    Quite Dominant    Slightly Dominant    Neutral    Slightly Submissive    Quite Submissive    Extremely Submissive

**Confident** ←————→ **Not Confident**  
 Extremely Confident    Quite Confident    Slightly Confident    Neutral    Slightly Not Confident    Quite Not Confident    Extremely Not Confident

**Aggressive** ←————→ **Not Aggressive**  
 Extremely Aggressive    Quite Aggressive    Slightly Aggressive    Neutral    Slightly Not Aggressive    Quite Not Aggressive    Extremely Not Aggressive

**Shy** ←————→ **Bold**  
 Extremely Shy    Quite Shy    Slightly Shy    Neutral    Slightly Bold    Quite Bold    Extremely Bold

**Cooperative** ←————→ **Not Cooperative**  
 Extremely Cooperative    Quite Cooperative    Slightly Cooperative    Neutral    Slightly Not Cooperative    Quite Not Cooperative    Extremely Not Cooperative

**SECTION III: Interactions with Humans**

**For this section, we are concerned with how dolphins behave towards humans. Please rate this dolphin on each of the following adjectives based on how the dolphin interacts with humans.**

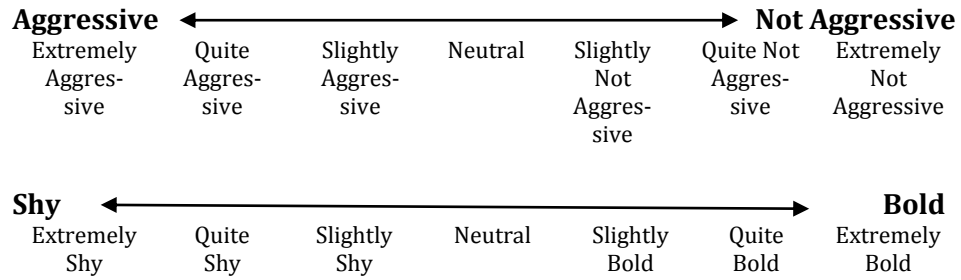
**Gentle** ←————→ **Rough**  
 Extremely Gentle    Quite Gentle    Slightly Gentle    Neutral    Slightly Rough    Quite Rough    Extremely Rough

**Cooperative** ←————→ **Not Cooperative**  
 Extremely Cooperative    Quite Cooperative    Slightly Cooperative    Neutral    Slightly Not Cooperative    Quite Not Cooperative    Extremely Not Cooperative

**Observant** ←————→ **Not Observant**  
 Extremely Observant    Quite Observant    Slightly Observant    Neutral    Slightly Not Observant    Quite Not Observant    Extremely Not Observant

**Playful** ←————→ **Not Playful**  
 Extremely Playful    Quite Playful    Slightly Playful    Neutral    Slightly Not Playful    Quite Not Playful    Extremely Not Playful

**Curious** ←————→ **Not Curious**  
 Extremely Curious    Quite Curious    Slightly Curious    Neutral    Slightly Not Curious    Quite Not Curious    Extremely Not Curious



**Thanks again for your help! If you have any questions or comments after you complete this survey, please note them here:**